



Site/Project Information

Well ID	MW-BN-01		Date	11/10/2023	
Project	BNSF Time Oil RI		Project No.	30195976	
Site Location	Top of Screen (ft bmp)		5	Bottom of Screen (ft bmp)	
				15	
Weather	Overcast	Time Begin	16:42	Time End	17:45

Development Data

Measuring Point	Top of Casing	Pump Intake Setting (ft bmp)	NR
MP Elevation (ft)	NA	Pumping Rate (gpm)	2.00
Land Surface Elevation (ft)	NA	Development Method	Submersible
Pre-Dev Well Depth (ft bmp)	15	Post-Dev Well Depth (ft bmp)	15
Pre-Dev DTW (ft bmp)	8.6	Post-Dev DTW (ft bmp)	15
Pre-Dev Water Column (ft)	6.40	Post-Dev Water Column (ft)	0
Casing Diameter (in) / Type	2/PVC		
Initial Well Volume (gallons)	1.04	Color	
Total Well Volumes Purged	~2 gallons	Odor	
		Appearance	

Field Parameters

Development Personnel:	RP				
Notes:	Well dewatered 3 times. 7 feet of water removed in less than 1 minute. Recharge time = 5ft water/1hr. Final NTU: 64				
Well Diameter (in) = Unit Volume (gallon per ft of water column)					
Well Volume Calcs	1 = 0.04	1.5 = 0.09	2.5 = 0.26	3.5 = 0.50	6 = 1.47
	1.25 = 0.06	2 = 0.16	3 = 0.37	4 = 0.65	

ft -bmp - feet below measuring point °F / °C- Degrees Fahrenheit/Celsius mS/cm-Milisiemens per centimeter
mV-millivolts gpm - gallons per minute ft-feet
mg/L- Milligrams per liter DTW - depth to water in - Inches
NTU - Nephelometric Turbidity Units

Field Parameter/Stability Guidance: Three consecutive readings - pH (± 0.1 s.u), specific conductance (± 3% mS/cm), temperature (± 3% °F/°C), turbidity (±10% when turbidity is ≤ 10 NTU), DO (10% mg/L), ORP (±10 mV)

MONITORING WELL DEVELOPMENT LOG



Site/Project Information

Well ID	MW-BN-03		Date	11/10/2023	
Project	BNSF Time Oil RI		Project No.	30195976	
Site Location	Top of Screen (ft bmp)		Bottom of Screen (ft bmp)		
	27.5		37.5		
Weather	Overcast	Time Begin	08:45	Time End	

Development Data

Measuring Point	Ground Surface	Pump Intake Setting (ft bmp)	NR
MP Elevation (ft)	NA	Pumping Rate (gpm)	2.00
Land Surface Elevation (ft)	NA	Development Method	Submersible
Pre-Dev Well Depth (ft bmp)	37.5	Post-Dev Well Depth (ft bmp)	37.5
Pre-Dev DTW (ft bmp)	28.9	Post-Dev DTW (ft bmp)	28.9
Pre-Dev Water Column (ft)	8.60	Post-Dev Water Column (ft)	8.60
Casing Diameter (in) / Type	2/PVC		
Initial Well Volume (gallons)	1.40	Color	Brown
Total Well Volumes Purged	42.86	Odor	None
		Appearance	Turbid

Field Parameters

Time	Measured DTW (ft bmp)	Pumping Rate (gpm)	Elapsed Time (min)	Gallons Removed	Conductivity (us/cm)	Turbidity (NTU)	Temp (°C)	pH (s.u.)	ORP (mV)	DO (mg/L)	Remarks
08:45	28.9	2	0	0.00	530.23	5000	10.22	6.12	196.5	11.39	NR
08:48	28.9	2	3	6.00	544.11	3137	11.98	6.55	57.6	7.21	NR
08:51	28.9	2	6	12.00	559.1	729	12.77	6.65	39.4	6.98	NR
08:54	28.9	2	9	18.00	560.46	686	12.92	7.34	38.9	6.25	NR
08:57	28.9	2	12	24.00	590.01	645	13	7.34	29.5	6.14	NR
09:00	28.9	2	15	30.00	608.64	573	13.05	7.35	12.7	5.11	NR
09:03	28.9	2	18	36.00	618.08	105	13.07	7.37	-0.5	4.46	NR
09:06	28.9	2	21	42.00	621.86	83	13.12	7.37	-12.3	4.02	NR
09:09	28.9	2	24	48.00	644.42	18.6	13.44	7.48	-45.1	2.54	NR
09:12	28.9	2	27	54.00	645.47	13.1	13.54	7.57	-46.1	2.27	NR
09:15	28.9	2	30	60.00	648.3	9.91	13.68	7.57	-46.5	2.32	NR

Development Personnel: _____

Notes: _____

Water was clear at the end of development.

Well Diameter (in) = Unit Volume (gallon per ft of water column)					
Well Volume Calcs	1 = 0.04	1.5 = 0.09	2.5 = 0.26	3.5 = 0.50	6 = 1.47
	1.25 = 0.06	2 = 0.16	3 = 0.37	4 = 0.65	

ft -bmp - feet below measuring point °F / °C- Degrees Fahrenheit/Celsius mS/cm-Milisiemens per centimeter
mV-millivolts gpm - gallons per minute ft-feet
mg/L- Miligrams per liter DTW - depth to water in - Inches
NTU - Nephelometric Turbidity Units

Field Parameter/Stability Guidance: Three consecutive readings - pH (± 0.1 s.u), specific conductance (± 3% mS/cm), temperature (± 3% °F/°C), turbidity (±10% when turbidity is ≤ 10 NTU), DO (10% mg/L), ORP (±10 mV)



Site/Project Information

Well ID	SB-BN-13/MW-BN-07		Date	02/27/2025	
Project	BNSF Time Oil 2025 Well Installation		Project No.	30270277	
Site Location	Top of Screen (ft bmp)	23.5	Bottom of Screen (ft bmp)	38.5	
Weather	Time Begin	08:00	Time End	09:11	

Development Data

Measuring Point	Top of Casing	Pump Intake Setting (ft bmp)	NR
MP Elevation (ft)	NA	Pumping Rate (gpm)	0
Land Surface Elevation (ft)	NA	Development Method	Submersible
Pre-Dev Well Depth (ft bmp)	40	Post-Dev Well Depth (ft bmp)	40
Pre-Dev DTW (ft bmp)	27.6	Post-Dev DTW (ft bmp)	32
Pre-Dev Water Column (ft)	12.40	Post-Dev Water Column (ft)	8.00
Casing Diameter (in) / Type	2/PVC		
Initial Well Volume (gallons)	2.01	Color	Clear
Total Well Volumes Purged	35 gallons	Odor	None
		Appearance	Clear

Field Parameters

Development Personnel:	Kyle Johnson
Notes:	35 gallons purged. Dewatered 0 times.

Well Diameter (in) = Unit Volume (gallon per ft of water column)					
Well Volume Calcs	1 = 0.04	1.5 = 0.09	2.5 = 0.26	3.5 = 0.50	6 = 1.47
	1.25 = 0.06	2 = 0.16	3 = 0.37	4 = 0.65	

ft -bmp - feet below measuring point
mV-millivolts
mg/L- Milligrams per liter
NTU - Nephelometric Turbidity Units

°F / °C- Degrees Fahrenheit/Celsius
gpm - gallons per minute
DTW - depth to water

mS/cm-Milisiemens per centimeter
ft-feet
in - Inches

Field Parameter/Stability Guidance: Three consecutive readings - pH (± 0.1 s.u), specific conductance (± 3% mS/cm), temperature (± 3% °F/°C), turbidity (±10% when turbidity is ≤ 10 NTU), DO (10% mg/L), ORP (±10 mV)



Site/Project Information

Well ID	SB-BN-12/MW-BN-06		Date	02/26/2025	
Project	BNSF Time Oil 2025 Well Installation		Project No.	30270277	
Site Location	Top of Screen (ft bmp)	22.5	Bottom of Screen (ft bmp)	37.5	
Weather	Time Begin	09:10	Time End	12:11	

Development Data

Measuring Point	Top of Casing	Pump Intake Setting (ft bmp)	NR
MP Elevation (ft)	NA	Pumping Rate (gpm)	0
Land Surface Elevation (ft)	NA	Development Method	Submersible
Pre-Dev Well Depth (ft bmp)	38	Post-Dev Well Depth (ft bmp)	38
Pre-Dev DTW (ft bmp)	29.6	Post-Dev DTW (ft bmp)	34
Pre-Dev Water Column (ft)	8.40	Post-Dev Water Column (ft)	4.00
Casing Diameter (in) / Type	2/PVC		
Initial Well Volume (gallons)	1.36	Color	Clear
Total Well Volumes Purged	15 gallons	Odor	None
		Appearance	Clear

Field Parameters

Development Personnel:	Kyle Johnson
Notes:	15 gallons purged. Dewatered 3 times.

Well Diameter (in) = Unit Volume (gallon per ft of water column)					
Well Volume Calcs	1 = 0.04	1.5 = 0.09	2.5 = 0.26	3.5 = 0.50	6 = 1.47
	1.25 = 0.06	2 = 0.16	3 = 0.37	4 = 0.65	

ft -bmp - feet below measuring point
mV-millivolts
mg/L- Milligrams per liter
NTU - Nephelometric Turbidity Units

°F / °C- Degrees Fahrenheit/Celsius
gpm - gallons per minute
DTW - depth to water

mS/cm-Milisiemens per centimeter
ft-feet
in - Inches

Field Parameter/Stability Guidance: Three consecutive readings - pH (± 0.1 s.u), specific conductance (± 3% mS/cm), temperature (± 3% °F/°C), turbidity (±10% when turbidity is ≤ 10 NTU), DO (10% mg/L), ORP (±10 mV)