Public Health Division

Center for Health Protection, Drinking Water Services

Tina Kotek, Governor

December 24, 2024

Ed Butts, PE
epbpe58@outlook.com
4B Engineering & Consulting, LLC
Via email

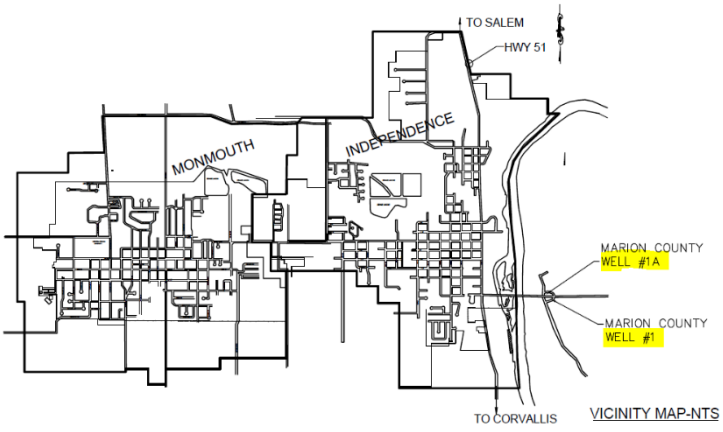
Re: **Wells #1A and #1B (PR#76-2021)**
City of Monmouth (PWS ID#00537)
Conditional Approval for Marion County Well #1A Only

Dear Mr. Butts:

On December 4, 2024 Brooke Shattuck submitted additional information to the Oregon Health Authority's Drinking Water Services (DWS) for developing Well #1A (MARI 70798, L143506) to replace Well #1 (MARI13286), which is to be abandoned. Well #1A is to be designated as SRC-AE as a new active, permanent, groundwater under the direct influence of surface water (GU) source drilled in Marion County (MC) as shown below:

SRC-AE MC Well #1A – MARI70798 Active Permanent GU Source

** The designation as groundwater under the influence of surface water is addressed in the project description on page 10 of this letter.*



As noted in the Site Plan Approval letter dated February 10, 2022, our office received the original submittal on May 10, 2021 containing a site plan for 2 wells (Wells 1A and 1B), land use compatibility statement, proposed drilling specifications, and well logs for nearby wells. A plan review fee of $3,300 was received on May 19, 2021. The project proposed drilling two wells to a depth of approximately 48' deep

near the City's existing Well #1, however, the December 4, 2024 submittal only included information pertaining to Well #1A and the abandonment of the existing Well #1.

Specifically, the December 4, 2024 submittal included:

- Water quality, MPA, and other test results for Well #1A, and
- Plans and specifications for the connection to and remodel of the existing pump station.

MC Well #1A was drilled to replace the existing MC Well #1 (SRC-AA), but due to the detection of nitrate at 10.6 mg/l, Well #1A will be blended with other wells at the 4th Street site to reduce nitrate levels, similar to the other wells with elevated nitrates.

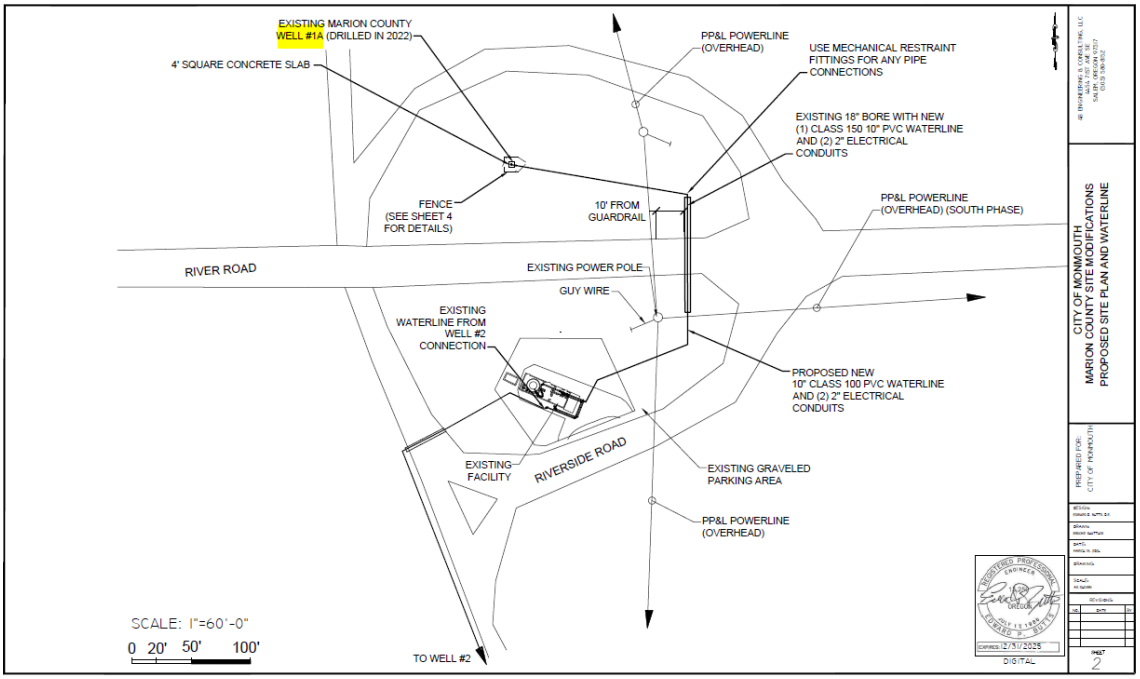
	Sources				
	Facility ID	Facility Name - Well Logs	Activity Status	Availability	Source Type
	EP-A	EP FOR WELLS	A		GU
To be replaced →	SRC-AA	MC WELL #1 - MARI13286	A	Permanent	GU
	SRC-AB	4TH ST WELL #4 - POLK2966	A	Permanent	GW
	SRC-AC	4TH ST WELL #5 - POLK2967	A	Permanent	GW
	SRC-AD	MC WELL #2 - L68858	A	Permanent	GW
New →	SRC-AE	MC Well #1A – MARI70798	A	Permanent	GU

The project generally consists of work to integrate Well #1A into the existing supply and treatment system. The well is to be fitted with a pitless adapter, level transmitter, pressure gauge, "mag" style flowmeter (a second flowmeter is also to be installed for Well #2) and the pump is to be a Goulds model 9TLC-1 stage submersible pump or approved equal, equipped with a 40 HP motor and VFD designed for continuous operation at 3,450 RPM with a primary operating condition of 1,200 GPM @ 100' TDH.

Piping largely consists of:

- Buried pipe between Well #1A and the wellhouse consisting of 500' (+/-) total length of 10" AWWA C-900 PVC pipe consisting of the following two segments:
  - 400' (+/-) length of 10"Class 100 (DR25) PVC
  - 100' (+/-) of 10" Class 150 (DR 18) used through the bored cased section.
- 6" and 8" PVC pipe between the Mechanical Room and Well #2 connection and blowoff, respectively, shall be AWWA C-900, Class 100 (DR 25) rated, dimensioned gasketed pipe.

Perimeter chain link fencing and gate surrounding Well #1A is also to be installed.



Following activation of the new Well #1A pump, work will commence on decommissioning and abandoning MC Well #1. The well slated for abandonment is:

- Marion County Production Well #1 with a 12” dia. casing
- Well ID: Mari 13286
- Year Drilled: 1978
- Location: T8S R4W Sec 28—Latitude: 44.84520000—Longitude: -123.17545190

The plans are approved subject to meeting the following conditions:

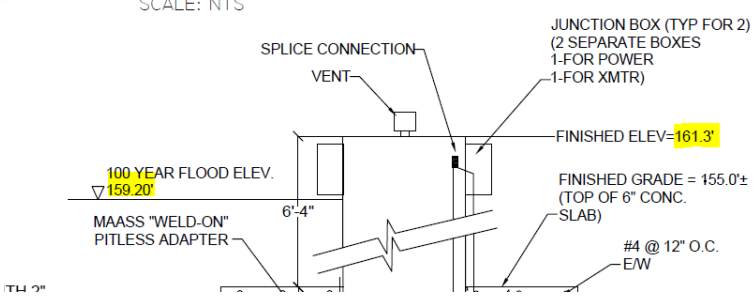
1. **The elevation of the top of the well casing for Well #1A is verified to ensure the top of the casing extends at least 2-ft (24-inches) above the 100-year flood stage.** OAR 333-061-0050(2)(F) available online at: https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/PLANREVIEW/Documents/OAR-333-061-0050.pdf (see pdf page 2), requires wells to be protected from flooding as follows:

> (F) Wells shall not be located at sites which are prone to flooding. In cases where the site is subject to flooding, the area around the well shall be mounded, and the top of the well casing shall be extended at least two feet above the anticipated 100-year (1 percent) flood level;

The 2021 *NOTICE OF DECISION FLOODPLAIN DEVELOPMENT PERMIT CASE NO. 21-001* indicated the top of the well casing was 1.8' (21.6") above the 100-year flood stage. Per this development permit, Well #1A is located on property within Marion County public right-of-way located on River Road S. where River Road intersects with Riverside Road South in the 7000 block of River Road South, Salem (adjacent to T8S, R4W, Section 27, tax lot 900). The subject property is located with the identified floodplain of the Willamette River. A floodplain permit was issued to the City of Monmouth in 1996 for a well on the opposite side (land to the south) of River Road S.

Flood Insurance Rate Map # 41047C0650G indicates that the floodplain elevation is approximately 159.3 feet above mean sea level (MSL) and is in Zone AE. Based on information provided for the permit application, the top of the well casing was noted to be at elevation 161.0', which is "1.8' above the 100-year floodplain level" (I believe this is an error).

The submitted plans show the wellhead terminating 25.2" inches above the 100-year flood level (159.2-ft above MSL) at an elevation of 161.3-ft as shown below:



2. Because nitrate results in Well #1A exceeded 10 mg/l, a **nitrate sample at the entry point (EP-A) will be needed to demonstrate the effectiveness of the blending/treatment**.

Until we receive verification that the conditions above have been met and final approval has been issued, Well #1A is not approved for use. Upon completion of the project, please submit a set of **as-built drawings** and complete the **Project Final Approval Request Form** on our website at: https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/DRINKINGWATER/PLANREVIEW/Documents/project-update-form.pdf

By completing this form, you are verifying in writing that construction was completed according to the submitted plans. **Copies of the appropriate water rights documentation regarding Well #1A are also requested to be submitted.** Documentation demonstrating how the above conditions were met should reference Plan Review #76-2021 and can be emailed to me at evan.e.hofeld@oha.oregon.gov.

In addition to the above requirements, I have the following comment:

- Note that increased lead and copper sampling will be required once final approval is issued. The water system will be required to conduct two 6-month rounds at the original number of sample sites (40), with the new well #1A in use.
- Quarterly nitrate sampling will be needed from the entry point (EP-A) for at least 1 year to assess how well the treatment/blending reduce nitrate levels long-term.

If you have any questions, please feel free to call me at (971) 200-0288.

Sincerely,

Evan Hofeld, PE
Regional Engineer
Oregon Health Authority - Drinking Water Services

ec: Russ Cooper, Public Works Director, City of Monmouth, rcooper@ci.monmouth.or.us
Brooke Shattuck, 4B Engineering, brooke.4b@outlook.com
Tom Pattee, RG, OHA/DWS, Tom.PATTEE@oha.oregon.gov
Tommy Laird, OWRD, Tommy.K.LAIRD@water.oregon.gov
Joel Plahn, OWRD, Joel.M.PLAHN@water.oregon.gov
Encl. System Description

Project Description

Well Description & Location:

Marion County (MC) Well #1A (SRC-AE) was drilled to replace the existing MC Well #1 (SRC-AA), but due to the detection of nitrate at 10.6 mg/l, MC Well #1A will be blended at the 4th Street site to reduce nitrate levels.

County Well ID: MARI 70798 Well Tag: L143506 Start Card: 1059570

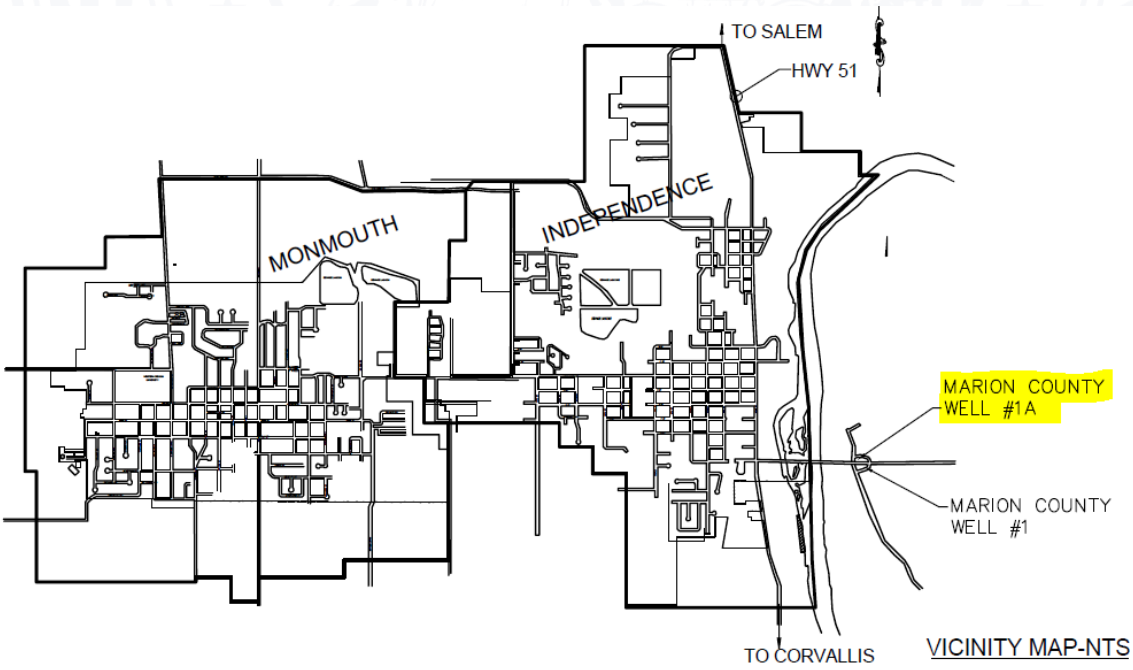
Date Well Completed: 3/14/2023

WRD Well Mapping Site:

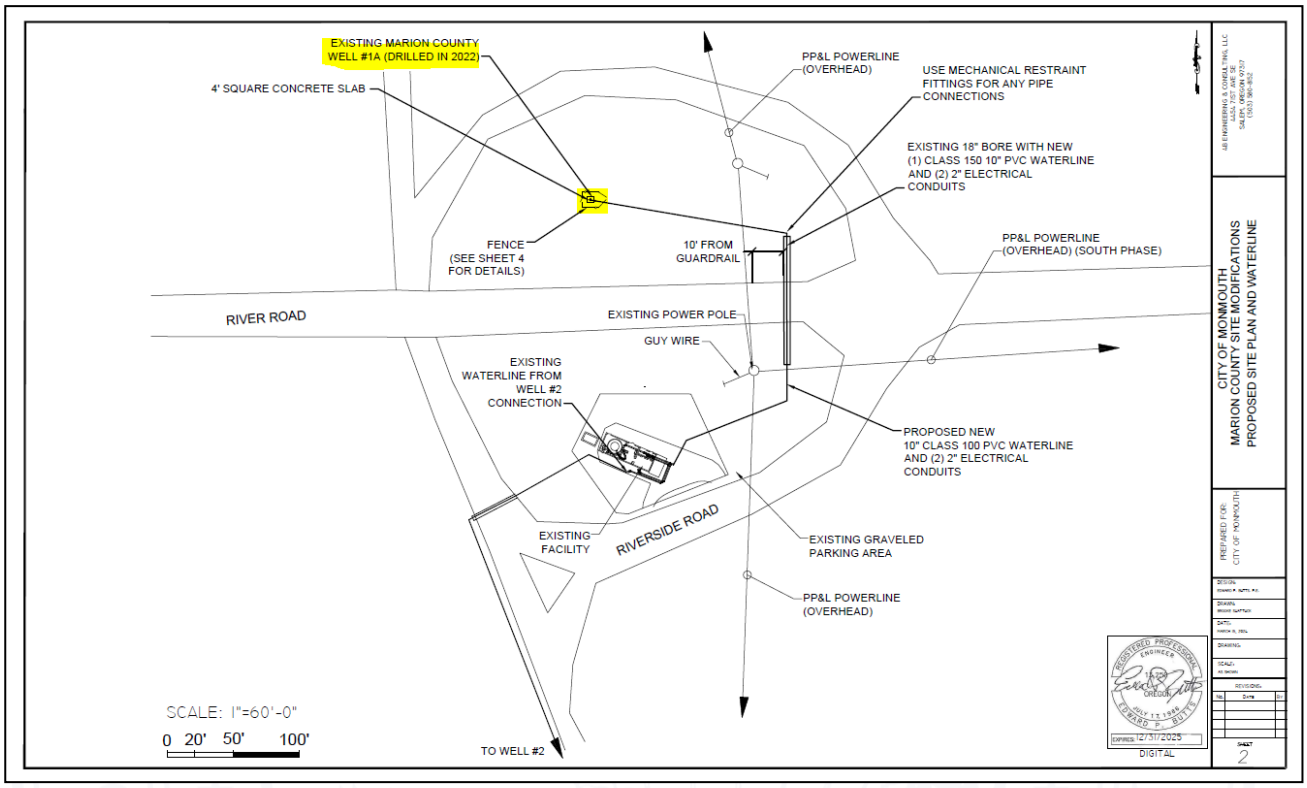
https://apps.wrd.state.or.us/apps/gw/well_log/wl_details.aspx?wl_id=601434

Well log:

https://apps.wrd.state.or.us/apps/misc/vault/vault.aspx?wl_county_code=MARI&wl_nbr=70798



VICINITY MAP-NTS


EXISTING MARION COUNTY WELL #1A (DRILLED IN 2022)
4' SQUARE CONCRETE SLAB
PP&L POWERLINE (OVERHEAD)
USE MECHANICAL RESTRAINT FITTINGS FOR ANY PIPE CONNECTIONS
EXISTING 18" BORE WITH NEW (1) CLASS 150 10" PVC WATERLINE AND (2) 2" ELECTRICAL CONDUITS
FENCE (SEE SHEET 4 FOR DETAILS)
10' FROM GUARDRAIL
PP&L POWERLINE (OVERHEAD) (SOUTH PHASE)
RIVER ROAD
EXISTING POWER POLE
GUY WIRE
EXISTING WATERLINE FROM WELL #2 CONNECTION
PROPOSED NEW 10" CLASS 100 PVC WATERLINE AND (2) 2" ELECTRICAL CONDUITS
EXISTING FACILITY
RIVERSIDE ROAD
EXISTING GRAVELED PARKING AREA
PP&L POWERLINE (OVERHEAD)
SCALE: 1"=60'-0"
0 20' 50' 100'
TO WELL #2
CITY OF MONMOUTH
MARION COUNTY SITE MODIFICATIONS
PROPOSED SITE PLAN AND WATERLINE
EXPIRES: 12/31/2025
DIGITAL
SHEET 2


Riverside Dr S
974.37 ft
500.00 ft
0
River Rd S
River Rd S
River Rd S
Riverside Dr S

MARI 70798

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

WELL I.D. LABEL# L 143506
START CARD # 1059570
ORIGINAL LOG #

(1) LAND OWNER Owner Well I.D. 6429
First Name _____ Last Name _____
Company City of Monmouth
Address 401 Hogan Rd.
City Monmouth State OR Zip 97361

(2) TYPE OF WORK [X] New Well [ ] Deepening [ ] Conversion [ ] Alteration (complete 2a & 10) [ ] Abandonment (complete 5a)

(2a) PRE-ALTERATION
Casing: Dia + From To Gauge Stl Plstc Wld Thrd
Seals: Material From To Amt sacks/lbs

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

(4) PROPOSED USE [ ] Domestic [ ] Irrigation [X] Community
[ ] Industrial/ Commercial [ ] Livestock [ ] Dewatering
[ ] Thermal [ ] Injection [ ] Other

(5) BORE HOLE CONSTRUCTION Special Standard [X] (Attach copy)
Depth of Completed Well 56 ft.

BORE HOLE Dia	From	To	SEAL Material	From	To	Amt	sacks/ lbs
16	0	56	Cement	0	27	42	S
					Calculated	13.7	
			Bentonite	27	30	3	S
					Calculated	2.3	

How was seal placed: Method [ ] A [ ] B [X] C [ ] D [ ] E
[X] Other poured dry
Backfill placed from ____ ft. to ____ ft. Material ____
Filter pack from 32 ft. to 56 ft. Material round rock Size 3/8"
Explosives used: [ ] Yes Type ____ Amount ____

(5a) ABANDONMENT USING UNHYDRATED BENTONITE
Proposed Amount ____ Pounds Actual Amount ____ Pounds

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
[ ]	[ ]	12	[X]	6	32	250	[ ]	[ ]	[X]	[ ]
[ ]	[ ]	12	[ ]	47	56	250	[ ]	[ ]	[X]	[ ]

Shoe [ ] Inside [ ] Outside [ ] Other Location of shoe(s)
Temp casing [X] Yes Dia 16 From 0 To 56

(7) PERFORATIONS/SCREENS
Perforations Method ____
Screens Type Wrap rib Material Stainless steel

Perf/S creen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ pipe size
Screen		12	32	47	15			

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

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
1,284	2	42	9.8

Temperature 62 °F Lab analysis [ ] Yes By ____
Water quality concerns? [ ] Yes (describe below) TDS amount 76 ppm

From	To	Description	Amount	Units

(9) LOCATION OF WELL (legal description)
County MARION Twp 8 S N/S Range 4 W E/W WM
Sec 28 NE 1/4 of the SE 1/4 Tax Lot No tax lot
Tax Map Number ____ Lot ____
Lat ° ' " or 44.846 DMS or DD
Long ° ' " or -123.176 DMS or DD
( ) Street address of well (•) Nearest address
Marion County road right of way

(10) STATIC WATER LEVEL

	Date	SWL (psi)	+	SWL (ft)
Existing Well / Pre-Alteration				
Completed Well	03-14-2023			21.6

Flowing Artesian? [ ] Dry Hole? [ ]

WATER BEARING ZONES Depth water was first found 21.6

SWL Date	From	To	Est Flow	SWL (psi)	+	SWL (ft)
03-14-2023	21.6	51	1,500			21.6

(11) WELL LOG Ground Elevation ____

Material	From	To
Gravel fill	0	2
Brown clay	2	12
Brown clay w/some gravels	12	15
Gravel w/clay	15	18
Dirty gravel	18	21
Gravel dirty	21	24
Dirty gravel	24	30
Clean gravel & sand	30	33
Cemented gravel	33	42
Dirty gravel	42	50
Large gravel & clay	50	51
Blue clay	51	56

RECEIVED
MAR 23 2023
OWRD
SALEM, OREGON

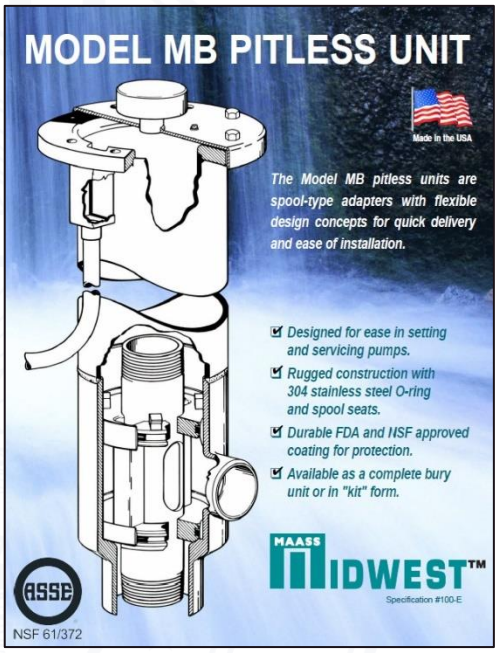
Jones Drilling Co., Inc.
29400 Santiam Hwy
Lebanon, OR 97355
1-800-915-8388

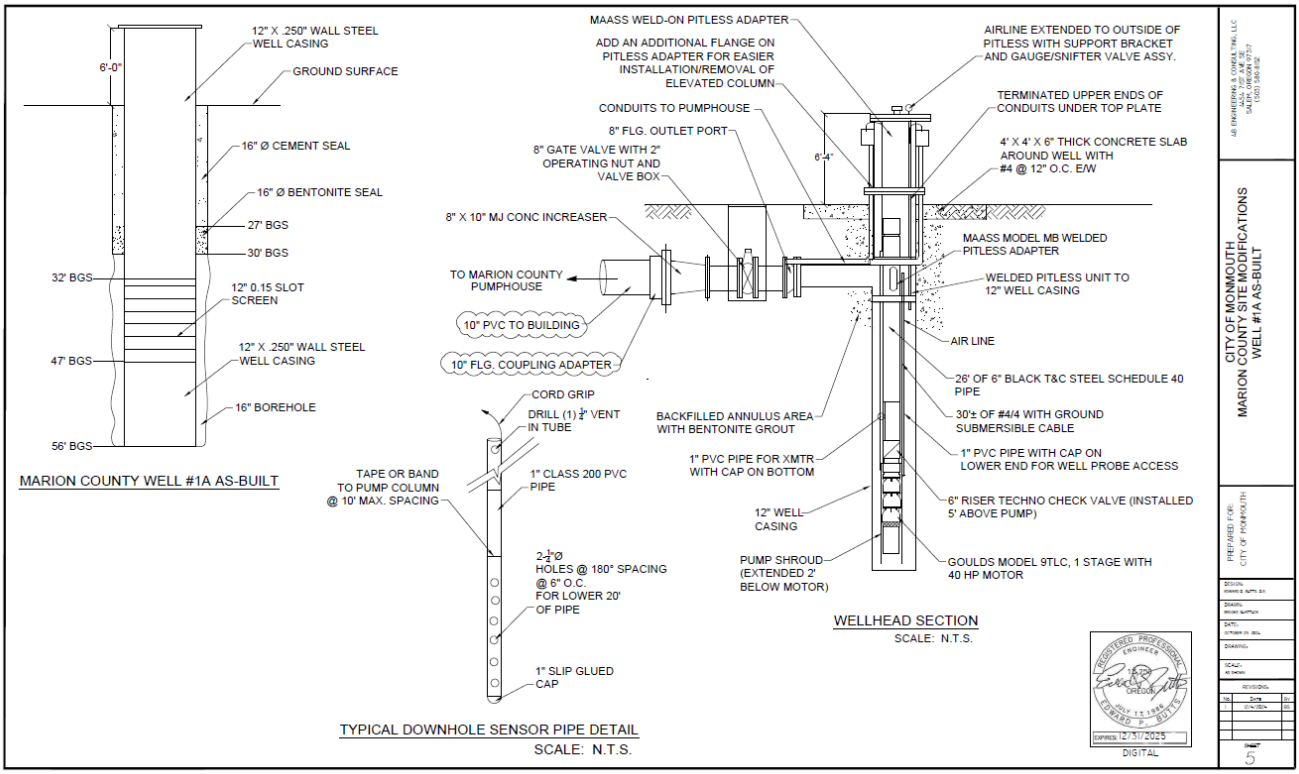
Date Started 12-19-2022 Completed 3-14-23

(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 1411 Date 03-17-2023
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 1684 Date 03-17-2023
Signed
Contact Info (optional) jonesdrilling@hotmail.com

ORIGINAL - WATER RESOURCES DEPARTMENT
THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK Form Version: 0.95





Well Evaluation – Unconfined Aquifer

A regional DWS geologist, Tom Pattee, reviewed the proposed well construction specifications and noted that the well was adequately constructed into an unconfined sand and gravel aquifer having a high susceptibility to nearby contaminant sources as shown below.

As Built Well Construction Evaluation for Plan Review and/or Setback Waiver:

- ☒ Well/Spring meets current construction standards.
  - ☐ WRD special construction standards, see well log or Comments.
- ☐ Well/Spring construction does not meet construction standards.
  - ☐ Not sealed to appropriate depth. Recommended depth: _____
  - ☐ Not appropriate seal materials
  - ☐ Open to more than one aquifer
  - ☐ Seal info missing or unknown
  - ☐ Seal not constructed properly (☐ Insufficient sealant volume ☐ Insufficient annular space)
- ☐ Susceptible construction, but grandfathered source. Consider for reconstruction if nitrate ≥ 5mg/L or confirmed *E. coli* at source.
- ☐ Susceptible well construction, **not approved for use**.

Comments: This well was drilled and cased to a depth of 56 ft. The casing is sealed to a depth of 30 ft. The casing seal extends through a 16 ft thick silt (clay) and gravelly silt layer that overlies the aquifer. Water enters the well through a gravel filter pack and well screen. The well screen is present from 32 to 47 ft below ground level while the gravel filter pack outside of the screen extends from 32 to 56 ft below ground. Sensitivity Analysis results suggest that well construction does not contribute to overall sensitivity of the water supply to local land use practices.

Nature of Aquifer Evaluation:

Aquifer Nature: ☐ Confined aquifer ☐ Semi-confined aquifer ☒ Unconfined aquifer

Comments: This well draws water from an unconfined aquifer made up of gravel and mixed sand and gravel. Gravel is first encountered at a depth of 18 ft and the static water-level reported on the well log is 21.6 ft below ground level. Since the static water-level is deeper than the first potential water-bearing material, the aquifer is considered to be unconfined. Sensitivity Analysis results suggest that the aquifer is highly sensitive to nearby contaminant sources.

Groundwater under the direct influence of surface water (GU) designation

Well #1A (MARI 70798, L143506) was constructed on March 14, 2023 into an unconfined aquifer within 100 feet of public roadways and 200-ft of a surface water body (pond/slough). Current construction standards only allow for wells drilled into confined aquifers to within 100-ft of a roadway - see OAR 333-061-0050(2)(a)(D), therefore, the most recent submittal included provisions to divert water from well 1A through the existing cartridge filtration and disinfection treatment.

DWS is requiring permanent filtration in lieu of providing appropriate setbacks and monthly source assessment monitoring and subsequent microscopic particulate analysis normally required to determine if the source is under the direct influence of surface water. This means that DWS will classify Well #1A as self-declared groundwater under the direct influence of surface water despite the results of a microscopic particulate analysis submitted on December 4, 2024. which concluded with the following comments and observations:

Comments and observations:

Due to the presence of significant primary bio-indicators (as noted on page 1) the relative risk factor assigned this sample was <1 which indicates a low risk of being under the direct influence of surface water at the time of sampling.

It should be noted that the numbers on the chart on page 1 represent a 100 gallon equivalent.

The relative risk of surface water influence cannot be determined on the basis of one sample.

The absence of Giardia and Cryptosporidium does not ensure that the source is parasite free. Conversely a moderate or high MPA result does not necessarily signify the presence of Giardia or other related pathogens.

If you have any questions about the analytical procedure used and the data provided, please call (541) 476-0733.

Doree Schaafsma
Grants Pass Water Laboratory, Inc.

Comments and observations:

Due to the presence of significant primary bio-indicators (as noted on page 1) the relative risk factor assigned this sample was 10 which indicates a moderate risk of being under the direct influence of surface water at the time of sampling.

It should be noted that the numbers on the chart on page 1 represent a 100 gallon equivalent.

The relative risk of surface water influence cannot be determined on the basis of one sample.

The absence of Giardia and Cryptosporidium does not ensure that the source is parasite free. Conversely a moderate or high MPA result does not necessarily signify the presence of Giardia or other related pathogens.

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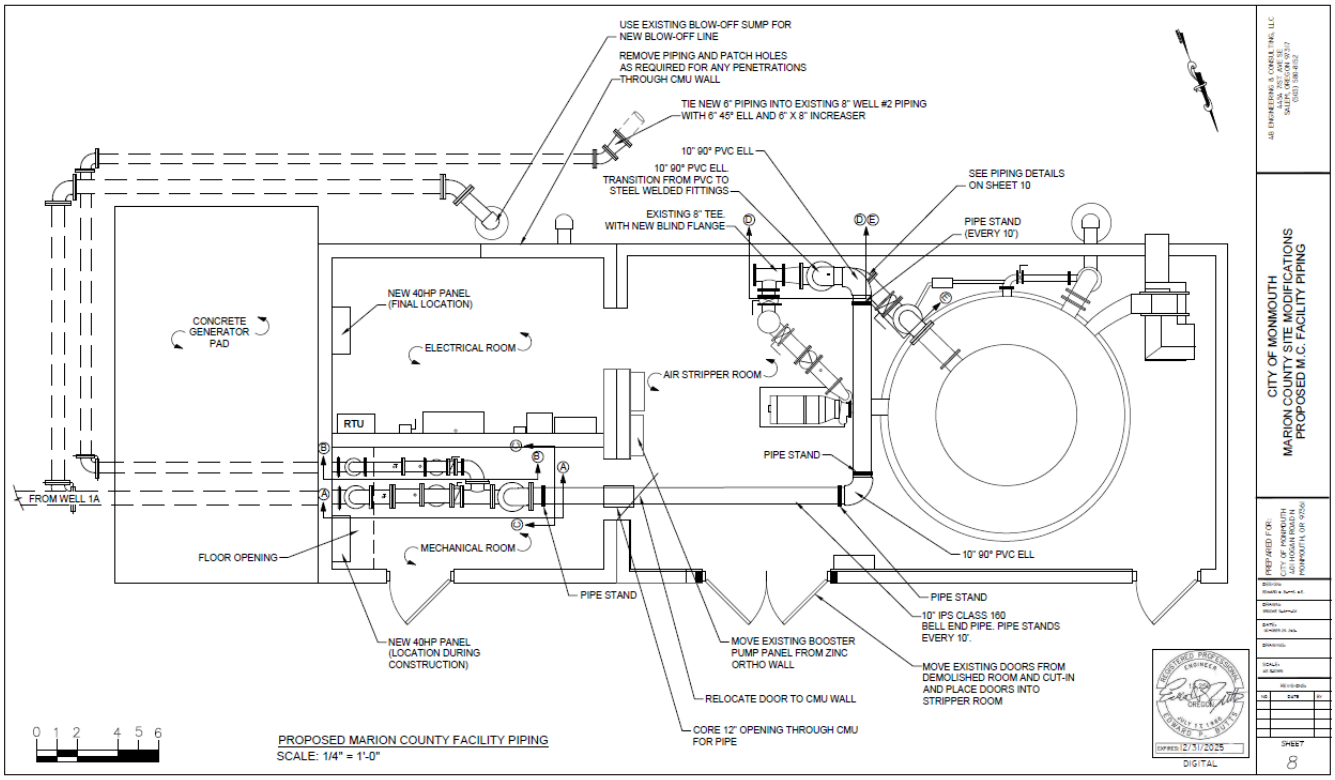
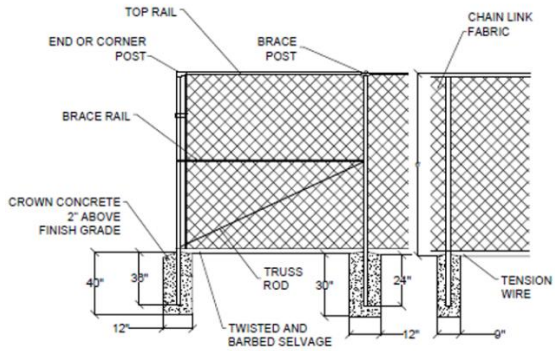
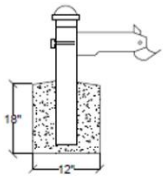
Grants Pass Water Laboratory, Inc.

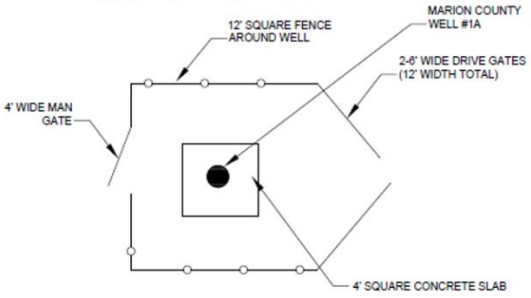
Site piping & fencing details





FENCE CONSTRUCTION DETAILS
SCALE: NTS





MARION COUNTY WELL #1A FENCE DETAIL
SCALE: NTS

Well #1A test results

WATERLAB CORP.

Collection Information

Date: 3/14/2023
Time: 1227
By: BS

Lab #: 20230314-064
Location: 40 Monmouth Marion County Well 1A hose bib

Lab Receipt Information

3/14/2023
1344
SW

Case Narrative

The analyses were performed according to the guidelines in the WATERLAB Corp Quality Assurance Program. This report contains analytical results for the sample(s) as received by the laboratory.

WATERLAB Corp certifies that this report is in compliance with the requirements of NELAP. No unusual difficulties were experienced during analysis of this batch except as noted below or qualified with data flags on the reports.

Analyte	Method	Acc*	Results	Qual	MRL	Units	EPA Limit	Analysis Date	Time	Tech
Oregon Secondaries										
pH	EPA 150.1	A	6.69	H		pH units	6.5 - 8.5	3/14/2023	1357	as
Specific Conductance	SM2510B	A	312.		1.	umhos/cm		3/17/2023		as
Alkalinity, Total	SM2320 B	A	72.		10.	mg/l CaCO3		3/16/2023		as
Aluminum	SM3113B		0.161		0.075	mg/l		4/6/2023		bem
Calcium	SM3111B	A	8.97		1	mg/l		3/14/2023		as
Chloride	EPA300.0	A	5.75		0.3	mg/l	250	3/14/2023		bem
Color	SM2120B	A	ND		10.	Color units		3/14/2023		as
Copper	SM3111 B	A	ND		0.1	mg/l	1.0	3/16/2023		as
Fluoride	EPA300.0	A	ND		0.2	mg/l	4.0	3/14/2023		bem

Collection Information

Date: 3/14/2023
Time: 1227
By: BS

Lab #: 20230314-060
Location: 40 Monmouth Marion County Well 1A hose bib

Lab Receipt Information

3/14/2023
1344
SW

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Analyte	Method	Acc*	Results	Qual	MRL	Units	EPA Limit	Analysis Date	Time	Tech
Cyanide	EPA 335.4	B	ND		0.005	mg/l	0.2	3/27/2023	1751	KER

Collection Information

Date: 3/14/2023
Time: 1227
By: BS

Lab Receipt Information

3/14/2023
1344
SW

Lab #: 20230314-061
Location: 40 Monmouth Marion County Well 1A hose bib

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WATERLAB Corp certifies that this report is in compliance with the requirements of NELAP. No unusual difficulties were experienced during analysis of this batch except as noted below or qualified with data flags on the reports.

Analyte	Method	Acc*	Results	Qual	MRL	Units	EPA Limit	Analysis Date	Time	Tech
Inorganic Chemicals										
Antimony	SM3113B	A	ND		0.005	mg/l	0.006	3/27/2023		bem
Arsenic	SM3113B	A	ND		0.002	mg/l	0.010	3/23/2023		bem
Barium	E200.8	B	0.0105		0.0020	mg/l	2.0	4/5/2023	1953	CSB
Beryllium	SM3113B	A	ND		0.001	mg/l	0.004	3/27/2023		bem
Cadmium	SM3113B	A	ND		0.001	mg/l	0.005	4/4/2023		bem
Chromium	SM3113B	A	ND		0.02	mg/l	0.05	3/28/2023		bem
Fluoride	EPA300.0	A	ND		0.2	mg/l	4.0	3/15/2023		bem
Lead	SM3113 B	A	ND		0.001	mg/l	0.015	3/17/2023		bem
Mercury	SM3112B	A	ND		0.001	mg/l	0.002	4/7/2023		bem
Nickel	SM3113B	A	ND		0.05	mg/l	0.1	3/28/2023		bem
Nitrogen, Nitrate	EPA300.0	A	10.6		0.2	mg/l N	10.	3/14/2023	1921	as
Nitrogen, Nitrite	EPA300.0	A	ND		0.2	mg/l N	1.0	3/14/2023	1921	bem
Selenium	SM3113B	A	ND		0.01	mg/l	0.05	4/5/2023		bem
Sodium	SM3111B	A	8.28		1.0	mg/l	20.	3/24/2023		as
Thallium	SM3113B	A	ND		0.001	mg/l	0.002	4/5/2023		bem

Collection Information

Date: 3/14/2023
Time: 1227
By: BS

Lab Receipt Information

3/14/2023
1344
SW

Lab #: 20230314-062
Location: 40 Monmouth Marion County Well 1A hose bib

Case Narrative

The analyses were performed according to the guidelines in the WATERLAB Corp Quality Assurance Program. This report contains analytical results for the sample(s) as received by the laboratory.

WATERLAB Corp certifies that this report is in compliance with the requirements of NELAP. No unusual difficulties were experienced during analysis of this batch except as noted below or qualified with data flags on the reports.

Analyte	Method	Acc*	Results	Qual	MRL	Units	EPA Limit	Analysis Date	Time	Tech
Synthetic Organic Contaminants										
Synthetic Organics, Regulated										
1,2-Dibromo-3-chloropropane	EPA 504.1	B	ND		0.0000	mg/liter	0.0002	3/28/2023	1124	TJW
Ethylene Dibromide	EPA 504.1	B	ND		0.0000	mg/liter	0.00005	3/28/2023	1124	TJW
Chlordane	EPA 508	B	ND		0.0002	mg/liter	0.002	3/23/2023	2148	TJW
Endrin	EPA 508	B	ND		0.0000	mg/liter	0.002	3/23/2023	2148	TJW
BHC-Gamma Lindane	EPA 508	B	ND		0.0000	mg/liter	0.0002	3/23/2023	2148	TJW
Heptachlor	EPA 508	B	ND		0.0000	mg/liter	0.0004	3/23/2023	2148	TJW
Heptachlor Epoxide	EPA 508	B	ND		0.0000	mg/liter	0.0002	3/23/2023	2148	TJW
Methoxychlor	EPA 508	B	ND		0.0000	mg/liter	0.04	3/23/2023	2148	TJW
Polychlorinated Biphenyls	EPA 508	B	ND		0.0002	mg/liter	0.0005	3/23/2023	2148	TJW
Toxaphene	EPA 508	B	ND		0.0003	mg/liter	0.003	3/23/2023	2148	TJW
2,4,5-TP Silvex	EPA 515.3	B	ND		0.005	mg/liter	0.05	3/24/2023	2213	TJW
2,4-D	EPA 515.3	B	ND		0.002	mg/liter	0.07	3/24/2023	2213	TJW
Dalapon	EPA 515.3	B	ND		0.005	mg/liter	0.2	3/24/2023	2213	TJW
Dinoseb	EPA 515.3	B	ND		0.001	mg/liter	0.007	3/24/2023	2213	TJW
Pentachlorophenol	EPA 515.3	B	ND		0.0005	mg/liter	0.001	3/24/2023	2213	TJW
Picloram	EPA 515.3	B	ND		0.005	mg/liter	0.5	3/24/2023	2213	TJW
Alachlor	EPA 525.2	B	ND		0.0002	mg/liter	0.002	3/27/2023	1135	TJW
Atrazine	EPA 525.2	B	ND		0.0003	mg/liter	0.003	3/27/2023	1135	TJW
Benzo(a)pyrene	EPA 525.2	B	ND		0.0001	mg/liter	0.0002	3/27/2023	1135	TJW
Bis(2-ethylhexyl)phthalate	EPA 525.2	B	ND		0.002	mg/liter	0.006	3/27/2023	1135	TJW
Bis(2-ethylhexyl)adipate	EPA 525.2	B	ND		0.004	mg/liter	0.4	3/27/2023	1135	TJW
Hexachlorobenzene	EPA 525.2	B	ND		0.0001	mg/liter	0.001	3/27/2023	1135	TJW
Hexachlorocyclopentadiene	EPA 525.2	B	ND		0.005	mg/liter	0.05	3/27/2023	1135	TJW
Simazine	EPA 525.2	B	ND		0.0004	mg/liter	0.004	3/27/2023	1135	TJW
Carbofuran	EPA 531.2	B	ND		0.004	mg/liter	0.004	3/22/2023	2140	TJW
Vydate	EPA 531.2	B	ND		0.004	mg/liter	0.1	3/22/2023	2140	TJW
Endothall	EPA 548.1	B	ND		0.01	mg/liter	0.1	3/21/2023	921	TJW
Diquat	EPA 549.2	B	ND		0.005	mg/liter	0.02	3/21/2023	140	TJW
Glyphosate	EPA 547	B	ND		0.05	mg/liter	0.7	3/20/2021	1746	TJW

Collection Information

Date: 3/14/2023
Time: 1227
By: BS
Lab #: 20230314-063
Location: 40 Monmouth Marion County Well 1A hose bib

Lab Receipt Information

3/14/2023
1344
SW

Case Narrative

The analyses were performed according to the guidelines in the WATERLAB Corp Quality Assurance Program. This report contains analytical results for the sample(s) as received by the laboratory.

Analyte	Method	Acc*	Results	Qual	MRL	Units	EPA Limit	Analysis Date Time	Tech
Volatile Organics, Regulated									
1,1,1-Trichloroethane	E524.2	B	ND		0.0005	mg/liter	0.2	3/16/2023	TJW
1,1,2-Trichloroethane	E524.2	B	ND		0.0005	mg/liter	0.005	3/16/2023	TJW
1,1-Dichloroethylene	E524.2	B	ND		0.0005	mg/liter	0.007	3/16/2023	TJW
1,2,4-Trichlorobenzene	E524.2	B	ND		0.0005	mg/liter	0.07	3/16/2023	TJW
1,2-Dichloroethane	E524.2	B	ND		0.0005	mg/liter	0.005	3/16/2023	TJW
1,2-Dichloropropane	E524.2	B	ND		0.0005	mg/liter	0.005	3/16/2023	TJW
Benzene	E524.2	B	ND		0.0005	mg/liter	0.005	3/16/2023	TJW
Carbon Tetrachloride	E524.2	B	ND		0.0005	mg/liter	0.005	3/16/2023	TJW
cis-1,2-Dichloroethylene	E524.2	B	ND		0.0005	mg/liter	0.07	3/16/2023	TJW
Dichloromethane	E524.2	B	ND		0.0005	mg/liter	0.005	3/16/2023	TJW
Ethylbenzene	E524.2	B	ND		0.0005	mg/liter	0.7	3/16/2023	TJW
Monochlorobenzene	E524.2	B	ND		0.0005	mg/liter	0.1	3/16/2023	TJW
o-Dichlorobenzene	E524.2	B	ND		0.0005	mg/liter	0.6	3/16/2023	TJW
p-Dichlorobenzene	E524.2	B	ND		0.0005	mg/liter	0.075	3/16/2023	TJW
Styrene	E524.2	B	ND		0.0005	mg/liter	0.100	3/16/2023	TJW
Tetrachloroethylene (PCE)	E524.2	B	ND		0.0005	mg/liter	0.005	3/16/2023	TJW
Toluene	E524.2	B	ND		0.0005	mg/liter	1.0	3/16/2023	TJW
trans-1,2-Dichloroethylene	E524.2	B	ND		0.0005	mg/liter	0.1	3/16/2023	TJW
Trichloroethylene (TCE)	E524.2	B	ND		0.0005	mg/liter	0.005	3/16/2023	TJW
Vinyl Chloride	E524.2	B	ND		0.0005	mg/liter	0.002	3/16/2023	TJW
Xylenes, Total	E524.2	B	ND		0.0005	mg/liter	10.0	3/16/2023	TJW

5/3/23 MPA Sampling

Grants Pass Water Lab
964 SE M Street
Grants Pass, OR 97526
541-476-0733
www.gpwaterlab.com

Attn:
City of Monmouth
3200 Oak Terrace Dr.
Lebanon, OR 97355

Date: 5/9/23
Sample #: 301680

Project Information: Well #1A

Sample Information

Date/Time Collected:	5/3/23 9:00
Date/Time Finished:	5/3/23 17:00
Date Processed:	5/5/23
Source:	Well
Sample type:	Raw
Turbidity:	N/A
Total gallons filtered:	515
Total sediment collected:	10µl
Sediment / 100 gallons:	2µl
Gallon equivalent examined:	100

Results of Microscopic Examination (100 gal equivalent)

Primary Bio-indicators	Number observed	Relative risk factor
Diatoms	ND	0
Other Algae	ND	0
Insect/Larvae	2	0
Rotifers	ND	0
Plant Debris	17	0
Giardia	ND	ND
Cryptosporidium	ND	ND
Secondary Bio-Indicators	**Number observed**	**Relative risk factor**
Plant Pollens	ND	0
Nematodes	1	0
Crustacea	ND	0
Cilliates/Flagellates	ND	0
	Numerical Risk Factor Total:	0
	Relative Risk:	Low

This sample was processed according to the EPA Consensus Method for the Determination of Groundwater Under the Direct Influence of Surface Water using Microscopic Particulate Analysis (MPA).

An aliquot of the sediment collected from the filter washings was passed through a 1.160 specific gravity percoll/sucrose gradient to separate, to some extent, the bio-indicator organisms from other particulate debris. The packed sediment was examined to ensure that no significant bio-indicator organisms passed through. The resultant slides were examined microscopically for quantitation of bio-indicators. Slides were examined at 100 and 200x.

Comments and observations:

Due to the presence of significant primary bio-indicators (as noted on page 1) the relative risk factor assigned this sample was 0 which indicates a low risk of being under the direct influence of surface water at the time of sampling.

It should be noted that the numbers on the chart on page 1 represent a 100 gallon equivalent.

The relative risk of surface water influence cannot be determined on the basis of one sample.

The absence of Giardia and Cryptosporidium does not ensure that the source is parasite free. Conversely a moderate or high MPA result does not necessarily signify the presence of Giardia or other related pathogens.

If you have any questions about the analytical procedure used and the data provided, please call (541) 476-0733.

Doree Schaafsma
Grants Pass Water Laboratory, Inc.

10/3/23 MPA Sampling

Grants Pass Water Lab
964 SE M Street
Grants Pass, OR 97526
541-476-0733
www.gpwaterlab.com

Attn: Brooke
4 B Engineering
3200 Oak Terrace Dr. #49
Lebanon, OR 97355

Date: 10/19/23
Sample #: 301698

Project Information: Well 1A c/o Monmouth

Sample Information

Date/Time Collected:	10/3/23 08:00
Date/Time Finished:	10/3/23 16:30
Date Processed:	10/5/23
Source:	Well
Sample type:	Raw
Turbidity:	N/A
Total gallons filtered:	509
Total sediment collected:	150µl
Sediment / 100 gallons:	29µl
Gallon equivalent examined:	104

Results of Microscopic Examination (100 gal equivalent)

Primary Bio-indicators	Number observed	Relative risk factor
Diatoms	ND	0
Other Algae	ND	0
Insect/Larvae	ND	0
Rotifers	ND	0
Plant Debris	ND	0
Giardia	ND	ND
Cryptosporidium	ND	ND
Secondary Bio-Indicators	**Number observed**	**Relative risk factor**
Plant Pollens	ND	0
Nematodes	ND	0
Crustacea	ND	0
Cilliates/Flagellates	1	0
	Numerical Risk Factor Total:	<1
	Relative Risk:	Low

This sample was processed according to the EPA Consensus Method for the Determination of Groundwater Under the Direct Influence of Surface Water using Microscopic Particulate Analysis (MPA).

An aliquot of the sediment collected from the filter washings was passed through a 1.160 specific gravity percoll/sucrose gradient to separate, to some extent, the bio-indicator organisms from other particulate debris. The packed sediment was examined to ensure that no significant bio-indicator organisms passed through. The resultant slides were examined microscopically for quantitation of bio-indicators. Slides were examined at 100 and 200x.

Comments and observations:

Due to the presence of significant primary bio-indicators (as noted on page 1) the relative risk factor assigned this sample was <1 which indicates a low risk of being under the direct influence of surface water at the time of sampling.

It should be noted that the numbers on the chart on page 1 represent a 100 gallon equivalent.

The relative risk of surface water influence cannot be determined on the basis of one sample.

The absence of Giardia and Cryptosporidium does not ensure that the source is parasite free. Conversely a moderate or high MPA result does not necessarily signify the presence of Giardia or other related pathogens.

If you have any questions about the analytical procedure used and the data provided, please call (541) 476-0733.

Doree Schaafsma
Grants Pass Water Laboratory, Inc.

12/12/23 MPA Sampling

Grants Pass Water Lab
964 SE M Street
Grants Pass, OR 97526
541-476-0733
www.gpwaterlab.com

Attn: Brooke
4B Engineering
3200 Oak Terrace Dr. #49
Lebanon, OR 97355

Date: 1/2/2024
Sample #: 301700

Project Information: MC#1A- Well

Sample Information

Date/Time Collected:	12/12/23 9:10am
Date/Time Finished:	12/12/23 5:35pm
Date Processed:	12/15/23
Source:	Well
Sample type:	Raw
Turbidity:	N/A
Total gallons filtered:	505
Total sediment collected:	20µl
Sediment / 100 gallons:	4µl
Gallon equivalent examined:	100

Results of Microscopic Examination (100 gal equivalent)

Primary Bio-indicators	Number observed	Relative risk factor
Diatoms	ND	0
Other Algae	36	9
Insect/Larvae	ND	0
Rotifers	4	1
Plant Debris	6	0
Giardia	ND	ND
Cryptosporidium	ND	ND
Secondary Bio-Indicators	**Number observed**	**Relative risk factor**
Plant Pollens	ND	0
Nematodes	ND	0
Crustacea	ND	0
Cilliates/Flagellates	ND	0
	Numerical Risk Factor Total:	10
	Relative Risk:	Moderate

This sample was processed according to the EPA Consensus Method for the Determination of Groundwater Under the Direct Influence of Surface Water using Microscopic Particulate Analysis (MPA).

An aliquot of the sediment collected from the filter washings was passed through a 1.160 specific gravity percoll/sucrose gradient to separate, to some extent, the bio-indicator organisms from other particulate debris. The packed sediment was examined to ensure that no significant bio-indicator organisms passed through. The resultant slides were examined microscopically for quantitation of bio-indicators. Slides were examined at 100 and 200x.

Comments and observations:

Due to the presence of significant primary bio-indicators (as noted on page 1) the relative risk factor assigned this sample was 10 which indicates a moderate risk of being under the direct influence of surface water at the time of sampling.

It should be noted that the numbers on the chart on page 1 represent a 100 gallon equivalent.

The relative risk of surface water influence cannot be determined on the basis of one sample.

The absence of Giardia and Cryptosporidium does not ensure that the source is parasite free. Conversely a moderate or high MPA result does not necessarily signify the presence of Giardia or other related pathogens.

If you have any questions about the analytical procedure used and the data provided, please call (541) 476-0733.

Doree Schaafsma
Grants Pass Water Laboratory, Inc.

3/5/24 MPA Sampling		

Grants Pass Water Lab

964 SE M Street
Grants Pass, OR 97526
541-476-0733
www.gpwaterlab.com

Attn: Brook
4B Engineering
4454 71st Ave SE
Salem, OR 97317

Date: 3/18/2024
Sample #: 301706

Project Information: City of Monmouth

Sample Information

Date/Time Collected:	3/5/24 08:00
Date/Time Finished:	3/5/24 17:00
Date Processed:	3/7/24
Source:	Well #1A
Sample type:	Raw
Turbidity:	N/A
Total gallons filtered:	537
Total sediment collected:	50µl
Sediment / 100 gallons:	18µl
Gallon equivalent examined:	100

Results of Microscopic Examination (100 gal equivalent)

Primary Bio-indicators	Number observed	Relative risk factor
Diatoms	ND	0
Other Algae	ND	0
Insect/Larvae	ND	0
Rotifers	ND	0
Plant Debris	ND	0
Giardia	ND	ND
Cryptosporidium	ND	ND
Secondary Bio-Indicators	**Number observed**	**Relative risk factor**
Plant Pollens	ND	0
Nematodes	ND	0
Crustacea	ND	0
Cilliates/Flagellates	ND	0

Numerical Risk Factor Total: <1
Relative Risk: Low

This sample was processed according to the EPA Consensus Method for the Determination of Groundwater Under the Direct Influence of Surface Water using Microscopic Particulate Analysis (MPA).

An aliquot of the sediment collected from the filter washings was passed through a 1.160 specific gravity percoll/sucrose gradient to separate, to some extent, the bio-indicator organisms from other particulate debris. The packed sediment was examined to ensure that no significant bio-indicator organisms passed through. The resultant slides were examined microscopically for quantitation of bio-indicators. Slides were examined at 100 and 200x.

Comments and observations:

Due to the presence of significant primary bio-indicators (as noted on page 1) the relative risk factor assigned this sample was <1 which indicates a low risk of being under the direct influence of surface water at the time of sampling.

It should be noted that the numbers on the chart on page 1 represent a 100 gallon equivalent.

The relative risk of surface water influence cannot be determined on the basis of one sample.

The absence of Giardia and Cryptosporidium does not ensure that the source is parasite free. Conversely a moderate or high MPA result does not necessarily signify the presence of Giardia or other related pathogens.

If you have any questions about the analytical procedure used and the data provided, please call (541) 476-0733.

Doree Schaafsma

Doree Schaafsma
Grants Pass Water Laboratory, Inc.