

6.0 BUILDING 4762 – TESLIN SCHOOL

6.1 Description of Existing Water system

The Teslin School, Building 4762 is supplied from a 40 m deep well located in a pit approximately 4 m from the school. The well location and other details about the surrounding area are provided in Figure 4762-A in Appendix A6. The coordinates of the wellhead measured by a hand held GPS device were:

- UTM ZONE 8
- Northing: 6671906
- Easting: 626139

Water entering the school system is treated through several processes prior to entering the distribution piping. Existing treatment consists of the following:

- Chlorine injection system, however, it was not functioning at the time of the assessment;
- Duplex cartridge filters;
- Duplex activated carbon vessels; and,
- Duplex water softener.

A schematic detailing the water system is provided as Figure 4762-B in Appendix A6.

6.2 Description of Existing Wastewater Systems

Teslin school wastewater is discharged to the community piped sewage collection system.

6.3 Water Quality Results

6.3.1 Water Quality Results from Previous Sampling

Regular bacteriological sampling carried out between September 2004 and March 2005 did not indicate any positive coliform or *E. coli* testing results. A summary of historical bacteriological results is presented in Table 4762-1 in Appendix A6.

Detailed potability analyses were performed on samples collected from the Teslin School on September 9, 2004. The results are presented in Table 4762-2 in Appendix A6, and summarized in the following:

- The TDS concentration was observed to be 550 mg/L, which exceeds the CDWQG AO of 500 mg/L;
- The total and dissolved arsenic concentrations were below the current CDWQG MAC of 0.025 mg/L, but were greater than the proposed MAC of 0.005 mg/L; and,
- All other parameters analyzed were below the applicable CDWQG criteria for the sample(s) submitted.

6.3.2 Identification of Additional Analytical Required

Additional parameters requiring analysis that were identified to included silicate, phosphate, vanadium and arsenic. These parameters were selected to confirm previous results and to assist with future treatment system selection. Results are summarized in Table 4762-2 in Appendix A6, and are outlined below:

- The total and dissolved arsenic concentrations, though were not above the current MAC, were above the proposed new MAC of 0.005 mg/L.

6.3.3 Indicators of Potential Contamination

No elevated concentrations of indicator parameters were observed in the sample results reviewed.

6.4 Conceptual Hydrogeology

In general, there are two primary aquifer zones identified by previous EBA studies in the Teslin area. These zones may be generalized as shallow unconfined aquifer(s) and deeper confined aquifer(s). Based on topography and proximity to surface water, the inferred groundwater flow direction is west to south towards Teslin Lake.

6.5 Potential Contaminant Sources

Potential contaminant sources observed during the site investigation are compiled in field notes provided in Appendix A6. Photos of potential contaminant sources are also provided at the end of this appendix.

6.5.1 Spills Records and Contaminated Sites Search Results

The Government of Yukon Environmental Programs Branch and Environment Canada Environmental Protection Branch did not identify any contaminated sites issues for this site or neighboring sites. Spill records for neighbouring sites were identified.

On four separate occasions raw sewage was spilled at lift station 2 on Jackson Avenue, approximately 300 m east of this well. It is unlikely that these spills impacted on groundwater quality at this site.

6.6 Identified Water System Deficiencies and Associated Risk

6.6.1 High and Medium Risk Deficiencies

- Poor wellhead completion below ground in a well pit with an improperly sized cap and evidence of surface water ponding above the well casing;
- By definition of the Draft Yukon GUDI Assessment Guideline, the well is potentially under the direct influence of surface water because it does not meet the requirements of the Guidelines for Water Well Construction; and
- Piping is not in compliance with the Canadian Plumbing Code and water treatment system is in very poor condition. The chlorine injection pump was inoperative and retention time may not be adequate when the chlorination system is operational. In addition, the charcoal filters are located before the distribution system and would remove the residual chlorine before it enters the system.

6.6.2 Low Risk Deficiencies

- The arsenic concentration was above the proposed CDWQG MAC.

6.7 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). These are conceptual design recommendation based on the information available, and are intended to be used for planning and budgeting purposes. Engineering input will be required for final system specifications or design.

Further assessment of the existing water system would be necessary to provide final design recommendations. Dayton and Knight have indicated that the current configuration may be intended for iron and manganese removal by pre-oxidation followed by Activated Carbon filtration. The issue with the current configuration, however, is that this does not allow for any residual chlorine within the distribution system.

6.7.1 Priority 1

- The well and water system should be superchlorinated and a proper well cap must be installed;
- The piping and treatment/distribution system should be repaired and upgraded to meet the Canadian Plumbing Code and provide the required level of disinfection; and,
- A daily monitoring program for residual chlorine in the water system should be initiated.

6.7.2 Priority 2

- The well casing should be extended to a minimum of 0.5 m above surrounding grade and an adequate surface seal installed around the casing. The well should be properly capped, and surface grading should promote drainage away from the wellhead;
- A NSF-61 certified filtration system (to 1 micron absolute) should be installed; and,
- In order to prevent access by children, a fence should be installed around the wellhead.

6.7.3 Priority 3

- A point of entry (POE) arsenic removal system should be installed.

6.8 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.

6.8.1 Priority 1

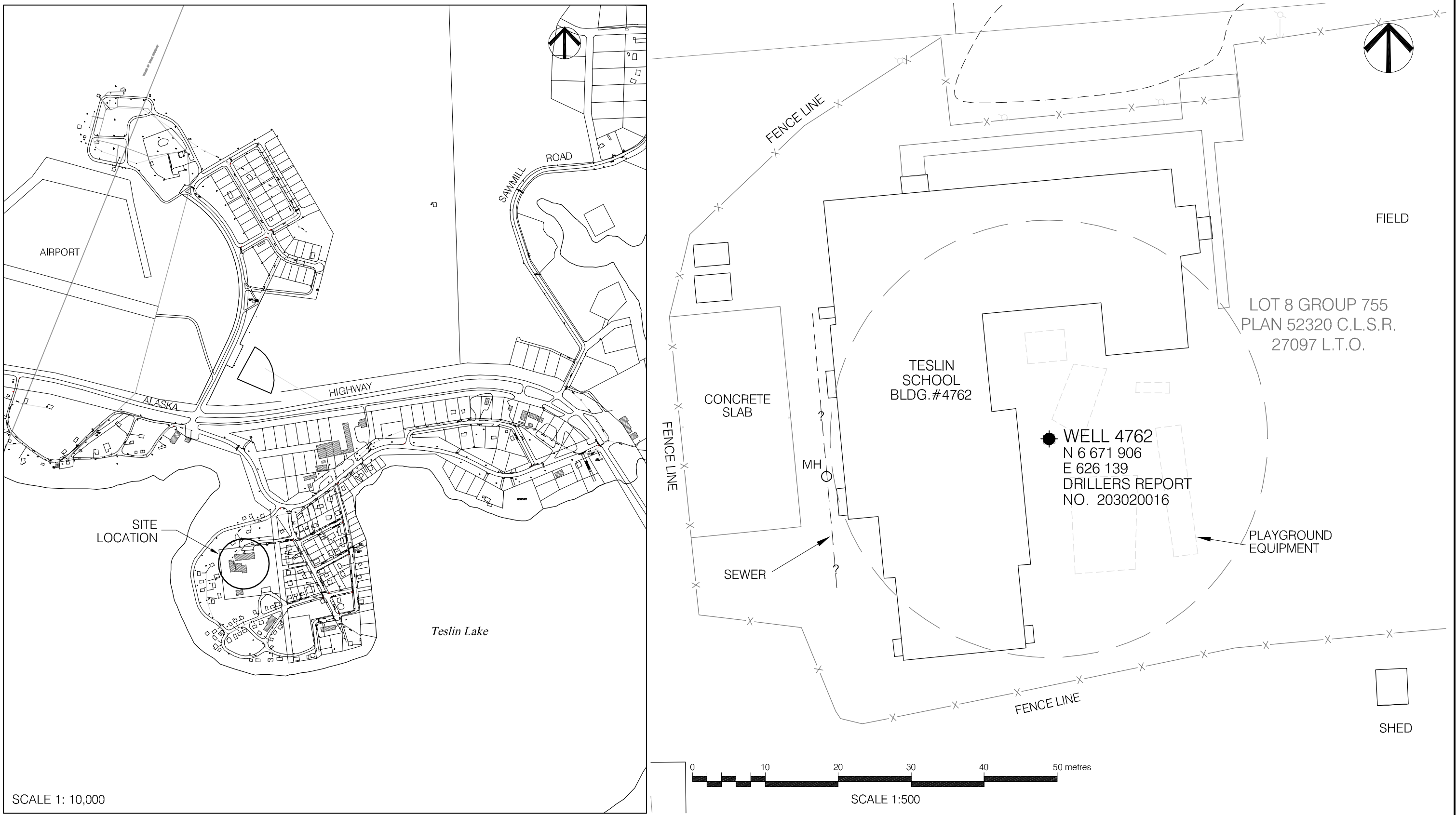
- Shock chlorinating the well and water system, and installation of a proper well cap would incur minimal cost;
- To reconfigure and repair the plumbing would cost approximately **\$3,700** for materials and labour;
- To replace the AC filtration with multimedia filtration would cost approximately **\$900**; and,
- The cost associated with upgrading the current chlorination system would be in the order of **\$1,900**.

6.8.2 Priority 2

- Standard wellhead upgrades, including retrofitting a surface seal to at least 3 m in depth and installing a commercial pitless unit would cost in the order of **\$5,000** for all materials and labour.
- Assuming a 1.8 m high 2.5 m by 2.5 m square chain-link fence, the cost to install a fence around the wellhead would be in the order of **\$2,000** for materials and labour.
- If necessary, a commercial duplex filtration system (to 1 micron absolute) would cost in the order of **\$2,200**.


6.8.3 Priority 3

- A POE arsenic removal system would cost in the order of **\$4,000** installed.




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: JULY 2005

SCALE: AS SHOWN

PROJECT No.: 1260002.002

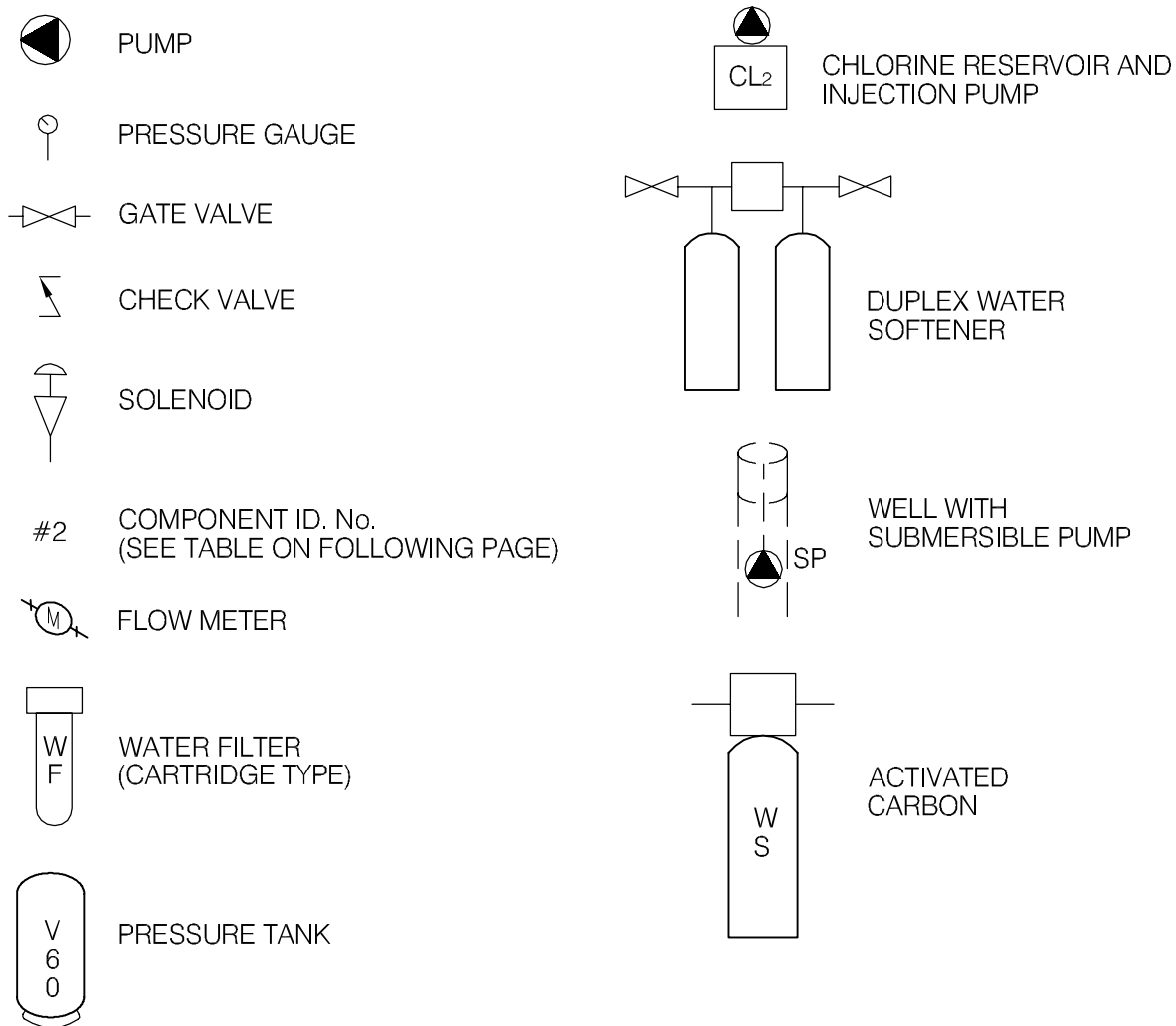
ACAD FILENAME: 002-EASTERN REGION

CLIENT:


Highways and Public Works
Property Management Branch

SMALL PUBLIC WATER SYSTEMS ASSESSMENT EASTERN REGION	
GOVERNMENT OF YUKON HIGHWAYS & PUBLIC WORKS	
TESLIN SCHOOL BUILDING # 4762 SITE LOCATION DIAGRAM WELL ID: 4762	REVISION ISSUE 0 FIGURE No. FIGURE 4762-A

LEGEND



EBA Engineering Consultants Ltd.

CLIENT



PROJECT

SMALL PUBLIC WATER SYSTEMS ASSESSMENT
EASTERN REGION

TITLE

SCHEMATIC SYSTEM
LEGEND

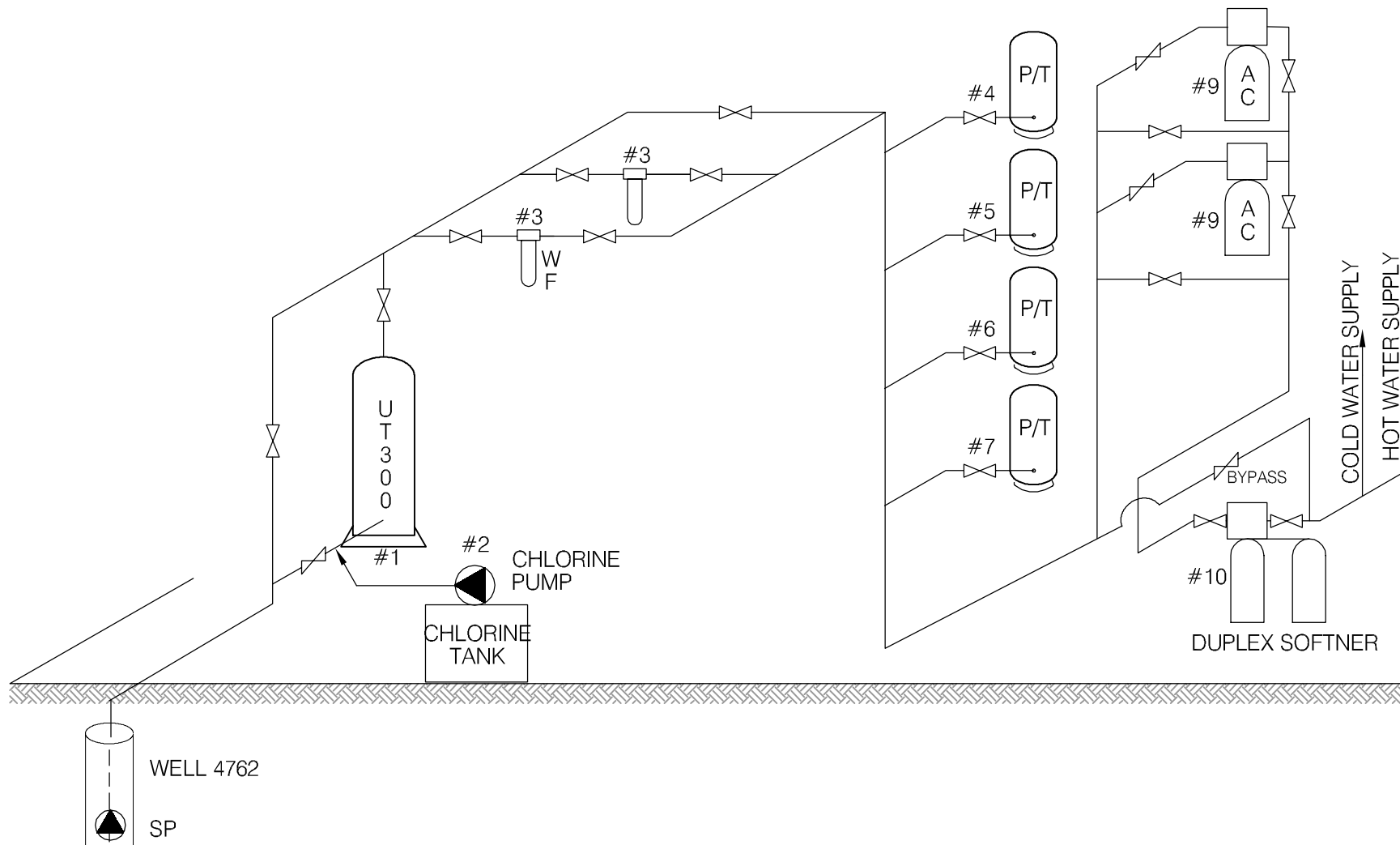
DATE APRIL 2006

DWN. JSB

CHKD. RMM

FILE NO. 1260002

DRWG. LEGEND



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



EBA Engineering Consultants Ltd.

CLIENT



Highways and Public Works
Property Management Branch

PROJECT

SMALL PUBLIC WATER SYSTEMS ASSESSMENT
EASTERN REGION

TITLE

WATER SYSTEM DISTRIBUTION/TREATMENT
SCHEMATIC SYSTEM ID.: 4762
TESLIN SCHOOL

DATE JULY 2005

DWN. JSB

CHKD. RMM

FILE NO. 1260002.002

DWG.: FIGURE 4762-B

**Eastern Region – Teslin School
Building # 4762**

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	RETENTION TANK	WELL MATE	UT-300			
2	CHEM FEED Pump	STONNER	45 MP 5		D13886-DF	50 GPD
3	INLINE FILTER	AMETEK	10 BE	DUPLEX		10" BB
4	PRESSURE TANKS	CHALLENGER	PC 144R			
5	PRESSURE TANK	"	"			
6	PRESSURE TANK	"	"			
7	PRESSURE TANK	RED LION	RL 44	604459		
8	WELL PUMP SUB MERSIBLE					4"
9	CHARCOAL FILTER	AQUA TECH	L5600 CC AC 1.5			1.5 cu ft
10	DUPLEX SOFTENER	AQUA TECH	L9000 MI 45K			45 K.

TABLE 4762- 1: SUMMARY OF BACTERIOLOGICAL RESULTS

		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?
Building #	Building Name							
4762	Teslin School	7	Sept-05 to Mar-05	no	0/7	no	1-Mar-05	no



Table 4762-2: Water Quality Results

SOURCE:		Building 4762- Teslin School		GCDWQ Criteria		
Location/ Resident		Teslin				
Address						
Treatment		Softner, Filtration, Iron Manganese Removal				
Disinfection		Chlorination (ineffective)				
Source of Water		On-Site Well				
Purpose of Sampling		Baseline	Additional Sampling			
Sample Location		Home Ec. Room				
Date Sampled		9-Sep-05	16-Jun-05	Lower	Upper Limit	
Physical Tests (ALS)				AO	MAC	AO
Colour (CU)		<5				15
Total Dissolved Solids		550				500
Hardness CaCO3		17.4		AO >200 = poor, > 500 unacceptable ^A		
pH		8.53		6.5		8.5
Turbidity (NTU)		0.3			1	5
Dissolved Anions (ALS)						
Alkalinity-Total CaCO3		294				
Chloride Cl		3.3				250
Fluoride F		0.16			1.5	
Silicate SiO4			15.5			
Sulphate SO4		82.9				500
Nitrate Nitrogen N		<0.1			10	
Nitrite Nitrogen N		<0.05			1	
Total Phosphate PO4			0.0435			
Total Metals (ALS)						
Aluminum T-Al		<0.005			0.1	
Antimony T-Sb		<0.0002			0.006	
Arsenic T-As		0.0070	0.0074		0.025	
Barium T-Ba		0.003			1	
Boron T-B		0.027			5	
Cadmium T-Cd		<0.00001			0.005	
Chromium T-Cr		0.001			0.05	
Copper T-Cu		0.098			1	
Iron T-Fe		0.01				0.3
Lead T-Pb		0.001			0.01	
Manganese T-Mn		0.005				0.05
Sodium T-Na		12.8				200
Uranium T-U		<0.0005			0.02	
Vanadium T-V			<0.030			
Zinc T-Zn		0.001				5
Dissolved Metals						
Arsenic D-As			0.00696		0.025	
Trihalomethanes						
Bromodichloromethane			<0.0010			
Bromoform			<0.0010			
Chloroform			0.0018			
Dibromochloromethane			<0.0010			
Total Trihalomethanes			<0.0040			
Organic Parameters						
Total Organic Carbon C			2.59			
Haloacetic Acids						
Bromoacetic Acid			<0.0020			
Bromochloroacetic Acid			<0.0020			
Chloroacetic Acid			<0.020			
Dibromoacetic Acid			<0.0020			
Dichloroacetic Acid			<0.0020			
Trichloroacetic Acid (TCA)			<0.0020			
Field Chemistry (EBA)						
pH			8.36	6.5		8.5
TDS (ppm)			312			500
EC (uS/cm)			626			
Temperature (°C)			10.0			
Free Available Chlorine			0.01			

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 (umho/cm), Temperature (°C) and Turbidity (NTU)

< = Less than the detection limit indicated.

AO = Aesthetic Objective

MAC = Maximum Acceptable Concentration (Health Based)



EBA Engineering Consultants Ltd.

Creating and Delivering Better Solutions

SMALL PUBLIC WATER SYSTEM ASSESSMENT

PART A: EBA Site Inspection

Inspector: Ryan Martin
Luke Leber

Date June 16, 2005

WELL ID #	Owner	Location Description
4762	YTO	Teslin School

1. Well Location and Potential Contaminant Sources

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

Teslin

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

Teslin School

c. GPS location: N 6671906 E 626139 elv. 705m ± 13m

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 _____
Teslin School

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

g. Nearest building, specify Teslin School

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: _____

k. Well location relative to field: ☐ upslope ☐ downslope ☐ lateral

EBA Engineering Consultants Ltd.

Creating and Delivering Better Solutions

- 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

Community Sewage system and service lines may be < 30m away

- 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
Unlocked enclosure, but w/ heavy concrete lid

Entrance by animals? ☒ Yes ☒ No
Heavy concrete lid, no evidence of animals

- p. Is well site subject to flooding? ☒ Yes ☐ No
Bottom of pit flooded at time of inspection

- q. Is the well site well drained? ☐ Yes ☒ No
level surface gradient, no apron grading around well

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

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: _____; Distance from well to Potential Source 1: _____

Potential Source 2: _____; Distance from well to Potential Source 2: _____

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 unlikely

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

EBA Engineering Consultants Ltd.

Creating and Delivering Better Solutions

2. Well and Wellhead information:

- a. When was well installed? Year 1973 Month March
- 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 12.5 m Material: ☒ steel ☐ plastic ☐ concrete
- g. Depth of well: 40.14 m ^(may be pump) ☒ measured (if possible) ☐ reported ☐ from log
(180 ft from log)
- h. Static water level below ground: 14.41 m below grade
☒ 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 > slot from 143.5 ft to 149 ft
- j. (If bedrock) Does the well have a liner? ☐ yes ☐ No ☐ steel ☐ plastic n/a
- k. If there is a well screen: length 3.5 ft slot size(s) > slot
Location of screen: from 143.5 ft to 149 ft from log reported
- l. Is there a sump below the screen? ☐ Yes ☐ No unknown
- m. Is the well head: ☐ in pumphouse ☒ in pit ☐ pitless adaptor ☐ in a building
concrete and pwr pit
☐ in a wooden enclosure other, describe _____
- n. If the well head is located in a wooden enclosure,

EBA Engineering Consultants Ltd.

Creating and Delivering Better Solutions

- i. Is the well head below grade? describe in detail 1.4 m below grade
- ii. Are there signs of ponding on the enclosure(e.g. water stains, etc.)? ☒ Yes ☐ No
The bottom of the enclosure is flooded
- iii. Is the wellhead enclosed by fiberglass insulations? ☐ Yes ☒ No styrofoam in walls
- iv. Any evidence of rodents? Specify no evidence
- v. Does the well casing have a proper seal cap? ☐ Yes ☒ No
The cap was unfastened at the time of inspection. It was a
If no, describe condition 15 cm cap for a 12.5 cm casing

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 ☒ Yes ☐ No charcoal
chlorination and filtration

Explain (filtration, disinfection etc...) but ineffective due to poor installation

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 _____

EBA Engineering Consultants Ltd.

Creating and Delivering Better Solutions

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

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: Heater in insulated pit, but no heat trace

l. Comments on pump installation: _____

6. Conclusions

a. Comments on overall installation:

- There was a 15cm cap being used on a 12.5cm casing. The well is therefore open
- The water level within the pit was, observed from water staining, likely 35cm high. If the flood level were to be 35cm higher then the water would likely flood into the well.

b. Recommendations: _____

EBA Engineering Consultants Ltd.

Creating and Delivering Better Solutions

PART B: EBA Site Inspection

Inspector: BERT ALBISSER

Date JUNE 16/05

WELL ID #	Owner	Location Description
4762	YTG	TESLIN SCHOOL

6. Water Treatment

a. Is well water treated? ☒ Yes ☐ No; Type of treatment:

☒ chlorination ☒ iron and or manganese removal ☒ other CHARCOAL FILTERS

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 _____

EBA Engineering Consultants Ltd.

Creating and Delivering Better Solutions

- 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: *RETENTION TANK + 4 PRESSURE TANKS*

Where is it located?

Comments: *CRAWL SPACE*

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: _____

EBA Engineering Consultants Ltd.

Creating and Delivering Better Solutions

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:

THE WATER SYSTEM IS IN A VERY BAD CONDITION. THE PIPING HAS BEEN REVAMPED AND DOES NOT MEET THE CANADIAN PLUMBING CODE. THE CHEMICAL FEED PUMP FOR CHLORINE INJECTION IS INOPERABLE AND LEAKING BADLY. THE RETENTION TANK IS NOT ADEQUATE TO PROVIDE THE PRESCRIBED 20 MINUTE RETENTION. THE PIPING CONFIGURATION HAS AC FILTERS THAT REMOVE ANY Cl_2 RESIDUAL BEFORE IT ENTERS THE DISTRIBUTION SYSTEM, THEREFORE PROVIDES

b. Recommendations: NO PROTECTION AT ALL.

REPAIR THE SYSTEM TO PROVIDE PROPER CHLORINATION WITH THE REQUIRED RETENTION TIME. REPIPE THE SYSTEM SO THAT THE CHARCOAL FILTERS WILL NOT REMOVE THE Cl_2 RESIDUAL. INSTITUTE A PROPER CHLORINE RESIDUAL TESTING PROGRAM.

KEY TO
FORMATION LOG

FIELD REPORT

Mailing Address:
P.O. Box 2106
Whitehorse, Yukon
Phone: 667-4795

MIDNIGHT SUN

Job (Month) (Day) (Year)
Started March 29 1973

DRILLING CO. LTD. Completed 19

Invoice No.

NAME AND ADDRESS OF CLIENT	DESCRIPTION OF WORK	LOCATION OF WORK
Yukon Territorial Gov	Water Well	Sec. Twp. Rge. W.
		Site of new school
		Teslin, Yukon

FORMATION LOG			DESCRIPTION OF WORK	TIME			
DM	TO	FORMATION		Date	From	To	Hours
1	4'	sand gravel	Move From Watson Lake (0)	29/3/73	07:00	12:00	4.5
	25	br. sandy clay	Set-up drill with 6½" H.F. bit		12:30	19:00	6.5
			to 15' Drill with 6½" S.F. bit	30/3/73	08:00	12:30	4.5
5	65	grey clay with gravel	to 30'		13:00	19:30	6.5
5	72	gravel with cobbles	Return to 3' to drill rocks off.	5/4/73	09:00	21:00	12.0
			Reaming with 6½" (180) to (150)	6/4/73	07:30	12:30	5.0
2	136	blue sand trace of clay with gravel.	Ran 145' casing 40' of sand in casing.	18/6/73	06:00	20:00	14.0
				19/6/73	07:00	09:00	2.0
36	155	fine grey sand (H2O)	Sample #1 at 74' fine blue grey sand trace of clay				
			Sample #2 at 115' Fine blue grey				
55	180	blue grey clay	sand, gravel with traces of clay				
			Sample #3 at 123' Blue sand				
			trace of clay with gravel				
			Sample #4 141.5' fine grey				
			sand, water bearing				

of Casing & Pipe				Remarks: Capped bottom, welded one side to be pushed off			
Type	Size	Type					
"	1/2"			with screen. Ran 5" I.D. casing to 145'.			
t	Inch	Feet	Inch	Installed 5" Ø telescoping Johnston well screen no. 7 slot			
"	0"			from 143.5 to 149.0.			
"	0"			bailed at 15 G.P.M.			
"	0"						
0"	0"						
"	0"						
"	0"						
"	0"			Well Cased: Casing to ft. and	Total Big Time (above)	hrs.	
"	0"			Casing from ft. to ft.	Total Standby (above)	hrs.	
				STATIC LEVEL: from ground level from top of casing	Drilling Mud Used (above)	2 sacks	

SIGNATURES

Midnight Sun

For Client

Driller: David Jamieson

Helper: John Gow



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 #	0104
Jurisdiction	Yukon
Community	Teslin
Address	Jackson Ave
Highway	
Milepost	
Feature	Teslin
Location and Cause	Teslin septic tank - mechanical failure of auto dialer alarm - sewage spill
Latitude	60.16491
Longitude	-132.72162
Incident Date	1/7/2001
Lead Agency	Department of Indian Affairs and Northern Development
Other Agency	
Company(s)	Village of Teslin
Amount	800
Units	Litres
Quantity	Estimate
Release Description	Spilled
Additional Quantitit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Raw Sewage
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	spill migrated to shoreline of Teslin Lake but was contained in snow and ice - contaminated snow removed and bleach used as disinfectant - clean-up was completed



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 #	0333
Jurisdiction	Yukon
Community	Teslin
Address	Jackson Ave
Highway	
Milepost	
Feature	Teslin
Location and Cause	spill at Lift Station #2 - due possibly to faulty truck guage - cause to be determined
Latitude	60.16491
Longitude	-132.72162
Incident Date	9/23/2003 11:00:00 AM
Lead Agency	
Other Agency	
Company(s)	Village of Teslin
Amount	100
Units	Litres
Quantity	Estimate
Release Description	Spilled
Additional Quantitit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Raw Sewage
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	contaminated soil removed and replaced with clean crush - industrial bleach applied to contaminated area - lead agency to be determined - no further info 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 #	0340
Jurisdiction	Yukon
Community	Teslin
Address	Jackson Ave
Highway	
Milepost	
Feature	Teslin
Location and Cause	Lift Station #2 (Jackson Ave) - spill due to non-secured coupling device
Latitude	60.16491
Longitude	-132.72162
Incident Date	11/27/2003 2:30:00 PM
Lead Agency	Yukon Government - Water Inspections
Other Agency	
Company(s)	Village of Teslin
Amount	80
Units	Litres
Quantity	Estimate
Release Description	Spilled
Additional Quantitit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Raw Sewage
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	driver of truck bleached area - contaminated area being cleaned up and material removed to landfill - copy of letter from Village of Teslin to YT Water Board 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 #	8706
Jurisdiction	Yukon
Community	Teslin
Address	Jackson Ave
Highway	
Milepost	
Feature	Teslin
Location and Cause	Jackson Ave pump station - truck overturned in avoiding oncoming traffic
Latitude	60.16491
Longitude	-132.72162
Incident Date	3/17/1987 2:10:00 PM
Lead Agency	Federal Government - other
Other Agency	Environment Canada - Environmental Protection Service
Company(s)	Walter Geddes
Amount	4500
Units	Litres
Quantity	Estimate
Release Description	Spilled
Additional Quantitit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Raw Sewage
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	no specific environmental concerns - possiblity of contamination of 1 or 2 near-by water wells - contained in snow berm - removed to sewage lagoon



Photo 0225: 4762 Wellhead in pit



Photo 0031: 4762 Chlorination system and retention tank



Photo 0223: 4762 Wellhead enclosure and Teslin School



Photo 0033: 4762 Inline filters



Photo 0036: 4762 Charcoal filtration and water softening system

Photo 0037: 4762 Pressure tanks

