

## **9.0 BUILDING 5987: PELLY CROSSING HEALTH CENTRE**

### **9.1 Description of Existing Water Supply System**

Building 5987, the Pelly Crossing Health Centre, is currently serviced by a water supply system that delivers water from a 12.8 m deep well. The well is located in a pit below grade approximately 4 m from the Health Centre building. A site plan is provided as Figure 5987-A in Appendix A9. The coordinates of the wellhead, as measured by a handheld GPS device, were recorded as:

- UTM ZONE 8
- Northing: 6966993
- Easting: 419798

There is no treatment or disinfection for the water supplying this facility. A schematic detailing the water supply system is provided as Figure 5987-B in Appendix A9. Photos of the well and water system are also included at the back of this appendix.

### **9.2 Description of Existing Wastewater Systems**

Wastewater from the health centre is discharged to an in-ground septic disposal system on the east side of the building and likely crossgradient from the well. The septic tank is located approximately 28 m from the well and the effluent discharge field is located approximately 40 m from the well. A site plan showing the septic system is given by Figure 5987-A in Appendix A9.

### **9.3 Water Quality Results**

#### **9.3.1 Water Quality Results from Previous Sampling**

##### *Bacteriological*

Nine samples were collected from the Pelly Crossing Health Centre 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 5987-1 in Appendix A9. Coliform bacteria and *E. coli* were reported as absent in each of the nine samples for which results are provided.

### *Potability*

Water samples were collected from the Pelly Crossing Health Centre water system on September 29, 2004 and June 8, 2005 by YTG representatives and were submitted to Northwest Labs in Surrey BC and ALS Environmental in Vancouver BC for potability analyses. The results of these analyses are summarized in Table 5987-2 in Appendix A9. EBA reviewed the analytical results for comparison with the Canadian Drinking Water Quality Guidelines (CDWQG), to observe general water quality, identify and recommend additional sampling and analytical, and to identify potential indicators of contamination. Details are summarized below:

- The water quality results indicated that all health based and aesthetic objectives were met for the parameters analyzed;
- The water quality results indicated that the groundwater from which this system receives its water is calcium bi-carbonate type with a pH of approximately; and,
- The hardness (as CaCO<sub>3</sub>) was 198 mg/L during the first sampling event and 192 mg/L during the second sampling event, and is considered very hard.

#### 9.3.2 Identification of Additional Analytical Testing Required

Additional analytical for the Pelly Crossing Health Centre that was identified to be included during the water system assessments is detailed below:

- UV absorbance and UV transmissivity, as well as tannins and lignin, to determine potential for UV treatment as a disinfection option for this water system;
- Total organic carbon (TOC) for water treatment system specification; and
- Measurements in the field for total dissolved solids, conductivity, pH, and temperature.

### *Additional Analytical Results*

A water sample was obtained by EBA during the water system assessment on August 23, 2005, and was submitted to ALS Environmental in Vancouver BC for analysis of selected additional parameters. Laboratory results are summarized in Table 3440-2 in Appendix A9 and the laboratory reports are included in Appendix B.

Additional assessment recommended in the Draft report (EBA, November 2005) for this system-included collection of a water sample and coordinating laboratory analysis for potential contaminants of concern (PCOC) associated with a documented fuel spill in the vicinity of the wellhead. A sample was collected on November 22, 2005 by Ryan Martin, P.Eng of EBA. The samples were analyzed for the following PCOC associated with furnace oil and heating fuel including:

- Benzene, ethylbenzene, toluene and xylenes (BTEX);
- Volatile Petroleum Hydrocarbons (VPH);
- Polycyclic Aromatic Hydrocarbons (PAH); and
- Extractable Petroleum Hydrocarbons (EPH).

The results of the additional assessment completed do not indicate any evidence of impacts from fuel spills on well water quality for the parameters analyzed on the date sampled. More detailed results were provided in a Letter report dated March 26, 2006.

### 9.3.3 Indicators of Potential Contamination

Chloride, nitrate and nitrite concentrations can indicate impacts from anthropogenic sources such as septic waste. Chloride concentrations were low and are within the normal background ranges for groundwater in the area. Nitrate and nitrite concentrations for this sample were also low and within the normal background range for this area. These water quality results suggest that the aquifer is not under the influence of septic wastes.

## 9.4 Conceptual Hydrogeology

The log for this well indicates that the well is completed at a depth of 12.8 m within a sand and gravel aquifer. The well log shows the static water level to be 6.7 m below ground, and displays alternating sand and gravel overlying the aquifer with trace fine-grained material. 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 in the vicinity of the site is north to northwesterly (EBA 2004).

## **9.5 Potential Contaminant Sources**

Details and photographs of potential contaminant sources observed during the site investigation are compiled in Appendix A9.

Potential contaminant sources within 30 m of the wellhead are:

- An abandoned well at 2 m;
- A septic tank at 28 m; and
- An above ground fuel storage tank (AST) at 30 m.

### **9.5.1 Spills Records and Contaminated Sites Search Results**

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

In 1998 of an unknown quantity of heating fuel was discharged due to an open valve on a fuel tank located at the Eliza Van Bibber School. Removal of contaminated soil was recommended, however it is unknown if this was completed. The spill location is approximately 50 m in an upgradient direction from the well. Spills records were provided after the assessments were completed and therefore hydrocarbon parameters were not identified for additional sampling at the time of the assessment. As recommended previously, however, follow up sampling was completed November 2005 and did not indicate impact from hydrocarbon parameters on the date sampled.

## **9.6 Identified Water System Deficiencies and Associated Risk**

### **9.6.1 High and Medium Risk Deficiencies**

High and medium risk deficiencies observed during the assessment and review of background information for this water system include:

- Poor surface completion of the well (located in a 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);
- The well is completed within a shallow, unconfined aquifer, and at a depth of 12.8 m, and is considered to be a shallow well;
- The well is located within 30 m of potential contaminant sources, including an abandoned well and an above ground fuel storage tank;
- The well site is downgradient from a reported hydrocarbon spill area,
- 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 with a production zone less than 15 m below ground surface) and does not meet the requirements of the Guidelines for Water Well Construction) and,
- There is no treatment or disinfection system present.

### **9.6.2 Low Risk Deficiencies**

There were no low-risk deficiencies identified for this site. All deficiencies are considered either high or medium risk.

## **9.7 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 risk as detailed in the following sections.

### 9.7.1 Priority 1

The following recommendations are provided in order to mitigate deficiencies that are of immediate concern (Priority 1) for the Pelly Crossing Health Centre:

- Interim wellhead upgrades consisting of extending the casing to at least 500 mm above the base of the well pit, and installation of a localized near surface bentonite seal immediately around the wellhead should be completed.
- The well and water system should be super-chlorinated.
- Disinfection treatment consisting of filtration to 1 micron (absolute), and a UV system that is NSF/ANSI certified (or equivalent) should be installed to ensure disinfection of the water supplied to this building. These are conceptual design recommendations based on the information available for planning and budgeting purposes. Engineering input will be required for final system specifications.
- Backflow prevention should be installed to ensure that potentially contaminated water can't flow from taps back to the water system.
- The abandoned well that is 2 m from the existing well in use should be properly decommissioned.

### 9.7.2 Priority 2

The recommended solution to mitigate long-term risk (Priority 2) to the Pelly Crossing Health Centre would be to connect 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.

### 9.7.3 Priority 3

It is recommended that once the residences are connected to the community water system, the well be properly decommissioned.

## 9.8 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.

### 9.8.1 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.
- A double check valve assembly to provide backflow prevention would cost approximately **\$200** installed.
- Decommissioning of the abandoned well would cost in the order of **\$1,000**.

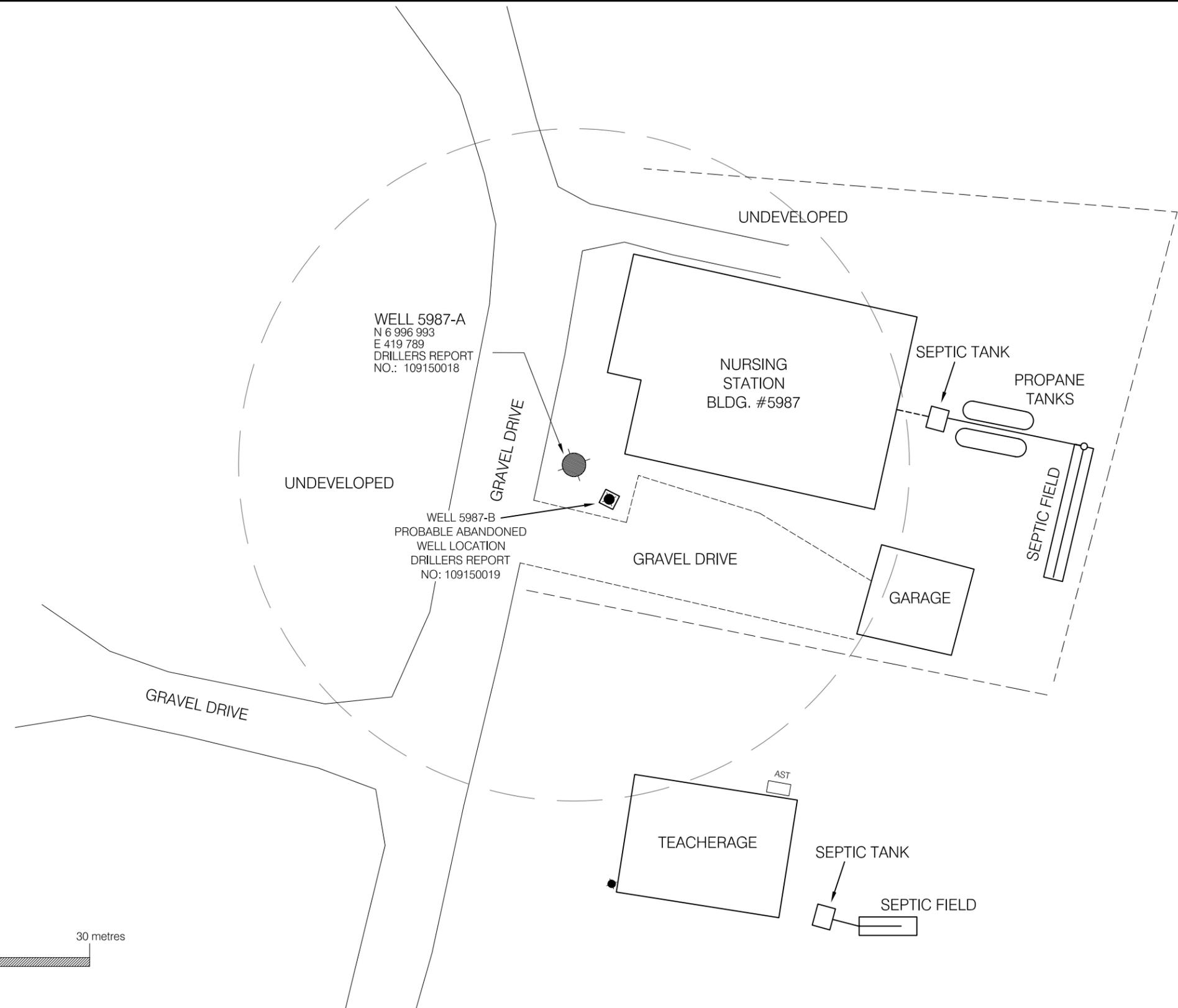
Therefore, it would cost approximately **\$5,000** to complete the recommended Priority 1 upgrades for buildings.

### 9.8.2 Priority 2

It would cost approximately **\$4,000** for materials and labour to connect to the proposed piped distribution system assuming a 30 m service connection (freeze-protected underground service piping) and some inside plumbing modifications.

### 9.8.3 Priority 3

The estimated cost to decommission the existing well once it is no longer needed, would be approximately **\$1000**.



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	DATE	APPROVED
0	ISSUED FOR CLIENT REVIEW	DD/MM/YY	XXX
	REVISION		

 **EBA Engineering Consultants Ltd.**

DESIGNED BY: R. MARTIN  
DRAWN BY: J. BUYCK  
DATE: SEPT. 2005  
SCALE: AS SHOWN  
PROJECT No.: 1260002.004  
ACAD FILENAME: 004-NORTHERN REGION

CLIENT:  
  
Yukon  
Highways and Public Works  
Property Management Branch

SMALL PUBLIC WATER SYSTEMS ASSESSMENT  
NORTHERN REGION

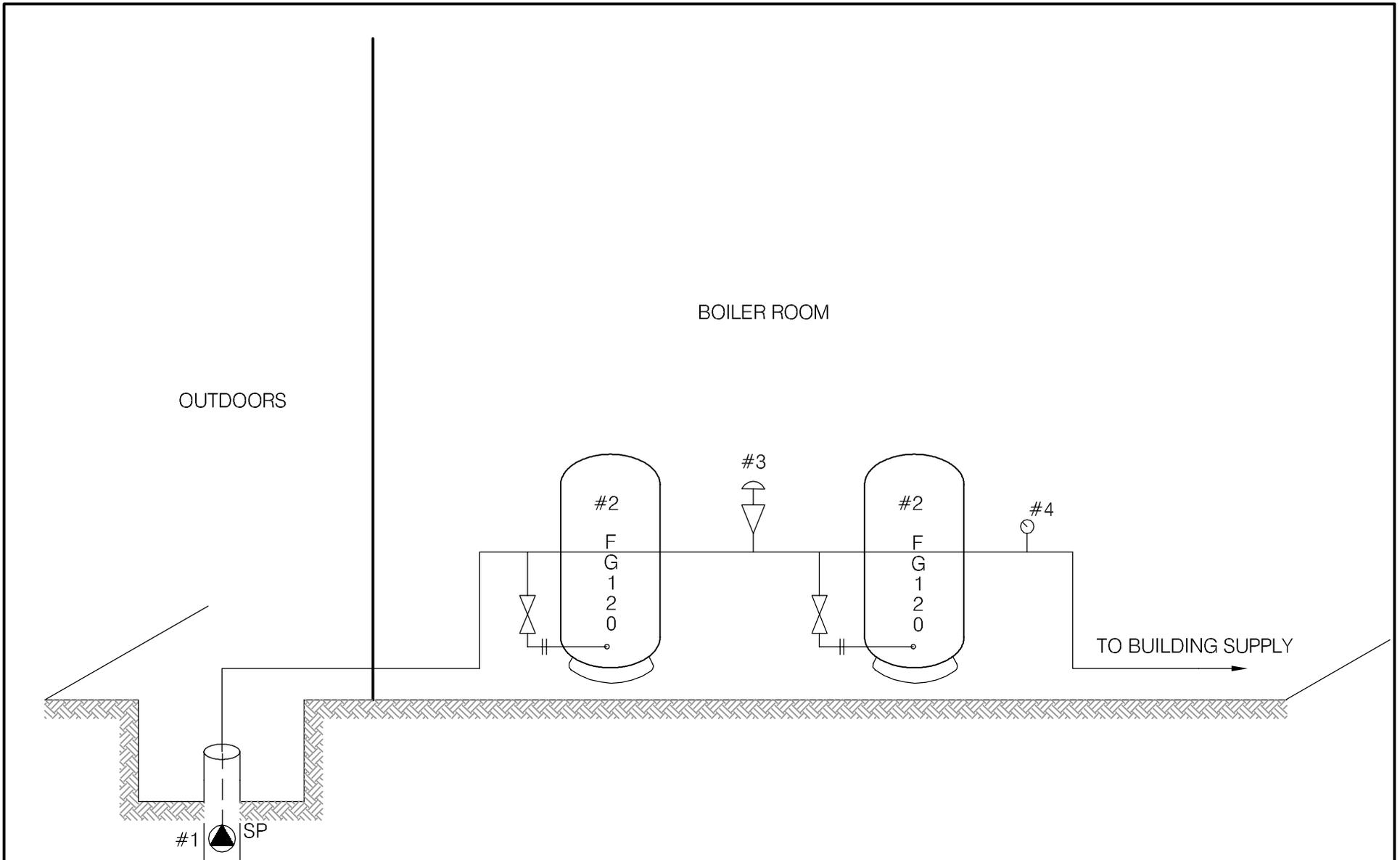
GOVERNMENT OF YUKON  
HIGHWAYS & PUBLIC WORKS

PELLY NURSING STATION  
BUILDING # 5987  
SITE LOCATION DIAGRAM  
WELL ID: 5987

REVISION ISSUE  
0

FIGURE No.  
FIGURE 5987-A





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

 <b>EBA Engineering Consultants Ltd.</b>		PROJECT SMALL PUBLIC WATER SYSTEMS ASSESSMENT NORTHERN REGION							
CLIENT 		TITLE WATER SYSTEM DISTRIBUTION/TREATMENT SCHEMATIC SYSTEM ID.: 5987 NURSING STATION - PELLY CROSSING, YT.							
DATE	SEPT. 2005	DWN.	JSB	CHKD.	FMM	FILE NO.	1260002.004	DWG.:	FIGURE 5987-B

**Northern Region – Pelly Crossing Nursing Station  
Building # 5987**

PHOTO 102-0201  
102-0202

**DISTRIBUTION & TREATMENT SYSTEM DATA**

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	SUB PUMP	GRUNDFOS	2SS10-7			3" - 3/4 HP
2	PRESSURE TANKS	MONARCH	FG120	x 2		120 GALLON
3	PRESSURE SWITCH	SQUARE D	FSG-2			2 HP - 1/4" FPT
4	PRESSURE GAUGE	MARSH	0-100 PSI			2" - 1/4" FPT
5						
6						
7						
8						
9						
10						

**TABLE 5987 - 1: SUMMARY OF BACTERIOLOGICAL RESULTS**

		<b>Number of Sampling Events</b>	<b>Time Period over which Sampling was Done</b>	<b>Any Positive Total Coliform Results? (yes or no)</b>	<b>Fraction of Positive Total Coliform Results vs. Total Sampling Events</b>	<b>Any positive E.Coli results? (yes or no)</b>	<b>Most Recent Sampling Event Available for EBA Review</b>	<b>Is Most Recent Result Positive?</b>
<b>Building #</b>	<b>Building Name</b>							
5987	Pelly Crossing Health Centre	9	Oct-04 to Jun-05	no	0/9	no	9-Jun-05	no



Table 5987 - 2: Water Quality Results

SOURCE: Building 5987 - Nursing Station					GCDWQ Criteria					
Location/ Resident Address		Pelly Crossing								
Treatment		None								
Disinfection		None								
Source of Water		On-site well								
Purpose of Sampling		Base Line	Base Line	Additional Sampling						
Sample Location										
Date Sampled		29-Sep-04	8-Jun-05	23-Aug-05				Lower	Upper Limit	
Physical Tests (ALS)								AO	MAC	AO
Colour (CU)		<5	<5.0							15
Conductivity (uS/cm)			410							
Total Dissolved Solids		214	230				500			
Hardness CaCO3		198	192		AO >200 = poor, > 500 unacceptable <sup>A</sup>					
pH		8	8.18		6.5		8.5			
Turbidity (NTU)		0.1	0.11			1	5			
UV Absorbance				0.056						
% UV Transmittance				87.7						
Dissolved Anions (ALS)										
Alkalinity-Total CaCO3		188	179							
Chloride Cl		0.5	0.9				250			
Fluoride F		0.11	0.126			1.5				
Silicate SiO4										
Sulphate SO4		23.1	30.7				500			
Nitrate Nitrogen N		<0.1	<0.10			10				
Nitrite Nitrogen N		<0.05	<0.10			1				
Ammonia Nitrogen N										
Total Phosphate PO4										
Total Metals (ALS)										
Aluminum T-Al		<0.005	<0.010			0.1				
Antimony T-Sb		<0.0002	<0.00050			0.006				
Arsenic T-As		0.0003	0.00029			0.025				
Barium T-Ba		0.062	0.047			1				
Boron T-B		0.004	<0.10			5				
Cadmium T-Cd		<0.00001	<0.00020			0.005				
Calcium T-Ca			55.2							
Chromium T-Cr		0.0012	<0.0020			0.05				
Copper T-Cu		0.008	0.003			1				
Iron T-Fe		<0.01	<0.030				0.3			
Lead T-Pb		0.0006	<0.0010			0.01				
Magnesium T-Mg			13.3							
Manganese T-Mn		<0.005	<0.0020				0.05			
Mercury T-Hg			<0.00020			0.001				
Potassium T-K			3.32							
Selenium T-Se			<0.0010			0.01				
Sodium T-Na		4.8	4.8				200			
Uranium T-U		0.0008	0.00084			0.02				
Vanadium T-V										
Zinc T-Zn		0.004	<0.050				5			
Organic Parameters										
Tannin and Lignin				0.17						
Total Organic Carbon C				3.6						
Field Chemistry (EBA)										
pH				7.93	6.5		8.5			
TDS (ppm)				185			500			
EC (uS/cm)				370						
Temperature (°C)				18						
Free Available Chlorine										

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 Aug 23/05

WELL ID #	Owner	Location Description
<u>5987</u>	<u>YTB</u>	<u>Pelly Xing - Nursing Station</u>

#### 1. Well Location and Potential Contaminant Sources

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

Pelly Crossing

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

Nursing Station SW corner of building.  
5987 462 Klondike Hwy.

c. GPS location: 08 E 0419798 N. 6966993 elev. 467

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 No

5 or more delivery sites on a trucked distribution system? If so how many No

g. Nearest building, specify Nursing Station (~4m).

h. Distance from well to building (~4m)

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

j. Distance from well to nearest point of known field: >30m

k. Well location relative to field:  upslope  downslope  lateral

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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

septic tank (28m)

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 Entrance by animals?  Yes  No

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 *unk.*

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: 30m (neighboring property)

Potential Source 2: Abandoned well; Distance from well to Potential Source 2: 2m.

Potential Source 3: \_\_\_\_\_; Distance from well to Potential Source 3: \_\_\_\_\_

Potential Source 4: \_\_\_\_\_; Distance from well to Potential Source 4: \_\_\_\_\_

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

How many? \_\_\_\_\_  in use  abandoned  require proper sealing

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## 2. Well and Wellhead information:

a. When was well installed? Year 1977 Month June 21

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 6" Material:  steel  plastic  concrete

g. Depth of well: 42'  measured (if possible)  reported  from log <sup>e 14.10m.</sup>

h. Static water level below ground: 7.76m.

measured (if possible)  reported  from log  flowing

Mar 20/99

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 4'6" (5x?) slot size(s) 15 slot

Location of screen: from \_\_\_\_\_ to 4'8" 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 PWF enclosure

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

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- i. Is the well head below grade? describe in detail Yes (-0.66 m)
- 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
- iv. Any evidence of rodents? Specify No
- v. Does the well casing have a proper seal cap?  Yes  No

If no, describe condition Split gasket cap.

### 3. Water Supplying This Well:

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

no surface seal  Yes  No  farther investigation required.

If yes is there treatment or disinfection  Yes  No

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

*'most likely connected to Pelly River*

### 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 Grundfos Model 25510-7 3"  
horsepower \_\_\_\_\_ capacity \_\_\_\_\_ voltage \_\_\_\_\_

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d. Date installed: March 13 / 2001 By: Aqua Tec

e. For submersible pump, depth of setting below surface \_\_\_\_\_

f. Drop pipe for submersible pump:  steel  plastic

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: heat trace + fibreglass insulation

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 ALBISSEL

Date AUG. 23/05

WELL ID #	Owner	Location Description
5987	YTG	HEALTH CENTRE - PEWY CROSSING

### 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<sub>2</sub>S  Other \_\_\_\_\_

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- 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**

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### ***Tank Room***

Is there a water tank? Yes No Details:

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: \_\_\_\_\_

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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

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## **8. Conclusions**

a. Comments on overall installation:

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b. Recommendations:

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FIELD REPORT

(109150018)

Started June 21.....1977.

Completed June 21.....1977.

NAME AND ADDRESS OF CLIENT	DESCRIPTION OF WORK	LOCATION OF WORK
Health and Welfare Whitehorse General Hosp	re-drilling of well at Pelly nursing station	Pelly Crossing Nursing Station

FORMATION LOG			DESCRIPTION OF WORK	TIME			
FROM	TO	FORMATION		DATE	FROM	TO	HOURS
			MOVE				
0'	2'	fine sand					
2'	5'	sand					
5'	12'	gravel					
12'	15'	sand					
15'	33'	sand & fine gravel					
33'	42'	gravel and sand					
			Moving from Stewart to Pelly Drilled to 42' Reaming 7 7/8" and casing. Set 15 slot screen Washing and air developing	June 21	7am	6:30	11.5
			Moving				5

Rc'd. of Casing & Pipe				Remarks:			
Size	Type	Size	Type				
6"				Screen 5x 4'6" 15 slot Bottom of screen 41'8" Air developed to 5 G.P.M.			
Feet	Inch	Feet	Inch				
20	2						
21	2						
1							
42	4						
5	8						
36	6						
				STATIC LEVEL	Total Rig Time	10	hrs.
				Ground level 22'	Total Standby	6.5	hrs.
				Top of casing 22'9"	Drilling Mud	3	sacks

SIGNATURES

MIDNIGHT SUN.....Merv Tull  
TITLE.....

CLIENT.....  
TITLE.....



## Spill Report Information

<b>Spill #</b>	9840
<b>Jurisdiction</b>	Yukon
<b>Community</b>	Pelly Crossing
<b>Address</b>	
<b>Highway</b>	
<b>Milepost</b>	
<b>Feature</b>	Pelly Crossing
<b>Location and Cause</b>	Pelly Crossing School - valve opened intentionally on heating fuel tank - tank drained
<b>Latitude</b>	62.8181
<b>Longitude</b>	-136.5665
<b>Incident Date</b>	9/11/1998
<b>Lead Agency</b>	Yukon Government - Renewable Resources
<b>Other Agency</b>	
<b>Company(s)</b>	
<b>Amount</b>	
<b>Units</b>	
<b>Quantity</b>	Unknown
<b>Release Description</b>	
<b>Additional Quantit</b>	
<b>Concentration</b>	
<b>Concentration Unit</b>	
<b>Phase</b>	Liquid
<b>Major Contaminant</b>	Fumace Oil
<b>2nd Contaminant</b>	
<b>3rd Contaminant</b>	
<b>4th Contaminant</b>	
<b>Outcome</b>	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



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**

<b>Spill #</b>	8621
<b>Jurisdiction</b>	Yukon
<b>Community</b>	Pelly Crossing
<b>Address</b>	
<b>Highway</b>	
<b>Milepost</b>	
<b>Feature</b>	Pelly Crossing
<b>Location and Cause</b>	overturned home heating fuel storage tank - garbage truck backed into supporting stand
<b>Latitude</b>	62.819543
<b>Longitude</b>	-136.569408
<b>Incident Date</b>	12/31/1986 2:00:00 PM
<b>Lead Agency</b>	Environment Canada - Environmental Protection Service
<b>Other Agency</b>	RCMP
<b>Company(s)</b>	Selkirk Indian Band
<b>Amount</b>	1890
<b>Units</b>	Litres
<b>Quantity</b>	Estimate
<b>Release Description</b>	Spilled
<b>Additional Quantitit</b>	
<b>Concentration</b>	
<b>Concentration Unit</b>	
<b>Phase</b>	Liquid
<b>Major Contaminant</b>	Furnace Oil
<b>2nd Contaminant</b>	
<b>3rd Contaminant</b>	
<b>4th Contaminant</b>	
<b>Outcome</b>	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



**Photo 393:** 5987 Pelly Crossing nursing station. (looking northeast)



**Photo 394:** 5987 Well enclosure and wellhead in pit.



**Photo 202:** Water system. (pressure tanks & pump controls)



**Photo 396:** Potential location of abandoned well.