

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. | ISSUED FOR CLIENT REVIEW | DESCRIPTION | DATE | APPROVED | REVISION |
|-----|--------------------------|-------------|----------|----------|----------|
| 0 | | | DD/MM/YY | XXX | |

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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**
Government of Yukon
Highways and Public Works
Property Management Branch

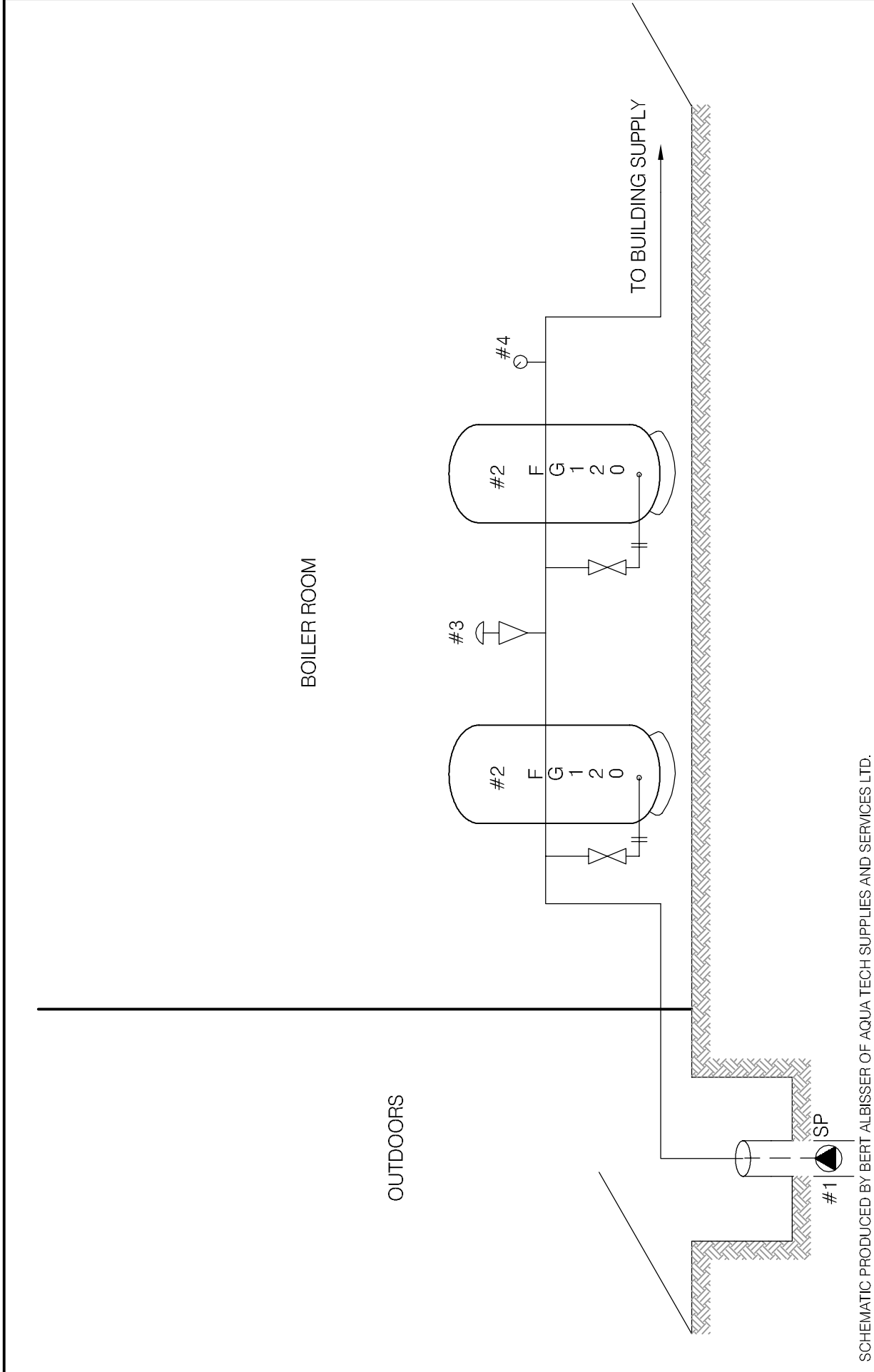
SMALL PUBLIC WATER SYSTEMS ASSESSMENT
NORTHERN REGION

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



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

| | | | |
|------------|-------------|---|---------------------|
| | | 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 | FILE NO. | 1260002.004 |
| | DWN. | CHKD. | RMM |
| | JSB | | DWG.: FIGURE 5987-B |

Northern Region – Pelly Crossing Nursing Station
 Building # 5987

DISTRIBUTION & TREATMENT SYSTEM DATA

Photo 102-0201
 102-0202

| Item | Description | Manufacturer | Model | Part No. | Serial No. | Size |
|------|-----------------|--------------|-----------|----------|------------|-----------------|
| 1 | SUB PUMP | GRUNDFOS | 25510-7 | | | 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 | MARSA | 0-100 PSI | | | 2" - 1/4" FPT |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |



TABLE 5987 - 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? |
|------------|------------------------------|---------------------------|--|--|---|---|---|---------------------------------|
| 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 ^A | | | | | |
| 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 ^{c 14.10m.}
- 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 ALBISSER

Date AUG. 23/05

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

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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- 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: _____

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:

b. Recommendations:



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 |
| | | | | Ground level 22' |
| | | | | Top of casing 22'9" |
| | | | | Total Rig Time 10 hrs. |
| | | | | Total Standby 6.5 hrs. |
| | | | | Drilling Mud 3 sacks |

SIGNATURES

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

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



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 | Fumace 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 |



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 # | 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 |



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.