

NOTES:
 1. UTM COORDINATES OBTAINED WITH A HAND HELD GPS USING NAD83 SYSTEM AND ARE CONSIDERED TO BE ACCURATE TO 10.0 m, APPROXIMATELY.

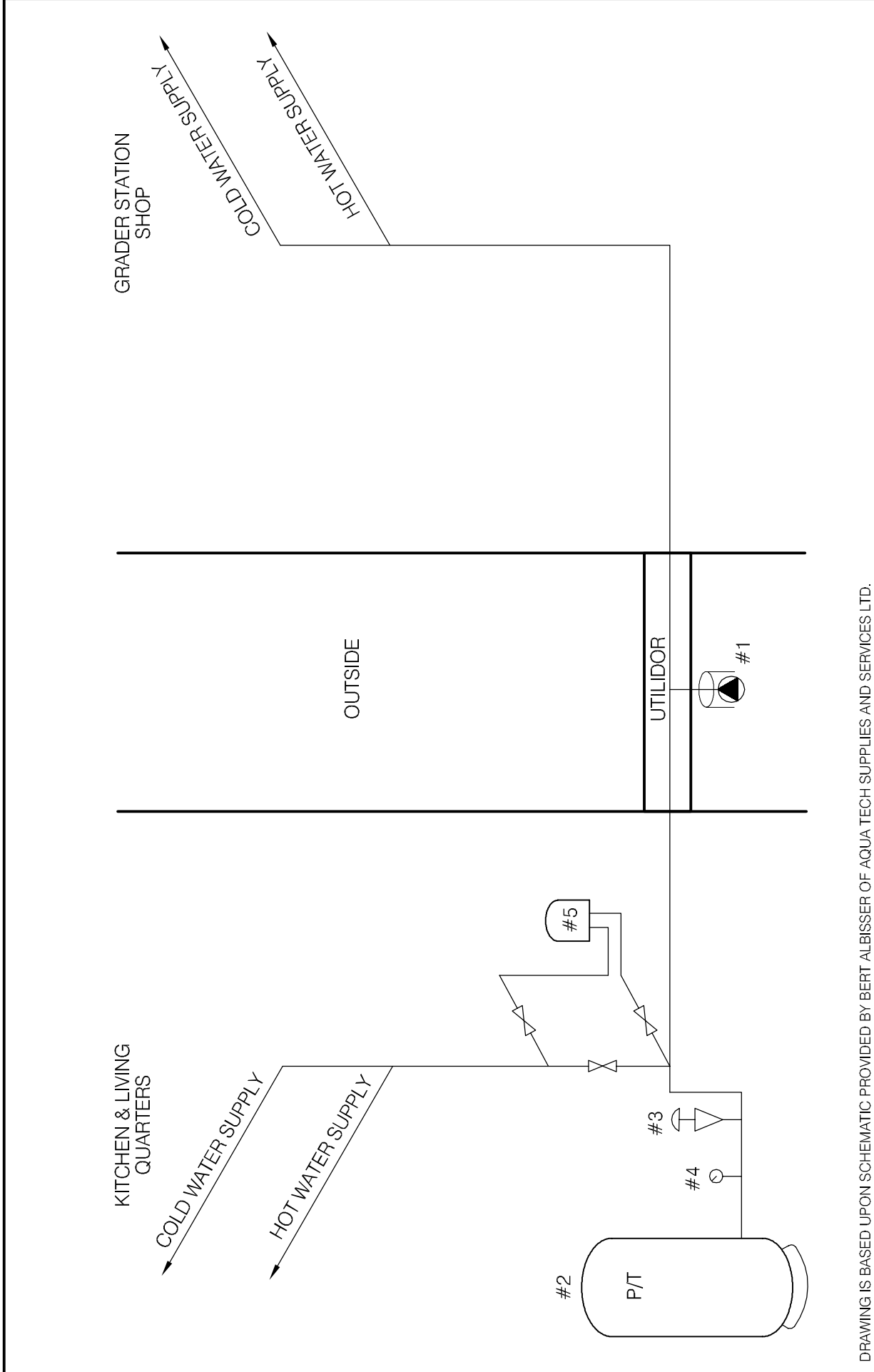
30 m RADIUS FROM WATER WELL FOR CONSIDERATION OF PROXIMITY TO POTENTIAL CONTAMINANT SOURCES.

No.	ISSUED FOR CLIENT REVIEW	DESCRIPTION	DATE	APPROVED	REVISION
0				XXX	

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

EBA Engineering Consultants Ltd.
Yukon
 Highways and Public Works
 Property Management Branch

SMALL PUBLIC WATER SYSTEMS ASSESSMENT
 NORTHERN REGION
 GOVERNMENT OF YUKON
 HIGHWAYS & PUBLIC WORKS
 KLONDIKE GRADER STATION
 BUILDING # 2600
 SITE LOCATION DIAGRAM
 WELL ID: 2600
 REVISION ISSUE: 0
 FIGURE No.:
 FIGURE 2600-A



DRAWING IS BASED UPON SCHEMATIC PROVIDED 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.: 2600 KLONDIKE GRADER STATION - DAWSON, YT.	
DATE SEPT., 2005	DWN. JSB	CHKD. RMM	FILE NO. 1260002.004
		DWG.: FIGURE 2600-B	

Northern Region – Dempster Grader Station
 Building # 2600

DISTRIBUTION & TREATMENT SYSTEM DATA

Item	Description	Manufacturer	Model	Part No.	Serial No.	Size
1	SUB. PUMP	MONARCH	RS12S10E			4" - 1HP.
2	PRESSURE TANK	CHALLENGER	PC122			122L
3	PRESSURE SWITCH	SQUARE D	GG-2			5HP - 1/4" FPT
4	PRESSURE GAUGE	MARSH	O-100 PST			2" - 1/4" FPT
5	INLINE FILTER	HARENSCO	HIF-7	(LID AND CHANGE OUT		
6				CLUSTER MISSING)		
7						
8						
9						
10						

TABLE 2603 - 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							
2603	Living Complex Klondike	6	Sept-04 to Jun-05	yes	2/6	no	9-Jun-05	yes



Table 2600 - 2: Water Quality Results

SOURCE:		Building 2600 - Klondike Grader Station			GCDWQ Criteria				
Location/ Resident	Dempster Highway								
Address									
Treatment	None								
Disinfection	None								
Source of Water	On-site well								
Purpose of Sampling	Base Line	Base Line	Additional Sampling						
Sample Location			Washroom faucet						
Date Sampled	29-Sep-04	8-Jun-05	18-Aug-05	Lower	Upper	Limit			
Physical Tests (ALS)									
Colour (CU)	29	<5.0	<5.0	AO	MAC	AO			
Conductivity (uS/cm)		432							
Total Dissolved Solids	239	259				500			
Hardness CaCO3	201	201		AO >200 = poor, > 500 unacceptable ^A					
pH	8.02	8.20		6.5		8.5			
Turbidity (NTU)	13.0	12.5	18.6		1	5			
UV Absorbance			0.005						
% UV Transmittance			98.9						
Dissolved Anions (ALS)									
Alkalinity-Total CaCO3	166	173							
Chloride Cl	2.1	2.64				250			
Fluoride F	0.18	0.22			1.5				
Silicate SiO4									
Sulphate SO4	56.7	60.9				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	0.008	<0.010			0.1				
Arsimony T-Sb	<0.0002	<0.00050			0.006				
Arsenic T-As	0.003	0.00261			0.025				
Barium T-Ba	0.083	0.071			1				
Boron T-B	0.021	<0.10			5				
Cadmium T-Cd	<0.00001	<0.00020			0.005				
Calcium T-Ca		51.2							
Chromium T-Cr	0.0011	<0.0020			0.05				
Copper T-Cu	<0.001	<0.0010			1				
Iron T-Fe	0.74	1.39	1.32			0.3			
Lead T-Pb	<0.0001	<0.0010			0.01				
Magnesium T-Mg		17.7							
Manganese T-Mn	0.138	0.142	0.138			0.05			
Mercury T-Hg		<0.00020			0.001				
Potassium T-K		0.83							
Selenium T-Se		<0.0010			0.01				
Sodium T-Na	10.9	11.3				200			
Uranium T-U	<0.0005	0.00025			0.02				
Vanadium T-V									
Zinc T-Zn	<0.001	<0.050				5			
Dissolved Metals									
Iron D-Fe			<0.030			0.3			
Manganese D-Mn			0.133			0.05			
Organic Parameters									
Tannin and Lignin			0.27						
Total Organic Carbon C			0.74						
Polycyclic Aromatic Hydrocarbons									
Aceaphthene			<0.000050						
Aceaphthylene			<0.000050						
Acridine			<0.000050						
Anthracene			<0.000050						
Benzo(a)anthracene			<0.000050						
Benzo(a)pyrene			<0.000010		0.00001				
Benzo(b)fluoranthene			<0.000050						
Benzo(g,h,i)perylene			<0.000050						
Benzo(k)fluoranthene			<0.000050						
Chrysene			<0.000050						
Dibenz(a,h)anthracene			<0.000050						
Fluoranthene			<0.000050						
Fluorene			<0.000050						
Indeno(1,2,3-c,d)pyrene			<0.000050						
Naphthalene			<0.000050						
Phenanthrene			<0.000050						
Pyrene			<0.000050						
Quinoline			<0.000050						
Extractable Hydrocarbons									
EPH10-19			<0.30						
EPH19-32			<1.0						
LEPH			<0.30						
HEPH			<1.0						
Field Chemistry (EBA)									
pH			8.1	6.5		8.5			
TDS (ppm)			203			500			
EC (uS/cm)			406						
Temperature (°C)			7.1						
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: Ryan Martin, Luke Lebel

Date August 18, 2005

WELL ID #	Owner	Location Description
2600	YTG	Klondike Grader Station

1. Well Location and Potential Contaminant Sources

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

Dempster Highway

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

Km 65 Dempster Highway

c. GPS location: N 7150453 E 633968 elev 974m ±8m UTM Zone 7

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 _____

Maintenance garage, living complex, generating station

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

g. Nearest building, specify Maintenance garage

h. Distance from well to building ~10m

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

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

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

Entrance by animals? Yes No
Access possible. Mouse droppings observed. No cap on well

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 *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: AST 1; Distance from well to Potential Source 1: ~20m

Potential Source 2: AST 2; Distance from well to Potential Source 2: ~30m

Potential Source 3: AST 3; Distance from well to Potential Source 3: ~35m

Potential Source 4: River; Distance from well to Potential Source 4: ~15m

AST 4 @ ~40m, AST 5 @ ~15m, AST 6+7 @ ~60m

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

Dug well (abandoned) @ ~35m. Various monitoring wells

How many? _____ in use abandoned require proper sealing

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2. Well and Wellhead information:

- a. When was well installed? Year 1988 Month September
- 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: 47 ft measured (if possible) reported from log
- h. Static water level below ground: 3.55 m bc
 measured (if possible) reported from log flowing
12 ft from log
- 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) 25 slot
Location of screen: from unknown, likely 43 ft to 47 ft 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 _____
- 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 ~0.15 m above grade
- 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 Yes, Mouse droppings in insulation
- v. Does the well casing have a proper seal cap? Yes No
If no, describe condition None present, well is open

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
overburden well into broken bedrock
- 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 4.70 m bc

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 and 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 ALBISSEK

Date Aug 18/05

WELL ID #	Owner	Location Description
<u>2600</u>	<u>YTG</u>	<u>DUMPSTER GRADER STATION</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 TANK

Where is it located?

Comments: RESIDENTIAL COMPLEX MECHANICAL ROOM

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

8. Conclusions

a. Comments on overall installation:

THIS IS A PROFESSIONAL INSTALLATION WITH THE EXCEPTION OF THE WELL HEAD.

b. Recommendations:

LIFT PUMP, CLEAN & SUPER CHLORINATE THE WELL. INSTALL WATER TREATMENT TO SUIT THE WATER QUALITY ANALYSIS FOLLOWED BY 5 MICRON FILTER AND 15 GPM UV SYSTEM (NECESS CERTIFIED) REARRANGE PIPING TO SUIT TREATMENT SYSTEM.

Field Report

Started Sept 9.....1988

Completed Sept 10...1988



333-3070 TELEX 036-8496
BOX 4391
TEHORSE, YUKON

ID	ADDRESS OF CLIENT	DESCRIPTION OF WORK	LOCATION OF WORK
	3000 ft OF YUKON	W / W	mi. 41 Dempster Hwy Camp
		88-1A-34	

TION LOG TO	FORMATION	DESCRIPTION OF WORK	TIME			
			DATE	FROM	TO	HOURS
		MOVE				
		Travel to camp	Sept 9	6:00	7:30	1.5
		set up	"	7:30	8:00	0.5K
20	Gr. sand cobs.		"	8:00	9:00	1
38	Gr. sand cobs silt		Sept 10	8:00	10:30	2.5
40	Black shale					
47	Broken BR.					
		set screen Developer	"	10:30	3:00	4.5
		move off Travel to corner.	"	3:00	4:30	1.5

Casing & Pipe			Remarks:
Type	Size	Type	
Inch	Feet	Inch	1- shoe 4
			25 slot screen 4
			2' riser - packer - 4 7/8 bit pin
			25 GPM.
			one ton
Static Level			Total Rig Time hrs.
Ground Level 12			Total Standby hrs.
Top Of Casing			Drilling Mud sacks

SIGNATURES

IGHT SUN.....
E.....
Les
Travis
Larry

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



Spill Report Information

Spill #	0124
Jurisdiction	Yukon
Community	
Address	
Highway	Klondike Highway
Milepost	M 41
Feature	North Klondike River
Location and Cause	Klondike Camp - leaking fuel filter on generator
Latitude	64.4529
Longitude	-138.215
Incident Date	5/19/2001
Lead Agency	Yukon Government - Environmental Programs
Other Agency	
Company(s)	YTG Highways
Amount	
Units	
Quantity	Unknown
Release Description	Leaked
Additional Quantitit	
Concentration	
Concentration Unit	
Phase	Liquid
Major Contaminant	Diesel
2nd Contaminant	
3rd Contaminant	
4th Contaminant	
Outcome	no further info on file

 <p>2005/08/18</p>	 <p>2005/08/18</p>
<p>Photo 069: 2600 Klondike grader station facing southeast.</p>	<p>Photo 067: 2600 Wellhead with surrounding enclosure and utilidor.</p>
 <p>2005/08/18</p>	 <p>2005/08/18</p>
<p>Photo 065: 2600 Wellhead – note that at the time of the assessment there was no well cap and evidence of mice around the wellhead.</p>	<p>Photo 196: 2600 Abandoned dug well.</p>