Public Health Division

Center for Health Protection, Drinking Water Services

Tina Kotek, Governor

April 9, 2026

Ed Butts, PE
epbpe58@outlook.com
4B Engineering & Consulting, LLC
Letter sent via email only

Re: Wells #1A and #1B (PR#76-2021)
City of Monmouth (PWS ID#00537)
Final Approval for Marion County Well #1A (MARI70798, L143506) Only

Dear Mr. Butts:

On April 2, 2026, our office received confirmation that the above project was completed according to the plans submitted and conditions set forth in the December 24th, 2024 conditional approval letter. Final wellhead elevations and nitrate blending calculations were received on April 9, 2026.

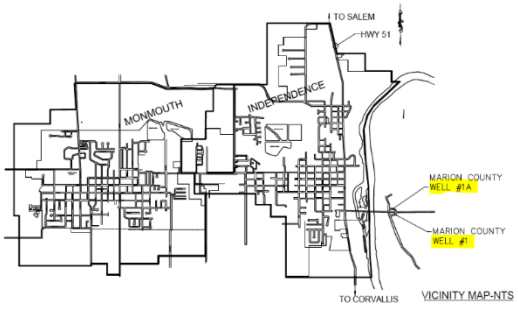
This verification completes the plan review requirements. Final approval is issued at this time, and the new well is approved for use.

MC Well #1A is 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 12 of this letter.*

With the completion of MC Well #1A, MC Well #1 (SRC-AA) has now been formerly abandoned.



Due to high nitrates, this new well is blended with wells #2 and #4 to reduce these nitrate levels. Blending ratio calculations are provided on page 7 of this letter.

Quarterly nitrate monitoring at EP-A beginning April 1, 2026.
Because nitrate results in Well #1A exceeded 10 mg/l, quarterly nitrate sampling will be required from the entry point (EP-A) for at least 1 year beginning April 1, 2026 to assess how well the blending reduces nitrate levels long-term.

Increase lead and copper tap sampling beginning July 1, 2026.
With the new well #1A in use, increased lead and copper sampling is required for two consecutive 6-month rounds at 60 sample sites. Due to the delayed startup of the well late this spring, the first 6-month round will start July 1, 2026 (sample between July 1st and Dec 31st, 2006). The second 6-month round requires sampling to be completed between January 1st and June 30th, 2027. Please remember that water quality parameters also need to be collected in the distribution system at 10 sites in the distribution system. Monitoring tables are enclosed to help complete this sampling.

Monthly source *Cryptosporidium*, E. coli, and turbidity beginning Feb 1, 2026.
Two rounds of source sampling at MC Well #1a will be needed for *Cryptosporidium*, E. coli enumeration, and turbidity to be taken monthly from MC Well #1a for 24 consecutive months beginning February 1, 2026. The second round of sampling will need to be completed 6 years later starting in 2033. This sampling schedule will be posted on our website at: https://yourwater.oregon.gov/lt2.php?pwsno=00537.

Thank you for your cooperation during this plan review process and if you have any questions, please feel free to call me at (971) 200-0288 or email me at evan.e.hofeld@oha.oregon.gov .

Sincerely,

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

cc: Matt Johnson, City of Monmouth: mjohnson@ci.monmouth.or.us
Russ Cooper, City of Monmouth: rcooper@ci.monmouth.or.us
Brooke Shattuck, 4B Engineering: brooke.4b@outlook.com
Tommy Laird, OWRD, Tommy.K.LAIRD@water.oregon.gov
Joel Plahn, OWRD, Joel.M.PLAHN@water.oregon.gov

Encl. Lead and copper & water quality parameter sampling tables
Project description

Lead and Copper & Water Quality Parameter Sampling Tables

Table 1 - Number of Lead and Copper Tap Sampling Sites (60)

Table 2 – Lead and Copper Tap Sampling Locations (Table 34 in OAR 333-061-0036)		
Number of people served by the water system	**Increased Number of Sample Locations**	**Reduced Number of Sample Locations**
> 100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
< 100	5	5

Table 2 - Water Quality Parameter Sampling (10)

Table 1 – Water Quality Parameter Sample Locations (Table 35 in OAR 333-061-0036 for increased sites and Table 36 for reduced sites)		
Number of people served by the water system	**Increased Number of Sample Locations**	**Reduced Number of Sample Locations**
> 100,000	25	10
10,001 to 100,000	10	7
3,301 to 10,000	3	3
501 to 3,300	2	2
101 to 500	1	1
< 100	1	1

Table 3 – Lead and Copper & Water Quality Parameter (WQP) Monitoring Summary Data Table

Table 3 may be used to summarize data collected.

Table 3. Required sampling after MC Well #1a is in use

What Parameter	Where	When	Purpose	Enter 90th percentile lead (Pb90) & copper (Cu90), pH & alkalinity sample dates & results
Round 1 Lead and Copper	**60 tap sample sites**	**Round 1** – 7/1/26 – 12/31/26	Demonstrate the new well does not adversely impact treatment capability	Round 1 Sample Date(s) ↓ Pb90 ____ mg/l Cu90 ____ mg/l
Round 2 Lead and Copper	**60 tap sample sites**	**Round 2** – 1/1/27 – 6/30/27	Demonstrate the new well does not adversely impact treatment capability	Round 2 Sample Date(s) ↓ Pb90 ____ mg/l Cu90 ____ mg/l

EP-A WQP	Entry Point A	EP-A WQP During Round 1					EP-A WQP During Round 2			
pH, Alkalinity and PO4 Entry Point Sampling	("EP-A") Every 14 days Results along with lead and copper tap sampling will be used to evaluate/establish minimum parameters to be maintained at the entry point	Sample Date	pH units	Alk Mg/l	PO4 Mg/l		Sample Date	pH units	Alk Mg/l	PO4 Mg/l
		(26 results are needed for the 12-month period)								

Table 3. Continued

DIST-A WQP
pH, Alkalinity and PO4 distribution system sampling

Distribution – select either 10 lead or copper tap sample sites or 10 coliform sample sites representative of the water quality in the distribution system (document the sample site e.g., 123 Main St.)

Take **1st sample set** on the day of each round of lead and copper tap sampling.
Take **2nd sample set** within 14 days of the 1st sample set.

Results along with lead and copper tap sampling will be used to evaluate/establish minimum parameters to be maintained in the distribution system.

Round 1 – 1st Sample Set				Round 1 – 2nd Sample Set (14 days later)				Round 2 – 1st Sample Set				Round 2 – 2nd Sample Set (14 days later)			
Sample Date ↓				Sample Date ↓				Sample Date ↓				Sample Date ↓			
Sample Site #	pH units	Alk Mg/l	PO4 Mg/l	Sample Site #	pH units	Alk Mg/l	PO4 Mg/l	Sample Site #	pH units	Alk Mg/l	PO4 Mg/l	Sample Site #	pH units	Alk Mg/l	PO4 Mg/l
1				1				1				1			
2				2				2				2			
3				3				3				3			
4				4				4				4			
5				5				5				5			
6				6				6				6			
7				7				7				7			
8				8				8				8			
9				9				9				9			
10				10				10				10			

Sample Site #	Sample Site Street Address
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Project Description

As noted in the Site Plan Approval letter dated February 10, 2022, our office received the original submittal on May 10, 2021 which included 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 Marion County (MC) Well #1, however, the December 4, 2024 submittal from Brooke Shattuck only included information pertaining to MC Well #1A and the abandonment of the existing MC Well #1.

Specifically, the December 4, 2024 submittal from Brooke Shattuck included:

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

A Conditional Approval letter was issued December 24, 2024 to address the revised project scope.

SRC-AE - MC Well #1A (MARI70798) Description

MC Well #1A (MARI 70798, L143506) was drilled to replace MC Well #1 (MARI13286), which has now been abandoned. Water rights for the new MC Well #1A were secured under water rights transfer application T14277 and permit # G-18977. MC Well #1A is 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:

	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

SRC-AA - MC Well #1 (MARI13286) Description

- 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

Blending for Nitrate Reduction

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. The following example illustrates the blend ratio calculations.

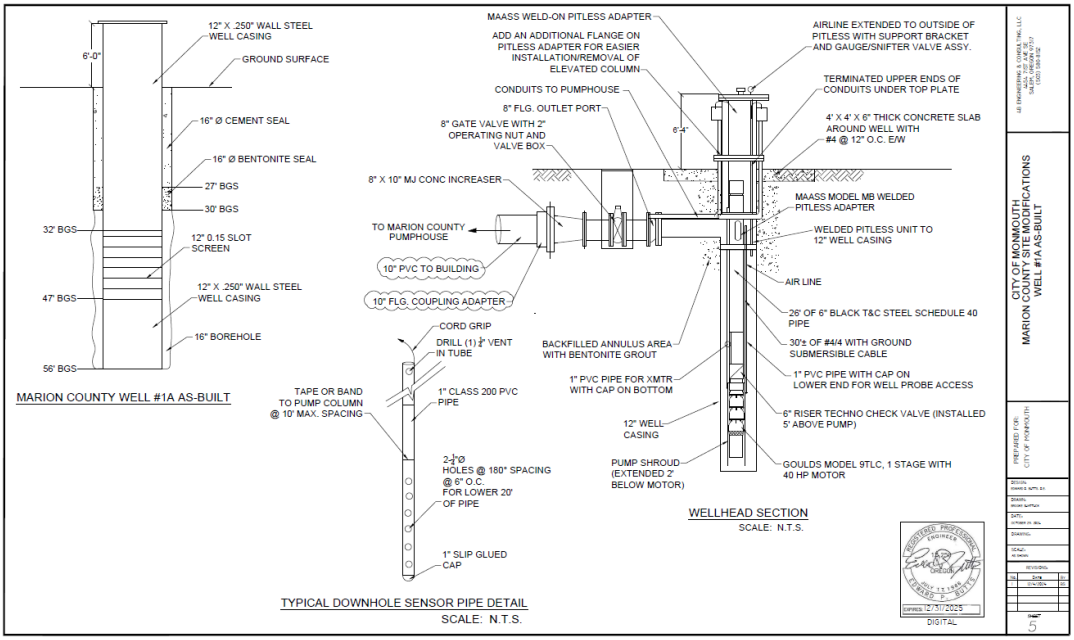
Current Conditions (April 2026)
Marion County #1A—Flowrate-900 GPM (ag.) NO3 = 10 mg/l
Marion County #2---Flowrate = 450 GPM-NO3 = 4.5 mg/l
Well #4----------Flowrate = 200 GPM-NO3 = 2.0 mg/l

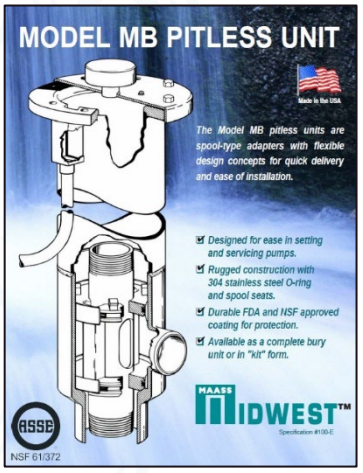
Blending Example:

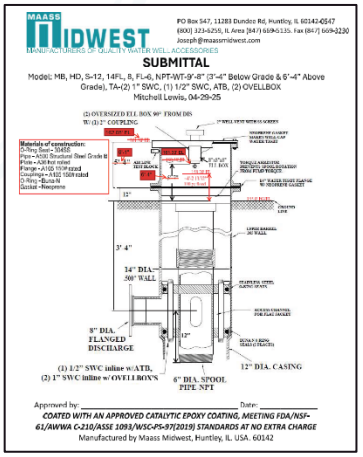
Blended = [(10 x Well 1AQ) + (2.0 x Well #4Q) + (4.5 x Well #2Q)] / (Well #1AQ + Well #2Q + Well #4Q)
Blended = [(10 mg/l x 900 GPM) + (2.0 mg/l x 200 GPM) + (4.5 mg/l x 450 GPM)] / 1,550 GPM
Blended = [(9000) + (400) + (2,025)] / 1,550 GPM = 11,425/1,550 GPM = **7.37 mg/l**

Pitless Adapter & Submersible Pump

MC Well #1A is fitted with a pitless adapter, level transmitter, pressure gauge, "mag" style flowmeter (a second flowmeter is also installed for Well #2). A Goulds model 9TLC-1 stage submersible pump equipped with a 40 HP motor and VFD is designed for continuous operation at 3,450 RPM with a primary operating condition of 1,200 GPM @ 100' TDH.





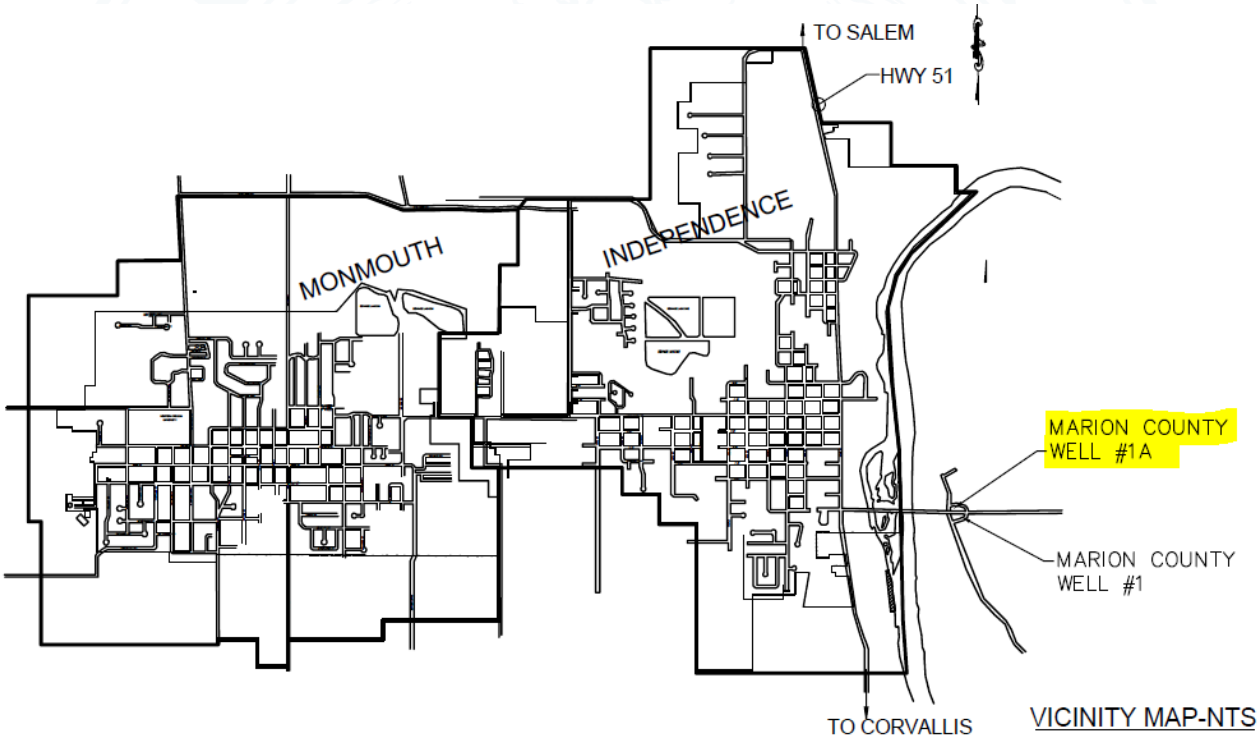


SRC-AE - MC Well #1a Location & Details

County Well ID: MARI 70798 Well Tag: L143506 Start Card: 1059570
Date Well Completed: 3/14/2023

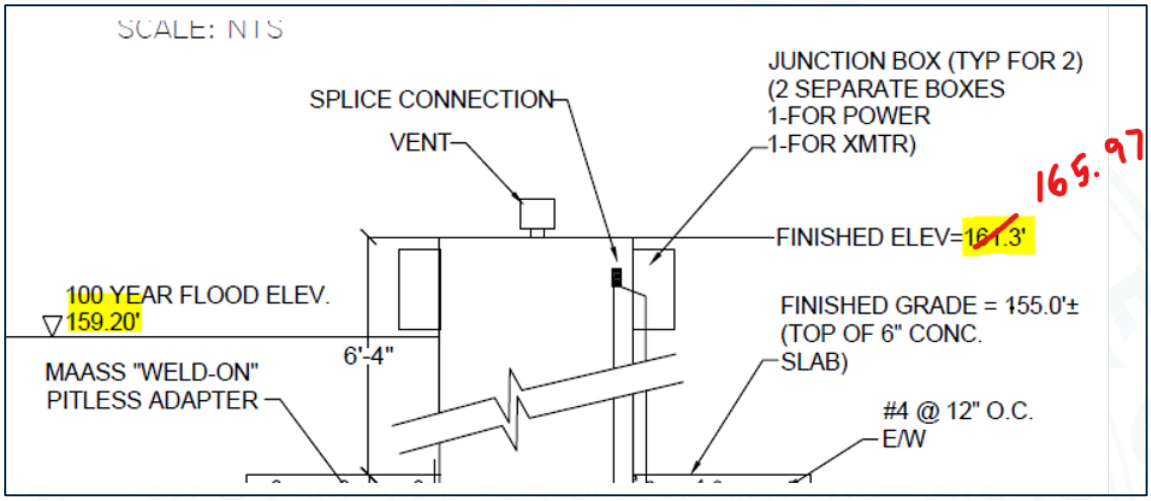
WRD Well Mapping Site:
https://apps.wrd.state.or.us/apps/gw/well_log/wl_details.aspx?wl_id=601434

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



VICINITY MAP-NTS

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, however, the top of the casing was later field verified to be at an elevation of 165.97-ft (approximately 8.77-ft above the 100-year flood level of 159.2-ft) as shown below:



Slab at the existing pump house	160.50'
Slab at base of new pump	159.05'
Bottom of J box at new pump	164.19'
Top of new pump	165.97'

MC Well #1a Well Log (MARI 70798)

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/ Screen Liner	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

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

RECEIVED
MAR 23 2023
OWRD
SALEM, OREGON

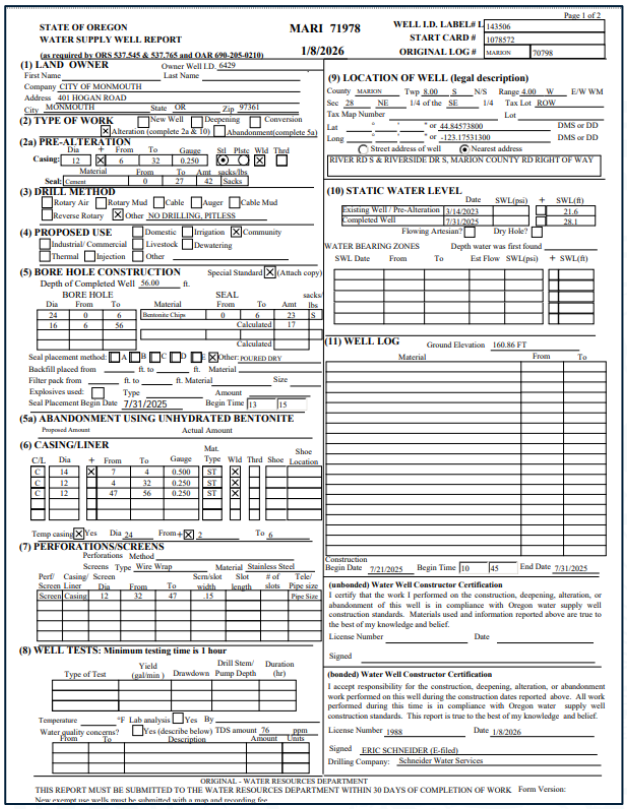
Date Started 12-19-2022 Completed 3-14-2023

(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

MC Well #1a Alteration Log (MARI71978)



STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.545 & 537.765 and OAR 690-205-0210)

MARI 71978
1/8/2026

WELL I.D. LABEL# L 143506
START CARD # 1078572
ORIGINAL LOG # MARION 70798

(1) LAND OWNER
Owner Well I.D. 6429
First Name Last Name
Company CITY OF MONMOUTH
Address 401 HOGAN ROAD
City MONMOUTH State OR Zip 97361

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

(2a) PRE-ALTERATION
Casing: Dia 12 + From 6 To 32 Gauge 0.250 Stl ☐ Plate ☒ Wld ☐ Thrd ☐
Material From To Amt sacks/lbs
Seal: Cement 0 27 42 Sacks

(3) DRILL METHOD
☐ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger ☐ Cable Mud
☐ Reverse Rotary ☒ Other NO DRILLING, PITLESS

(4) PROPOSED USE
☐ Domestic ☐ Irrigation ☒ Community
☐ Industrial/ Commercial ☐ Livestock ☐ Dewatering
☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION
Special Standard ☒ (Attach copy)
Depth of Completed Well 56.00 ft.
BORE HOLE: Dia 24 From 0 To 6; Dia 16 From 6 To 56
SEAL: Material Bentonite Chips From 0 To 6 Amt 23 sacks lbs; Calculated 17
Seal placement 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: ☐ Type Amount
Seal Placement Begin Date 7/31/2025 Begin Time 13 15

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

(6) CASING/LINER

C/L	Dia	+	From	To	Gauge	Mat. Type	Wld	Thrd	Shoe	Shoe Location
C	14	☒	7	4	0.500	ST	☒			
C	12		4	32	0.250	ST	☒			
C	12		47	56	0.250	ST	☒			

Temp casing ☒ Yes Dia 24 From + ☒ 2 To 6

(7) PERFORATIONS/SCREENS
Perforations Method
Screens Type Wire Wrap Material Stainless Steel

Perf/ Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ Pipe Size
Screen	Casing	12	32	47	.15			Pipe Size

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

Type of Test	Yield (gal/min)	Drawdown	Drill Stem/ Pump Depth	Duration (hr)

Temperature °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 8.00 S N/S Range 4.00 W E/W WM
Sec 28 NE 1/4 of the SE 1/4 Tax Lot ROW
Tax Map Number Lot
Lat ° ' " or 44.84573800 DMS or DD
Long ° ' " or -123.17531300 DMS or DD
☐ Street address of well ☒ Nearest address
RIVER RD S & RIVERSIDE DR S, MARION COUNTY RD RIGHT OF WAY

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration	1/14/2023			21.6
Completed Well	7/31/2025			28.1

Flowing Artesian? ☐ Dry Hole? ☐
WATER BEARING ZONES Depth water was first found

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)

(11) WELL LOG
Ground Elevation 160.86 FT

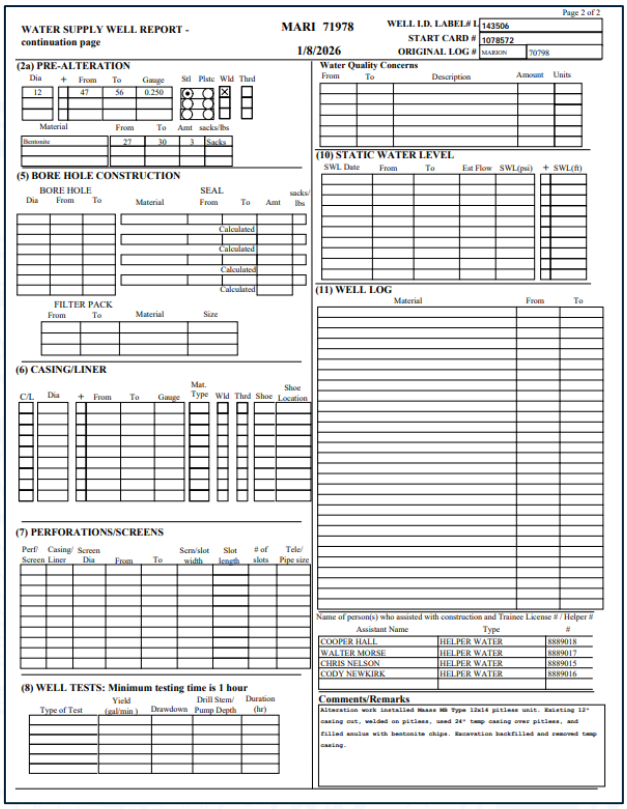
Material	From	To

Construction Begin Date 7/21/2025 Begin Time 10 45 End Date 7/31/2025

(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 1988 Date 1/8/2026
Signed ERIC SCHNEIDER (E-filed)
Drilling Company: Schneider Water Services

ORIGINAL - WATER RESOURCES DEPARTMENT
THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK Form Version:
New except use wells must be submitted with a map and recording fee



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WATER SUPPLY WELL REPORT - continuation page

MARI 71978
1/8/2026

WELL I.D. LABEL# L 143506
START CARD # 1078572
ORIGINAL LOG # MARION 70798

(2a) PRE-ALTERATION
Dia 12 + From 47 To 56 Gauge 0.250 Stl ☐ Plate ☒ Wld ☐ Thrd ☐
Material From To Amt sacks/lbs
Bentonite 27 30 3 Sacks

(5) BORE HOLE CONSTRUCTION
BORE HOLE Dia From To
SEAL Material From To Amt sacks/lbs
Calculated
Calculated
Calculated
Calculated
FILTER PACK From To Material Size

(6) CASING/LINER

C/L	Dia	+	From	To	Gauge	Mat. Type	Wld	Thrd	Shoe	Shoe Location

(7) PERFORATIONS/SCREENS

Perf/ Screen	Casing/ Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/ Pipe size

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

Type of Test	Yield (gal/min)	Drawdown	Drill Stem/ Pump Depth	Duration (hr)

Water Quality Concerns

From	To	Description	Amount	Units

(10) STATIC WATER LEVEL

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)

(11) WELL LOG

Material	From	To

Name of person(s) who assisted with construction and Trainee License # / Helper #

Assistant Name	Type	#
COOPER HALL	HELPER WATER	8889018
WALTER MORSE	HELPER WATER	8889017
CHRIS NELSON	HELPER WATER	8889015
CODY NEWKIRK	HELPER WATER	8889016

Comments/Remarks
Alteration work installed Wmass WB Type 12x14 pitless unit. Existing 12" casing cut, welded on pitless, used 24" temp casing over pitless, and filled anulus with bentonite chips. Excavation backfilled and removed temp casing.

MC Well #1a 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 required 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 classified Well #1A as "self-declared" groundwater under the direct influence of surface water in spite of 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.

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

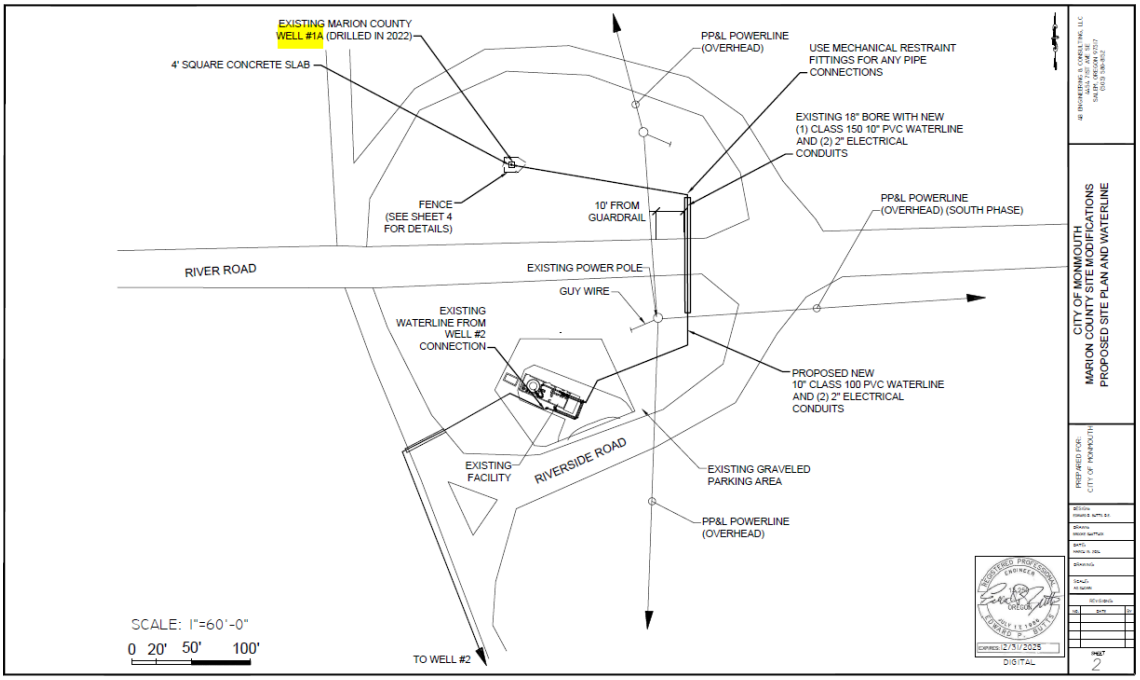
Doree Schaafsma
Grants Pass Water Laboratory, Inc.

Site Piping & Security Fencing

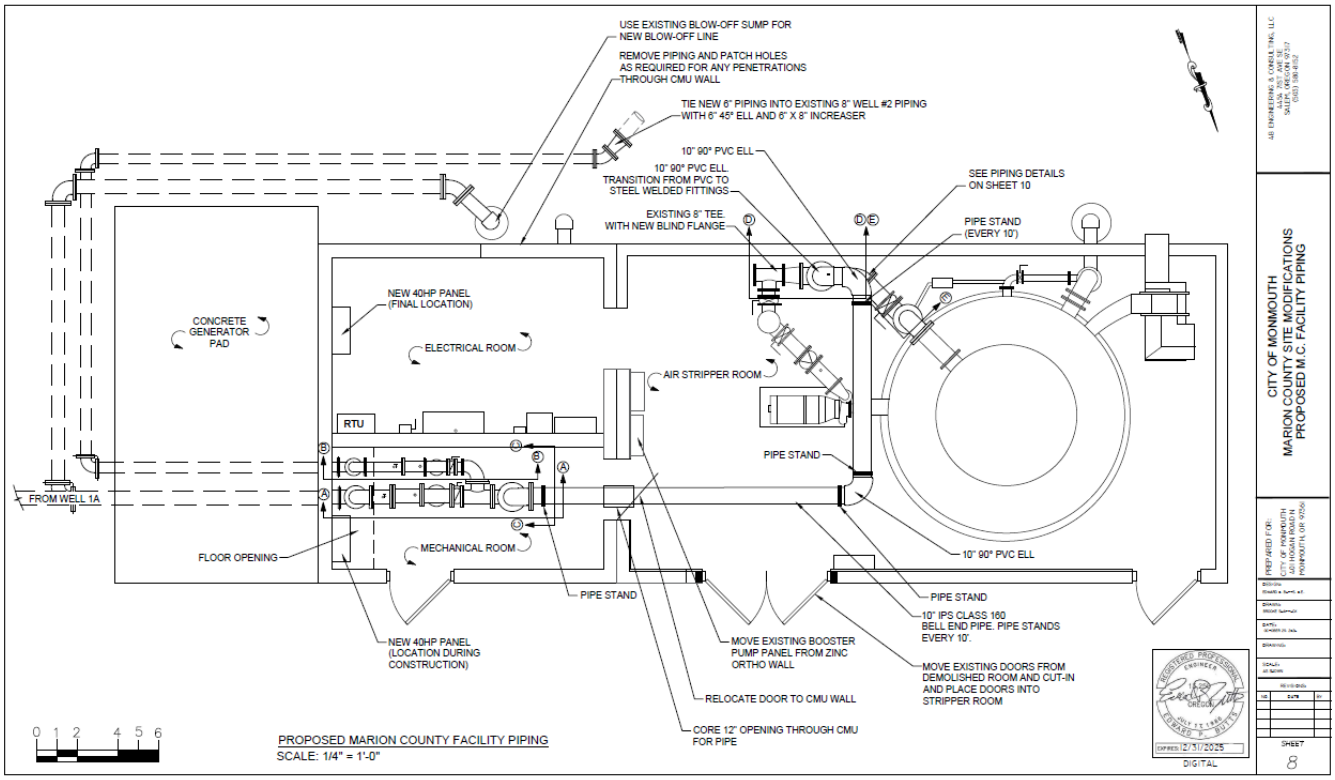
Piping largely consists of:

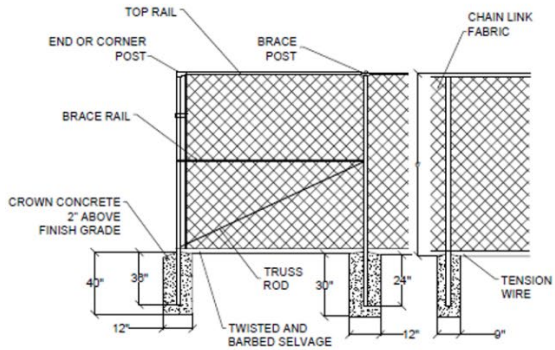
- Buried pipe between MC Well #1A and the wellhouse consisting of 500’ (+/-) total length of 10” AWWA C-900 PVC pipe consisting of the following two segments:
  - 400’ (+/-) length of 10”Class 100 (DR25) PVC
  - 100’ (+/-) of 10” Class 150 (DR 18) used through the bored cased section.
- 6” and 8” PVC 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 was also installed.

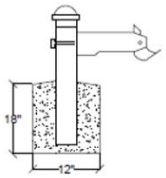


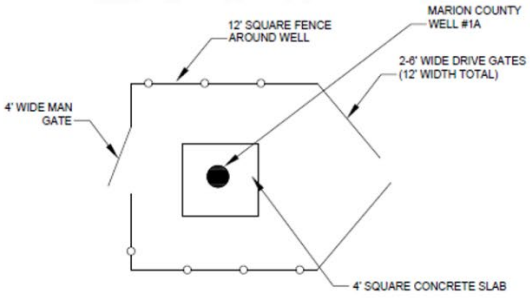
Site piping & fencing details





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

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
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

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
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.

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