Environmental Investigation

Destruction Bay Pumping Station
HJ031
96-6128-2

Prepared for:
Mr. Brett Hartshorne
Yukon Arctic Environmental services
Action on Waste
D.I.A.N.D

Prepared by:
Groundtrax Inc., *Environmental Systems*
P.O. Box 5105
Whitehorse, Yukon
Y1A 4S3

Adam Greetham
Environmental Technologist
Cert. Phase I Assessor

Doug Leblanc
CET, CES, CRS, CTS
Review Oficer

September, 1997

97Y011

Privileged & Confidential

23 September, 1997

File # 96-6128-2
97Y011

Indian and Northern Affairs Canada
Waste Management
345-300 Main Street
Whitehorse, Yukon
Y1A 2B5
Phone: 403-667-3270
Fax: 403-667-3199

Attention: Mr. Brett Hartshorne, Manager
Waste Management Program

Dear Mr. Hartshorne:

Re: **Environmental Investigation - Destruction Bay, Site HJ031**

Groundtrax Inc., *Environmental Systems*, was retained by yourself on 4 August, 1997 to conduct an environmental investigation of the above-noted property. The investigation was performed to identify the precence/absence and removal (if any) of buried drums on-site; under contract number 96-6128 and land use permit # YA7X352 Land Resources, Yukon.

The report was delivered and presented on ten bound copies, one unbound copy, and a copy supplied on a 3.5" diskette; wordperfect 5.1 format; as requested in the contract.

We are pleased to provide you with our report for this environmental investigation. This document details our findings.

Thank you for the opportunity to be of service.

Yours very truly,

Greetham

Adam Greetham
Groundtrax Inc., *Environmental systems.*

AG:ag

Executive Summary

Groundtrax Inc., Environmental systems conducted an environmental investigation at the Destruction Bay site HJ031 in August/September, 1997. This site was operated under United States authority as a Haines - Fairbanks pipeline pumping station serving the supply of fuel to its military installations in Alaska. The investigation was done to identify whether buried drums were located on-site related to allegations stating this activity had occurred during site closure in 1972. The investigation included; an interview with Mr. Peter Upton - worker during site closure, Mr. Charlie Eikland - local resident, Mr. Darrel Duencing - previous site Forman; subsurface investigation involved a localized Electromagnetic 61 survey, site excavations, and one soil sample analysis.

Findings of the environmental investigation, include the following:

a) Introduction
b) Background
c) Site Description
d) Interviews
e) Site Activities
f) EM 61 Electromagnetic Survey
g) Site Walkover
h) Records Review
i) Containment Devices
j) Protective Clothing
k) Excavation Locations
l) Soil sample Location and Interpretation

In view of the findings of this environmental investigation, we provide the following conclusion and recommendation for your consideration:

a) No barrels were identified to be located on-site.
b) Soils sampled were found to contain Hydrocarbon levels within Yukons' 1996 Regulations for Contaminated Sites for parkland.

LIMITING CONDITIONS

Any statement of opinion contained in the Report prepared by Groundtrax (Yukon) Inc. shall not be construed to create any warranty or representation that the real property on which the investigation was conducted its free of pollution or complies with any or all applicable regulatory or statutory requirements, or that the property is fit for any particular purpose.

Unless otherwise presented in the Report, no further attempt was made to check on the compliance of present or past owners of the site with federal, territorial, or local laws and regulations.

The conclusions presented in the Report are based on the services described, and not on scientific tasks or procedures beyond the scope of described services, which were performed in accordance with the schedule and budget set forth in the Consultant Retainer Agreement.

Neither the Investigation report, any part thereof, nor any copy of the same (including conclusions or recommendations, the identity of the Inspector, professional designation, reference to any professional organization, or the firm with which the Investigator is connected), shall be used for any purposes by anyone but the Principal Parties. The report shall not be conveyed by anyone to the public through advertising, public relations, news, sales, or other media, without the prior written consent and approval of the Inspector.

Any person or entity considering use, acquisition, other involvement or activity concerning the property shall be solely responsible for determining the adequacy of the property or any and all uses for which that person or entity shall use the property. Any person or entity considering the use, acquisition, or other involvement or activity concerning the property which is the subject of the Report should enter into any use, occupation, acquisition, or the like on sole reliance of its own judgement and on its own personal investigation of such property, and not in reliance on any representation by Groundttrax Inc. regarding such property, the character, quality, or its value.

Groundtrax Inc. performed this environmental investigation in a professional manner using that degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental consultants on a similar fee basis.

Groundtrax Inc. shall not be responsible for conditions or consequences arising from relevant facts which were concealed withheld, or not fully disclosed at the time the assessment was conducted.

Past Site Ownership

Since property ownership records, such as certificate-of-title reports, rarely specify actual property usage by the owner of record or the owner's tenant, all property usage's may not be readily apparent.

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List of Appendices

1.0 Introduction

Groundtrax (Yukon) Inc. *Environmental Systems* was retained by Mr. Hartshorne. Manager of Waste Management Program, Department of Indian and Northern Affairs, Yukon, 4 August, 1997, to locate and determine the presence/absence of buried drums on-site during site closure activities in 1972 at the Destruction Bay Pumping Station HJ031.

An interview with a past site worker and local resident, having suspected knowledge of the site was conducted on the 8 August, 1997, to acquire site knowledge as to possible location, quantity and product of the suspected buried drums.

A site walk-over was conducted 8 August, 1997; to locate the area suspected for the disposal of buried drums. A two meter grid was constructed over the suspected disposal area for the operation of an EM 61 High Sensitivity Metal Detector. A brief EM 61 investigation over the remainder of the site was conducted to verify the operation of the unit and to obtain a subsurface view of service lines on-site. Preliminary site work was conducted 9 August, 1997.

Upon completion of the preliminary site work, excavation began to verify the presence of barrels situated where anomalies were recorded to be located. Further excavation was conducted in areas indicating possible areas of drum burial, through visual inspection of the ground surface and personal interviews with local residents.

This final report includes details on background information, content of interviews, possible contents of liquid wastes, site activities, conclusion and recommendation.

2.0 Background

In the 1950's, the United States Government constructed the Haines- Fairbanks Pipeline to supply fuels to its military installations in Alaska. Six pumping facilities aided in the transportation of product through the pipeline. Destruction Bay HJ031 was one of the six pumping facilities until its closure in 1972.

During site closure, civilians were hired from the Destruction Bay area to assist in site closure activities. Heavy equipment was suspected to have been brought in from outside the Destruction Bay community to assist in site closure activities.

In 1994, the Arctic Environmental Strategy (AES) - Action on Waste program conducted a preliminary environmental investigation at four of the pumping stations. Later in the same year, DDT canisters were unearthed near a pumping station in Northern British Columbia. The past discovery and evidence of hazardous waste disposal on-site warranted the continuos effort to assess the potential presence, location and quantity of buried drums at the Destruction Bay site - HJ031.

3.0 Site Description

The Destruction Bay Pump Station is located at mile 209 of the pipeline at co-ordinates 61°13.65N and 138° 45.43W (6790000 m and 620500 m E), which is situated 4.5 Km Southeast of the community of Destruction Bay along the Alaska Highway. (See Appendix A - Site Location.)

The 9.9 acre site originally consisted of a main building, six family housing trailers, two large above ground storage tanks, maintenance garage, pump house, and a large septic field. During site closure, the maintenance buildings, and housing compound was removed, and a chain link fence was erected around the perimeter of the main building and aboveground storage tanks. Wooden stakes in the Southwest corner of the site indicated a potential area for the burial of drums. (See Appendix B - Photo1.) Grasses dominate the area where the buried drums were initially believed to be located. Aspen, Willow, and Spruce dominate all other vegetated areas on site. Historic excavator tracks are visual in several areas on-site

4.0 Interviews

DIAND recommended that Mr. Peter Upton to be contacted concerning activities' on-site during the closure of HJ031. Mr. Upton was a site worker who recalled witnessing the burial of drums in the Southern area relatively close to the main building of the pumping station. Mr. Upton stated that many civilians were interested in obtaining the coolants that were rumoured to be included in the barrels for disposal. Mr. Upton stated that the excavation was probably 4-5 feet deep and approximately 10-20 barrels were possibly dumped into the trench from the back of a truck and then driven over by the track excavator. The drums were determined to be crushed, then the area backfilled to an even grade. There was no recollection that barrels of pesticides or defoliants were in the trench during the burial. Mr. Upton stated that after 25 years it was hard to recall the activities that occurred on-site.

Upon completion of the interview with Mr. Peter Upton, the preliminary site investigation proceeded. An area was identified as a potential trench location. (See Appendix A - Photo 1,2,3) Anomalies very similar to drums were detected and excavation proceeded. The excavation indicated that barrels were not located in that area. Further excavation proceeded in areas indicating a potential burial location. Barrels were not located at any of these excavations. Further interviews were conducted to verify the presence, absence, and location of a drum burial location on-site.

An interview was conducted with Mr. Charlie Eiklan; a local resident of Destruction Bay long before the closure of the facility. Mr. Eiklan was not present during the closure of the site but is familiar with the property and surrounding area. Mr. Eiklan stated that he believed a burial location was located in the Northwest corner of the property, the same circular area was earlier identified as a potential area of concern. Excavation proceeded and was found not to contain any buried drums, though contamination was discovered during the excavation, a soil sample was obtained for analysis. (See Appendix A - Photo 2, B - Photo 8&9)

After an incidental meeting with a Destruction Bay resident, a phone interview with Mr. Darrel Duencing of Whitehorse was conducted, a previous Forman at the pumping station. Mr. Duencing stated that all liquid materials of value were sent to Tok, Alaska, and to his recollection, no drums were buried on-site. Interviews were concluded and no further excavation commenced.

5.0 Site Activities

Prior the incidental meeting leading to the conversation with Mr. Duencing, a series of site activities were conducted prior finalization of report: the area determined by Mr. Peter Upton as the possible location of the bury trench was investigated for signs of past excavation. A two meter interval grid was constructed to conduct the EM 61 scan. Other areas on site were investigated for anomalies, combining anomalies detected from the EM 61 to the layout of the site. Papers found within the building were investigated for any information as to the products used on site. Excavation proceeded in the areas identifying anomalies, barrels were not located at this location. Several excavations commenced in locations indicating possible historic trench development. One excavation unearthed contaminated soil, though found not to contain any buried drums. A soil sample was obtained for analysis from the area of contamination. (See 5.7 Soil Sample...)

5.1 EM 61 Electromagnetic Survey

The subsurface penetrating radar was completed using an EM 61 Electro Magnetic Indicator. The initial suspected bury trench was thoroughly scanned for anomalies using one meter grid intervals. Several areas indicated the presence of metal object resembling barrels; these areas were painted and flagged. Anomalies were situated approximately in the middle of the excavation foot print. Approximately 15 similar anomalies were identified within the staked area, four to five feet below the ground surface. (See Appendix: B - Photo 2)

5.2 Site Walkover

The 9.9 acre site was walked over in various areas with the EM 61 to locate other areas of concern, and to confirm operation of the unit. Major anomalies were observed in accordance to where subsurface services exist. (See Appendix B - Photo 2.) These 'major' anomalies consisted of communication lines, water lines, fuel lines, and a large septic field. Minor anomalies were found in various locations around the site though not at a scale large enough to warrant a potential burial site. The main building was investigated for evidence to products used on-site.

5.3 Records Review

The main building was investigated for any information pertaining to the products used on-site. A storage chamber held bins to contain waste gear oil, motor oil, and solvents. A vehicle maintenance area would warrant the use of coolants as described by Mr. Peter Upton to be a product contained in the barrels for disposal. No records of pesticides were found during the investigation, though due to the stunted vegetation around the site, it also warrants the possibility of use on-site.

5.4 Containment Devices

A containment cell 10 meters by 17 meters was constructed in the main building for the placement of excavated drums. The containment cell was walled with 2 x 6 boards and lined with 6 mil. Poly. (See Appendix B - Photo 4) Barrels were to be: excavated, oil pumped into spare 45 gallon drums using an intrinsically safe diaphragm pump, removed and placed into overpacks to prevent further site contamination, wrapped in poly and sealed for transportation to the containment cell and for easy handling during transportation off-site to prevent any further contamination. Six mil Poly was laid out beside the areas of excavation for the placement of all excavated soils. (See Appendix B - Photo 3) This process was prepared

for the initial excavation only, all other excavations were handled under strict observation as to the presence of contamination. Contaminated soils were to be excavated, and placed onto poly sheeting to be later replaced back into the excavation. All personnel handling hazardous materials were to wear protective clothing and receive a decontamination wash down in a catchment bay. All protective clothing and waste water were to be placed in five gallon pails and sealed for disposal along with the drums.

5.5 Protective Clothing

Disposable Coveralls: SARNEX - Laminated Tyvek coveralls provides superior barrier protection from hazardous liquids, toxic chemicals and minute particles.
Outer Boots: Chemical resistant Boots.
Respirator: Half-face mask with Type GMC-S chemical cartridge.
Chemical Splash Goggles.
Outer Gloves: Viton Gloves made specially for handling chlorinated and aromatic solvents.
Inner Gloves: Disposable Latex Gloves.

5.6 Excavation Locations

The initial suspected bury trench was situated nine meters Southwest from the Southwest fence corner. (See Appendix A - Site Plan) Historical wooden stakes indicated the areas in which the excavator was suspected to have developed the bury trench. New grasses and the lack of ground moss indicated disturbed surface soils, which is obvious in photo 1 of Appendix B. The areas were grid, flagged, and staked off indicating the location of the anomalies. (See Appendix B - Photo 2.) The trench had been excavated to a foot print size of approximately 13.75 meters wide by 27.5 meters long and a depth of approximately four meters deep. Anomalies detected in this area were indicated to be situated approximately 1.5 meters in depth. Surficial soils were observed to be previously undisturbed. A brush burial site was excavated at the north end of the foot print, resulting in confirming no barrels situated in that area. All further excavations, in exception of brush burial sites which were excavated two to three meter depths, were excavated to an approximate 1.5 meter depth, which indicated as to whether the surficial soil had been previously disturbed. Excavations commenced in various locations in suspected areas of concern. These areas were south of the main building, outside of the current fence, where vegetation was absent, ground cover had been disturbed, and in the same vacinity as indicated by Mr. Peter Upton was excavated to confirm that no barrels are suspected to be in that area. Areas in the Southwest corner was excavated due to similar ground features, resulting in the confirmation that barrels are not located in that area as well. One further brush burial trench had been excavated confirming the lack of barrels situated at that area of concern. To the north of the main building, the area directed by Mr. Charlie Eiklan and visible on the air photo was excavated to suspect that area was undisturbed and barrels were not present, though soil contamination was evident. (See Appendix B - Photo 6)
Note - All excavated areas are identified on the Site Plan seen in Appendix A and Photos 5-8 of Appendix B.

5.7 Soil Sample Location and Interpretation

Located in the Northwest corner of the property is a circular area 11 x11 meters void of vegetation. A 1.5 meter deep hole was excavated in which strong hydrocarbon odours were emitted. A layer of pea gravel covered the contamination. A soil sample was obtained from excavated soil. The soil was analysed for PCBs, TEHs and phenoxy acid herbicides. All soil analysis meet Yukon Regulations for Contaminated Sites, 1996. Results are located in Appendix C

The following parameters were detected to be present with concentrations greater than 1 ug/g:

Light/Heavy Petroleum Hydrocarbons - (LEPHs) soil concentrations were recorded at 14, 15, and 56 ug/g; Yukon Contaminated sites Regulations, 1996, Schedule 1 Generic Numerical Soil standards pg. 30, states a 1000 ug/g soil concentration limit for LEPHs. **(HEPHs)** soil concentrations were recorded at 41 ug/g; Yukon Contaminated Sites Regulations, 1996, Schedule 1 Generic Numerical Soil Standards pg. 30, states a 1000 ug/g soil concentration limit for HEPHs on park land.

6.0 Conclusion

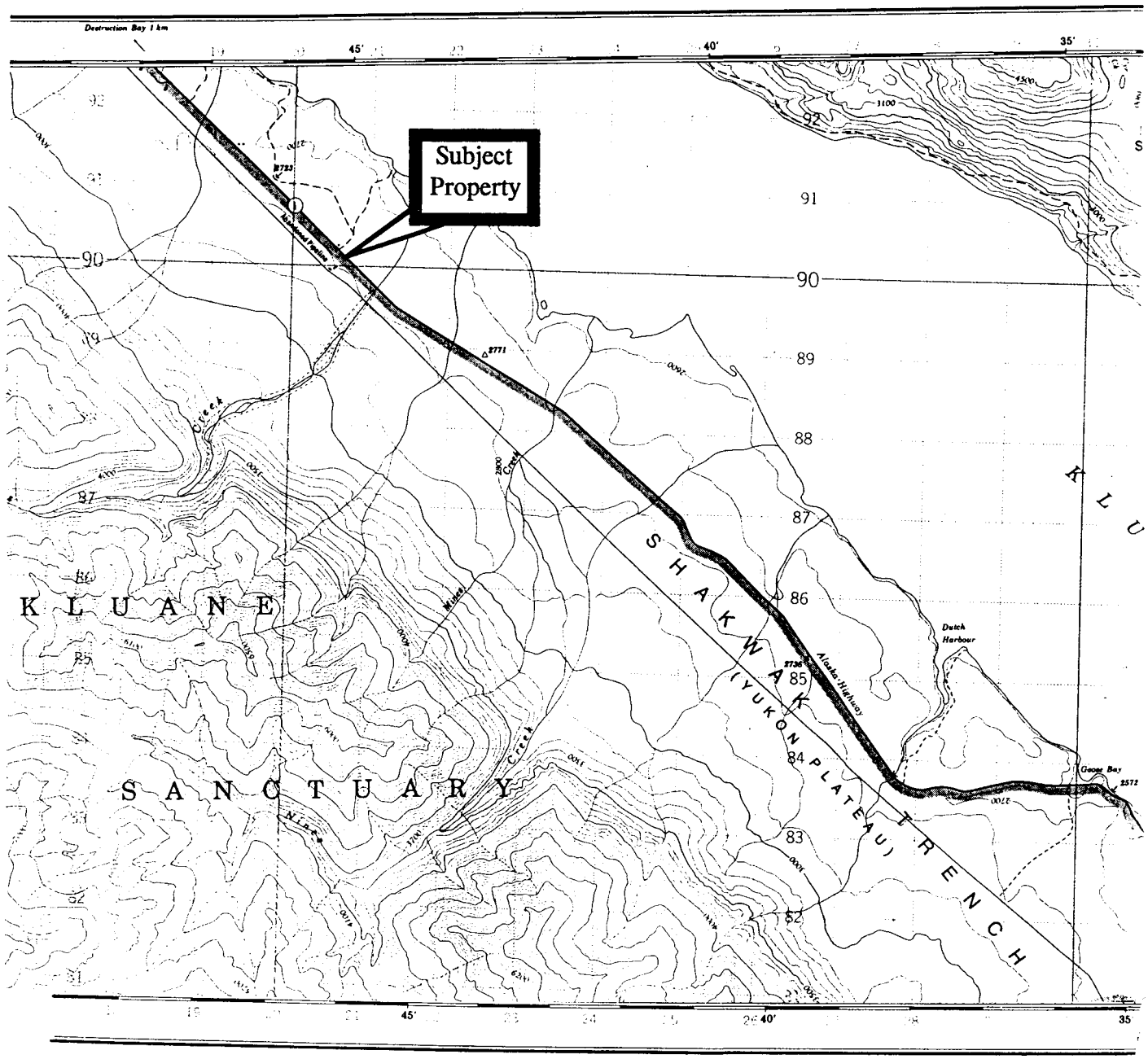
Groundtrax (Yukon) Inc., *Environmental Systems* concludes by a thorough investigation that buries drums are unlikely to be present on the Destruction Bay pumping station property - HJ031; also, soils analysed from the cleared area situated in the Northwest corner of the property meet Yukon Territories Regulations for Contaminated Sites November 18, 1996.

7.0 Recommendation

Groundtrax (Yukon) Inc., *Environmental Systems* recommends to maintain awareness that hydrocarbon contamination is evident on-site at concentrations of at least 56 ug/g.

Appendix A

Site Location



Destruction Bay

YUKON TERRITORY

Scale 1:50 000 Échelle

Miles 1 0 1 2 3 Milles

Metres 1000 0 1000 2000 3000 4000 Mètres

Yards 1000 0 1000 2000 3000 4000 Verges

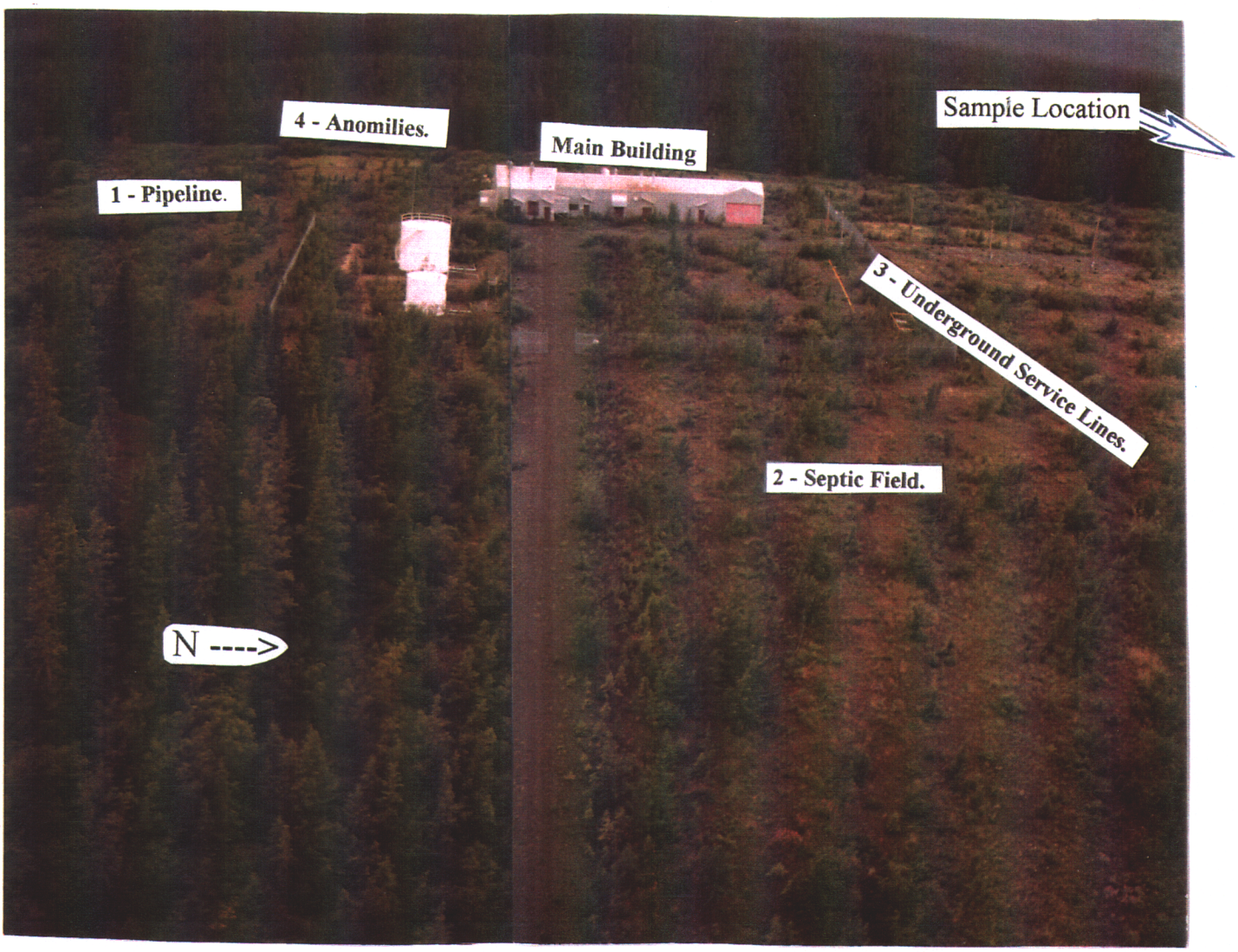


Photo 1. Site Layout - Main Building

Sample Location N.W. of main building. (See Photo 2)
1 - Underground Pipeline.
2 - Septic Field situated W.E.
3 - Underground Service lines to maintanance garages.
4 - Anomilies detected in initial area of excavation.

Photo 2. Sample Location - Situated approx. - 190 m NW of main building.
- 30 m East of pipeline treeline.
Area approx. 11 m diameter.

LEGEND

AST- Aboveground Storage Tanks.
⊗ - Lorimer & Associate sample locations. Obtained during previous assessment.
Ex. - Excavation Locations.
S-1 - Sample Location.

0 25 50 75 100 125 150
metres

Destruction Bay Puming Station - HJ031

SITE PLAN & EXCAVATION LOCATION

DIAGRAM 1

Appendix B

PHOTOGRAPHS

1. Burial Trench Indication
2. Anomily Locations
3. Hazmat Set-up
4. Hazmat Containment Cell
5. Excavation #1
6. Excavation #2
7. Excavation #3
8. Final Excavation #7
9. Contaminated Soil

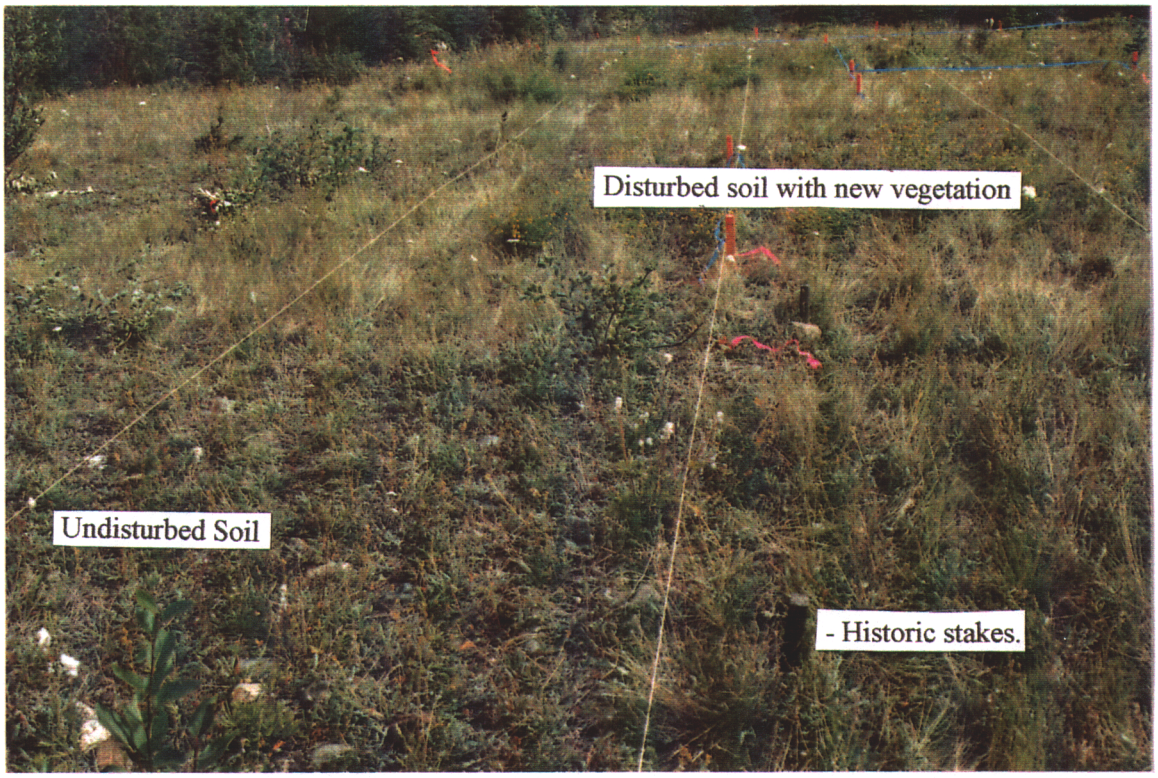


Photo 1. Burial Trench Indication - *South-west corner of compound.*
- Historic stakes.
- Disturbed surface soil with new vegetation
- Undisturbed surface soil

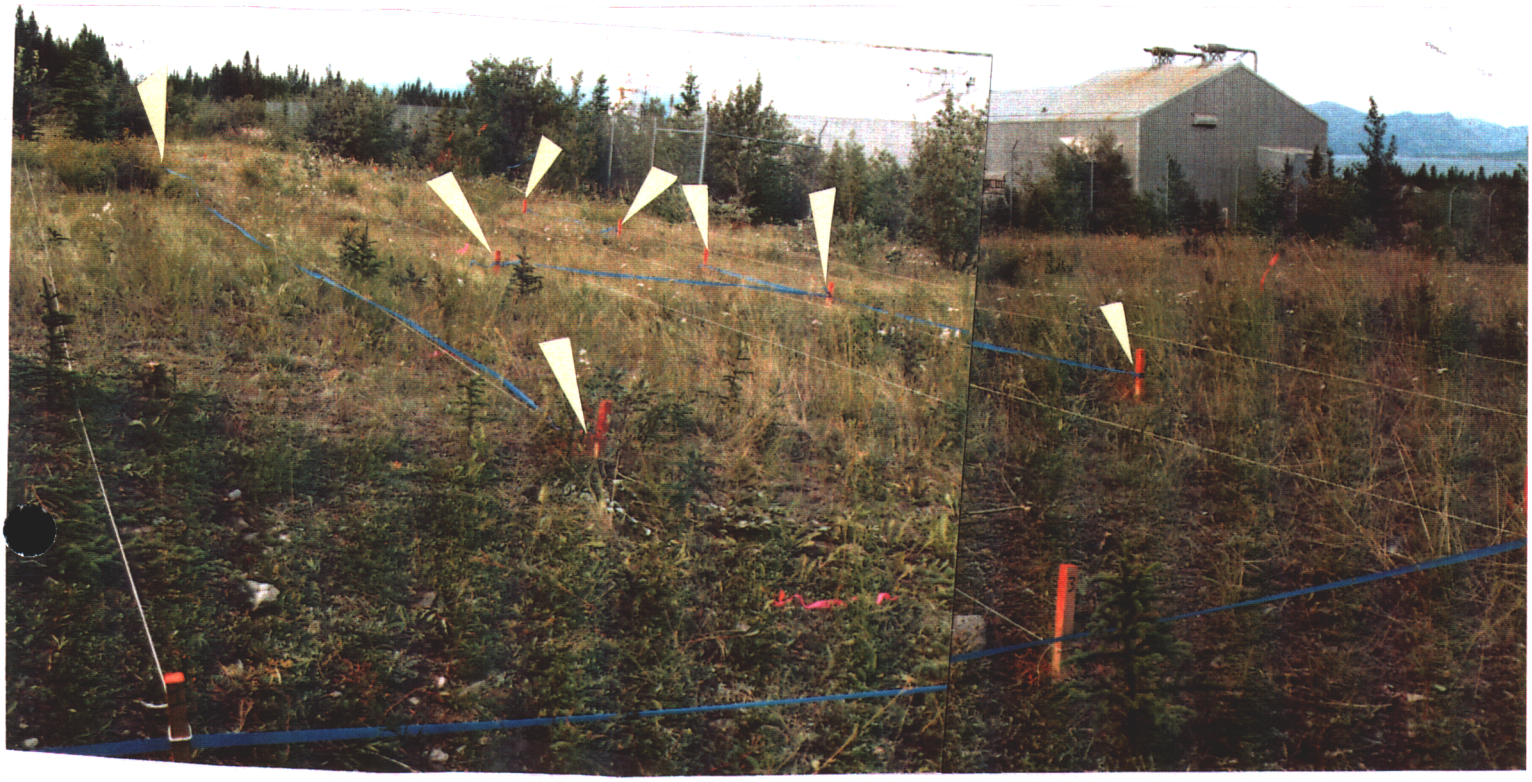


Photo 2. Anomaly Locations - Blue tape and orange stakes inside grid, indicates the locations of metal anomalies.
- No buried drums were located in this area.

Photo 3. Hazmat Set-up - Containing; two overpacks, lined decontamination centre, poly sheeting to contain excavated soil, two barrels and pump to remove any free product, protective clothing and respirators, fire protection devices, drum hoist, and a photoionization detector.

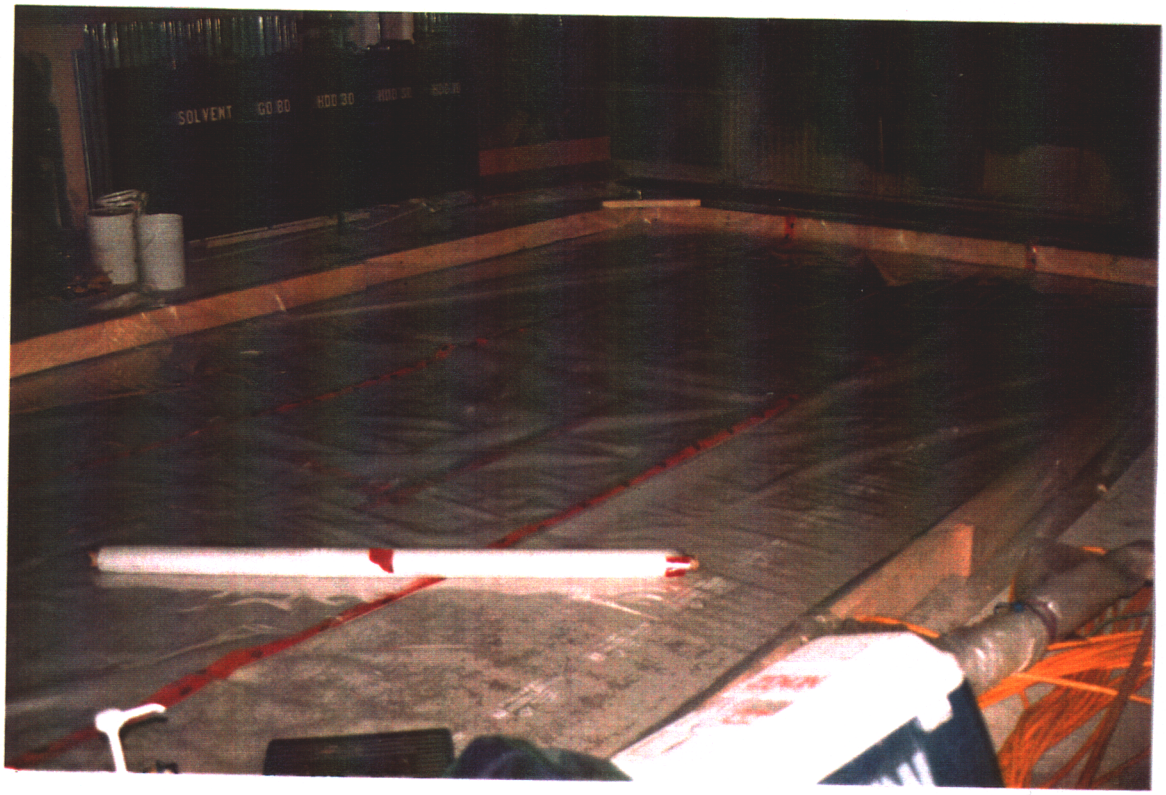


Photo 4. Hazmat Containment Cell - *Located inside the main building.*
- 10 m x 17 m x 0.2 m poly lined containment cell.
- containment cell was not used.

Photo 5. Excavation #1 - *Southwest of main building.*
No buried drums were located in this area.

Photo 6 Excavation # 2 - South of the main building
No buried drums were buried in this location.

Photo 7 Excavation #3 - Further south of the main building.
No buried drums were located in this area.

Photo 8 Final Excavation # 7 - Northwest corner of property.
No buried drums were located in this area.
Soil staining was evident. (See Analytical Results)

Photo 9. Contaminated Soil - *Located in the Northwest Corner of the property.*
- Quantity unknown,
- Containing hydrocarbons.

Appendix C

Analytical results

PHILIP
ANALYTICAL SERVICES

8577 Commerce Court
Burnaby, B.C.
Canada V5A 4N5
Tel 604 444 4808
Fax 604 444 4511

19-Sep-97
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Certificate of Analysis

Reported To :

GROUNDTRAX INC.

Client Code GT

BOX 5105
WHITEHORSE, YUKON
Y1A 4S3

Attention : A.GREETHAM
Phone : (403) 399-4629
FAX : (403) 399-4247

Project Information :

Project ID : 97Y017
Submitted By : ADAM GREETHAM

Requisition Forms :

Form 61238211 logged on 9-Sep-97 completed on 19-Sep-97

Remarks :

- All organic data is blank corrected except for PCDD/F, Hi-res MS and CLP volatile analyses
- 'MDC' = Minimum Detectable Concentration, '<' = Less than MDC, '---' = Not analyzed
- Solids results are based on dry weight except Biota Analyses & Special Waste Oil & Grease
- Organic analyses are not corrected for extraction recovery standards except for Isotope Dilution methods, (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)
- All Groundwater samples are decanted and/or filtered prior to analysis

Methods used by Philip are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', 18th Edition, published by the American Public Health Association, or on US EPA protocols found in the 'Test Methods For Evaluating Solid Waste, Physical/Chemical Method, SW846', 3rd Edition. Other procedures are based on methodologies accepted by the appropriate regulatory agency. Methodology briefs are available by written request.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied.
Your samples will be retained at Philip for a period of 30 days from receipt of data or as per contract.

PHILIP Project Manager: Jack Wilson

PHILIP
ANALYTICAL SERVICES

19-Sep-97

ANALYTICAL REPORT
Form 61238211

Client : GROUNDTRAX INC.
Project : 97Y017

Sparcode	Parameter	Unit	MDC	METHOD BLANK	97032680 S-1
			Philip ID :	METHOD BLANK	97032680
			Client ID :		S-1
PHYSICAL					
00250760	Moisture	%(W/W)	0.1	---	21.5
CHLORINATED PHENOLICS					
CP02AESO	2,3,4,5-Tetrachlorophenol	ug/g	0.01	< 0.01	< 0.50
CP01AESO	2346+2356-TeClPhenol	ug/g	0.01	< 0.01	< 0.50
P022AESO	Pentachlorophenol	ug/g	0.005	< 0.005	< 0.25
SURROGATE RECOVERY					
BR2-AESO	Dibromophenol	%	40	54	< 40 (1)
BR3-AESO	Tribromophenol	%	40	73	< 40
POLYCHLORINATED BIPHENYLS					
P019P021	PCB's - Total	ug/g	0.02	< 0.02	< 0.02
DBBPP021	Dibromobiphenyl	%	40	89	98
HYDROCARBONS					
EX024020	Extraction TEH	date			970910
H109P108	TEH (C10 - C30)	ug/g	5	< 5	56
H111P108	TEH Heavy Oil (> C30)	ug/g	5	< 5	41
H113P108	EPH (C10 - < C19)	ug/g	5	< 5	14
H114P108	EPH (C19 - C32)	ug/g	5	< 5	45
PHENOXY ACID HERBICIDES					
D041AESO	2,4-D	ug/g	0.01	< 0.01	< 0.50
T064AESO	2,4,5-T	ug/g	0.005	< 0.005	< 0.25
T032AESO	2,4,5-TP	ug/g	0.005	< 0.005	< 0.25
B015AESO	Bromoxynil	ug/g	0.01	< 0.01	< 0.50
D045AESO	Dichlorprop	ug/g	0.01	< 0.01	< 0.50
D031AESO	Dinoseb	ug/g	0.01	< 0.01	< 0.50
D032AESO	Dicamba	ug/g	0.005	< 0.005	< 0.25
M010AESO	MCPA	ug/g	0.01	< 0.01	< 0.50
PICLAESO	Picloram	ug/g	0.01	< 0.01	< 0.50
T031AESO	Triclopyr	ug/g	0.005	< 0.005	< 0.25

Matrix : Soil
Sampled on: 97/09/03 10:00

Sample 97032680 comment : Matrix spike level was < due to dilution. Therefore it was not reported.
MDC's raised 50x due to dilution. W/o diln' the MS was overloaded!

CONTINUED on page 3

PHILIP
ANALYTICAL SERVICES

19-Sep-97
Page 3 of 5

ANALYTICAL REPORT
Form 61238211

Client : GROUNDTRAX INC.
Project : 97Y017

Result comments and/or text results :

(1) SURROGATES DILUTED OUT

PHILIP
ANALYTICAL SERVICES

19-Sep-97

SPIKE SUMMARY
Form 61238211

Parameter	Client ID	Philip ID	Sample Conc.	Sample & Spike Conc.	Spike Amount	Unit	Percent Recovery
TEH (C10 - C30)	Blank Spike. Batch :	74503022	< 5	120	100	ug/g	123
PCB's - Total	Blank Spike. Batch :	74503052	< 0.02	0.19	.2	ug/g	94

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ANALYTICAL SERVICES

ANALYSIS DATES
Form 61238211

Philip ID:	97032680
Client ID:	S-1

00250760	Moisture	15-SEP-1997
P019P021	PCB's in Soil	13-SEP-1997
TEHSN	LEPH/HEPH (BC) SOILS	10-SEP-1997
AEHS	AEHs in Soil GC/MS	17-SEP-1997

Matrix:	Soil
Sampled on:	3-SEP-1997