4.0 BUILDINGS M0107, M0108, AND M0109 – TESLIN RCMP DETACHMENT AND RESIDENCES

4.1 Description of Existing Water system

Water well M0107 serves three RCMP buildings including the Teslin RCMP Detachment (Building M0107) and two Teslin RCMP Residences (Buildings M0108 and M0109). The well is located approximately 5 m from the RCMP Detachment, as shown on Figure M0107-A in Appendix A4, and is completed with a pitless connection. However, the wellhead is located in a pit below grade and the well casing does not extend above ground level. All three buildings are equipped with a water softener, but at the time of inspection only the softener in Building M0108 appeared to be functional. Each of the residences (M0108 and M0109) are equipped with reverse osmosis (RO) systems to provide drinking water to dedicated point of use taps in each of the kitchens. Schematics detailing the water systems are given by Figure M0107-B, and M0109-B in Appendix A4.

There is also an abandoned well that is located in a below grade add-on from the basement of the M0109 RCMP Residence. The well is equipped with a proper cap, but it has yet to be properly decommissioned. The well was reported in the drillers log to be 143 m deep, but when measured during the site inspection was only 37 m deep, indicating that the well had been inundated with sediment and/or debris since it was abandoned. This well would require extensive rehabilitation if it were to be re-commissioned.

4.2 Description of Existing Wastewater Systems

All three RCMP buildings (M0107, M0108 and M0109) are connected to the community sewage collection system with the sewer main located along Johnson Street. The well is located approximately 40 m east of the sewer main.

4.3 Water Quality Results

4.3.1 Water Quality Results from Previous Sampling

A total of twenty bacteriological samples were taken from the three buildings served by this water system between September 2004 and March 2005. The test results did not indicate any positive coliform or *E. coli* results for samples collected from any of these systems. A summary of historical bacteriological results is presented in Table M0107-1 in Appendix A4.

Detailed potability analyses were performed on samples collected from the three RCMP buildings on September 9, 2004. The results are presented in Table M0107-2 in Appendix A4, and summarized in the following:

- The groundwater supplied by well M0107 is very hard and highly mineralized;
- The TDS concentration exceeded the CDWQG aesthetic objective (AO) of 500 mg/L in all three buildings;
- The hardness was observed to be approximately 440 mg/L in buildings M0107 and M0108, but only 1.7 mg/L in M0109. These extremely high hardness concentrations indicate the need for properly operating water-softening systems. Based on water quality results, the water softening systems for M0107 and M0108 did not appear to be functioning properly, however, the softener for M0109 did appear operational. Problems associated the softeners might be resolved by replacing the regenerant but may require further assessment.
- The sodium concentration from the M0109 water system was reported as 166 mg/L. Although the sodium concentration is below the CDWQG aesthetic objective of 200 mg/L, it should be noted that there might be some health effects for some people associated with elevated sodium in their diet. Potassium chloride would be a regenerant alternative to reduce sodium levels.
- The total and dissolved arsenic concentrations were below the current CDWQG MAC of 0.025 mg/L, but were greater than the proposed MAC of 0.005 mg/L for samples collected from all three buildings;
- The total and dissolved manganese concentrations exceeded the CDWQG AO of 0.05 mg/L for samples collected from RCMP buildings M0107 and M0108. The total manganese concentrations were below the CDWQG AO for samples collected from building M0109;

- All other parameters analyzed were below the applicable CDWQG criteria for the sample(s) submitted.

4.3.2 Identification of Additional Analytical Required

Additional parameters requiring analysis were identified prior to and/or during the site inspection and included UV absorbance, silicate, ammonia, phosphate, vanadium and confirmation of manganese and arsenic concentrations. These parameters were analyzed to confirm previous results and will be used in future disinfection system selection.

Samples for additional analytical testing were obtained by EBA during the water system assessment on June 16, 2005. Analytical results are presented in Table M0107-2 in Appendix A4, and laboratory reports are summarized in Appendix B. Results are summarized below:

- Arsenic concentrations, although not above the current CDWQG MAC of 0.025 mg/L, were observed to be above the proposed MAC of 0.005 mg/L. The concentrations of dissolved arsenic with respect to total arsenic indicated that the arsenic concentration in this well water could be almost entirely attributed to dissolved particles;
- Manganese concentrations were above the CDWQG aesthetic objective of 0.05 mg/L at each of the buildings; and,
- Measurements in the field indicated that pH at the M0107 RCMP detachment and the M0109 residence (8.66 and 8.72), were above the CDWQG aesthetic objective of 8.5. Laboratory results, however, reported the pH below 8.5 and the field pH values may be within the error of the instrument.

4.3.3 Indicators of Potential Contamination

The chloride concentrations in samples collected from taps supplied by well M0107 were observed to be greater than 20 mg/L. This may be associated with the use of water softener, but appears to be more likely representative of the aquifer chloride concentrations. Chloride concentrations in this range may occur naturally in groundwater, but may also be an indication of impacts from surface sources of contamination such as road salting, septic disposal, and/or other human activities.

4.4 Conceptual Hydrogeology

The site is located near the center of a small peninsula extending into Teslin Lake. In general, there are two primary aquifer zones identified by previous EBA studies in the Teslin area. These zones may be generalized as shallow unconfined aquifer(s) and deeper confined aquifer(s). Based on topography and proximity to surface water, the groundwater flow direction in the vicinity of the site is inferred to be southerly, but may possibly range from westerly to easterly.

4.5 Potential Contaminant Sources

Potential contaminant sources observed during the site investigation are compiled in field notes provided in Appendix A4. Photos of potential contaminant sources are also provided at the end of this appendix.

Potential contaminant sources within 30 m of wellhead M0107 (the well currently servicing the three buildings) included:

- Three above ground fuel storage tanks (ASTs).

Potential contaminant sources within 30 m of wellhead M0109 (the abandoned well) included:

- Three above ground fuel storage tanks (ASTs).

In addition, the community sewer main is located within about 40 m of well M0107 and approximately 55 m from well M0109.

4.5.1 Spills Records and Contaminated Sites Search Results

The Environment Canada Environmental Protection Branch did not identify any contaminated sites issues for this site or neighboring sites. Spill records for nighbouring sites were identified.

On four separate occations raw sewage was spilled at lift station 2 on Jackson Avenue, approximately 175 m from the active well on this site. It is unlikely that these spills impacted on groundwater quality at this site.

4.6 Identified Water System Deficiencies and Associated Risk

4.6.1 High and Medium-Risk Deficiencies;

- Wellhead M0107 is below grade in a well pit.
- From observations made during the field investigation, and given general well construction techniques employed at the time that this well was drilled, it is considered very unlikely that a surface sanitary seal was installed as required by the Canadian Groundwater Association Guidelines for Water Well Construction.
- By definition of the Draft Yukon GUDI Assessment Guideline, the well is potentially under the direct influence of surface water because it is a vulnerable type (unconfined aquifer) and does not meet the requirements of the Guidelines for Water Well Construction.
- Lack of disinfection for the water system from well M0107.
- Non-functional water softening systems.
- Proximity of well to three ASTs.
- Abandoned well M0109 not properly decommissioned.

4.6.2 Low Risk Deficiencies

- Arsenic concentrations in exceedence of proposed MAC.
- Total dissolved solids and manganese in exceedence of CDWQG AO.
- pH in exceedence of CDWQG AO for M0107 and M0109 from field chemistry.

4.7 Mitigative Options for Deficiencies

Mitigative options were developed to address the deficiencies identified in the previous section. Deficiencies are categorized by recommended level of priority (with Priority 1 being most critical).

4.7.1 Priority 1

The Priority 1 upgrades recommended for this site to immediately mitigate high or medium risk deficiencies consist of:

- The water system should be superchlorinated;

- The existing softener systems should be brought back into service and maintained as necessary so that UV disinfection systems will function properly. Sodium levels should be monitored and residents advised when they are higher than 20 mg/L, so they can contact their physicians and get instructions regarding water intake; and,
- UV disinfection systems should be installed following each pretreatment softener system.

4.7.2 Priority 2

- The wellhead at M0107 should be extended to a minimum of 500 mm above the surrounding grade, and the well pit should be backfilled with a low-permeability material to provide a surface seal around the well casing;
- A NSF-61 certified filtration system (to 1 micron absolute) should be installed in the RCMP detachment to serve that building, and another filtration system should also be installed in the M0109 residence to serve both RCMP residences;
- Well M0109 should be decommissioned in accordance with Guidelines for Water Well Construction; and,
- The above ground fuel storage tank located near the RCMP garage should be moved to a suitable location greater than 30 m from the well and preferably downgradient. Alternatively, secondary containment could be installed at the AST.

4.7.3 Priority 3

- A reverse osmosis treatment system should be installed in the RCMP detachment to provide point of use drinking water; and,
- Improve operation and/or replace water-softening systems. The water softener for the M0109 RCMP residence can likely be replumbed to serve both residences.

The recommendations pertaining to water system upgrades provided above are considered conceptual based on the information available and are intended for planning and budgeting purposes. Engineering input will be required for final treatment system design.

4.8 Cost Estimates for Mitigative Options

Engineering costs for mitigative options are estimated to be 20% of construction costs, and would include inspection and completion reporting. The costs for materials and labour (not including engineering) are provided in the sections below. An additional contingency allowance of 20% is suggested for budgetary purposes.

4.8.1 Priority 1

- Supply and installation of UV disinfection systems would cost in the order of **$4,400** for both systems, and,
- Required maintenance to reactivate the softener systems and system superchlorination would cost approximately **$400**.

4.8.2 Priority 2

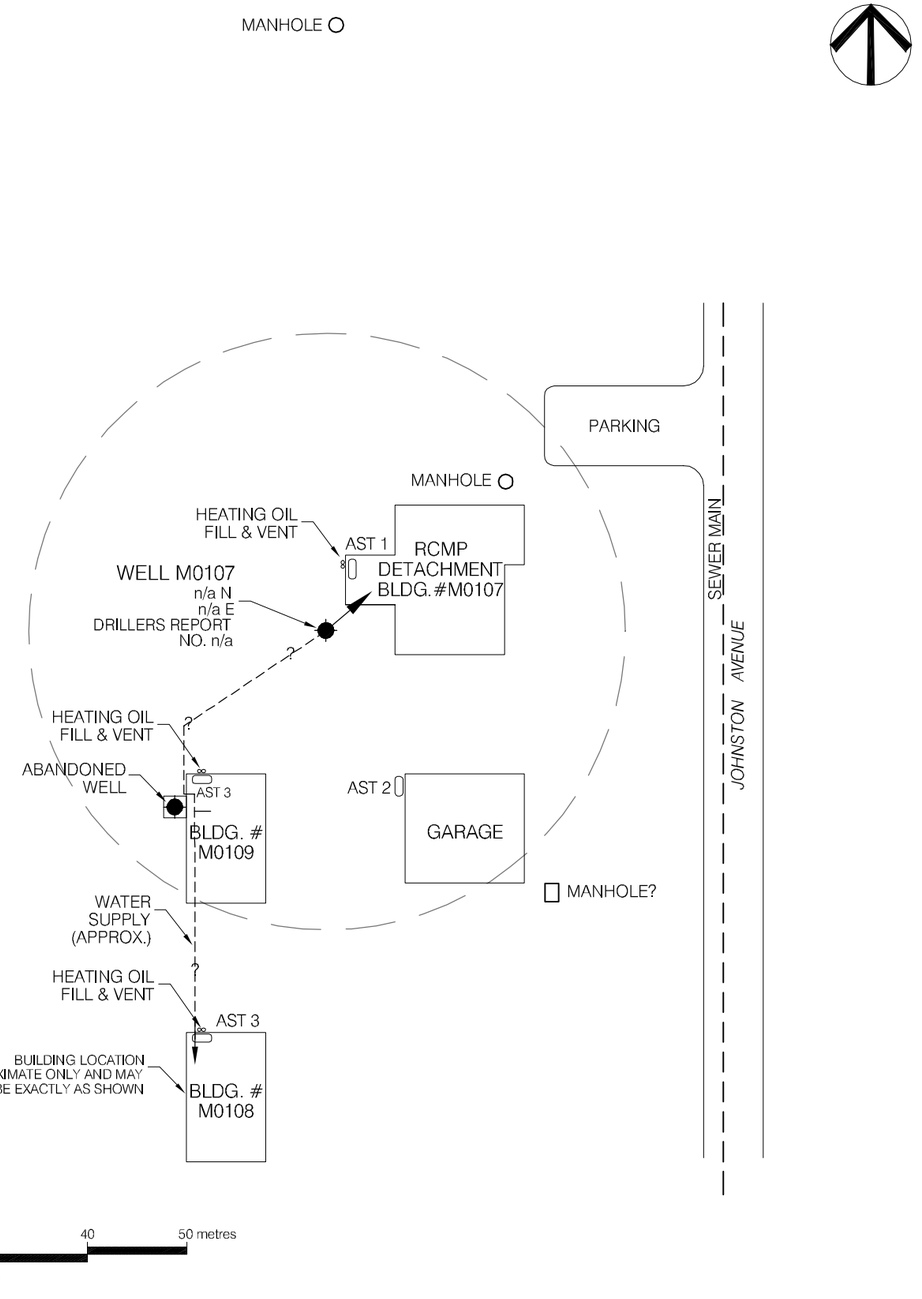
- Standard wellhead upgrades would cost in the order of **$3,000** for materials and labour;
- NSF 61 certified filtration systems would cost approximately **$1,500** each;
- Properly decommissioning the existing well in the M0109 residence would cost in the order of **$1,000**; and,
- To move the AST servicing the RCMP garage to a location greater than 30 m from the well, or to install secondary containment would cost in the order of **$1,000**.

4.8.3 Priority 3

- Installing a reverse osmosis system in the RCMP detachment building would cost in the order of **$600**.
- Repairing the water softeners would be covered by normal operation and maintenance costs.

SCALE 1: 10,000

SCHOOL



0 10 20 30 40 50 metres

SCALE 1:600

NOTES:
1. UTM COORDINATES OBTAINED WITH A HAND HELD GPS USING NAD83 SYSTEM AND ARE CONSIDERED TO BE ACCURATE TO 10.0 m, APPROXIMATELY.

30 m RADIUS FROM WATER WELL FOR CONSIDERATION OF PROXIMITY TO POTENTIAL CONTAMINANT SOURCES.

No.	DESCRIPTION	DD/MM/YY	APPROVED
0	ISSUED FOR CLIENT REVIEW	DD/MM/YY	XXX

REVISION

EBA Engineering Consultants Ltd.

DESIGNED BY:	R. MARTIN
DRAWN BY:	J. BUYCK
DATE:	JULY 2005
SCALE:	AS SHOWN
PROJECT No.:	1260002.002
ACAD FILENAME:	002-EASTERN REGION

CLIENT: Yukon
Highways and Public Works
Property Management Branch

SMALL PUBLIC WATER SYSTEMS ASSESSMENT
EASTERN REGION

GOVERNMENT OF YUKON
HIGHWAYS & PUBLIC WORKS

TESLIN RCMP BUILDINGS
M0107/M0108/M0109
SITE LOCATION DIAGRAM
WELL ID: M0107 & M0109

REVISION ISSUE 0

FIGURE No. FIGURE M0107-A

Z:\0201Drawings\1260002 Water Assessment YTG\002 - Eastern Region\teslin\1260002 M0107_M0108_M0109 Site Plans.dwg, 7/26/2005 8:59:30 AM, Adobe PDF

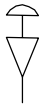
LEGEND


PUMP


PRESSURE GAUGE


GATE VALVE


CHECK VALVE

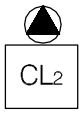

SOLENOID

#2 COMPONENT ID. No.
(SEE TABLE ON FOLLOWING PAGE)

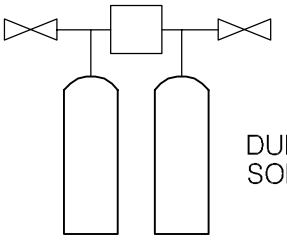
FLOW METER

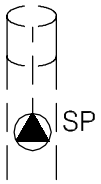
WATER FILTER
(CARTRIDGE TYPE)

PRESSURE TANK

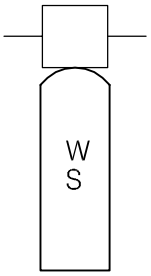


CHLORINE RESERVOIR AND
INJECTION PUMP


DUPLEX WATER
SOFTENER

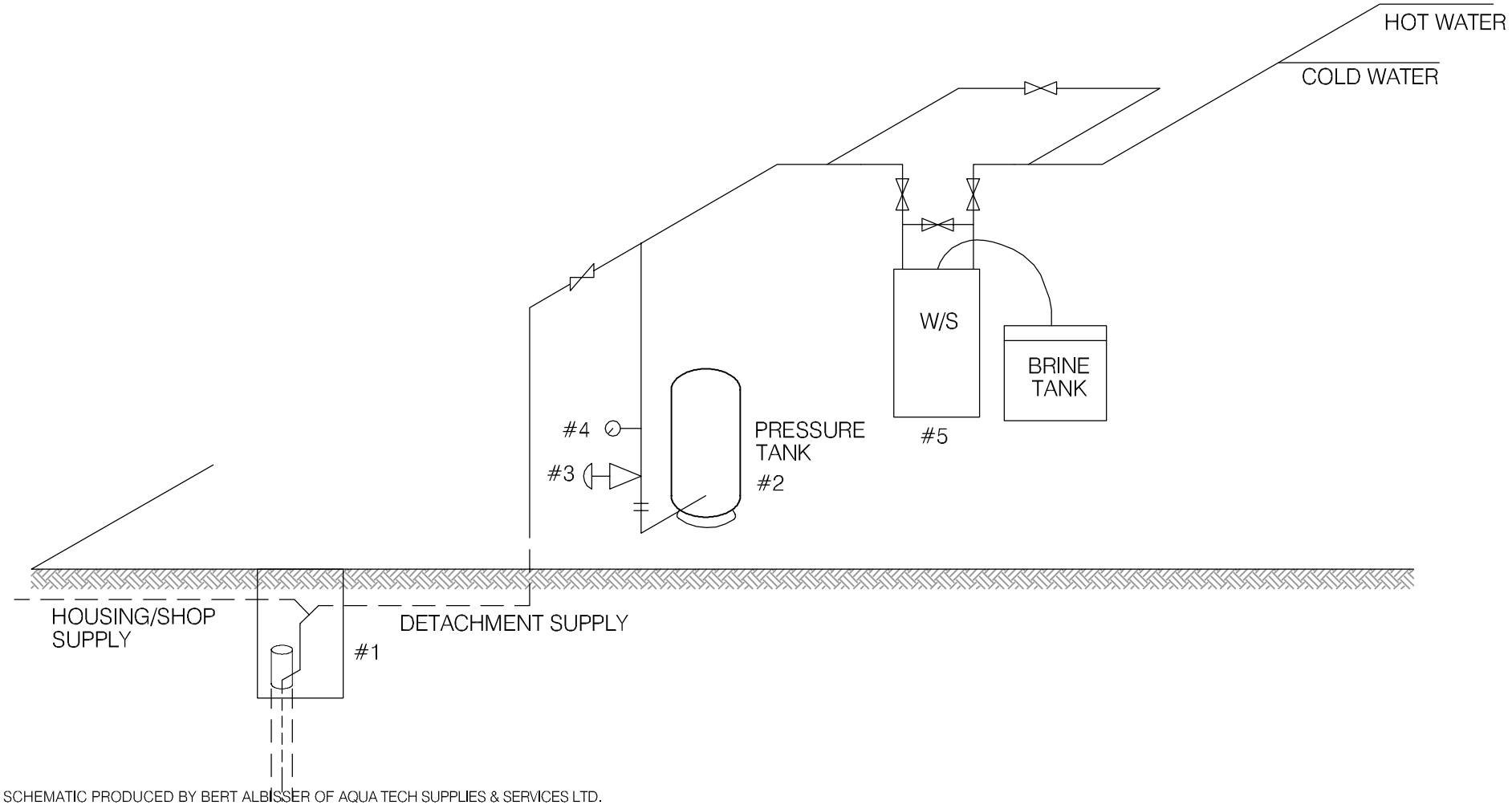


WELL WITH
SUBMERSIBLE PUMP



ACTIVATED
CARBON

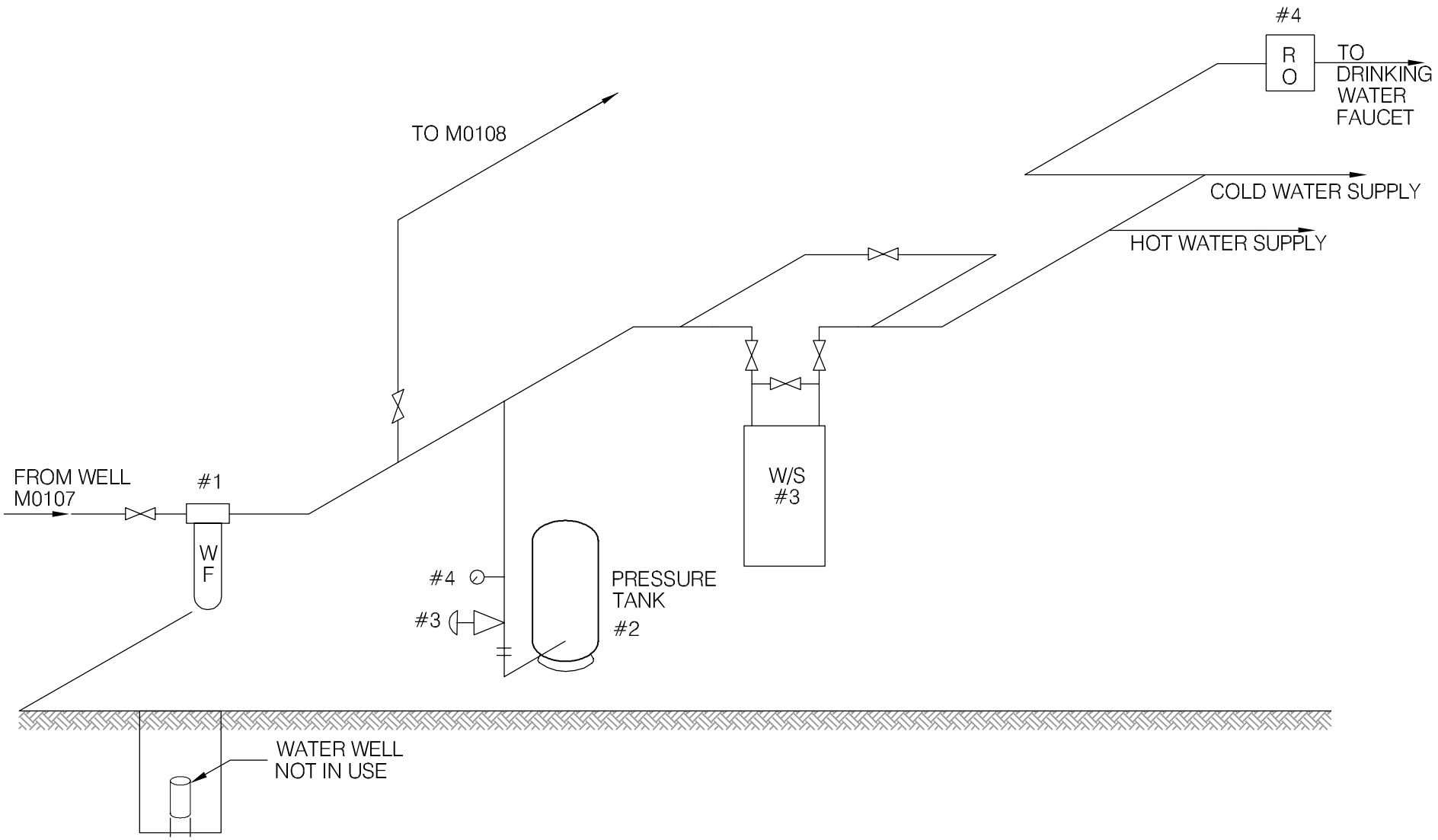
EBA Engineering Consultants Ltd.			PROJECT	SMALL PUBLIC WATER SYSTEMS ASSESSMENT EASTERN REGION	
CLIENT Yukon Highways and Public Works Property Management Branch			TITLE	SCHEMATIC SYSTEM LEGEND	
DATE APRIL 2006	DWN. JSB	CHKD. RMM	FILE NO. 1260002		DRWG. LEGEND



SCHEMATIC PRODUCED BY BERT ALBISSER OF AQUA TECH SUPPLIES & SERVICES LTD.

EBA Engineering Consultants Ltd.			PROJECT	SMALL PUBLIC WATER SYSTEMS ASSESSMENT EASTERN REGION	
CLIENT Yukon Highways and Public Works Property Management Branch			TITLE	WATER SYSTEM DISTRIBUTION/TREATMENT SCHEMATIC SYSTEM ID.: M0107 TESLIN RCMP DETACHMENT	
DATE JULY 2005	DWN. JSB	CHKD. RMM	FILE NO. 1260002.002		DWG.: FIGURE M0107-B

Z:\0201Drawings\1260002 Water Assessment YTG\002 - Eastern Region\teslin\Schematics\1260002 RCMP Detach M0107 Schematic.dwg, 7/22/2005 8:20:40 AM, Adobe PDF



SCHEMATIC PRODUCED BY BERT ALBISSER OF AQUA TECH SUPPLIES & SERVICES LTD.

EBA Engineering Consultants Ltd.			PROJECT	SMALL PUBLIC WATER SYSTEMS ASSESSMENT EASTERN REGION	
CLIENT Yukon Highways and Public Works Property Management Branch			TITLE	WATER SYSTEM DISTRIBUTION/TREATMENT SCHEMATIC SYSTEM ID.: M0109 TESLIN RCMP RESIDENCE	
DATE JULY 2005	DWN. JSB	CHKD. RMM	FILE NO. 1260002.002		DWG.: FIGURE M0109-B

Z:\0201Drawings\1260002 Water Assessment YTG\002 - Eastern Region\teslin\Schematics\1260002 RCMP Residence M0109 Schematic.dwg, 7/20/2005 12:39:52 PM, Adobe PDF

Eastern Region – R.C.M.P. Detachment
Building # M0107

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	SUB PUMP	N/A	N/A			4" - 1 HP.
2	PRESSURE TANK	WELL RITE	WR 140			
3	PRESSURE SWITCH	SQ. D	FSG-2			2HP- 1/4" FIPT
4	PRESSURE GAUGE	MARSH	0-100			2" - 1/4" MIPT
5	WATER SOFTNER	NOVATEK	HTSOMI		206674	50K
6						
7						
8						
9						
10						

Eastern Region – R.C.M.P. Housing
Building # M0108

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1						
2	PRESSURE TANK	CHALLENGER	PC266			1¼" FIPT
3	WATER SOFTENER	NOVATEK	HT50MI		Z06675	50K
4	REVERSE OSMOSIS	HYDROTECH	ETFC-24			24GPD.
5						
6						
7						
8						
9						
10						

SOFTENER REMOVED FOR REPAIR

Eastern Region – R.C.M.P. Housing
Building # M0109

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	WATER FILTER	AMETEK	10" BB			1"/2 - 10"
2	PRESSURE TANK	CHALLENGER	PC266			1"/4" FIPT
3	WATER SOFTENER	NOVATEK	HT50MI		206675	50K
4	REVERSE OSMOSIS	HYDROTECH	ETFC-ZA			Z4GPD
5						
6						
7						
8						
9						
10						

TABLE M0107- 1: SUMMARY OF BACTERIOLOGICAL RESULTS

Building #	Building Name	Number of Sampling Events	Time Period over which Sampling was Done	Any Positive Total Coliform Results? (yes or no)	Fraction of Positive Total Coliform Results vs. Total Sampling Events	Any positive E.Coli results? (yes or no)	Most Recent Sampling Event Available for EBA Review	Is Most Recent Result Positive?
M0107	R.C.M.P Detachment	7	Sept-04 to Mar-05	no	0/7	no	1-Mar-05	no
M0108	R.C.M.P Housing	7	Sept-04 to Mar-05	no	0/7	no	1-Mar-05	no
M0109	R.C.M.P Housing	6	Sept-04 to Mar-05	no	0/6	no	1-Mar-05	no

Table M0107-2: Water Quality Results

SOURCE:	Building M0107 - R.C.M.P. Detachment		Building M0108 - R.C.M.P. Housing		Building M0109 - R.C.M.P. Housing		GCDWQ Criteria		
Location/ Resident	Teslin		Teslin		Teslin				
Address	Block 11		Block 12		Block 13				
Treatment	Water Softener (not in use)		Water Softener (not in use), RO		Water Softener, Filter, RO				
Disinfection	No		No		No				
Source of Water	M0107 Well		M0107 Well		M0107 Well				
Purpose of Sampling	Baseline	Additional Sampling	Baseline	Additional Sampling	Baseline	Additional Sampling			
Sample Location		Downstairs Laundry Tub Tap		Kitchen Sink		Kitchen Tap			
Date Sampled	9-Sep-04	16-Jun-05	9-Sep-04	16-Jun-05	9-Sep-04	16-Jun-05	**Lower Limit**	**Upper Limit**	
Physical Tests *(ALS)*							**AO**	**MAC**	**AO**
Colour (CU)	<5.0		<5.0		<5.0				15
Total Dissolved Solids	**502**		**506**		**617**				500
Hardness CaCO3	**442**		**440**		1.7		AO >200 = poor, > 500 unacceptable[A]		
pH	8.3		8.3		8.47		6.5		8.5
Turbidity (NTU)	0.7		0.8		0.4			1	5
UV Absorbance		0.0260		0.0280		0.0260			
Dissolved Anions *(ALS)*									
Alkalinity-Total CaCO3	229		229		227				
Chloride Cl	20.7		21.2		22.1				250
Fluoride F	0.18		0.18		0.18			1.5	
Silicate SiO4		13.5		14.4		14.3			
Sulphate SO4	189		194		194				500
Nitrate Nitrogen N	<0.1		<0.1		<0.1			10	
Nitrite Nitrogen N	<0.05		<0.05		<0.05			1	
Ammonia Nitrogen N		0.293							
Total Phosphate PO4		0.0576		0.0593		0.0686			
Total Metals *(ALS)*									
Aluminum T-Al	<0.005		<0.005		<0.005			0.1	
Antimony T-Sb	<0.0002		<0.0002		<0.0002			0.006	
Arsenic T-As	*0.0067*	*0.00849*	*0.0083*	*0.00861*	*0.0074*	*0.00736*		0.025	
Barium T-Ba	0.052		0.049		<0.001			1	
Boron T-B	0.03		0.028		0.026			5	
Cadmium T-Cd	<0.00001		<0.00001		<0.00001			0.005	
Chromium T-Cr	0.0007		0.0010		0.0012			0.05	
Copper T-Cu	<0.001		<0.001		<0.001			1	
Iron T-Fe	0.05		0.14		<0.01				0.3
Lead T-Pb	0.0006		<0.0001		<0.0001			0.01	
Manganese T-Mn	**0.077**	**0.0891**	**0.079**	**0.0915**	<0.005				0.05
Sodium T-Na	23.7		23.3		166				200
Uranium T-U	<0.0005		<0.0005		<0.0005			0.02	
Vanadium T-V		0.033		<0.030		<0.030			
Zinc T-Zn	0.003		0.002		0.003				5
Dissolved Metals									
Arsenic D-As		*0.00798*		*0.00811*		*0.00773*		0.025	
Manganese D-Mn		**0.0897**		**0.0905**					0.05
Organic Parameters									
Tannin and Lignin		0.56		0.68		<0.10			
Total Organic Carbon C		2.78		1.71		1.87			
Field Chemistry (EBA)									
pH		**8.66**		8.35		**8.72**	6.5		8.5
TDS		405		406		480			500
EC (uS/cm)		810		815		958			
Temperature (°C)		10							

Notes:

A. Guidelines indicated for hardness are not CDWQG, rather they are general aesthetic guidelines - exceedences are indicated in yellow highlighting.

Italics and underline indicates exceedence of proposed MAC (ie. arsenic)

Bold with Yellow highlighting indicates exceedence of CDWQG Aesthetic Objective (AO)

Bold Underline with Yellow highlighting indicates exceedence of CDWQG MAC

Results are expressed as milligrams per litre except for pH and Colour (CU), Conductivity (umhos/cm),Temperature (°C) and Turbidity (NTU)

< = Less than the detection limit indicated.

AO = Aesthetic Objective

MAC = Maximum Acceptable Concentration (Health Based)

SMALL PUBLIC WATER SYSTEM ASSESSMENT

PART A: EBA Site Inspection

Inspector: Ryan Martin, Luke Lebel Date June 16, 2005

WELL ID #	Owner	Location Description
M0107	R.C.M.P	Teslin RCMP Detachment

1. Well Location and Potential Contaminant Sources

a. General location of well: (Community, Subdivision, etc.)
Teslin

b. Specific location: (Road or street, Building number, name of owner and/, legal description,
Johnson Avenue

c. GPS location: _____

d Is there electric power? ☒ Yes ☐ No

e Is there outside water access? ☒ Yes ☐ No

f. Does the well system have:

☐ 15 or more service connections to a piped distribution system ? If so how many_____
well services M0107 Detachment, and M0108 and M0109 Residences

☐ 5 or more delivery sites on a trucked distribution system? If so how many_____

g. Nearest building, specify Teslin RCMP Detachment

h. Distance from well to building ~5 m

i. If there is an effluent disposal field, is its location known? ☐ Yes ☒ No

j. Distance from well to nearest point of known field: _____

k. Well location relative to field: ☐ upslope ☐ downslope ☐ lateral

l. Is there any part of a sewage disposal system(s)or other potential sources of pollution that may pose a health and safety risk within 30 m? ☒ Yes ☐ No
Community sewage system

m. Is the well located within 300 m from a sewage lagoon or pit? ☐ Yes ☒ No

n. Is the well located within 120 m from a solid waste site or dump, cemetery? ☐ Yes ☒ No

o. Is the infrastructure protecting the wellhead, pumphouse, storage tank and/or water treatment plant designed and secured to prevent:

Unauthorized access by humans? ☐ Yes ☒ No
Wellhead is in unlocked pit

Entrance by animals? ☐ Yes ☒ No
Access likely possible, but no evidence

p. Is well site subject to flooding? ☐ Yes ☒ No

q. Is the well site well drained? ☒ Yes ☐ No

r. Is there a buried fuel tank on the property? ☐ Yes ☒ No unlikely

If yes, is it ☐ in use ☐ abandoned

Is the location known? ☐ Yes ☐ No

Distance from the well to known buried tank _____

s. Are there any other known contaminant sources on the property?

☐ Yes ☐ No Describe _____

If yes, specify the source: ☐ dump ☐ sewage lagoon ☐ cemetery ☐ other

Potential Source 1: AST 1 ; Distance from well to Potential Source 1: ~9m inside building
Potential Source 2: AST 2 ; Distance from well to Potential Source 2: ~16m
Potential Source 3: AST 3 ; Distance from well to Potential Source 3: ~17m inside building
Potential Source 4: _____ ; Distance from well to Potential Source 4: _____

t. Are there other wells on this property? ☒ Yes ☐ No

How many? M0109 well ☐ in use ☒ abandoned ☐ require proper sealing

2. Well and Wellhead information:

a. When was well installed? Year _____ Month _____

b. Type: ☒ drilled ☐ dug ☐ sand point ☐ other _____

c. Is there a drillers log for the well: ☐ Yes ☒ No

d. Is there a surface seal to 6 m ☐ Yes ☒ No ☐ unknown ☒ unlikely

e. Surface casing: ☐ Yes Diameter _____ ☒ No

f. Well casing: Diameter 15 cm Material: ☒ steel ☐ plastic ☐ concrete

g. Depth of well: _____ ☐ measured (if possible) ☐ reported ☐ from log

h. Static water level below ground: _____

☐ measured (if possible) ☐ reported ☐ from log ☐ flowing

i. (If granular) Is the well completed: ☐ open end casing ☐ with a well screen

☐ with slotted pipe ☐ unknown other _____

j. (If bedrock) Does the well have a liner? ☐ yes ☐ No ☐ steel ☐ plastic

k. If there is a well screen: length _____ slot size(s) _____
Location of screen: from _____ to _____ from log reported

l. Is there a sump below the screen? ☐ Yes ☐ No

m. Is the well head: ☐ in pumphouse ☒ in pit ☒ pitless adaptor ☐ in a building

☐ in a wooden enclosure other, describe _____

n. If the well head is located in a wooden enclosure,

i. Is the well head below grade? describe in detail piping 2.20m below grade

ii. Are there signs of ponding on the enclosure(e.g. water stains, etc.)? ☐ Yes ☒ No

iii. Is the wellhead enclosed by fiberglass insulations? ☒ Yes ☐ No likely within enclosure wall

iv. Any evidence of rodents? Specify No

v. Does the well casing have a proper seal cap? ☒ Yes ☐ No
Split seal gasket
If no, describe condition

3. Water Supplying This Well:

a. By definition is the water from a surface water source or under the direct influence of surface water?

☒ Yes ☐ No ☐ farther investigation required.

If yes is there treatment ☐ Yes ☒ No

Explain (filtration, disinfection etc…) M0107 - softening, but non-functional
M0108 - softening, but non-functional
M0109 - softening

---

4. Aquifer Supplying This Well:

a. The aquifer is: ☐ bedrock ☒ granular sediment likely ☐ unknown

b. Does water level and/or well capacity show seasonal fluctuation? ☐ Yes ☒ No unlikely

5. Pump Installation:

a. Is the well equipped with a pump? ☒ yes ☐ No

b. Type of pump: ☐ hand ☒ electric submersible ☐ jet

☐ shallow well centrifugal ☐ other,

c. Description: Manufacturer _____ Model _____

horsepower _____ capacity _____ voltage _____

d. Date installed: _____ By: _____

e. For submersible pump, depth of setting below surface _____

f. Drop pipe for submersible pump: ☐ steel ☒ plastic likely

g. Pump delivers water to: ☒ pressure tank ☐ elevated tank ☐ other

h. Are there automatic pump controls: ☒ Yes ☐ No

i. Is there provision for taking water samples before water reaches storage? ☐ Yes ☒ No
none observed

j. Is there a water meter on the system? ☐ Yes ☐ No

k. Is the pump and piping protected from freezing? ☒ Yes ☐ No
If yes, describe: Heat trace and insulation, + heater in pit

l. Comments on pump installation: _____

6. Conclusions

a. Comments on overall installation:
The well supplies the 3 RCMP Buildings M0107, M0108, and M0109.

b. Recommendations: _____

EBA Engineering Consultants Ltd.
Creating and Delivering Better Solutions

SMALL PUBLIC WATER SYSTEM ASSESSMENT

PART A: EBA Site Inspection

Inspector: Ryan Martin, Luke Lebel Date June 16, 2005

WELL ID #	Owner	Location Description
M0109	RCMP	Teslin RCMP Residence

1. Well Location and Potential Contaminant Sources

a. General location of well: (Community, Subdivision, etc.)
Teslin

b. Specific location: (Road or street, Building number, name of owner and/, legal description,
Johnson Avenue

c. GPS location: _____

d Is there electric power? ☐ Yes ☒ No

e Is there outside water access? ☐ Yes ☒ No

f. Does the well system have:

☐ 15 or more service connections to a piped distribution system ? If so how many N/A
Well is no longer in use

☐ 5 or more delivery sites on a trucked distribution system? If so how many _____

g. Nearest building, specify Located off of basement of M0109 Residence

h. Distance from well to building _____

i. If there is an effluent disposal field, is its location known? ☐ Yes ☒ No

j. Distance from well to nearest point of known field: _____

k. Well location relative to field: ☐ upslope ☐ downslope ☐ lateral

l. Is there any part of a sewage disposal system(s)or other potential sources of pollution that may pose a health and safety risk within 30 m? ☐ Yes ☐ No
Community Sewage system and service piping

m. Is the well located within 300 m from a sewage lagoon or pit? ☐ Yes ☒ No

n. Is the well located within 120 m from a solid waste site or dump, cemetery? ☐ Yes ☒ No

o. Is the infrastructure protecting the wellhead, pumphouse, storage tank and/or water treatment plant designed and secured to prevent:

Unauthorized access by humans? ☒ Yes ☐ No
located inside locked residence

Entrance by animals? ☐ Yes ☒ No
Access possible. No evidence

p. Is well site subject to flooding? ☐ Yes ☒ No

q. Is the well site well drained? ☐ Yes ☒ No
wellhead enclosure faces upslope

r. Is there a buried fuel tank on the property? ☐ Yes ☒ No unlikely

If yes, is it ☐ in use ☐ abandoned

Is the location known? ☐ Yes ☐ No

Distance from the well to known buried tank _____

s. Are there any other known contaminant sources on the property?

☐ Yes ☐ No Describe _____

If yes, specify the source: ☐ dump ☐ sewage lagoon ☐ cemetery ☐ other

Potential Source 1: AST1 ; Distance from well to Potential Source 1: ~28m in separate building

Potential Source 2: AST2 ; Distance from well to Potential Source 2: ~21m outside

Potential Source 3: AST3 ; Distance from well to Potential Source 3: ~2m in same building

Potential Source 4: _____ ; Distance from well to Potential Source 4: _____

t. Are there other wells on this property? ☒ Yes ☐ No

How many? M0107 well ☒ in use ☐ abandoned ☐ require proper sealing

2. Well and Wellhead information:

a. When was well installed? Year _____ Month _____

b. Type: ☒ drilled ☐ dug ☐ sand point ☐ other _____

c. Is there a drillers log for the well: ☐ Yes ☒ No

d. Is there a surface seal to 6 m ☐ Yes ☒ No ☐ unknown ☒ unlikely

e. Surface casing: ☐ Yes Diameter _____ ☒ No

f. Well casing: Diameter 15 cm Material: ☒ steel ☐ plastic ☐ concrete
split seal gasket w/ proper plugs

g. Depth of well: 36.175 m bc ☒ measured (if possible) ☐ reported ☐ from log

h. Static water level below ground: 8.470 m bc

☒ measured (if possible) ☐ reported ☐ from log ☐ flowing

i. (If granular) Is the well completed: ☐ open end casing ☐ with a well screen

☐ with slotted pipe ☒ unknown other _____

j. (If bedrock) Does the well have a liner? ☐ yes ☐ No ☐ steel ☐ plastic

k. If there is a well screen: length n/a slot size(s) _____
Location of screen: from _____ to _____ from log reported

l. Is there a sump below the screen? ☐ Yes ☒ No

m. Is the well head: ☐ in pumphouse ☐ in pit ☐ pitless adaptor ☒ in a building
Inside Molog Residence

☐ in a wooden enclosure other, describe _____

n. If the well head is located in a wooden enclosure,

i. Is the well head below grade? describe in detail 1.70m below grade

ii. Are there signs of ponding on the enclosure(e.g. water stains, etc.)? ☐ Yes ☒ No

iii. Is the wellhead enclosed by fiberglass insulations? ☒ Yes ☐ No likely inside walls

iv. Any evidence of rodents? Specify no observe evidence, access possible

v. Does the well casing have a proper seal cap? ☒ Yes ☐ No

If no, describe condition split seal gasket w/ proper plugs

3. Water Supplying This Well:

a. By definition is the water from a surface water source or under the direct influence of surface water?

☐ Yes ☐ No ☐ farther investigation required.

If yes is there treatment ☐ Yes ☐ No N/A

Explain (filtration, disinfection etc…)_____

---

4. Aquifer Supplying This Well:

a. The aquifer is: ☐ bedrock ☐ granular sediment ☐ unknown

b. Does water level and/or well capacity show seasonal fluctuation? ☐ Yes ☐ No N/a

5. Pump Installation:

a. Is the well equipped with a pump? ☐ yes ☐ No N/A

b. Type of pump: ☐ hand ☐ electric submersible ☐ jet N/A

☐ shallow well centrifugal ☐ other, N/A

c. Description: Manufacturer _____ Model _____

horsepower _____ capacity _____ voltage _____

d. Date installed: N/A By: _____

e. For submersible pump, depth of setting below surface _____

f. Drop pipe for submersible pump: ☐ steel ☐ plastic N/A

g. Pump delivers water to: ☐ pressure tank ☐ elevated tank ☐ other N/A

h. Are there automatic pump controls: ☐ Yes ☐ No N/A

i. Is there provision for taking water samples before water reaches storage? ☐ Yes ☐ No N/A

j. Is there a water meter on the system? ☐ Yes ☐ No N/A

k. Is the pump and piping protected from freezing? ☒ Yes ☐ No

If yes, describe: _____

l. Comments on pump installation: _____

_____

6. Conclusions

a. Comments on overall installation:

_____

_____

_____

_____

_____

_____

_____

b.Recommendations: _____

_____

_____

_____

_____

_____

_____

_____

PART B: EBA Site Inspection

Inspector: BERT ALBISSER Date JUNE 16 05

WELL ID #	Owner	Location Description
M0107	YTG.	RCMP DETACHMENT TESLIN

6. Water Treatment

a. Is well water treated? ☐ Yes ☑ No; Type of treatment:

☐ chlorination ☐ iron and or manganese removal ☐ other _____

b. Is water entering plumbing or piped distribution system treated with chlorine or another treatment that is as effective as chlorine used to achieve disinfection throughout the system?

☐ Yes ☑ No If so how _____

c. If treated with chlorine, is the free residual chlorine concentration less than 0.2 mg/L

☐ Yes ☐ No _____ reading.

Tested at _____ (location)

d. Is testing for chlorine residual concentration done at the tap (eg. Kitchen faucet) or from representative points in a piped distribution system, including a point from tap at the end line

☐ Yes ☐ No If yes how often? _____

e. If the drinking water is being transported by water delivery truck does it have a minimum chlorine free residual of 0.4 mg/L at the time of fill. ☐ Yes ☐ No

7. Water Quality (observations):

a. Does the water stain plumbing? ☐ yes ☐ No ☑ slight ☐ severe

Type of stain: ☐ brown ☑ red ☐ black

b. Does the water contain sediment? ☐ Yes ☑ No ☐ occasional ☐ constant

c. Is there an unpleasant odour? ☐ Yes ☑ No ☐ H_2S ☐ Other _____

d. Is there an unpleasant taste? ☐Yes ☑No ☐brackish ☐ Other _____

e. Is there a history of bad bacterial analyses? ☐ Yes ☑ No

f. Is there a chemical analysis? ☐ Yes ☐ No ☐adequate ☐ incomplete

g. Is there analysis of trihalomethanes (THMs) where the water source is a surface water supply or a well under the direct influence of surface water? ☐ Yes ☐ No

h. Is the drinking water tested daily with an accurate reading chlorine test kit capable of reading in the range 0 to 3.5 mg/L of free chlorine residual in increments of 0.1mg/L? ☐ Yes ☐ No ☑ unknown

i. If yes is the test performed in accordance with manufactures directions? ☐ Yes ☐ No ☑ unknown

j. Is a record of the date, time,name of person performing the test and results of the drinking water sample kept? ☐ Yes ☑ No

TANK AND PIPING DETAILS

Tank Room

Is there a water tank? Yes No Details:

Where is it located?
Comments: PRESSURE TANK - BASEMEN

Is the room in which the water tank is located heated to maintain an optimum temperature of 4°C for stored water?
YES NO
Comments:_____

Are there windows in the add-on that may allow direct sunlight onto the water holding tank? YES NO

Comments: _____

Are there other heat sources near the tank? YES NO
Comments: _____

Is there waterproof flooring with a sealed base to contain spills? YES NO
Comments: _____

Overall Tank

What are the tank size and dimensions?

_____

What material is the tank constructed of? _____

Is tank and associated piping constructed of safe materials (i.e. CSA approved and material that does not affect the taste of the water)? YES NO

Comments: _____

Tank Inlet, Outlet and Lid

Is there adequate access on the tank for cleaning (i.e. min 15" access lid)? YES NO

Does the lid have a tight seal and is it watertight when closed? YES NO

Does the tank have an overflow or high level whistle? YES NO

Is the water tank drain accessible? YES NO

WATER TANK AND WATER QUALITY CONDITION

Are there signs of staining or biofouling? YES NO
Comments: _____

Is there any sediment or scum in bottom of tank? YES NO
Comments: _____

Is there any odour associated with the water or tank? YES NO

Have there been any bacteriological analyses conducted previously? YES NO

Does the tank appear that it has been cleaned recently? YES NO

Are the tanks easily assessed for the purpose of cleaning and disinfection? YES NO

8. Conclusions

a. Comments on overall installation:

THE CASING IS APPROX. BELOW GRADE.
THE WATER SYSTEM. INSTALLATION IS GOOD
QUALITY MATERIAL AND WORKMANSHIP.
THE WATER SOFTENER IS BY PASSED. APPARENTLY
THE MINERAL TANK LEAKS.

b. Recommendations:

EXTEND WELL CASING TO APPROPRIATE
HEIGHT ABOVE GRADE. INSTALL SURFACE
SEAL. SUPERCHLORINATE WATER WELL AND
PIPING SYSTEM. INSTITUTE A PROPER
WATER WELL MAINTENANCE PROGRAM.
RECORD WELL MAINTENANCE

PART B: EBA Site Inspection

Inspector: BERT ALBISSER Date JUNE 16/05

WELL ID #	Owner	Location Description
M108	YTG.	TESLIN RCMP RESIDENCE

6. Water Treatment

a. Is well water treated? ☑ Yes ☐ No; Type of treatment:

☐ chlorination ☑ iron and or manganese removal ☑ other R.O. SYSTEM

b. Is water entering plumbing or piped distribution system treated with chlorine or another treatment that is as effective as chlorine used to achieve disinfection throughout the system?

☐ Yes ☑ No If so how _____

c. If treated with chlorine, is the free residual chlorine concentration less than 0.2 mg/L

☐ Yes ☐ No _____ reading.

Tested at _____ (location)

d. Is testing for chlorine residual concentration done at the tap (eg. Kitchen faucet) or from representative points in a piped distribution system, including a point from tap at the end line

☐ Yes ☐ No If yes how often? _____

e. If the drinking water is being transported by water delivery truck does it have a minimum chlorine free residual of 0.4 mg/L at the time of fill. ☐ Yes ☐ No

7. Water Quality (observations):

a. Does the water stain plumbing? ☐ yes ☐ No ☑ slight ☐ severe

Type of stain: ☐ brown ☐ red ☐ black

b. Does the water contain sediment? ☐ Yes ☑ No ☐ occasional ☐ constant

c. Is there an unpleasant odour? ☐ Yes ☑ No ☐ H_2S ☐ Other _____

d. Is there an unpleasant taste? ☐Yes ☐No ☐brackish ☐ Other _____

e. Is there a history of bad bacterial analyses? ☐ Yes ☐ No

f. Is there a chemical analysis? ☐ Yes ☐ No ☐adequate ☐ incomplete

g. Is there analysis of trihalomethanes (THMs) where the water source is a surface water supply or a well under the direct influence of surface water? ☐ Yes ☐ No

h. Is the drinking water tested daily with an accurate reading chlorine test kit capable of reading in the range 0 to 3.5 mg/L of free chlorine residual in increments of 0.1mg/L? ☐ Yes ☐ No ☐ unknown

i. If yes is the test performed in accordance with manufactures directions? ☐ Yes ☐ No ☐ unknown

j. Is a record of the date, time,name of person performing the test and results of the drinking water sample kept? ☐ Yes ☐ No

TANK AND PIPING DETAILS

Tank Room

Is there a water tank? Yes No Details: PRESSURE TANK

Where is it located?
Comments: _____

Is the room in which the water tank is located heated to maintain an optimum temperature of 4°C for stored water?
YES NO
Comments:_____

Are there windows in the add-on that may allow direct sunlight onto the water holding tank? YES NO

Comments: _____

Are there other heat sources near the tank? YES NO
Comments: _____

Is there waterproof flooring with a sealed base to contain spills? YES NO
Comments: _____

Overall Tank

What are the tank size and dimensions?

_____

What material is the tank constructed of? _____

Is tank and associated piping constructed of safe materials (i.e. CSA approved and material that does not affect the taste of the water)? YES NO

Comments: _____

Tank Inlet, Outlet and Lid

Is there adequate access on the tank for cleaning (i.e. min 15" access lid)? YES NO

Does the lid have a tight seal and is it watertight when closed? YES NO

Does the tank have an overflow or high level whistle? YES NO

Is the water tank drain accessible? YES NO

WATER TANK AND WATER QUALITY CONDITION

Are there signs of staining or biofouling? YES NO
Comments:_____

Is there any sediment or scum in bottom of tank? YES NO
Comments: _____

Is there any odour associated with the water or tank? YES NO

Have there been any bacteriological analyses conducted previously? YES NO

Does the tank appear that it has been cleaned recently? YES NO

Are the tanks easily assessed for the purpose of cleaning and disinfection? YES NO

8. Conclusions

a. Comments on overall installation:

THIS UNIT IS FED FROM THE DETACHMENT WELL THE INSTALLATION IS PROFESSIONAL.

b. Recommendations:

INSTALL APPROPRIATE FILTRATION AND UV TREATMENT AS WELL HAS NO SURFACE SEAL.

PART B: EBA Site Inspection

Inspector: Bert Albisser Date June 16/05

WELL ID #	Owner	Location Description
M0109	YTG	RCMP Housing Teslin

6. Water Treatment

a. Is well water treated? ☐ Yes ☑ No; Type of treatment:

☐ chlorination ☐ iron and or manganese removal ☐ other _____

b. Is water entering plumbing or piped distribution system treated with chlorine or another treatment that is as effective as chlorine used to achieve disinfection throughout the system?

☐ Yes ☐ No If so how _____

c. If treated with chlorine, is the free residual chlorine concentration less than 0.2 mg/L

☐ Yes ☐ No _____ reading.

Tested at _____ (location)

d. Is testing for chlorine residual concentration done at the tap (eg. Kitchen faucet) or from representative points in a piped distribution system, including a point from tap at the end line

☐ Yes ☐ No If yes how often? _____

e. If the drinking water is being transported by water delivery truck does it have a minimum chlorine free residual of 0.4 mg/L at the time of fill. ☐ Yes ☐ No

7. Water Quality (observations):

a. Does the water stain plumbing? ☐ yes ☐ No ☑ slight ☐ severe

Type of stain: ☐ brown ☑ red ☐ black

b. Does the water contain sediment? ☐ Yes ☑ No ☐ occasional ☐ constant

c. Is there an unpleasant odour? ☐ Yes ☑ No ☐ H_2S ☐ Other _____

d. Is there an unpleasant taste? ☐ Yes ☑ No ☐ brackish ☐ Other _____

e. Is there a history of bad bacterial analyses? ☐ Yes ☑ No

f. Is there a chemical analysis? ☐ Yes ☐ No ☐ adequate ☐ incomplete

g. Is there analysis of trihalomethanes (THMs) where the water source is a surface water supply or a well under the direct influence of surface water? ☐ Yes ☐ No

h. Is the drinking water tested daily with an accurate reading chlorine test kit capable of reading in the range 0 to 3.5 mg/L of free chlorine residual in increments of 0.1mg/L? ☐ Yes ☐ No ☐ unknown

i. If yes is the test performed in accordance with manufactures directions? ☐ Yes ☐ No ☐ unknown

j. Is a record of the date, time,name of person performing the test and results of the drinking water sample kept? ☐ Yes ☐ No

TANK AND PIPING DETAILS

Tank Room

Is there a water tank? (Yes) No Details: PRESSURE TANK PC266

Where is it located?
Comments: _____

Is the room in which the water tank is located heated to maintain an optimum temperature of 4°C for stored water?
(YES) NO
Comments: _____

Are there windows in the add-on that may allow direct sunlight onto the water holding tank? YES (NO)
Comments: _____

Are there other heat sources near the tank? YES (NO)
Comments: _____

Is there waterproof flooring with a sealed base to contain spills? YES (NO)
Comments: _____

Overall Tank

What are the tank size and dimensions?

_____

What material is the tank constructed of? _____

Is tank and associated piping constructed of safe materials (i.e. CSA approved and material that does not affect the taste of the water)? YES NO

Comments: _____

Tank Inlet, Outlet and Lid

Is there adequate access on the tank for cleaning (i.e. min 15" access lid)? YES NO

Does the lid have a tight seal and is it watertight when closed? YES NO

Does the tank have an overflow or high level whistle? YES NO

Is the water tank drain accessible? YES NO

WATER TANK AND WATER QUALITY CONDITION

Are there signs of staining or biofouling? YES NO
Comments: _____

Is there any sediment or scum in bottom of tank? YES NO
Comments: _____

Is there any odour associated with the water or tank? YES NO

Have there been any bacteriological analyses conducted previously? YES NO

Does the tank appear that it has been cleaned recently? YES NO

Are the tanks easily assessed for the purpose of cleaning and disinfection? YES NO

8. Conclusions

a. Comments on overall installation:

THIS IS A GOOD INSTALLATION BOTH IN EQUIPMENT & WORKMANSHIP.
THE ABANDONED WELL CASING NEEDS TO BE PROCESSED OR EXTENDED ABOVE GRADE.

b. Recommendations:

ABANDON WATER WELL NOT IN USE ACCORDING TO REGULATION.

TYPE BID 20302 0013

KEY TO FORMATION LOG

Brown Clay - br cl
Blue Clay - bl cl
Sand - sd
Sandy Clay - sdy cl
Soft Shale - s shl
Hard Rock - hd rk
Sandstone - ss
Fine Gravel - f gr
Boulders - bdrs

FIELD REPORT

MIDNIGHT SUN DRILLING CO. LTD.

Mailing Address:
P.O. Box 2106
Whitehorse, Yukon
Phone: 667-4795

Job (Month) (Day) (Year)
Started....Nov..1..19..79.
Completed..Dec..7..19..79.

Invoice No.....

NAME AND ADDRESS OF CLIENT	DESCRIPTION OF WORK	LOCATION OF WORK
Department of Public Works Whitehorse Y.T.	Water Well	~~Sec.~~ ~~Twp.~~ ~~Rge.~~ ~~W.~~ R.C.M.P. Detachment Teslin Yukon

FORMATION LOG FROM	TO	FORMATION	DESCRIPTION OF WORK	TIME Date	From	To	Hours
			Move Set up Dug in Pit				
			Drill with 6" Bit to 90'				
0	1	Top Soil		Nov 1	14:00	20:00	6
1	11	Rock Cemented Gravel		2	07:30	20:00	12½
11	26	Caving Sand					
26	30	Pea Gravel					
30	45	Gravel To 1"		3	08:00	19:00	11
45	50	Brown Cl. Sand					
50	58	Pea Gravel	Water Bearing				
58	60	Hard Rock	Nov 3 13:30 - Nov 4 19:30	4	08:00	20:00	12
60	69	Blue Clay Rock		5	08:00	21:00	13
69	72	Hard Rock	Nov 5 12:00 - Nov 6 21:30	6	08:00	20:00	12
72	105	Bl. Clay Scattered Rk	Drill with 4½" to 465'	7			
105	118	Sand					
			Waiting For Repairs 8, 9, 10				
118	119	Hard Rock	Nov 11 12:00 - Nov 11 15:30	11	10:00	01:00	15
119	130	Rock With Blue Clay					
130	157	Blue Clay Scattered Rock					
155	157	Sand					
			Page # 2				

Grd. of Casing & Pipe Size	Type	Size	Type
Feet	Inch	Feet	Inch

Remarks:

Well Cased: Casing from ft. to ft. and Casing from ft. to ft.

STATIC LEVEL: from ground level / from top of casing

Total Big Time (above) hrs.

Total Standby (above) hrs.

Drilling Mud Used (above) sacks

SIGNATURES

For Midnight Sun.....

For Client.....

Well Moved (page 1 of 2)

KEY TO FORMATION LOG

rown Clay - br cl
lue Clay - bl cl
and - sd
andy Clay - sdy cl
oft Shale - s shl
ard Rock - hd rk
andstone - ss
ine Gravel - f gr
oulders - bdrs

nvoice No.....

FIELD REPORT

MIDNIGHT SUN

DRILLING CO. LTD.

Mailing Address:
P.O. Box 2106
Whitehorse, Yukon
Phone: 667-4795

Job (Month) (Day) (Year)
Started.....19.....
Completed.....19.....

ME AND ADDRESS OF CLIENT	DESCRIPTION OF WORK	LOCATION OF WORK
Page 2		Sec. Twp. Rge. W.

FORMATION LOG

OM	TO	FORMATION
57	169	BLUE CLAY SCATTERED ROCK
69	172	SAND
72	184	BL. CLAY ROCK
84	195	HARD ROCK
95	215	ROCK WITH CLAY
15	227	BLUE CLAY WITH ROCK
27	238	BLUE CLAY
38	248	ROCK
48	371	BLUE CLAY WITH A OCCASIONALY ROCK
71	465	BLUE CLAY WITH A OCCASIONALY ROCK

DESCRIPTION OF WORK	TIME Date	From	To	Hours
Move				
	Nov 12	09:00	24:00	15
	15	10:00	03:00 Dec 8	17
	Dec 7	10:00	06:00	20
DRY				

d. of Casing & Pipe			
ie	Type	Size	Type
		NIL	
et	Inch	Feet	Inch

Remarks:

Well Cased: Casing to ft. and
Casing from ft. to ft.
STATIC LEVEL: from ground level from top of casing

Total Big Time (above) 135 hrs.
Total Standby (above) hrs.
Drilling Mud Used (above) 22 sacks

SIGNATURES

or Midnight Sun.. D. JAMIESON. Driller

For Client.....

well MW109 (page 2 of 2)

Environment Canada Environnement Canada

Enforcement and Emergencies Section
91782 Alaska Highway, Whitehorse, YT Y1A 5B7
PH: 867.667.3400 FAX: 867.667.7962

Spill Report Information

Spill #	0104
Jurisdiction	Yukon
Community	Teslin
Address	Jackson Ave
Highway	
Milepost	
Feature	Teslin
Location and Cause	Teslin septic tank - mechanical failure of auto dialer alarm - sewage spill
Latitude	60.16491
Longitude	-132.72162
Incident Date	1/7/2001
Lead Agency	Department of Indian Affairs and Northern Development
Other Agency	
Company(s)	Village of Teslin
Amount	800
Units	Litres
Quantity	Estimate
Release Description	Spilled
Additional Quanitit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Raw Sewage
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	spill migrated to shoreline of Teslin Lake but was contained in snow and ice - contaminated snow removed and bleach used as disenfectant - clean-up was completed

Environment Canada Environnement Canada

Enforcement and Emergencies Section
91782 Alaska Highway, Whitehorse, YT Y1A 5B7
PH: 867.667.3400 FAX: 867.667.7962

Spill Report Information

Spill #	0333
Jurisdiction	Yukon
Community	Teslin
Address	Jackson Ave
Highway	
Milepost	
Feature	Teslin
Location and Cause	spill at Lift Station #2 - due possibley to faulty truck guage - cause to be determined
Latitude	60.16491
Longitude	-132.72162
Incident Date	9/23/2003 11:00:00 AM
Lead Agency	
Other Agency	
Company(s)	Village of Teslin
Amount	100
Units	Litres
Quantity	Estimate
Release Description	Spilled
Additional Quanitit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Raw Sewage
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	contaminated soil removed and replaced with clean crush - industrial bleach applied to contaminated area - lead agency to be determined - no further info on file

Environment Canada Environnement Canada

Enforcement and Emergencies Section
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Spill Report Information

Spill #	0340
Jurisdiction	Yukon
Community	Teslin
Address	Jackson Ave
Highway	
Milepost	
Feature	Teslin
Location and Cause	Lift Station #2 (Jackson Ave) - spill due to non-secured coupling device
Latitude	60.16491
Longitude	-132.72162
Incident Date	11/27/2003 2:30:00 PM
Lead Agency	Yukon Government - Water Inspections
Other Agency	
Company(s)	Village of Teslin
Amount	80
Units	Litres
Quantity	Estimate
Release Description	Spilled
Additional Quanitit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Raw Sewage
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	driver of truck bleached area - contaminated area being cleaned up and material removed to landfill - copy of letter from Village of Teslin to YT Water Board on file

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Spill Report Information

Spill #	8706
Jurisdiction	Yukon
Community	Teslin
Address	Jackson Ave
Highway	
Milepost	
Feature	Teslin
Location and Cause	Jackson Ave pump station - truck overturned in avoiding oncoming traffic
Latitude	60.16491
Longitude	-132.72162
Incident Date	3/17/1987 2:10:00 PM
Lead Agency	Federal Government - other
Other Agency	Environment Canada - Environmental Protection Service
Company(s)	Walter Geddes
Amount	4500
Units	Litres
Quantity	Estimate
Release Description	Spilled
Additional Quanitit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Raw Sewage
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	no specific environmental concerns - possiblity of contamination of 1 or 2 near-by water wells - contained in snow berm - removed to sewage lagoon

Photo 0212: M0107 Wellhead enclosure (front), Teslin RCMP Detachment building M0107 (back)

Photo 0213: M0107 Wellhead enclosure (front), Teslin RCMP Residences M0109 (right) and M0108 (behind), and above ground fuel storage tank in front of RCMP garage (back left)

Photo 0211: M0107 Wellhead in pit (pitless adapter)

Photo 0013: M0107 Water softener (centre), pressure tank (left), and brine tank (right)

Photo 0016: M0109 Pressure tank

Photo 0211: M0109 Water softener (back), and brine tank (front)

Photo 0214: M0109 Wellhead adjacent to basement of M0109 residence (bottom, no longer in use), line from M0107 well (back) and inline filter (left)

Photo 0018: M0109 Reverse osmosis treatment system

Photo 0019: M0109 Reverse osmosis tap in kitchen

Photo 0020: M0108 Reverse osmosis treatment system

Photo 0021: M0108 Reverse osmosis tap in kitchen