

5.0 BUILDINGS M0156, M0226: PELLY CROSSING RCMP DETACHMENT AND RESIDENCE

5.1 Description of Existing Water Supply System

Building M0156, the Pelly Crossing RCMP Detachment, and building M0226, a Pelly Crossing RCMP Residence, are currently serviced by a water supply system that delivers water from a 12.5 m deep well. The well is located in a pit below grade approximately 3 m west of residence M0226. A site plan is provided as Figure M0156/M0226-A in Appendix A5. The coordinates of the wellhead, as measured by a handheld GPS device, were recorded as:

- UTM ZONE 8
- Northing: 6966925
- Easting: 419610

Water is piped from the well to residence M0226 and then it is piped underground to the detachment. The system is equipped with a water softener that was not functioning at the time of system assessment. A schematic detailing the water supply system is provided as Figure M0156/M0226-B in Appendix A5. Photos of the well and water system are also included at the back of this appendix.

5.2 Description of Existing Wastewater Systems

Each building is equipped with its own septic system located as shown on Figure M0226-A in Appendix A5. Effluent from the RCMP detachment is discharged in a field to the east of the building greater than 30 m and likely crossgradient from the well. Wastewater from the residence is discharged in a field to the west of the building greater than 30 m and likely crossgradient from the well.

5.3 Water Quality Results

5.3.1 Water Quality Results from Previous Sampling

Bacteriological

A total of 17 samples were collected from this water system between October 2004 and June 2005 and were tested for total coliform and *E. Coli* by Yukon Environmental Health Services using the presence/absence test method. Results are

tabulated in Table M0156/0226-1 in Appendix A5. Bacteria were reported as absent in each of the 17 samples for which results are provided.

Potability

Water samples were collected from each building on September 29, 2004 and June 8, 2005. The samples were submitted to Northwest Labs in Surrey BC and ALS Environmental in Vancouver for potability analyses. The results of these analyses are summarized in Table M0156/M0226-2 in Appendix A5. EBA reviewed the analytical results for comparison with Canadian Drinking Water Quality Guidelines (CDWQG), to observe general water quality, to identify and recommend additional sampling and analytical, and to identify potential indicators of contamination. Details are summarized below:

- The first sample collected from RCMP detachment (M0156) reported the copper concentration to be 2.37 mg/L, which was in exceedence of the CDWQG MAC of 1.0 mg/L. A sample taken at the same time from the residence (M0226) had a copper concentration of 0.154 mg/L, signifying that the elevated copper in the detachment is unlikely attributed to the source water. Subsequent sampling from both buildings reported the copper concentration to be less than the CDWQG MAC;
- The water quality results indicated that all other health based and aesthetic objectives were met for the parameters analyzed;
- Chloride concentrations from the first sampling event were reported as 0.8 mg/L (M0156) and 1.1 mg/L (M0226), the second sampling event reported chloride concentrations of 39.4 mg/L (M0156) and 36.9 mg/L (M0226). This indicates a significant increase in chloride concentrations from September 2004 to June 2005, and elevated chloride compared to background conditions in the area.
- From June 2004 to September 2005 nitrate concentrations increased from 0.1 mg/L (M0156 and M0226) to 1.41 mg/L (M0156) and 1.32 mg/L (M0226). The reported nitrate concentrations from the second sampling events are elevated above background concentrations for the area;
- The water quality results indicated that the groundwater is calcium-bicarbonate type with a pH slightly above 8; and,
- The hardness (as CaCO₃) was around 240 mg/L, and is considered very hard.



5.3.2 Identification of Additional Analytical Testing Required

Additional analytical for the RCMP Detachment M0156 and RCMP Residence M0226 completed during the water system assessments is detailed below:

- UV absorbance and UV transmissivity, as well as tannin and lignin, to determine potential for UV treatment as a disinfection option for this water system;
- Total and dissolved copper to confirm concentrations below CDWQ MAC;
- Chloride and Nitrate to evaluate observed trend of increasing concentrations;
- Total organic carbon (TOC); and
- Field measurements of total dissolved solids, conductivity, pH, and temperature.

Additional Analytical Results

A water sample was obtained during the water system assessment on August 23, 2005, and was submitted to ALS Environmental in Vancouver for analysis. These results are summarized in Table 3440-2 in Appendix A4 and the laboratory reports are included in Appendix B. Significant observations are detailed below:

- Total and dissolved copper at concentrations of 0.197 mg/L (M0156) and 0.186 mg/L (M0226) respectively were below the CDWQG of 1 mg/L; and
- Although elevated compared to the sample analysis completed in September 2004, chloride and nitrate concentrations were significantly reduced from sample analysis completed in June 2005.

5.3.3 Indicators of Potential Contamination

Chloride, nitrate and nitrite concentrations can indicate impacts from surface water sources or septic waste. There was a significant increase in both nitrate and chloride concentrations between the 2004 sampling events and the 2005 sampling events. Chloride and nitrate analysis completed during this assessment showed concentrations significantly reduced from results of June 2005 although still elevated compared to results from September 2004. Chloride and nitrate concentrations were above both the normal background ranges for groundwater in the area as well as above historical concentrations for this system. These water

quality results, and the variability of these observed concentrations suggest that septic effluent or other anthropogenic sources of nutrients are impacting the aquifer.

5.4 Conceptual Hydrogeology

The log for this well indicates that the well is completed at a depth of 12.5 m within a gravel and sand aquifer. The well log shows the static water level of 7.3 m below ground with trace fine grained material overlying the aquifer. The Pelly Crossing Village area is situated on the inside bend of the Pelly River, most wells in the Pelly Crossing Village area obtain their water from an unconfined aquifer consisting of floodplain alluvial sand and gravel deposits. The relatively shallow depth of the aquifer combined with the absence of confining material leaves this aquifer vulnerable to surficial sources of contamination. The expected direction of groundwater flow is north to northwesterly (EBA 2004).

5.5 Potential Contaminant Sources

Potential contaminant sources observed during the site investigation are compiled in field notes and photos provided in Appendix A5. Potential contaminant sources within 30 m of the wellhead are:

- An above ground fuel storage tank (AST) at 17 m; and
- Indoor fuel storage tanks.

It should be noted that there are several on-site sewage disposal systems within 60 m of the well, however, none appear to have in-ground disposal within 30 m.

5.5.1 Spills Records and Contaminated Sites Search Results

It was reported that a spill occurred in 1986 due to a overturned residential fuel tank owned by Selkirk First Nation resulting in a spill of approximately 2000 L of furnace oil. Removal of contaminated soil was recommended by Environment Canada, however, it is unclear whether this was completed. The spill site is located approximately 500 m upgradient of the subject well, and is considered to pose a low risk to the water provided by this well.

In 1998 of an unknown quantity of heating fuel was spilled due to an open valve on the tank at the Eliza Van Bibber School, removal of contaminated soil was recommended, however it is unknown if this was completed. Since the spill location is cross-gradient from the well, and may have been cleaned up, it is unlikely that this would impact the water quality at this well.

5.6 Identified Water System Deficiencies and Associated Risk

5.6.1 High and Medium Risk Deficiencies

High and medium risk deficiencies for this water system that were identified during this study include:

- Poor surface completion of the well (located in well pit below grade);
- There is no surface sanitary seal (grout or bentonite seal as required by the Canadian Groundwater Association's Guidelines for Water Well Construction;
- Completed at a depth of only 12.5 m, this well is considered a shallow well, and is likely completed within an unconfined aquifer;
- Elevated and variable chloride and nitrate concentrations may indicate that the aquifer is being impacted by septic effluent or surfacewater;
- By definition of the Draft Yukon GUDI Assessment Guideline, the well is potentially under the direct influence of surfacewater because it is a vulnerable type (unconfined aquifer), has a production zone less than 15 m below grade, and does not meet the requirements of the Guidelines for Water Well Construction; and,
- There is no treatment or disinfection for this water system.

5.6.2 Low Risk Deficiencies

- The well is located within 30 m of an indoor fuel storage tank;
- There was a previous CDWQG MAC exceedence of copper, however two subsequent sampling events had copper below CDWQG concentrations; and,
- The water softener was not functioning at the time of the water system assessment.

5.7 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).

Recommendations are made in consideration of the fact that a piped distribution system with water sourced from a community well located in Willow Creek area of Pelly Crossing will likely be installed by the Selkirk First Nation in 2006 or 2007. In the interim, however, some upgrades are recommended to mitigate immediate risk as detailed in the following section.

5.7.1 Priority 1

The following recommendations are provided in order to mitigate deficiencies that are of immediate concern for the RCMP detachment and residence. Priority 1 remedial recommendations include:

- The casing should be extended to at least 500 mm above the base of the well pit, and a localized near surface bentonite seal installed immediately around the wellhead;
- The well and water system should be super-chlorinated (disinfected with a 200 mg/L chlorine solution); and,
- Disinfection treatment consisting of filtration to 1 micron (absolute), and a UV system that is NSF/ANSI certified (or equivalent) should be installed within the M0226 to ensure disinfection of the water supplied to this residence and the detachment. Pretreatment consisting of a water softener would likely be necessary for optimum UV performance; the existing softener system should be serviced and brought back into operation. These are conceptual design recommendations based on the information available for planning and budgeting purposes. Engineering input will be required for final system specifications.

5.7.2 Priority 2

The recommended solution to mitigate long-term risk (Priority 2) to the RCMP residence and detachment would be to connect these building to the proposed piped distribution system as soon as this system is available. The community well that will be the source of water for the piped distribution system is constructed in accordance with applicable guidelines; offers better wellhead protection; and is

completed within a deeper aquifer that is less vulnerable to surficial sources of contamination. Furthermore, the community well and piped distribution system will be operated and maintained by others as a Public Drinking Water Supply with chlorine disinfection and routine monitoring and sampling as required by regulation.

We understand that there would be a monthly service fee charged by the Selkirk First Nation for providing, operating and maintaining the piped water supply.

5.7.3 Priority 3

It is recommended that once the residences are connected to the community water system, the abandoned well be properly decommissioned shortly following connection of residences to community water supply system.

5.8 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.

5.8.1 Priority 1

The estimated costs for the recommended Priority 1 upgrades are detailed below:

- It would cost approximately **\$800** for materials and labour to complete the recommended interim wellhead upgrades and well and water system superchlorination.
- Disinfection treatment (filtration and UV) would cost approximately **\$3,000** including materials and labour.

Therefore, it would likely cost approximately **\$1,900** per building, and a total of **\$3,800** to complete the recommended Priority 1 upgrades for buildings.



5.8.2 Priority 2

It would cost approximately **\$4,000** for materials and labour to connect the water system to the proposed piped system, assuming a 30 m service connection (freeze-protected underground service piping) and some inside plumbing modifications. Since there is buried piping that exists between the two buildings already, consideration could be given to obtaining a service connection to one residence only and using the existing piping to supply the second residence.

5.8.3 Priority 3

The estimated cost to decommission the existing well following connection of the water system to the proposed community system would be approximately **\$1,000**. This would result in a cost of approximately **\$500** per residence.



LEGEND



PUMP



PRESSURE GAUGE



GATE VALVE



CHECK VALVE



SOLENOID

#2

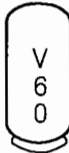
COMPONENT ID. No.
(SEE TABLE ON FOLLOWING PAGE)



FLOW METER



WATER FILTER
(CARTRIDGE TYPE)

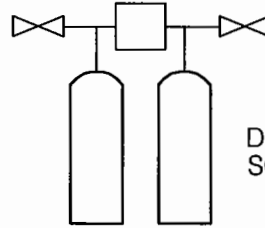


PRESSURE TANK



CL₂

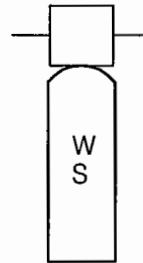
CHLORINE RESERVOIR AND
INJECTION PUMP



DUPLEX WATER
SOFTENER



WELL WITH
SUBMERSIBLE PUMP



ACTIVATED
CARBON



EBA Engineering Consultants Ltd.

PROJECT SMALL PUBLIC WATER SYSTEMS ASSESSMENT
WESTERN REGION

CLIENT



TITLE

**SCHEMATIC SYSTEM
LEGEND**

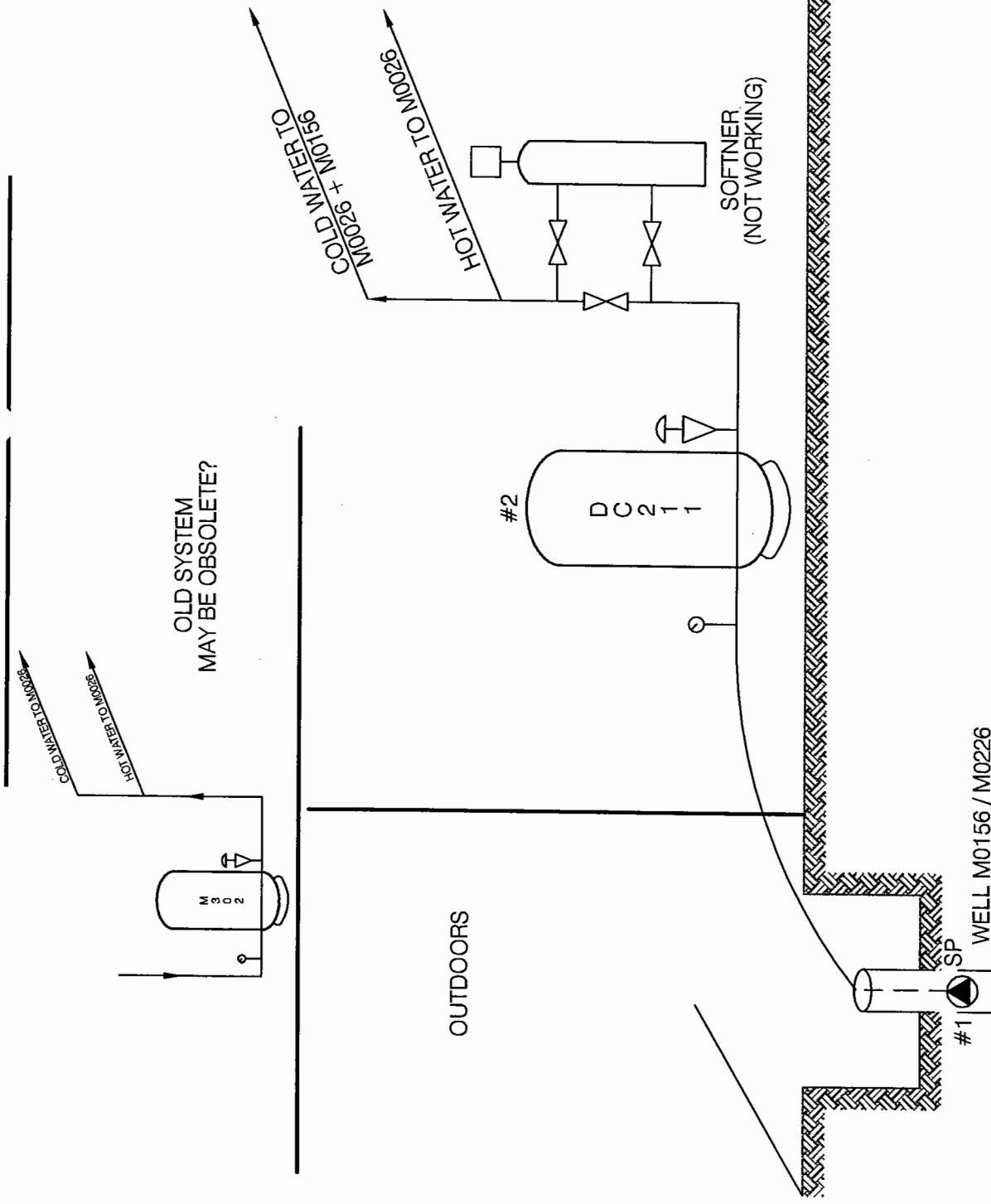
DATE APRIL 2006

DWN. JSB

CHKD. RMM

FILE NO. 1260002

DRWG. LEGEND



SCHMATIC PRODUCED BY BERT ALBISSER OF AQUA TECH SUPPLIES AND SERVICES LTD.

	<p>PROJECT SMALL PUBLIC WATER SYSTEMS ASSESSMENT NORTHERN REGION</p>
<p>CLIENT Lukon Highways and Public Works Property Management Branch</p>	<p>TITLE WATER SYSTEM DISTRIBUTION/TREATMENT SCHEMATIC SYSTEM ID.: M0156/M0226 RCMP - PELLY CROSSING, YT.</p>
<p>DATE SEPT. 2005</p>	<p>FILE NO. 1260002.004</p>
<p>DWN. JSB</p>	<p>DWG.: FIGURE M0156/M0226-B</p>
<p>CHKD. RMM</p>	

Northern Region – Pelly Crossing R.C.M.P. Housing
 Building # ~~M0026~~ M0226

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	Sub. Pump	N/A				
2	Pressure Tank	MORACIT	M30R			
3	Pressure Switch	SQUARE D	FSG-2			
4	Pressure Gauge	MARSH	O-100PSI			
5	Water Softener	POTWA	P460-30MI			
6	Pressure Tank	CHALLENGER	PC-211			
7	Pressure Switch					
8						
9						
10						

#1

#2

Northern Region - Pelly Crossing R.C.M.P. Detachment
Building # MO156

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	No Equipment					
2	Pipe only					
3						
4						
5						
6						
7						
8						
9						
10						

TABLE M0156/M0226 - 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?
M0156	Pelly Crossing RCMP Detachment	8	Oct-04 to Jun-05	no	0/8	no	9-Jun-05	no
M0226	Pelly Crossing RCMP Residence	9	Oct-04 to Jun-05	no	0/9	no	9-Jun-05	no



Table M0156/M0226 - 2: Water Quality Results

SOURCE:	Building M0156 - R.C.M.P. Detachment			Building M0226 - R.C.M.P. Residence			GCDWQ Criteria					
Location/ Resident	Pelly Crossing			Pelly Crossing								
Address												
Treatment	Water softener (not in use)			Water softener (not in use)								
Disinfection	None			None								
Source of Water	On-site well (shared with M0226)			On-site well (shared with M0156)								
Purpose of Sampling	Base Line	Base Line	Additional Sampling	Base Line	Base Line	Additional Sampling						
Sample Location												
Date Sampled	29-Sep-04	8-Jun-05	23-Aug-05	29-Sep-04	8-Jun-05	23-Aug-05				Lower	Upper Limit	
Physical Tests (ALS)										AO	MAC	AO
Colour (CU)	<5	<5.0		<5	<5.0				15			
Conductivity (uS/cm)		596			583							
Total Dissolved Solids	229	340		234	323				500			
Hardness CaCO3	219	256		216	261		AO >200 = poor, > 500 unacceptable ^A					
pH	8.04	8.12		8.02	8.1		6.5		8.5			
Turbidity (NTU)	0.5	0.17		0.5	0.21			1	5			
UV Absorbance			0.041									
% UV Transmittance			91.0									
Dissolved Anions (ALS)												
Alkalinity-Total CaCO3	196	214		207	219							
Chloride Cl	0.8	39.4	2.32	1.1	36.9				250			
Fluoride F	0.09	0.102		0.09	0.103			1.5				
Silicate SiO4												
Sulphate SO4	26	28.2		25.3	28.1				500			
Nitrate Nitrogen N	0.1	1.41	0.21	0.1	1.32			10				
Nitrite Nitrogen N	<0.05	<0.10	<0.0010	<0.05	<0.10			1				
Ammonia Nitrogen N			<0.020									
Total Phosphate PO4												
Total Metals (ALS)												
Aluminum T-Al	<0.005	<0.010		<0.005	<0.010			0.1				
Antimony T-Sb	<0.0002	<0.00050		<0.0002	<0.00050			0.006				
Arsenic T-As	<0.0002	<0.00010		<0.0002	<0.00010			0.025				
Barium T-Ba	0.082	0.099		0.088	0.1			1				
Boron T-B	0.003	<0.10		0.003	<0.10			5				
Cadmium T-Cd	0.00002	<0.00020		0.00003	<0.00020			0.005				
Calcium T-Ca		74.1			75.8							
Chromium T-Cr	0.0017	<0.0020		0.0012	<0.0020			0.05				
Copper T-Cu	2.37	0.522	0.197	0.154	0.123			1				
Iron T-Fe	0.02	0.046		0.04	0.037				0.3			
Lead T-Pb	0.0008	<0.0010		0.0003	<0.0010			0.01				
Magnesium T-Mg		17.2			17.4							
Manganese T-Mn	<0.005	<0.0020		<0.005	<0.0020				0.05			
Mercury T-Hg		<0.00020			<0.00020			0.001				
Potassium T-K		3.19			3.26							
Selenium T-Se		0.0012			<0.0010			0.01				
Sodium T-Na	4.8	10		4.8	9.7				200			
Uranium T-U	0.0007	0.00079		0.0007	0.00084			0.02				
Vanadium T-V												
Zinc T-Zn	0.063	0.057		0.051	<0.050				5			
Dissolved Metals												
Copper D-Cu			0.186						1.0			
Organic Parameters												
Tannin and Lignin			0.18									
Total Organic Carbon C			2.76									
Field Chemistry (EBA)												
pH												
TDS (ppm)							8.04					
EC (uS/cm)							198					
Temperature (°C)							396					
Free Available Chlorine							16.7					

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)



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SMALL PUBLIC WATER SYSTEM ASSESSMENT

PART A: EBA Site Inspection

Inspector: KSJ/RMM

Date August 23/05

WELL ID #	Owner	Location Description
<u>M0156/M0226</u> <i>corporals residence</i>	<u>YTB</u>	<u>Pelly Crossing - RCMP Detachment</u>

1. Well Location and Potential Contaminant Sources

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

West of RCMP residence, south of detachment
0226 0156

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

East of highway (North Klondike Highway)
Pelly Crossing

c. GPS location: N 08 6966925 E 0419610 elev. 474m

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 _____

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

g. Nearest building, specify RCMP residence

h. Distance from well to building 2.95m

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

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2. Well and Wellhead information:

- a. When was well installed? Year unk. 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 152mm (6") Material: steel plastic concrete
- g. Depth of well: unk. measured (if possible) reported from log
- h. Static water level below ground: unk.
 measured (if possible) reported from log flowing
- i. (If granular) Is the well completed: open end casing with a well screen unk.
 with slotted pipe unknown other _____
- j. (If bedrock) Does the well have a liner? yes No steel plastic N/A
- k. If there is a well screen: length unk. slot size(s) _____
Location of screen: from _____ to _____ from log reported
- l. Is there a sump below the screen? Yes No unk.
- m. Is the well head: in pumphouse in pit pitless adaptor in a building
 in a wooden enclosure other, describe PWF
- n. If the well head is located in a wooden enclosure,

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- d. Date installed: unk. By: unk.
- e. For submersible pump, depth of setting below surface unk.
- f. Drop pipe for submersible pump: steel plastic unk.
- 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
- 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: see well schematic

l. Comments on pump installation: _____

6. Conclusions

a. Comments on overall installation:

b. Recommendations: _____

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PART B: EBA Site Inspection

Inspector: BERT ALBISSER

Date AUG. 23/05

WELL ID #	Owner	Location Description
<u>M0226</u> <u>+M0156</u>	<u>YTG.</u>	<u>Perry CROSSING.</u>

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 H₂S Other _____

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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

M02261 M0156.



PH. 633-3070
P.O. BOX 4391
WHITEHORSE, YUKON

Field Report (109156024)

Started Nov...13....19.88

Completed Nov...15....19.88

NAME AND ADDRESS OF CLIENT	DESCRIPTION OF WORK	LOCATION OF WORK
	W/W	Pelly R.C.M.P.

FORMATION LOG			DESCRIPTION OF WORK	TIME			
FROM	TO	FORMATION		DATE	FROM	TO	HOURS
			MOVE				
			loading	Nov 12	8:00	9:00	1
			Travel to Pelly	Nov 14	7:00	11:30	4.5
			move on set up	"	12:00	1:00	1
0'	41'	sand Gr.	Develop	"	1:00	3:00	2
			Develop	"	3:00	4:00	1
			move off.	"	4:00	4:30	0.5
			Travel to Mayo.	"	6:00	7:00	1
			Travel to Keno + back to Pelly.	Nov 15	9:00	1:00	4
			starting equipment	"	2:30	4:00	1.5
			travel to Whitehorse	"	4:00	8:30	4.5

Rcd. of Casing & Pipe

Size	Type	Size	Type
Feet	Inch	Feet	Inch
6			
38			

Remarks:

1- drive shoe.
2' riser lead packer
20 slot screen Bottom 41'
10 GPM.

Static Level	Total Rig Time	hrs.
Ground Level	Total Standby	hrs.
Top Of Casing	Drilling Mud	sacks

SIGNATURES

MIDNIGHT SUN.....

CLIENT.....

TITLE.....

TITLE.....



Spill Report Information

Spill #	8621
Jurisdiction	Yukon
Community	Pelly Crossing
Address	
Highway	
Milepost	
Feature	Pelly Crossing
Location and Cause	overturned home heating fuel storage tank - garbage truck backed into supporting stand
Latitude	62.819543
Longitude	-136.569408
Incident Date	12/31/1986 2:00:00 PM
Lead Agency	Environment Canada - Environmental Protection Service
Other Agency	RCMP
Company(s)	Selkirk Indian Band
Amount	1890
Units	Litres
Quantity	Estimate
Release Description	Spilled
Additional Quantitit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Furnace Oil
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	fuel spilled onto frozen ground and snow/ice cover - fuel was flushed with water and dispersed over a wider area - band advised to remove cont snow



Spill Report Information

Spill #	9840
Jurisdiction	Yukon
Community	Pelly Crossing
Address	
Highway	
Milepost	
Feature	Pelly Crossing
Location and Cause	Pelly Crossing School - valve opened intentionally on heating fuel tank - tank drained
Latitude	62.8181
Longitude	-136.5665
Incident Date	9/11/1998
Lead Agency	Yukon Government - Renewable Resources
Other Agency	
Company(s)	
Amount	
Units	
Quantity	Unknown
Release Description	
Additional Quantit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Furnace Oil
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	spill to ground - near community well - soil excavated - EC suggested taking contaminated soil to dump and spreading out on tarps - no further information on file



Photo 381: M0156 Pelly Crossing RCMP detachment. (left) Residence M0226 on (right).

Photo 381: M0156/M0226 Well enclosure.



Photo 379: M0156/M0226 Well enclosure and wellhead.



Photo 199: M0156/M0226 Water System (pressure tank, pump controls, softener).