

Appendix D

WSSA initial application

FN Fisheries and Marine Extract Limited (MEL) Wells

Shippagan NB

Initial Application

- 1) *Water Supply Source Assessment – Initial Application –Name of proponent*
FN Fisheries and Marine Extract Limited (MEL). EMS Engineering Ltd., 761 Hillsborough Rd. Riverview NB E1B 3W1, Ph. 506-854-7253 Cell 506-851-9969, Contact Mr. Eric Smith.

- 2) *Location of drill targets (including property PID) and purpose of the proposed water supply.*

See Figure 1 for the location of the existing wells which are located in Shippagan, NB, on PID 20371266 (FN Fisheries) and PID 20552352 (Marine Extract Limited). Although the two wells each provide water to a separate business entity, it is proposed that the two wells be tested together as they are located so closely and may interact with each other.

Well #1 (FN Fisheries) was originally installed in 1950 or earlier and operated by Eagle Fisheries Ltd. for an existing fish plant dating back to 1850 or earlier. Over time the wooden fish plant expanded and built over the well which is now in the middle of the building. In 1965 the wooden plant burnt down and National Sea Products Ltd. (NPL) who owned the facility at that time built a new metal plant in 1966 on the original location and processed herring, cod, lobster, snow crab as well as fishmeal. In 1987 after the decline of the cod fishery NPL sold to FN who processed snow crab, herring, and fishmeal. The existing FN facility would be reopened under its existing name and ownership. It would be mainly processing shellfish, mainly lobster and snow crab, whose landing have been consistent over the past 30 years and are sustainable. There would be more emphasis on secondary processing and securing additional shellfish by products from other local fish plants. Besides primary fish processing food grade flavoring products would be made from protein recovered and food grade material for chitin/chitosan products. The FN plant had 428 workers in 2011 when it last operated.

Well #2 (Marine Extract Limited (MEL)) was originally drilled in 1993 to replace an existing process well that could not be located following an ownership transfer in 1992. The existing MEL facility would be reopened under its existing name and ownership. It would be mainly processing shellfish waste, mainly lobster and snow crab, whose landing have been consistent over the past 30 years and is sustainable. The MEL operation would focus on specialty chitosan and food grade chitin and chitosan, producing finished products

for world markets based on existing patents and product development previously developed by MEL's partners and investors (Dupont and ConAgra). The MEL plant had 45 workers when it was operating, including many engineers and scientists. The wastewater pollution system would remain the same. It consists of all discharge being filtered through an external wire wedge screens 25 mesh then 2 secondary settling tanks and then a biodigester with a sludge tanker taking waste to peat composting facilities. The well and the building is existing; however, building improvements are required to meet current Canadian Food Inspection Agency (CFIA) requirement for export to USA and Europe. The existing process equipment would be upgraded to meet these standards as well.

3) *Required water quantity (in m³/day) and/or required pumping rate.*

The FN 6 in. well operated for many years with a 10 hp s/st submersible pump producing about 200 imp gal/min. Blue Cove Group Ltd. (BCG) did a lease to purchase FN in 1998. It had the well inspected by Modern Well Drilling and work was done to increase the well output with larger pumps to 350 imp gal/min. Water quality tests were completed to verify it was acceptable for food processing. In a March 9, 2001 Fax to Eric Smith from F. Dwight Ball of Three-D GeoConsultants re Motor Fuel Contamination it was confirmed that the existing well would be contaminated with petroleum products and could not be used for food processing water in its existing condition. In October 2001 BCG notified FN legal counsel that the fish plant could not continue to operate as BCG would not be able to get CFIA operating approval due to excessive petroleum contamination on the site. In a 2012 ACER report it is stated that: "For the on-site food grade water supply, 11MWS1, all BTEX parameters were exceeded as well as the modified TPH value that was identified to be gasoline fraction. As of 2021 the Town of Shippagan is allowing the FN private water well to operate and wants the facility reopened. The NBDELG has issued a ministerial order to IOL to clean up adjacent properties to required standards and IOL agrees to do this. NBDELG issued potable water cleanup standards to IOL in 2022. With the area being cleaned up to potable water standards there is no reason why the existing FN well cannot be reused in the future to provide process water for food grade processing. The well is existing and has operated for an extended period in the past.

The MEL 8 in. well operated with a 15 hp s/st submersible pump producing about 350 imp gal/min. As of 2021 the Town of Shippagan is allowing the MEL private water well to operate and wants the facility reopened. The NBDELG has issued a ministerial order to IOL to clean up adjacent properties to required standards and IOL agrees to do this. NBDELG issued potable water cleanup standards to IOL in 2022. With the area being cleaned up to potable water standards there is no reason why the existing MEL well cannot be reused in the future to provide process water for food grade processing. The well is existing and has operated for an extended period in the past.

4) *List alternate water supply sources in area (including municipal systems).*

The Town of Shippagan operates a municipal water supply in the area. Using this source would be too expensive and, given the volume of water being sought, it is doubtful that the municipal supply could supply that much water on a sustainable basis. As mentioned above, the subject wells have operated in the past to provide water for the same uses as are now proposed.

5) *Discuss area hydrogeology as it relates to the project requirements.*

The surficial geology for the area consists of Late Wisconsinan and/or Early Holocene-aged marine sediments deposited as flat lying blankets and plains, consisting of sand, silt, some gravel and clay. Based on local well logs the overburden in the area varies from 0.0 to 6.1 meters (0 to 20 feet) in thickness. The bedrock geology below the subject property is comprised of Late Carboniferous-aged rocks comprised of the Pictou Group and consisting of red to grey sandstone, conglomerate and siltstone. It is this unit that makes up the bedrock aquifer. The bedrock units or layers tend to be lenticular (i.e. of variable lateral extent and thickness) and are thought to have formed as a result of sedimentary particles deposited from flowing water (alluvial deposition). The individual beds average less than 1 meter in thickness; however, the total bedrock unit can be several hundred meters thick. This bedrock aquifer covers a large portion of New Brunswick, stretching from the Fredericton area northeast to Shippagan and southeast to the Shediac area.

Based on common knowledge of the area, the bedrock aquifer has been successfully developed for private residential wells by a number of individuals over the general area. The general conditions found in the aquifer are suitable for water supply development. Local well drillers with knowledge of the area confirmed the potential for water supply development.

NBDELG Well Log Data: A search of the NBDELG well log database for records located within a 1000 m radius around PID 20371266 was carried out November 14, 2022 and the search yielded 11 well logs. Removing duplicates left seven unique well logs. A summary of the information contained in the well logs is provided in Table 1, immediately below.

Table 1: Summary of hydrogeologic information derived from search of NBDELG well log database (1000-meter search radius).

Well Depth (feet)	Estimated Yield (igpm)	Depth to Bedrock (feet)	Casing Length (feet)
Average: 46.9	Average: 33.3	Average: 5.3	Average: 29.0
Median: 36	Median: 30	Median: 3.5	Median: 21
Minimum: 140	Minimum: 30	Minimum: 0	Minimum: 20
Maximum: 15	Maximum: 40	Maximum: 20	Maximum: 70

As can be seen from the above information, the average well in the area is approximately 46.9 feet deep with an estimated yield of approximately 33.3 igpm (151.4 L per min). The two wells with the highest estimated yield (40 igpm safe yield) are each 36 feet in depth in sandstone bedrock with multiple water bearing fractures producing groundwater over the shallow depth of the well. What is notable for the wells found in the database is their relatively high yields and shallow depths.

NBDELG Well Water Chemistry Data: A search of the NBDELG well chemistry database for locations in a 1500 meter radius around the target property was carried out November 14, 2022 and the search yielded six inorganic chemistry records. The precise locations of the wells from which the ground water chemistry was obtained are not available due to right to privacy considerations for the property owners. These well chemistry analytical results are provided in Table 2, which follows. The average value of the measured result and the Canadian Drinking Water Quality Guideline (CDWQG) are included in the table for the purpose of comparison. Any parameter which exceeds the Canadian Drinking Water Quality Guideline concentration is bolded and shaded for ease of recognition in the data table.

Out of the six well chemistry records available, one well exceeded the NGDWQG for chloride of 250 mg/L with measured concentrations of 968 mg/L. The same well chemistry record also exceeded the NBDWQG for sodium of 200 mg/L with a measured concentration of 406 mg/L. In addition the water from that well had elevated TDS (Total Dissolved Solids). The water in the well from which that sample was obtained is impacted by salt water.

Out of the six chemistry records available, three wells had exceedances of the CDWQG for iron of 0.3 mg/L and five wells exceeded the CDWQG concentration for manganese of 0.05 mg/L. The guidelines for iron and/or manganese are based on esthetic considerations, not health. Iron and/or manganese can cause staining of plumbing fixtures and laundry.

FN Fisheries PID 20371266

NBDWQG = New Brunswick Drinking Water Quality Guideline

Table 2

NBDELG Groundwater Chemistry Database

Parameter	ALK_T (mg/L)	Al (mg/L)	As (µg/L)	B (mg/L)	Ba (mg/L)	Br (mg/L)	COND (µSIE/cm)	Ca (mg/L)	Cd (µg/L)
	48.5	0.025	1.85	0.038	0.283	0.23	326	10.9	0.5
	75.6	0.025	1.5	0.044	0.275	0.1	211	15.3	0.5
	81.7	0.025	1.5	0.052	0.01	0.1	254	0.1	0.5
	99.7	0.025	1.5	0.028	0.286	0.1	476	25.1	0.5
	42.8	0.025	5.46	0.019	1.84	0.892	888	40.2	0.5
	69.9	0.025	5.14	0.126	0.558	3.18	3310	164	0.5
Mean	69.7	0.025	2.8	0.051	0.542	0.8	911	42.6	0.5
NBDWQG			<10	<5.0	<1.0				<5.0

Parameter	Cl (mg/L)	Cr (µg/L)	Cu (µg/L)	E_coli P/A (P/A)	F (mg/L)	Fe (mg/L)	HARD (mg/L)	K (mg/L)	Mg (mg/L)
	61.6	10	10	Ab	0.1	0.453	46.3	1.61	4.65
	19.3	10	10	Ab	0.1	0.096	56.8	1.1	4.54
	26.9	10	10	Ab	0.1	0.041	0.67	0.1	0.1
	81.4	10	12	Ab	0.1	0.015	77.7	1.8	3.64
				ND					
	224	10	23	Ab	0.1	7.72	162	2.43	15
	968	10	44	Ab	0.1	1.33	808	11.6	96.8
Mean	230.2	10	18		0.10	1.609	191.9	3.11	20.79
NBDWQG	<250	<50	<1000		<1.5	<0.3			

FN Fisheries PID 20371266

NBDWQG = New Brunswick Drinking Water Quality Guideline

Table 2

NBDELG Groundwater Chemistry Database

Parameter	Mn (mg/L)	NO2 (mg/L)	NO3 (mg/L)	NOX (mg/L)	Na (mg/L)	PH (pH)	Pb (µg/L)	SO4 (mg/L)	Sb (µg/L)
	5.47	0.05	0.05	0.05	35.9	6.73	1.48	6.83	1
	8.8	0.05	0.17	0.22	15.2	7.14	1	2.96	1
	0.005	0.05	0.05	0.06	58.7	7.22	1.4	3.18	1
	3.1	0.05	0.08	0.08	66.7	7.36	1	6.58	1
	14.7	0.05	0.05	0.05	88.3	7.09	1	23	1
	12.1	0.05	0.111	0.161	406	7.09	2.04	93.7	1
Mean	7.363	0.05	0.09	0.10	111.80	7.11	1.3	22.71	1.00
NBDWQG	<0.05	<10	<10	<10	<200	7.0-10.5	<10	<500	6

Parameter	Se (µg/L)	TC-P/A (P/A)	TURB (NTU)	TI (µg/L)	U (µg/L)	Zn (µg/L)	TDS (mg/L)
	1.5	Ab	1.2	1	0.5	12	157
	1.5	Ab	0.64	1	0.5	10	114
	1.5	Ab	0.43	1	0.5	5	139
	1.5	Pr	0.5	1	0.5	52	249
		ND					
	2.02	Ab	40.7	1	0.5	66	441
	17.7	Ab	8.4	1	0.5	26	1796
Mean	4.3		8.6	1	0.5	29	483
NBDWQG	<10		<1.0		<20		

The presence of Iron and/or manganese in the groundwater from this aquifer is not uncommon and is commonly the result of natural conditions.

As can be seen in Table 2, one out of the six available water quality sample results fall outside the range of pH recommended in the Canadian Drinking Water Quality Guidelines. The variations observed are minimal and for practical purposes it is doubtful that these variations in pH would impact the usability of the water in a water source. The pH of water is important in determining water treatment methods; however, it is not a health-related water quality standard. The pH of water may be adjusted to prevent or reduce corrosion in the distribution system and this is easily accomplished using commercially available water treatment equipment.

A total of three out of the six chemistry records available had elevated turbidity present in the samples. The elevated levels of turbidity may be related to the relative newness of the wells and they may not have had sufficient time, or use, to clear naturally. Most new wells clear naturally with time and use. At levels in excess of 5 NTUs turbidity may become noticeable to consumers and therefore, objectionable. The turbidity may be the result of elevated concentrations of iron and or manganese or the presence of particulate in the water

There were seven sample results for microbiology. Out of the six results there were no detections of E. coli and one detection of total coliforms.

All other sample results, other than those specifically discussed above, had concentrations below the New Brunswick Drinking Water Quality Guidelines.

6) *Outline the proposed hydrogeological testing and work schedule.*

The intent is to proceed as soon as possible following approval of the Initial Application. It is intended to pump test each of the existing production wells simultaneously at 350 igpm for 72 hours followed by recovery. In practical terms this probably cannot be carried out until after spring thaw as Well #2 is currently buried and will have to be excavated prior to testing.

7) *Identify any existing pollution or contamination hazards within a minimum radius of 500 m from the proposed drill targets. Historical land use that might pose a contamination hazard (tannery, industrial, waste disposal, etc.) should also be discussed.*

It is known that considerable historical hydrocarbon contamination has existed in the bedrock within 500 meters of the existing production wells. The two existing production wells will be sampled for BTEX and TPH prior to pump testing. If the analytical results of these samples meet the ecological criteria for discharge to marine waters, a second test will be conducted. This test will be comprised of pumping the two wells at the target rate for 4 hours followed by BTEX and TPH samples to determine if contamination is being pulled in from adjacent properties. As the BTEX and TPH samples will have to be couriered to RPC in Fredericton for analysis, the shortest turn around for analytical results is predicted to be 48 hours. If the analytical results of this test meet the applicable criteria then the pump test would be subsequently started. BTEX and TPH samples, as well as inorganic chemistry, and microbiology samples will be collected at the start of pumping, and at 24, 48, and 72 hours into the pump test. The current state of contamination impacts will be estimated based on those sample results. The surrounding area is developed with commercial facilities and some residences present.

- 8) *Identify any groundwater use problems (quantity or quality) that have occurred in the area.*

It is known that considerable historical hydrocarbon contamination has existed in the bedrock within 500 meters of the existing production wells.

- 9) *Identify any watercourse(s) (stream, brook, river, wetland, etc.) within 60 m of the proposed drill targets.*

No watercourses are identified within 60 m of the production wells.

- 10) *Identify site supervisory personnel involved in the source development (municipal officials, consultants, and drillers).*

Modern Well Drilling Ltd. (Well Drillers)

Doug Craig, P.Geo (Craig Hydrogeologic, hydrogeologist)

- 11) *Attach a 1:10000 map and/or recent air photo clearly identifying the following: proposed location of drill targets and property PID, domestic or production wells within a 500 m radius from the drill target(s), and any potential hazards identified in question 7.*

See attached drawing Figure 2. The air photo shows the existing development around the project site. The existing development may have groundwater supply wells; however, the details of the wells including specific locations are not known. The area is provided with potable water by the Shippagan municipal water supply, and it is expected that most properties will use this source.

12) Attach a land use/zoning map of the area (if any). Superimpose drill targets on this map.

A zoning map is attached to this document.

13) Contingency plan for open loop earth energy systems.

Not applicable.

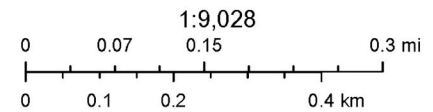


TITRE DU PLAN WELLS LOCATION PLAN <small>DRAWING TITLE</small>		EXPERT-CONSEIL		NO. DE PROJET 22-38 <small>PROJECT NUMBER</small>		ÉCHELLE 1 : 1 250 <small>SCALE</small>	
PROJET EIA FISH PLANTS REOPENING <small>PROJECT</small>				DESSINÉ PAR A. DUGUAY <small>DRAWN BY</small>		VÉRIFIÉ PAR M. BASQUE <small>CHECKED BY</small>	
				DATE NOV. 28, 2022 <small>DATE</small>		NO. DU PLAN FIGURE 1 <small>DRAWING NUMBER</small>	



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- parcels
- Buildings
- Year of Photography
- Large Scale

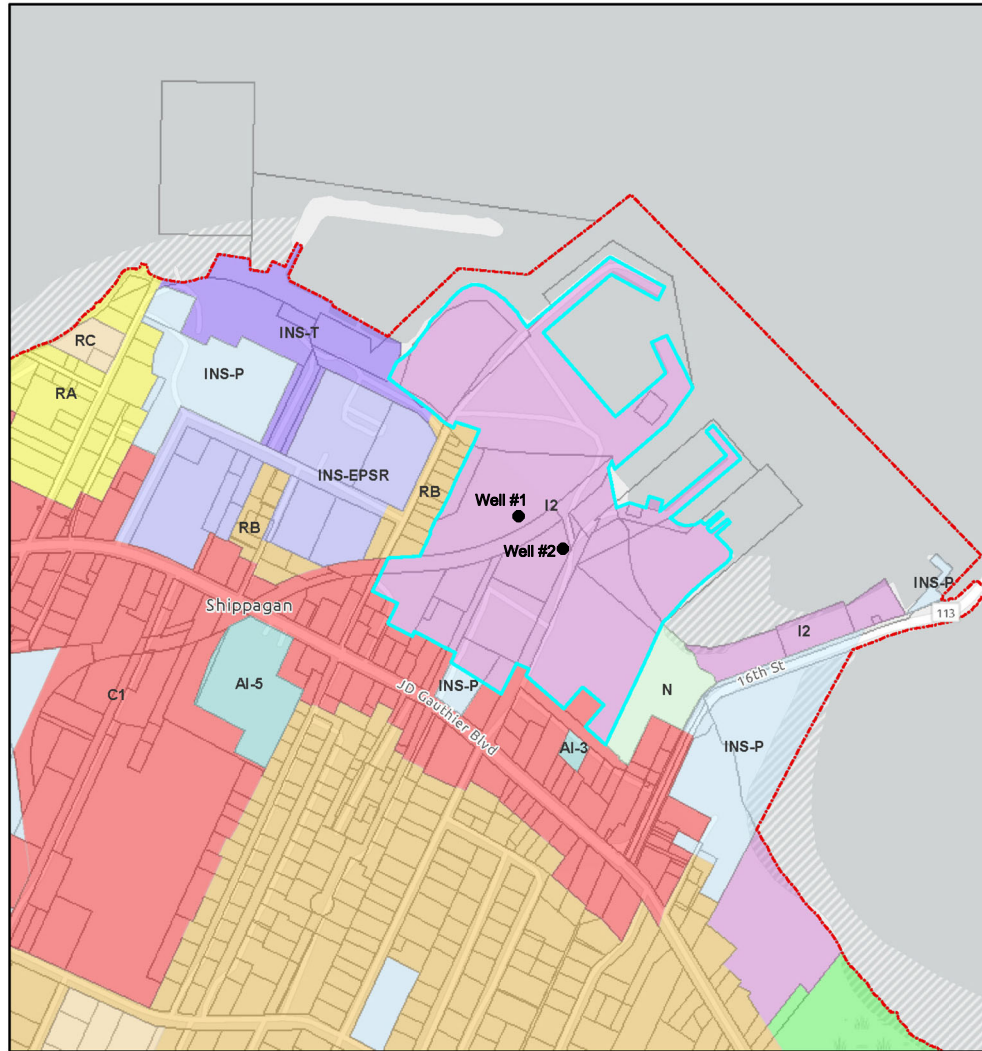


Department of Environment and Local Government / Ministère de l'Environnement et des Gouvernements locaux

GeoNB

This map is a graphical representation which approximates the size, configuration and location of features. This map is not intended to be used for legal descriptions or to calculate exact dimensions or area.

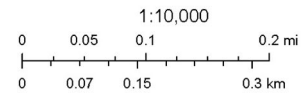
ArcGIS Web Map



22/02/2023 08:42:01

- Limite ville de Shippagan
- Résidentielle unifamiliale (RA)
- Résidentielle uni. et bifamiliale (RB)
- Résidentielle multifamiliale (RC)
- Commerciale centre-ville (C1)
- Institutionnelle de proximité (INS-P)
- Institutionnelle touristique (INS-T)

Layer_Shippagan_public_Zonage_refondue_vue



Esri Community Maps Contributors, Province of New Brunswick, Esri Canada, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/ NASA, USGS, US Census Bureau, NRCan, Parks Canada

ArcGIS Web AppBuilder

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Well Driller's Report

Date printed 11/14/2022

Drilled by			
Well Use	Work Type	Drill Method	Work Completed
Non-Drinking Water, Heat Pump	New Well	Rotary	07/22/2008

Casing Information		Casing above ground			Drive Shoe Used?
Well Log	Casing Type	Diameter	From	End	Slotted?
4738	Steel	6 inch	0ft	15ft	

Aquifer Test/Yield							
Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	11ft <i>(BTC - Below top of casing)</i>	30 igpm	0hr 30min	11ft	30 igpm	No	0 igpm

Well Grouting
There is no Grout information.

Drilling Fluids Used	Disinfectant	Pump Installed
None	Bleach (Javex)	Submersible
	Qty 0 ig	Intake Setting (BTC)
		0ft

Driller's Log				
Well Log	From	End	Colour	Rock Type
4738	0ft	3ft	Brown	Sand
4738	3ft	21ft	Brown	Medium Sandstone
4738	21ft	25ft	Brown	Clay
4738	25ft	32ft	Grey	Medium Sandstone
4738	32ft	37ft	Brown	Sandstone

Overall Well Depth
37ft
Bedrock Level
0ft

Water Bearing Fracture Zone		
Well Log	Depth	Rate
4738	18ft	5 igpm
4738	31ft	20 igpm

Setbacks		
Well Log	Distance	Setback From
4738	65ft	Right of any Public Way Road

Well Driller's Report

Date printed 11/14/2022

Drilled by	Well Use	Work Type	Drill Method	Work Completed
	Non-Drinking Water, Heat Pump	New Well	Rotary	09/13/2010

Casing Information		Casing above ground			Drive Shoe Used?
Well Log	Casing Type	Diameter	From	End	Slotted?
21416	Steel	6 inch	0ft	20ft	

Aquifer Test/Yield							
Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	13ft	40 igpm	0hr 30min	13ft	40 igpm	No	0 igpm
<i>(BTC - Below top of casing)</i>							

Well Grouting
There is no Grout information.

Drilling Fluids Used	Disinfectant	Pump Installed
Water	N/A	N/A
	Qty 0 ig	Intake Setting (BTC)
		0ft

Driller's Log				
Well Log	From	End	Colour	Rock Type
21416	0ft	4ft	Brown	Fill
21416	4ft	8ft	Brown	Coarse Sandstone
21416	8ft	19ft	Brown	Medium Sandstone
21416	19ft	21ft	Brown	Coarse Sandstone
21416	21ft	23ft	Brown	Clay and Sandstone
21416	23ft	24ft	Brown	Coarse Sandstone
21416	24ft	36ft	Brown	Medium Sandstone

Overall Well Depth
36ft
Bedrock Level
4ft

Water Bearing Fracture Zone		
Well Log	Depth	Rate
21416	21ft	10 igpm
21416	23ft	15 igpm
21416	33ft	15 igpm

Setbacks		
Well Log	Distance	Setback From
21416	35ft	Right of any Public Way Road

Well Driller's Report

Date printed 11/14/2022

Drilled by	Well Use	Work Type	Drill Method	Work Completed
	Non-Drinking Water, Heat Pump	New Well	Rotary	09/13/2010

Casing Information		Casing above ground			Drive Shoe Used?
Well Log	Casing Type	Diameter	From	End	Slotted?
21417	Steel	6 inch	0ft	20ft	

Aquifer Test/Yield							
Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	13ft	40 igpm	0hr 30min	13ft	40 igpm	No	0 igpm
<i>(BTC - Below top of casing)</i>							

Well Grouting
There is no Grout information.

Drilling Fluids Used	Disinfectant	Pump Installed
Water	N/A	N/A
	Qty 0 ig	Intake Setting (BTC) 0ft

Driller's Log				
Well Log	From	End	Colour	Rock Type
21417	0ft	1ft	Brown	Topsoil
21417	1ft	16ft	Brown	Medium Sandstone
21417	16ft	23ft	Brown	Fine Sandstone
21417	23ft	28ft	Brown	Medium Sandstone
21417	28ft	30ft	Brown	Clay
21417	30ft	36ft	Brown	Medium Sandstone

Overall Well Depth
36ft
Bedrock Level
1ft

Water Bearing Fracture Zone		
Well Log	Depth	Rate
21417	23ft	5 igpm
21417	33ft	40 igpm

Setbacks
There is no Setback information.

Well Driller's Report

Date printed 11/14/2022

Drilled by	Well Use	Work Type	Drill Method	Work Completed
	Non-Drinking Water, Monitoring	New Well	Rotary	07/22/2010

Casing Information	Casing above ground	Drive Shoe Used?
There is no casing information.		

Aquifer Test/Yield							
Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
	0ft	0 igpm	0hr	0ft	0 igpm	No	0 igpm
<i>(BTC - Below top of casing)</i>							

Well Grouting			
Well Log	Grout Type	From	End
24259	Bentonite	0ft	4ft

Drilling Fluids Used	Disinfectant	Pump Installed
None	N/A	N/A
	Qty	Intake Setting (BTC)
	0 ig	0ft

Driller's Log				
Well Log	From	End	Colour	Rock Type
24259	0ft	2ft	Purple & grey	Sand and Gravel
24259	2ft	4ft	Brown	Topsoil and Sand
24259	4ft	6ft	Brown	Coarse Sandstone
24259	6ft	8ft	Brown	Coarse Sandstone
24259	8ft	13ft	Brown	Coarse Sandstone
24259	13ft	15ft	Brown	Medium Sandstone

Overall Well Depth
15ft
Bedrock Level
2ft

Water Bearing Fracture Zone
There is no water bearing fracture zone information.

Setbacks
There is no Setback information.

Well Driller's Report

Date printed 11/14/2022

Drilled by	Well Use	Work Type	Drill Method	Work Completed
	Non-Drinking Water, Monitoring	New Well	Rotary	07/22/2010

Casing Information	Casing above ground	Drive Shoe Used?
There is no casing information.		

Aquifer Test/Yield							
Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
	0ft	0 igpm	0hr	0ft	0 igpm	No	0 igpm
<i>(BTC - Below top of casina)</i>							

Well Grouting	Drilling Fluids Used	Disinfectant	Pump Installed
There is no Grout information.	None	N/A	N/A
		Qty 0 ig	Intake Setting (BTC) 0ft

Driller's Log	Overall Well Depth
There is no rock layer information.	15ft
	Bedrock Level
	2ft

Water Bearing Fracture Zone
There is no water bearing fracture zone information.

Setbacks
There is no Setback information.

Well Driller's Report

Date printed 11/14/2022

Drilled by	Well Use	Work Type	Drill Method	Work Completed
	Drinking Water, Domestic	New Well	Rotary	11/08/2018

Casing Information		Casing above ground			Drive Shoe Used?
Well Log	Casing Type	Diameter	From	End	Slotted?
37197	Steel	6 inch	0ft	70ft	

Aquifer Test/Yield							
Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	40ft	30 igpm	1hr	40ft	30 igpm	No	0 igpm
<i>(BTC - Below top of casing)</i>							

Well Grouting
There is no Grout information.

Drilling Fluids Used	Disinfectant	Pump Installed
None	Chlorine pellets	Submersible
	Qty 0 ig	Intake Setting (BTC)
		80ft

Driller's Log				
Well Log	From	End	Colour	Rock Type
37197	0ft	18ft	Grey	Sandstone
37197	18ft	65ft	Brown	Clay
37197	65ft	120ft	Grey	Sandstone
37197	120ft	140ft	Brown	Clay

Overall Well Depth
140ft
Bedrock Level
0ft

Water Bearing Fracture Zone		
Well Log	Depth	Rate
37197	120ft	30 igpm

Setbacks		
Well Log	Distance	Setback From
37197	60ft	Septic Tank
37197	80ft	Leach Field
37197	75ft	Right of any Public Way Road
37197	80ft	Center of road

Drilled by			
Well Use	Work Type	Drill Method	Work Completed
Drinking Water, Domestic	New Well	Rotary	11/08/2018

Casing Information		Casing above ground			Drive Shoe Used?
Well Log	Casing Type	Diameter	From	End	Slotted?
37197	Steel	6 inch	0ft	70ft	

Aquifer Test/Yield							
Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	40ft	30 igpm	1hr	40ft	30 igpm	No	0 igpm
<i>(BTC - Below top of casina)</i>							

Well Grouting
There is no Grout information.

Drilling Fluids Used	Disinfectant	Pump Installed
None	Chlorine pellets	Submersible
	Qty 0 ig	Intake Setting (BTC)
		80ft

Driller's Log				
Well Log	From	End	Colour	Rock Type
37197	0ft	18ft	Grey	Sandstone
37197	18ft	65ft	Brown	Clay
37197	65ft	120ft	Grey	Sandstone
37197	120ft	140ft	Brown	Clay

Overall Well Depth
140ft

Bedrock Level
0ft

Water Bearing Fracture Zone		
Well Log	Depth	Rate
37197	120ft	30 igpm

Setbacks		
Well Log	Distance	Setback From
37197	60ft	Septic Tank
37197	80ft	Leach Field
37197	75ft	Right of any Public Way Road
37197	80ft	Center of road

Drilled by			
Well Use	Work Type	Drill Method	Work Completed
Drinking Water, Domestic	New Well	Rotary	11/08/2018

Casing Information		Casing above ground			Drive Shoe Used?
Well Log	Casing Type	Diameter	From	End	Slotted?
37197	Steel	6 inch	0ft	70ft	

Aquifer Test/Yield							
Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	40ft	30 igpm	1hr	40ft	30 igpm	No	0 igpm
<i>(BTC - Below top of casina)</i>							

Well Grouting
There is no Grout information.

Drilling Fluids Used	Disinfectant	Pump Installed
None	Chlorine pellets	Submersible
	Qty 0 ig	Intake Setting (BTC)
		80ft

Driller's Log				
Well Log	From	End	Colour	Rock Type
37197	0ft	18ft	Grey	Sandstone
37197	18ft	65ft	Brown	Clay
37197	65ft	120ft	Grey	Sandstone
37197	120ft	140ft	Brown	Clay

Overall Well Depth
140ft
Bedrock Level
0ft

Water Bearing Fracture Zone		
Well Log	Depth	Rate
37197	120ft	30 igpm

Setbacks		
Well Log	Distance	Setback From
37197	60ft	Septic Tank
37197	80ft	Leach Field
37197	75ft	Right of any Public Way Road
37197	80ft	Center of road

Drilled by			
Well Use	Work Type	Drill Method	Work Completed
Drinking Water, Domestic	New Well	Rotary	11/08/2018

Casing Information		Casing above ground			Drive Shoe Used?
Well Log	Casing Type	Diameter	From	End	Slotted?
37197	Steel	6 inch	0ft	70ft	

Aquifer Test/Yield							
Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	40ft	30 igpm	1hr	40ft	30 igpm	No	0 igpm
<i>(BTC - Below top of casina)</i>							

Well Grouting
There is no Grout information.

Drilling Fluids Used	Disinfectant	Pump Installed
None	Chlorine pellets	Submersible
	Qty 0 ig	Intake Setting (BTC)
		80ft

Driller's Log				
Well Log	From	End	Colour	Rock Type
37197	0ft	18ft	Grey	Sandstone
37197	18ft	65ft	Brown	Clay
37197	65ft	120ft	Grey	Sandstone
37197	120ft	140ft	Brown	Clay

Overall Well Depth
140ft

Bedrock Level
0ft

Water Bearing Fracture Zone		
Well Log	Depth	Rate
37197	120ft	30 igpm

Setbacks		
Well Log	Distance	Setback From
37197	60ft	Septic Tank
37197	80ft	Leach Field
37197	75ft	Right of any Public Way Road
37197	80ft	Center of road

Well Driller's Report

Date printed 11/14/2022

Drilled by	Work Type	Drill Method	Work Completed
Well Use	New Well (NEW WELL)	Rotary (ROTARY)	10/24/1994
Non-Drinking Water, Exploratory			

Casing Information		Casing above ground			Drive Shoe Used?
Well Log	Casing Type	Diameter	From	End	Slotted?
90024500	Steel	6 inch	0ft	22ft	

Aquifer Test/Yield							
Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Air	13ft	15 igpm	1hr	13ft	30 igpm	No	0 igpm
<i>(BTC - Below top of casing)</i>							

Well Grouting
There is no Grout information.

Drilling Fluids Used	Disinfectant	Pump Installed
None	Other	N/A
	Qty 0 ig	Intake Setting (BTC)
		0ft

Driller's Log				
Well Log	From	End	Colour	Rock Type
90024500	0ft	4ft	Brown	Gravel
90024500	4ft	13ft	Brown	Medium Sandstone
90024500	13ft	19ft	Brown	Shale
90024500	19ft	32ft	Brown and black	Medium Sandstone

Overall Well Depth
32ft

Bedrock Level
4ft

Water Bearing Fracture Zone		
Well Log	Depth	Rate
90024500	25ft	10 igpm
90024500	29ft	10 igpm
90024500	27ft	10 igpm

Setbacks
There is no Setback information.

Well Driller's Report

Date printed 11/14/2022

Drilled by	Work Type	Drill Method	Work Completed
Well Use	New Well (NEW WELL)	Rotary (ROTARY)	10/24/1994
Non-Drinking Water, Exploratory			

Casing Information		Casing above ground			Drive Shoe Used?
Well Log	Casing Type	Diameter	From	End	Slotted?
90024600	Steel	6 inch	0ft	22ft	

Aquifer Test/Yield							
Method	Initial Water Level (BTC)	Pumping Rate	Duration	Final Water Level (BTC)	Estimated Safe Yield	Flowing Well?	Rate
Pump	13ft	15 igpm	1hr	13ft	30 igpm	No	0 igpm
<i>(BTC - Below top of casing)</i>							

Well Grouting	Drilling Fluids Used	Disinfectant	Pump Installed
There is no Grout information.	None	Other	N/A
		Qty 0 ig	Intake Setting (BTC)
			0ft

Driller's Log				
Well Log	From	End	Colour	Rock Type
90024600	0ft	5ft	Brown	Gravel
90024600	5ft	16ft	Brown	Medium Sandstone
90024600	16ft	20ft	Brown	Shale
90024600	20ft	32ft	Brown and black	Medium Sandstone

Overall Well Depth
32ft
Bedrock Level
20ft

Water Bearing Fracture Zone		
Well Log	Depth	Rate
90024600	24ft	15 igpm
90024600	28ft	15 igpm

Setbacks
There is no Setback information.