

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.

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

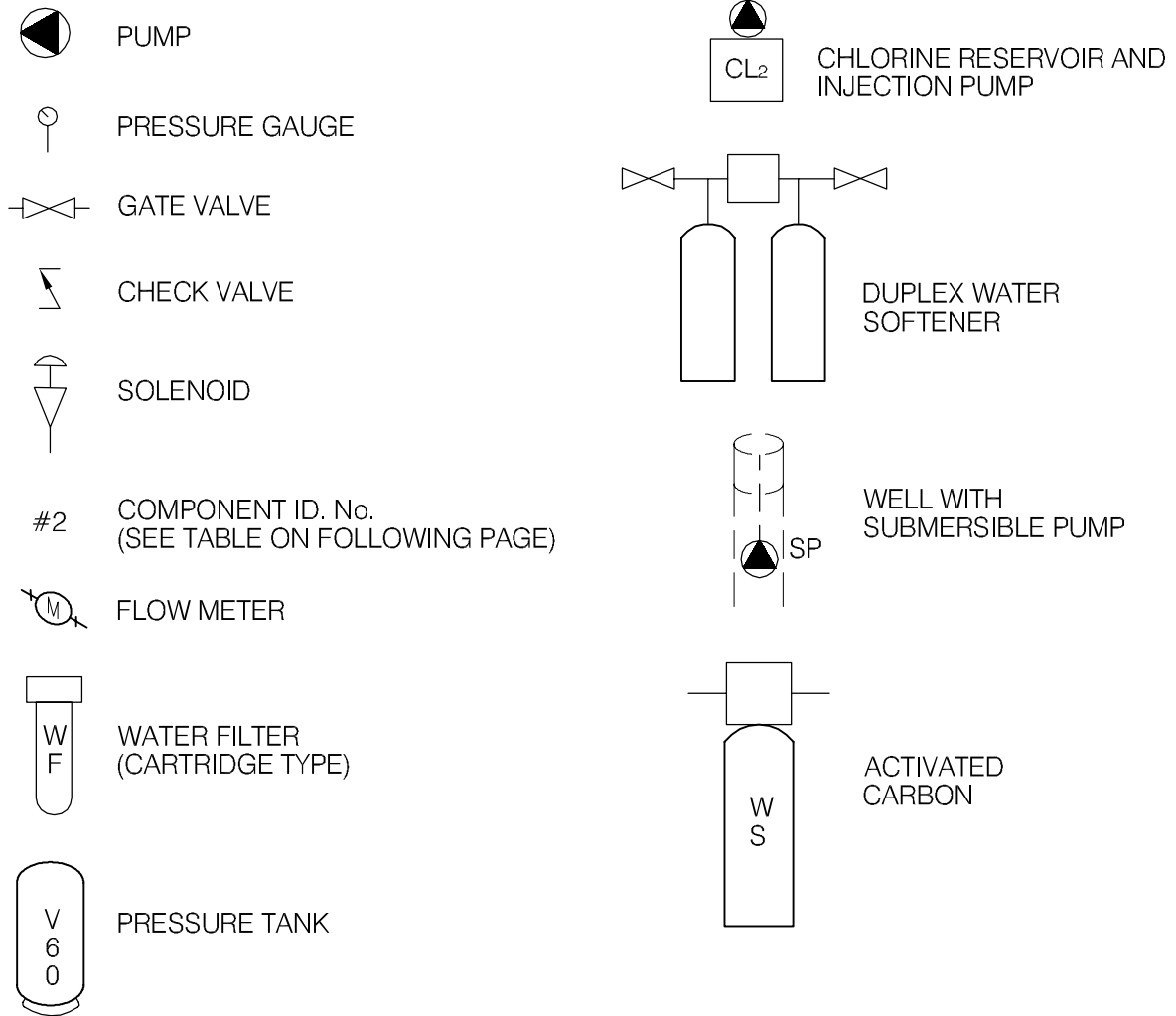
EBA Engineering Consultants Ltd.

DESIGNED BY: R. MARTIN
DRAWN BY: J. BUYCK
DATE: AUG. 2005
SCALE: AS SHOWN
PROJECT No.: 1260002.003
ACAD FILENAME: 003-WESTERN REGION

CLIENT:
Yukon
Highways and Public Works
Property Management Branch

SMALL PUBLIC WATER SYSTEMS ASSESSMENT WESTERN REGION	
GOVERNMENT OF YUKON HIGHWAYS & PUBLIC WORKS	REVISION ISSUE
BEAVER CREEK RCMP DETACHMENT BUILDING # M0131 SITE LOCATION DIAGRAM WELL ID: M0131	0
FIGURE No.	FIGURE M0131-A

LEGEND



EBA Engineering Consultants Ltd.

CLIENT

Yukon
Highways and Public Works
Property Management Branch

PROJECT

SMALL PUBLIC WATER SYSTEMS ASSESSMENT
WESTERN REGION

TITLE

SCHEMATIC SYSTEM
LEGEND

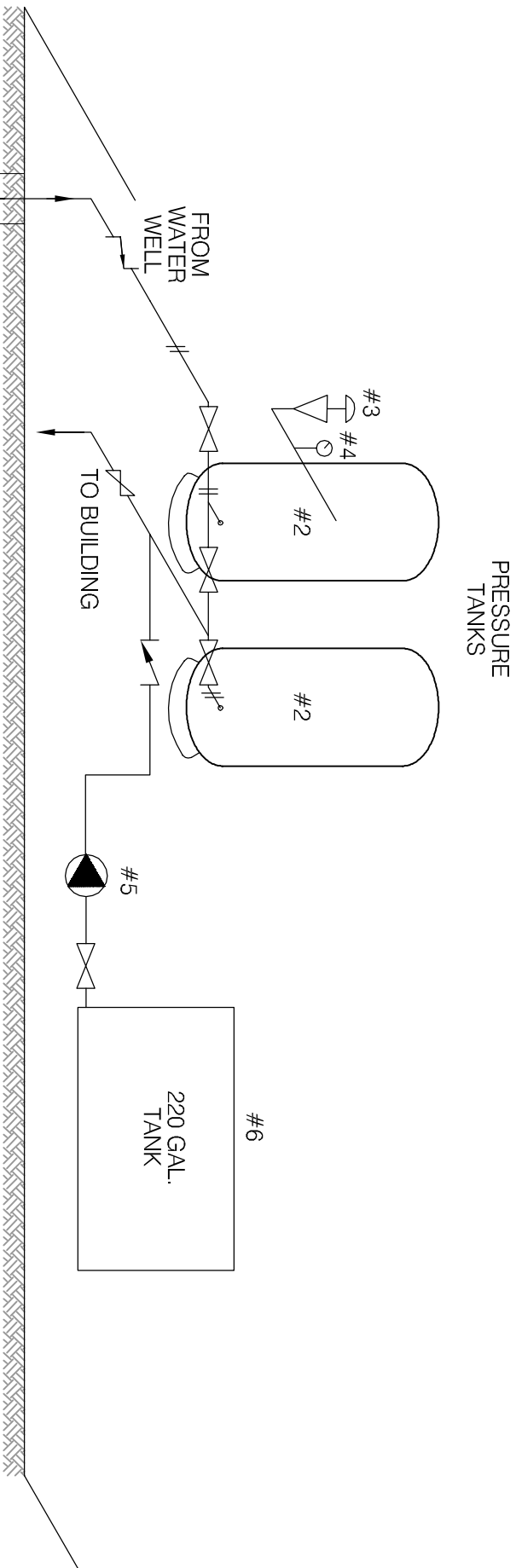
DATE APRIL 2006

DWN. JSB



CHKD. RMM

FILE NO. 1260002

DRWG. LEGEND



SCHEMATIC PRODUCED BY BERTI ALBRISSER OF AQUATECH SUPPLIES AND SERVICES LTD.

 EBA Engineering Consultants Ltd.			PROJECT SMALL PUBLIC WATER SYSTEMS ASSESSMENT WESTERN REGION		
CLIENT  Yukon Highways and Public Works Property Management Branch			TITLE WATER SYSTEM DISTRIBUTION/TREATMENT SCHEMATIC SYSTEM ID.: M0131 BEAVER CREEK RCMP DETACHMENT		
DATE SEPT. 2005	DWN. JSB	CHKD. RMM	FILE NO. 1260002.003	DWG.: FIGURE M0131-B	

Western Region – R.C.M.P. Detachment
Building # MO131

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	Sub. Pump					
2	PRESSURE TANK #1	MYERS	120 GALV X 2			120 GALLON
3	PRESSURE SWITCH	SQUARE D	FSG-2			2HP - 1/4" NPT
4	PRESSURE GAUGE	MARSH	2" (0-100 PSI)			2" - 1/4" NPT
5	JET PUMP	GRUNDOS	JGA			1 HP
6	HOLDING TANK	ZEEBEST	22060AF			220 GALLON
7						
8						
9						
10						

TABLE MO131- 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?
MO131	Beaver Creek R.C.M.P Detachment	3	Sept-04 to Jun-05	no	0/3	no	16-Jun-05	no



Table M0131-2: Water Quality Results

SOURCE:	Building M0131 - Beaver Creek RCMP Detachment			GCDWQ Criteria		
Location/ Resident	Beaver Creek					
Address						
Treatment	None					
Disinfection	None					
Source of Water	On-site well					
Purpose of Sampling	Base Line	Base Line	Additional Analytical			
Sample Location			Kitchen tap			
Date Sampled	Sept-28-04	15-Jul-05	27-Jul-05	Lower	Upper Limit	
Physical Tests (ALS)				AO	MAC	AO
Colour (CU)	5	<5.0	-			15
Conductivity (uS/cm)		471	-			
Total Dissolved Solids	259	291	-			500
Hardness CaCO3	241	247	-	AO >200 = poor, > 500 unacceptable		
pH	8.14	8.21	-	6.5		8.5
Turbidity (NTU)	1.7	0.86	0.5200		1	5
UV Absorbance			0.0230			
% UV Transmittance			94.8			
Dissolved Anions (ALS)						
Alkalinity-Total CaCO3	217	222	-			
Chloride Cl	10.4	10.9	-			250
Fluoride F	0.05	0.055	-		1.5	
Silicate SiO4			-			
Sulphate SO4	24	24.6	-			500
Nitrate Nitrogen N	0.2	0.15	-		10	
Nitrite Nitrogen N	0.05	<0.10	-		3.2	
Ammonia Nitrogen N			-			
Total Phosphate PO4			-			
Total Metals (ALS)						
Aluminum T-Al	0.005	<0.010	-			
Antimony T-Sb		<0.00050	-		0.006	
Arsenic T-As	0.0014	0.00108	-		0.025	
Barium T-Ba	0.049	0.046	-		1	
Boron T-B	0.025	<0.10	-		5	
Cadmium T-Cd	0.00001	<0.00020	-		0.005	
Calcium T-Ca		79.0	-			
Chromium T-Cr	0.0008	<0.0020	-		0.05	
Copper T-Cu	0.792	0.661	-		1	
Iron T-Fe	0.13	0.079	-			0.3
Lead T-Pb	0.0015	0.0039	-		0.01	
Magnesium T-Mg		12.2	-			
Manganese T-Mn	0.05	0.0437	-			0.05
Mercury T-Hg		<0.00020	-		0.001	
Potassium T-K		1.76	-			
Selenium T-Se		<0.0010	-		0.01	
Sodium T-Na	3.7	3.0	-			200
Uranium T-U	0.0005	0.00032	-		0.02	
Vanadium T-V			-			
Zinc T-Zn	0.657	0.881	-			5
Organic Parameters						
Tannin and Lignin			0.10			
Total Organic Carbon C			1.42			
Field Chemistry (EBA)						
pH			7.99	6.5		8.5
TDS (ppm)			174			500
EC (uS/cm)			291			
Temperature (°C)			10.9			
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)

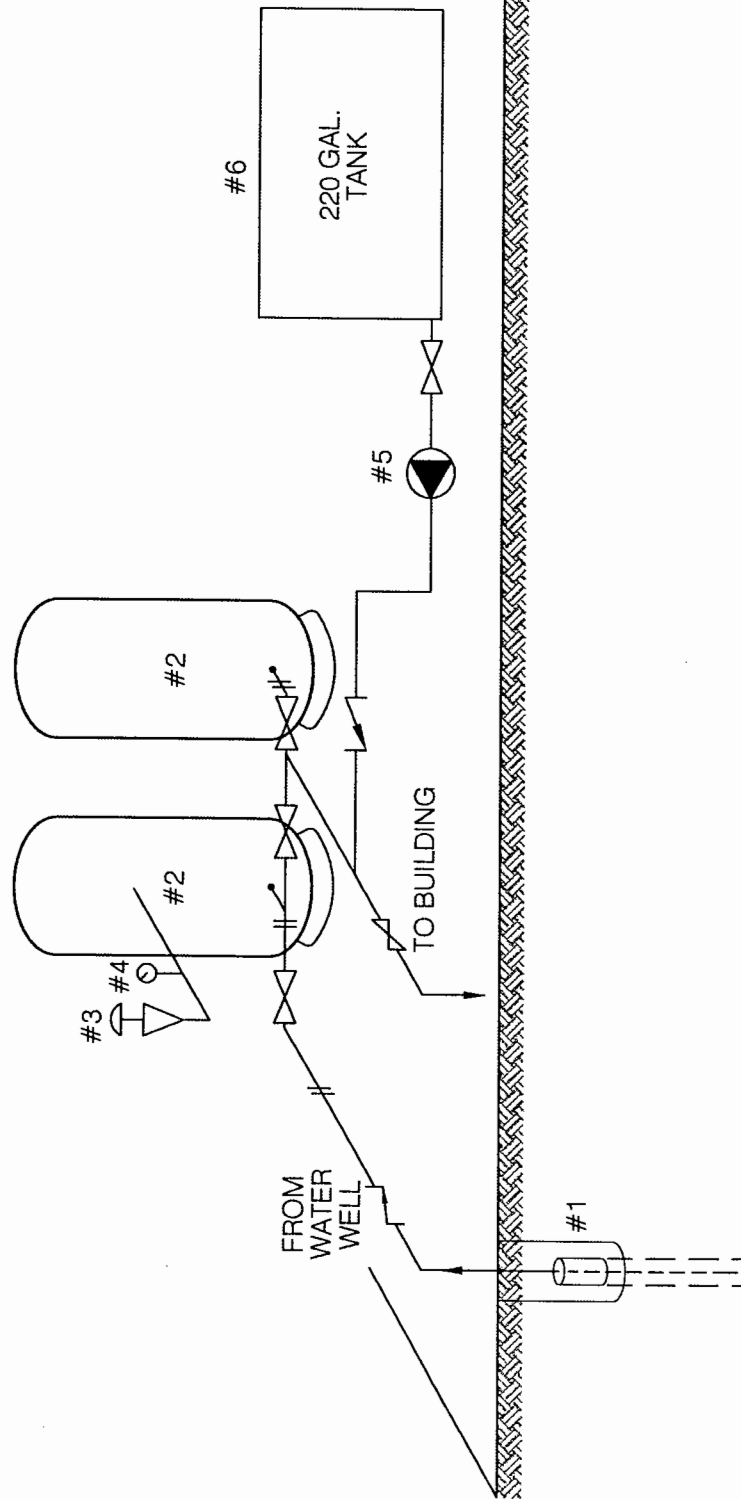
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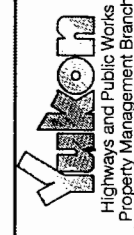
AO = Aesthetic Objective

MAC = Maximum Acceptable Concentration (Health Based)



PRESSURE TANKS



 EBA Engineering Consultants Ltd.		PROJECT		SMALL PUBLIC WATER SYSTEMS ASSESSMENT WESTERN REGION	
CLIENT		TITLE			
 Yukon Highways and Public Works Property Management Branch		WATER SYSTEM DISTRIBUTION/TREATMENT SCHEMATIC SYSTEM ID.: M0131 BEAVER CREEK RCMP DETACHMENT			
DATE	SEPT. 2005	DWN.	JSB	CHKD.	RMM
FILE NO.		1260002.003		DWG.:	
				FIGURE M0131-B	

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SMALL PUBLIC WATER SYSTEM ASSESSMENT

PART A: EBA Site Inspection

Inspector: Ryan Martin, Luke Lebel

Date July 27, 2005

WELL ID #	Owner	Location Description
M0131	RCMP	Beaver Creek RCMP Detachment

1. Well Location and Potential Contaminant Sources

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

Beaver Creek

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

c. GPS location: N 6916890 E 506480 elv 667m ± 15m

d. Is there electric power? ☒ Yes ☐ No

e. Is there outside water access? ☒ Yes ☐ No

Hose from wellhead tap

f. Does the well system have:

☐ 15 or more service connections to a piped distribution system? If so how many _____
RCMP Detachment

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

g. Nearest building, specify RCMP Detachment

h. Distance from well to building _____

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

j. Distance from well to nearest point of known field: There is likely a septic system, but its location is unknown

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

unknown, but likely

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

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

- 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
unlocked enclosure

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

- q. Is the well site well drained? ☐ Yes ☒ No low point on property

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

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+2; Distance from well to Potential Source 1: ~37m

Potential Source 2: AST 3; Distance from well to Potential Source 2: ~48m

Potential Source 3: Pump Island; Distance from well to Potential Source 3: >60m

Potential Source 4: Alaska Highway; Distance from well to Potential Source 4: ~38m

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

How many? 1 ☐ in use ☐ abandoned ☐ require proper sealing
monitoring well

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2. Well and Wellhead information:

- a. When was well installed? Year 1979 Month October
- b. Type: ☒ drilled ☐ dug ☐ sand point ☐ other _____
- c. Is there a drillers log for the well: ☒ Yes ☐ No
- d. Is there a surface seal to 6 m ☐ Yes ☒ No ☐ unknown ☐ unlikely
- e. Surface casing: ☐ Yes Diameter _____ ☒ No
- f. Well casing: Diameter 15 cm Material: ☐ steel ☐ plastic ☐ concrete
- g. Depth of well: 100 ft ☐ measured (if possible) ☐ reported ☒ from log
- h. Static water level below ground: unknown
☐ measured (if possible) ☐ reported ☐ from log ☐ flowing
- i. (If granular) Is the well completed: ☐ open end casing ☒ with a well screen
☐ with slotted pipe ☐ unknown other _____
- j. (If bedrock) Does the well have a liner? ☐ yes ☐ No ☐ steel ☐ plastic
- k. If there is a well screen: length 4 ft slot size(s) 30 slot
Location of screen: from 96 ft to 100 ft from log reported
- l. Is there a sump below the screen? ☐ Yes ☒ No
- m. Is the well head: ☐ in pumphouse ☒ in pit ☐ pitless adaptor ☐ in a building
☐ in a wooden enclosure other, describe _____
- n. If the well head is located in a wooden enclosure,

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- i. Is the well head below grade? describe in detail ~ 2.7 m below grade
- ii. Are there signs of ponding on the enclosure(e.g. water stains, etc.)? ☒ Yes ☐ No
flooding at bottom of pit (~5cm)
- 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 likely, but could not be seen due to insulation

3. Water Supplying This Well:

- a. By definition is the water from a surface water source or under the direct influence of surface water?
☒ Yes ☐ No ☐ farther investigation required.

If yes is there treatment 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
unlikely

5. Pump Installation:

- a. Is the well equipped with a pump? ☒ yes ☐ No
- b. Type of pump: ☐ hand ☒ electric submersible ☐ jet
☐ shallow well centrifugal ☐ other, _____
- c. Description: Manufacturer _____ Model _____
horsepower _____ capacity _____ voltage _____

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d. Date installed: _____ By: _____

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

f. Drop pipe for submersible pump: ☐ steel ☐ plastic *unknown*

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: *Insulation and heat trace*

l. Comments on pump installation: _____

6. Conclusions

a. Comments on overall installation:

b.Recommendations: _____

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PART B: EBA Site Inspection

Inspector: BELT ALMSER

Date July 27/05

WELL ID #	Owner	Location Description
<u>M0131</u>	<u>YTG.</u>	<u>RCMP DETACHMENT</u> <u>BEAVER CREEK</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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- 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 TANKS (2)

Where is it located?
Comments: WATER ROOM - REAR OF DETACHMENT

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: TEMPORARY HEATER IN PLACE

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

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8. Conclusions

a. Comments on overall installation:

THIS INSTALLATION DOES NOT MEET CODE.

b. Recommendations:

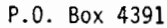
REPIPE PRESSURE TANKS. REPLACE WITH
PROPER BLADDER TANKS.

INSTALL PERMANENT HEAT SOURCE IN ROOM.

INSTALL TREATMENT IF REQUIRED FOR UV
TREATMENT. INSTALL APPROPRIATE UV

STERILIZER (NSFSS CERTIFIED) FOR FLOW

REQUIREMENT. INSTITUTE BI-ANNUAL
WELL MAINTENANCE PROGRAM.



111070019

Completed... Oct. 8 1979

[illegible][illegible]

MIDNIGHT SUN.....
TITLE.....

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



Photo 0553: M0131 Beaver Creek RCMP Detachment (rear), wellhead enclosure (front)



Photo 0551: M0131 Wellhead in pit



Photo 0554: M0131 Monitoring well



Photo 0557: M0131 Above ground fuel storage tank



Photo 0556: M0131 Above ground fuel storage tanks (left), maintenance room containing water system equipment (right)



Photo 0097: M0131 Water storage tank



Photo 0095: M0131 Pressure tanks

