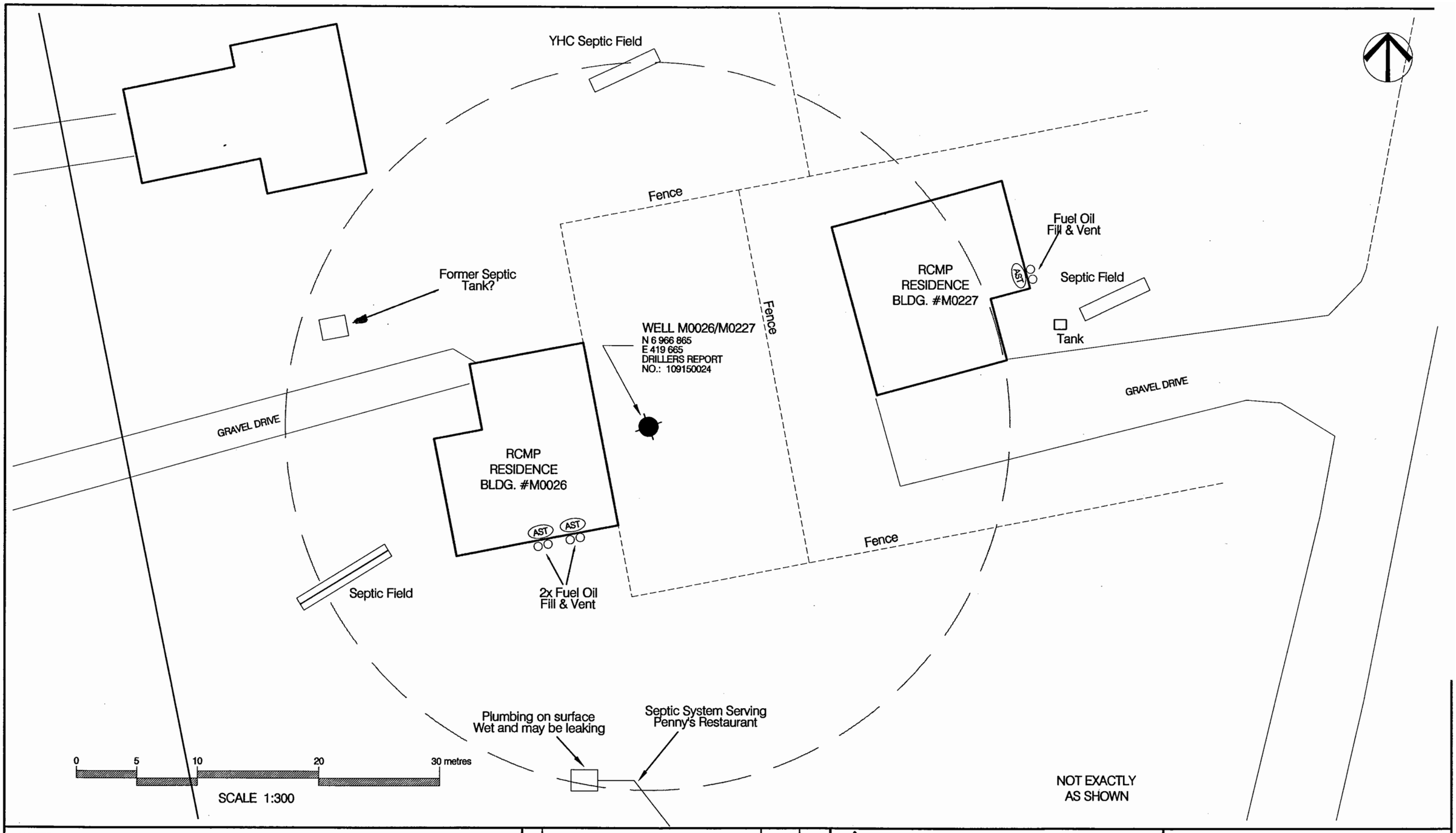


NOTES:

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 RCMP
BUILDING # M0227 & M0026
SITE LOCATION DIAGRAM
WELL ID: M0026/M0227

REVISION ISSUE: 0

FIGURE No.: FIGURE M0026 /M0227-A

LEGEND


PUMP


PRESSURE GAUGE


GATE VALVE

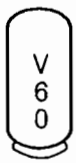

CHECK VALVE


SOLENOID

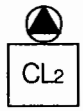
#2 COMPONENT ID. No.
(SEE TABLE ON FOLLOWING PAGE)


FLOW METER

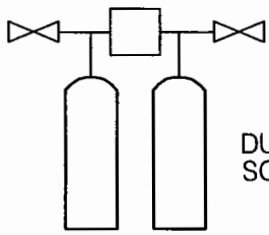
WATER FILTER
(CARTRIDGE TYPE)



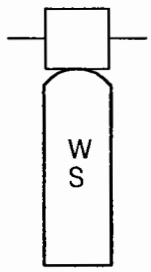
PRESSURE TANK



CHLORINE RESERVOIR AND
INJECTION PUMP

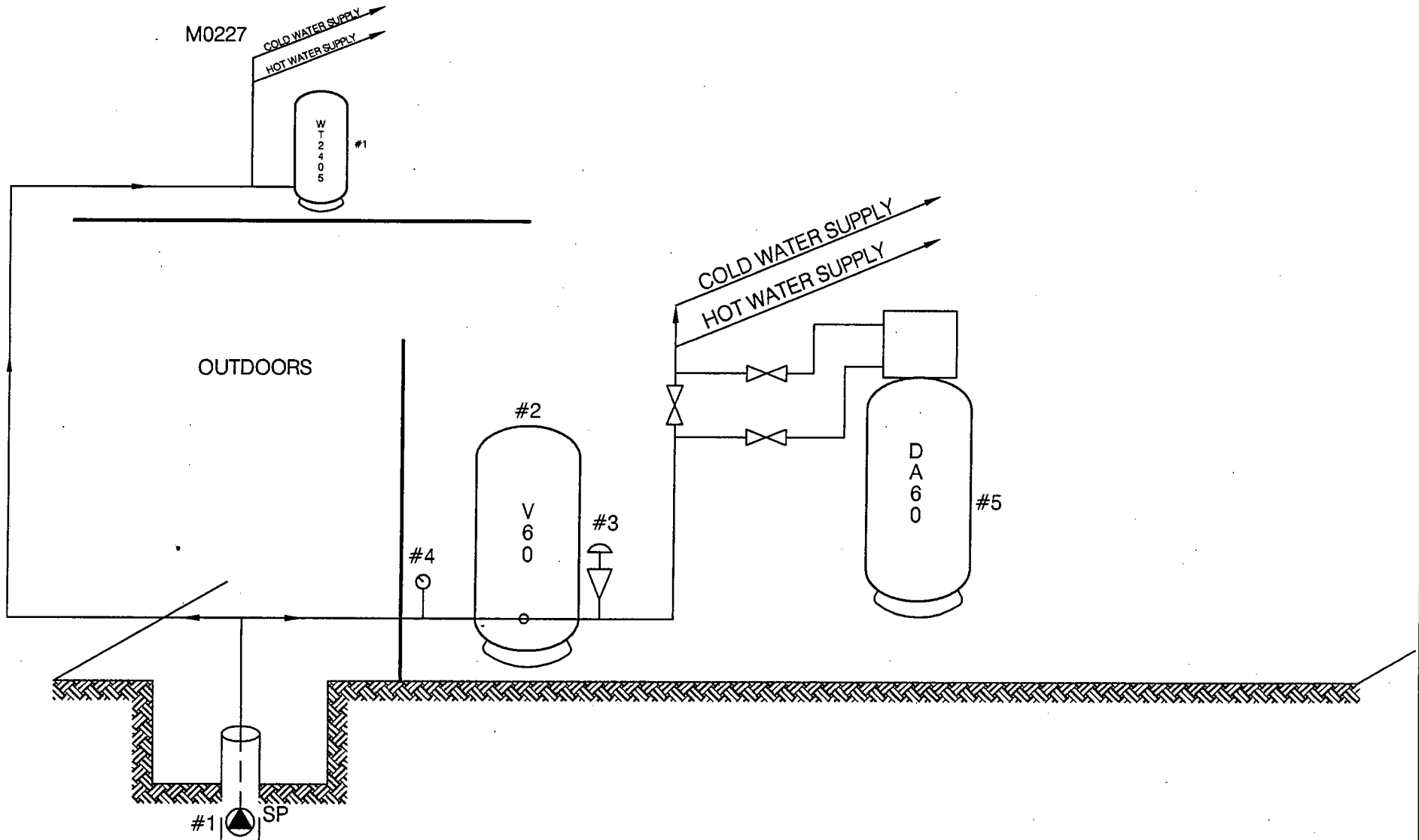

DUPLEX WATER
SOFTENER

WELL WITH
SUBMERSIBLE PUMP



ACTIVATED
CARBON

EBA Engineering Consultants Ltd.			PROJECT	SMALL PUBLIC WATER SYSTEMS ASSESSMENT WESTERN 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 AND SERVICES LTD.

EBA Engineering Consultants Ltd.				PROJECT	SMALL PUBLIC WATER SYSTEMS ASSESSMENT NORTHERN REGION
CLIENT	Yukon Highways and Public Works Property Management Branch			TITLE	WATER SYSTEM DISTRIBUTION/TREATMENT SCHEMATIC SYSTEM ID.: M0026 RCMP - PELLY CROSSING, YT.
DATE SEPT. 2005	DWN. JSB	CHKD. RMM		FILE NO. 1260002.004	DWG.: FIGURE M0026-B

Z:\0201Drawings\1260002 Water Assessment YTG\004 - Northern Region\pelly\1260002004 Pelly RCMP_M0026B Schematic.dwg, 4/5/2006 3:06:31 PM, Adobe PDF, jbuyck

Northern Region – Pelly Crossing R.C.M.P. Housing
Building # ~~MO226~~ M002C

PHOTO 101-199

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	SUB PUMP	GOULDS	10GS412		K022226	1/2 HP 4"
2	PRESSURE TANK	A.O SMITH	V60		GB9309	
3	PRESSURE SWITCH	SQUARE D	FSG2			2HP 1/4" FIPT
4	PRESSURE GAUGE	MARSH	0-100			2" 1/4" FIPT
5	WATER SOFTENER	DURO	DA 60		8507	60K
6						
7						
8						
9						
10						

Northern Region – Pelly Crossing R.C.M.P. Housing
Building # MO227

DISTRIBUTION & TREATMENT SYSTEM DATA

PHOTO 101-200

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	PRESSURE TANK	WELL RITE	WR240S		10-30-93	
2						
3						
4						
5						
6						
7						
8						
9						
10						

TABLE M0026/M0227 - 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?
M0026	Pelly Crossing RCMP Residence	9	Oct-04 to Jun-05	no	0/9	no	9-Jun-05	no
M0227	Pelly Crossing RCMP Residence	8	Oct-04 to Jun-05	**yes**	1/8	no	9-Jun-05	no

Table M0026/M0227 - 2: Water Quality Results

SOURCE:	Building M0026 - R.C.M.P. Residence			Building M0227 - 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 M0227)			On-site well (shared with M0026)				
Purpose of Sampling	Base Line	Base Line	Additional Sampling	Base Line	Base Line			
Sample Location								
Date Sampled	29-Sep-04	8-Jun-05	23-Aug-05	29-Sep-04	8-Jun-05	Lower	Upper Limit	
Physical Tests *(ALS)*						**AO**	**MAC**	**AO**
Colour (CU)	<5	<5.0		<5	<5.0			15
Conductivity (uS/cm)		436			437			
Total Dissolved Solids	233	235		233	238			500
Hardness CaCO3	216	203		215	202	AO >200 = poor, > 500 unacceptable[A]		
pH	7.98	8.16		8	8.14	6.5		8.5
Turbidity (NTU)	0.7	0.16		0.3	0.15		1	5
UV Absorbance			0.0480					
% UV Transmittance			89.5					
Dissolved Anions *(ALS)*								
Alkalinity-Total CaCO3	200	208		199	205			
Chloride Cl	0.9	0.75		0.8	0.76			250
Fluoride F	0.1	0.119		0.1	0.121		1.5	
Silicate SiO4								
Sulphate SO4	28.3	25.7		28.8	25.5			500
Nitrate Nitrogen N	0.3	0.13		0.3	0.13		10	
Nitrite Nitrogen N	<0.05	<0.10		<0.05	<0.10		1	
Ammonia Nitrogen N								
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	0.0003	<0.00010		0.0002	<0.00010		0.025	
Barium T-Ba	0.087	0.075		0.088	0.076		1	
Boron T-B	0.003	<0.10		0.003	<0.10		5	
Cadmium T-Cd	0.00002	<0.00020		0.00002	<0.00020		0.005	
Calcium T-Ca		59.5			59.1			
Chromium T-Cr	0.0012	<0.0020		0.0012	<0.0020		0.05	
Copper T-Cu	0.684	0.142		0.388	0.378		1	
Iron T-Fe	<0.005	<0.030		0.03	0.031			0.3
Lead T-Pb	0.0002	<0.0010		0.0006	<0.0010		0.01	
Magnesium T-Mg		13.2			13.1			
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		2.71			2.68			
Selenium T-Se		<0.0010			<0.0010		0.01	
Sodium T-Na	5.0	5.7		5	5.5			200
Uranium T-U	0.0007	0.00071		0.0007	0.00073		0.02	
Vanadium T-V								
Zinc T-Zn	0.005	<0.050		0.016	<0.050			5
Organic Parameters								
Tannin and Lignin			0.2					
Total Organic Carbon C			2.95					
Field Chemistry (EBA)								
pH			8.05			6.5		8.5
TDS (ppm)			189					500
EC (uS/cm)			375					
Temperature (°C)			9.6					
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)

eba

EBA Engineering Consultants Ltd.
Creating and Delivering Better Solutions

SMALL PUBLIC WATER SYSTEM ASSESSMENT

PART A: EBA Site Inspection

Inspector: KSJ / RMM Date Aug 23/05

WELL ID #	Owner	Location Description
M0026 / 227	YTG	RCMP Residence.

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,
RCMP Residence M0026 (W side of building @ rear of porch.

c. GPS location: 08 E 0419665 N 6966865 (Waypoint 036) elev: 479

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 ? No If so how many_____

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

g. Nearest building, specify RCMP Residence M0026

h. Distance from well to building < 1 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: 25m (field)

k. Well location relative to field: ☐ upslope ☐ downslope ☒ lateral
-5 within 30m of well head.

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

---

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 sediment build up in pit

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

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

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: septic #1 ; Distance from well to Potential Source 1: 25m (MD026)
Potential Source 2: #2 ; Distance from well to Potential Source 2: 27m (N property) 4k.
Potential Source 3: neighbor #3 ; Distance from well to Potential Source 3: 30-60m MD227 (>30)
Potential Source 4: neighbor #4 ; Distance from well to Potential Source 4: 30-60m (Penny's ?)
neighbor #5 30-60 m. (E. neighbor - can't confirm location)

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

How many? _____ ☐ in use ☐ abandoned ☐ require proper sealing

likely → #6 _____ ≈33m. (NE. neighbor

2× AST in MD227 w metal tray.-

well on this property – 2× AST in MD026 2/11 concrete floor - 9m

2. Well and Wellhead information:

a. When was well installed? Year unk. Month unk.

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" (152mm) 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

☐ with slotted pipe ☐ unknown other N/A

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

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

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

☐ in a wooden enclosure other, describe PVC enclosure.

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

i. Is the well head below grade? describe in detail Yes 0.80m bg

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 ☒ 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 most likely ☐ unknown

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

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 Goulds Model 1065412

horsepower ½ capacity voltage

d. Date installed: _____ By: _____

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 2"

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 n ground + insulation.

l. Comments on pump installation: _____

6. Conclusions

a. Comments on overall installation:

b. Recommendations:

PART B: EBA Site Inspection

Inspector: BERT ALBISSER Date AUG 23/05

WELL ID #	Owner	Location Description
M0026	YTG	RCMP - Kelly Crossing.

+ M0227

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

Where is it located?
Comments: BASEMENT

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 QUALITY INSTALLATION IN BOTH MATERIAL & WORKMANSHIP. THIS

b. Recommendations:

RETURN SOFTNER TO OPERATION, INSTALL FILTRATION & UV (NSF 55) 10 GPM.

M0026 / M0227

(10915004I)

MIDNIGHT SUN DRILLING CO. LTD.
PH. 667-6144
WHITEHORSE Y.T.
P.O. Box 4391

FIELD REPORT

Started..Nov..7.......1979

Completed..Nov..9......19.79

NAME AND ADDRESS OF CLIENT	DESCRIPTION OF WORK	LOCATION OF WORK
Van Lungerme and Associates Inc. R.C.M.P. 201A 303 Jarvis Whitehorse Y.T.	Water Well	Lot # 15 Pelly Crossing R.C.M.P. Lot

FORMATION LOG			DESCRIPTION OF WORK	TIME			
FROM	TO	FORMATION		DATE	FROM	TO	HOURS
0	5	Brown. f.w Sand	MOVE ~~Moved from Mayo~~	Nov 7	8	12	4
5	7	Sand	Fill water truck + set up		12³⁰	2³⁰	2
7	9	GR	Drill 6⅝ to 45'		2³⁰	5	2.5
9	16	Rocky					
16	21	GR Till	Cleaned up		5	5³⁰	.5
21	39	GR					~~9.5~~
39	41	Sand			Drilling		5
41	45'	GR			Travel		4 H
45'	60	GR & Sand	3 min Starting up	Nov 8	8	9	1
60	8?	Clay (Blue)	Drilled 6⅝ to 60'		9	10³⁰	1.5
			Reamed 7⅞ + run		10³⁰	2³⁰	4
			casing to 58'				
			Set screen 25 slot		2³⁰	4⁰⁰	1.5
			Developing		4⁰⁰	6⁰⁰	2
					Drilling		10 H
			Starting	Nov 9	8	8³⁰	.5
			Air Developing		8³⁰	11³⁰	3.0

Rcrd. of Casing & Pipe

Size	Type	Size	Type
Feet	Inch	Feet	Inch
21	1		
21	1		
15	10		
58'	0		
- 4	0		
54'	0"		

Remarks:

Screen 25 slot

2' Riser lead packer 4½ Bit Bottom

Bottom 57'6" from ground

STATIC LEVEL		Total Rig Time	hrs.
Ground level	24'	Total Standby	hrs.
Top of casing	25'	Drilling Mud	7 sacks

SIGNATURES

MIDNIGHT SUN...Mark Tall...... CLIENT..........

TITLE....Driller........ TITLE..........

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 Quanitit	
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

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 #	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 Quanitit	
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 385: M0026 Wellhead.

Photo 386: M0026 Well enclosure.

Photo 390: M0227 Septic system.

Photo 200: M0227 Pressure tank.