www.eba.ca

September 9, 2008

Via Email: WThistle@GOV.NU.CA

Project No: Y22101066.002

Department of Community & Government Services Kivalliq Region, Government of Nunavut PO Box 002 Rankin Inlet, NU X0C 0G0

Wayne Thistle, Project Officer

Subject: Jet Fuel Spill Assessment

Rankin Inlet, NU

# 1.0 INTRODUCTION

## 1.1 GENERAL

Attention:

EBA Engineering Consultants Ltd. (EBA) was commissioned by the Government of Nunavut, Department of Community & Government Services (CGS), on behalf of the Hamlet of Rankin Inlet to assess the impacts of a jet fuel spill which reportedly occurred in Rankin Inlet on June 30<sup>th</sup>, 2008. EBA was informed by CGS that a fuel truck en route through town experienced a gasket failure and released jet fuel along the road

The purpose of the assessment was to determine the impact of the spill to the immediate surrounding area, and provide recommendations for remediation, if necessary.

This report summarizes the results of the assessment and provides recommendations for future work.

### 1.2 AUTHORIZATION

Wayne Thistle, project officer for CGS, provided authorization to proceed with the jet fuel spill assessment to Ms. Aileen Stevens of EBA via email on July 3, 2008.

### 1.3 SCOPE OF WORK

EBA conducted the following scope of work to meet the objectives of the project:

- Performed interviews with knowledgeable personnel and key witnesses to determine the spill history, specifically the volume released and the location of the release;
- Performed a cursory visual assessment of the site to determine the presence of staining, sheen, and olfactory signs of product to assist in confirming the extent of the impacted area;

Jet Fuel Spill Report.doc



- Conducted a subsurface assessment along a representative section of the spill site (road), to establish the presence and level of any product migration;
- Prepareed a report of the project findings with recommendations for further action, if necessary.

# 2.0 SITE DETAILS

### 2.1 GENERAL

The subject site is a 150 m section of paved road (1<sup>st</sup> Avenue) in Rankin Inlet, between Williamson Lake and Avingaq Street. Roads adjoining 1<sup>st</sup> Avenue are primarily gravel. Surface water run off is managed by ditches along both sides of the roads. The site's gradient slopes gently to the east.

Mr. Kyle Levac of EBA was present on-site on July 7<sup>th</sup> to conduct the assessment, and on August 3rd to carry out the subsurface assessment.

## 2.2 SPILL DETAILS

The spill details at the time of project commissioning were not complete. As such, EBA conducted interviews and information searches to establish the details of the spill event.

EBA reviewed relevant photographs from the time of the spill, provided by Environment Canada wildlife officer, Joanne Coutu-Autut. EBA also conducted interviews to determine the fuel truck's departure point, destination, direction of travel, volume of fuel released, spill location and details of remedial activities undertaken.

Interviews were conducted with:

- Mr. Arnie Brown, Hamlet of Rankin Inlet
- Mr. Edmond Pilakapsi, Community and Government Services, Labourer
- Mr. Aaron Pilakapsi, Community and Government Services, Back Hoe operator
- Mr. Craig Collier, M & T Enterprises, Account Manager

According to the CGS and Hamlet of Rankin Inlet employees, on June 30<sup>th</sup>, 2008 a jet fuel transport truck was travelling from a local maintenance garage to the airport when a plug gasket failed, causing the fuel to be released on the street. Reportedly after travelling approximately one (1) block, the leaking tanker was noticed and flagged down by CGS employees, Edmond Pilakapsi and Aaron Pilakapsi. The spill reportedly originated at the intersection adjacent to the Hamlet offices. Contents of the tanker were spilled along 1<sup>st</sup> Avenue from the Sinik Tarvik hotel to the Turaarvik hotel, a distance of approximately 150 m. The amount of fuel spilled was reported as 2500 L by Craig Collier of M & T Enterprises



Hamlet and CGS employees reportedly responded immediately by covering visible plumes on the road, adjacent ditches and parking lots with sorbent pads. Intermittent rain was reported immediately after and in the days following the spill. The Sinik Tarvik Parking lot, 1<sup>st</sup> Avenue and surrounding ditches were reportedly surface scraped and clean fill material was replaced over those areas. Scraped material was deposited at the local landfarm for future treatment. The volume of soil removed is unknown.

# 3.0 UTILITY LOCATION INFORMATION

Prior to conducting subsurface activities, EBA requested utility locates in the subject area. Mr. Arnie Brown of the Hamlet of Rankin Inlet accompanied Mr. Levac of EBA to indicate the location of underground utilidors. The utilidors in Rankin Inlet contain water and sewage pipes. Telephone and electrical wires are pole-mounted overhead.

Utilidors were identified and marked on both the north and south sides of the road, running parallel to 1<sup>st</sup> Avenue, with no hook ups in the subject area.

## 4.0 FIELD ACTIVITIES

EBA assessed the extent of hydrocarbon impacts along 1<sup>st</sup> Avenue by the following methods:

- A visual assessment of the suspected spill plume was conducted to identify signs of environmental concern such as sheen, surface staining and stressed vegetation. The visual assessment was conducted by walking the length of the suspected spill area, both the north and south ditches along road, the down gradient (east) section of 1<sup>st</sup> Avenue, and sections of 2<sup>nd</sup> Avenue along the suspected path of the tank truck. Please refer to Figure 2, attached.
- Based on findings of the visual inspection, document review, and interviews, test pit
  locations were selected in low lying areas where accumulation of product would be
  suspected. Seven (7) test pits were advanced with a CGS-operated back hoe. Testpits
  were backfilled to grade with excavated materials once assessments were completed.
  Note that test pits were not advanced in gravel roadways down gradient from the spill to avoid traffic
  disruptions.
- Test pits were assessed for stains and obvious signs of hydrocarbon odour. Soil stratigraphy was logged, and disturbed soil samples were collected from 2 distinct locations in each test pit for laboratory analysis of Benzene, Toluene, Ethylbenzene, Xylene (BTEX) and F1 to F4 hydrocarbon fraction. Grab samples were collected from 0.3 m and 1.0 m below grade from TP1 through TP4, while composite samples were collected from 0.3 m to 1.0 m below grade from TP5 through TP7. A total of eleven (11) samples were submitted to Maxxam for BTEX and F1 to F4 hydrocarbon fraction analysis. All environmental samples were placed in appropriate laboratory supplied



containers, placed in a cooler under refrigerated conditions, and shipped to Maxxam under chain of custody protocol.

# 4.4 OBSERVATIONS

No sheen, staining or stressed vegetation was observed along the suspected path of the fuel spill. No standing water was observed in the ditches. Olfactory assessments of surface grab samples did not indicate signs of hydrocarbon odour.

Test pits were advanced to a depth of approximately 1.0 m. Limitations of achieving a greater depth included encountering permafrost, and rocky subsurface conditions which could not be manoevered with the size of back-hoe available. Soil conditions were primarily sandy gravel with rocks, with traces of organic and clay soils at the depth of approximately 1.0 m.

No hydrocarbon staining or odour was observed in any of the test pits.

Of the seven (7) test pits advanced, only 1 (TP7) had the presence groundwater, on which no sheen or odour was observed. A groundwater sample was not collected due to lack of laboratory supplied sample containers, (since work was commissioned after EBA was already mobilized to Rankin Inlet).

Refer to Figure 2 for test pit and sample locations.

## 5.0 ENVIRONMENTAL STANDARDS

In the absence of Nunavut soil remediation guidelines, the following Government of the Northwest Territories (GNWT) soil standards have been adopted for comparison at the subject site:

 GNWT Environmental Guidelines for Contaminated Site Remediation, November 2003.

Criteria for coarse grained surface soil were applicable for F1 to F4 hydrocarbon parameters, in the Tier 1 Eco-Soil Contact category. The generic criteria for other contaminants were applicable to the remaining parameters including Benzene, Toluene, Ethylbenzene and Xylene (BTEX).

## 6.0 RESULTS & DISCUSSION

A summary of the soil test results, as compared to adopted criteria, are presented in Table 1 of this report. The results are summarized as follows:

• BTEX and F1 fraction levels were below laboratory detection levels for all 11 samples collected from TP1 through TP7.



• Detectable levels of F2 to F4 hydrocarbon fractions were present in 8 of the 11 samples, however all results were within adopted criteria.

Based on the results of the testpitting program, hydrocarbon impacts are not present in the assessed areas, which do provide representation of the likely affected locations from fuel run-off.

Although 2500 L of fuel was reportedly released, the clean up efforts by CGS and the Hamlet, along with the volatile nature of aviation fuel, appear to have been sufficient to contain the impacts of the release.

# 7.0 CONCLUSIONS & RECOMMENDATIONS

Based on information gathered through testimonials of involved individuals and the findings of the visual and subsurface assessments, the impacts due the fuel release to the immediate surrounding environment are negligible.

EBA recommends that surface water in the ditches be monitored by CGS and the Hamlet following precipitation events for possible new indications of impacts. (eg. sheen or odour).



# 8.0 CLOSURE

The contents of this report are subject to the limitations of EBA's General Conditions, presented in Appendix C. We trust that this report meets with your present requirements. Should you have any questions or comments please contact the undersigned at your convenience.

Yours truly,

EBA Engineering Consultants Ltd.

Kyle Levac

Environmental/Chemical Technologist

Direct: 867.766.3728 x107

Kli luai

klevac@eba.ca

Aileen Steven, B.A.Sc. Environmental Engineer

VHerens

Direct: 867.766.3728 x119

astevens@eba.ca

Attachments: Table 1: Analytical results, Soil

Figure 1: General Site Location
Figure 2: Detailed Site Plan

Appendix A: EBA and Environment Canada (EC) Photos

Appendix B: Laboratory Report Appendix C: EBA General Conditions



# **TABLES**



Y22101066.002 September 2008

Table 1 - Soil Analytical Results, Jet Fuel Spill Assessment													
Sample Identification	JF1(0.3m)	JF1(1.0m)	JF2(0.3m)	JF2(1.0m)	JF3(0.3m)	JF3(1.0m)	JF4(0.3m)	JF4(1.0m)	JF5	JF6	JF7	GNWT Soil Remediation Guidelines	
Sample Depth Below Grade (m)	0.3	1	0.3	1	0.3	1	0.3	1	Composite (0.3 m to 1.0 m)	Composite (0.3 m to 1.0 m)	Composite (0.3 m to 1.0 m)	Residential Coarse Grained Surface Soil	
Sample Date (M/D/Y)	8/2/2008	8/2/2008	8/2/2008	8/2/2008	8/2/2008	8/2/2008	8/3/2008	8/3/2008	8/3/2008	8/3/2008	8/3/2008	-	
Moisture (%)	4.5	4.9	6.6	6.9	3.1	12	6.4	7.7	36	12	37	-	
Hydrocarbons												-	
Benzene	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.5 <sup>b</sup>	
Toluene	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.8 <sup>b</sup>	
Ethylbenzene	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.2 <sup>b</sup>	
Xylenes	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	< 0.040	1 <sup>b</sup>	
F1-BTEX	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	130°	
F2 (C10-C16)	<10	<10	12	<10	<10	<10	14	<10	<10	15	13	450°	
F3 (C16-C34)	44	55	18	<10	<10	11	11	<10	97	40	110	400°	
F4 (C34-C50)	32	39	<10	<10	<10	<10	<10	<10	25	20	25	2800 <sup>a</sup>	

#### Notes:

**Bold** - indicates exceedance of adopted criteria

All units are in parts per million (ppm) unless otherwise specified



<sup>&#</sup>x27;-' indicates not analysed, no applicable standard, or not applicable

a - Eco -Soil Contact Standards, as published by GNWT "Guidelines for Contaminated Site Remediation" November (2003).

b - Residential/Parkland land use standards.

# **FIGURES**





NOTE: BACKGROUND IMAGERY PROVIDED COURTESY OF GOOGLE EARTH AND IS SHOWN FOR VISUAL PURPOSES ONLY.

Government of Nunavut **Department of Community** and Government Services

**General Site Location** 

Jet Fuel Spill Assessment

Rankin Inlet, NU

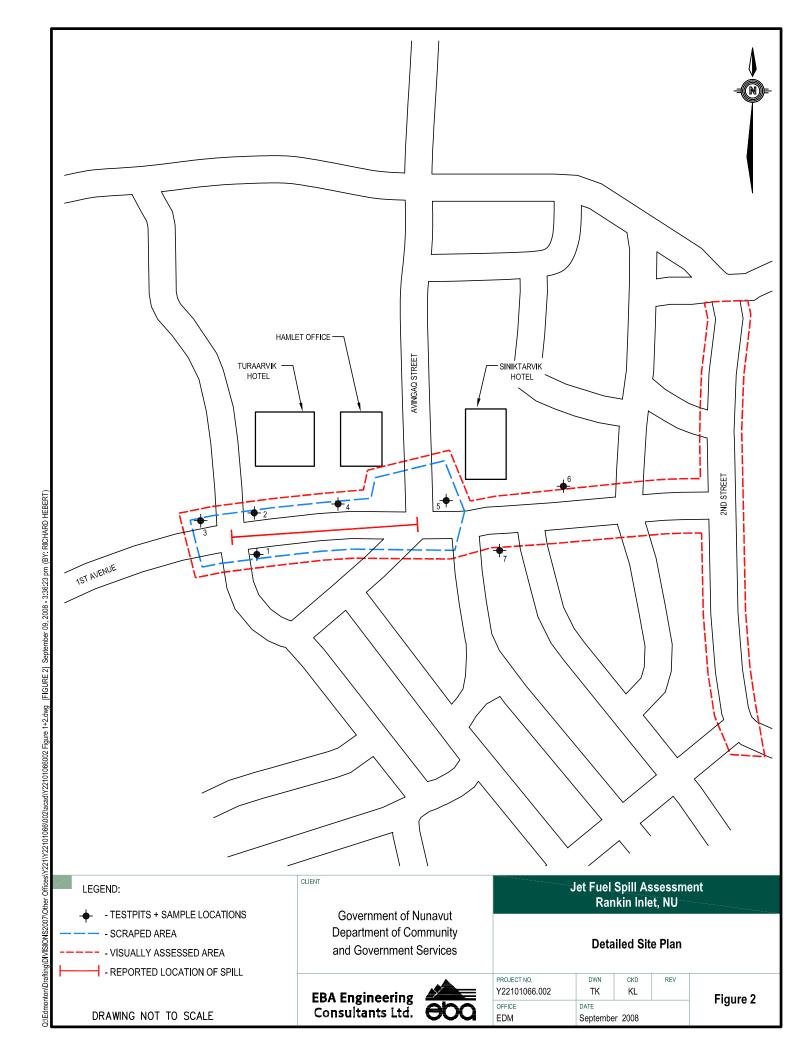
EBA Engineering
Consultants Ltd.



PROJECT NO. DWN CKD Y22101066.002 MM KL OFFICE DATE EDM September 2008

Figure 1

DRAWING NOT TO SCALE



# **APPENDIX**

APPENDIX A PHOTOS





EBA Photo 1 Test pit 1, Facing south. (August 3/08)



EBA Photo 2 Test pit 1 facing north. (August 3/08)





Environment Canada Photo 1 1st Avenue, facing east. (June 30/08)



Environment Canada Photo 2 1st Avenue, facing east. (June 30/08)





Environment Canada Photo 3 1st Avenue, facing east. (June 30/08)



Environment Canada Photo 4 Clean up activities in the SinikTarvik parking lot, facing west. (June 30/08)



# **APPENDIX**

APPENDIX B LABORATORY REPORT





Your Project #: Y22101066.002 NIPISAR JET FUEL

Site: RANKIN INLET Your C.O.C. #: 58268

Attention: KYLE LEVAC
EBA ENGINEERING CONSULTANTS LTD.
#201, 4916 - 49 Street
P.O. Box 2244
YELLOWKNIFE, NT
CANADA X1A-2P7

Report Date: 2008/08/14

# **CERTIFICATE OF ANALYSIS**

MAXXAM JOB #: A840464 Received: 2008/08/11, 8:10

Sample Matrix: Soil # Samples Received: 11

		Date	Date	
Analyses	Quantity	Extracted	Analyzed Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS (MeOH extract)	8	2008/08/11	2008/08/12 EENVSOP-00005	EPA 8260C / CCME
			EENVSOP-00002	
BTEX/F1 by HS GC/MS (MeOH extract)	3	2008/08/11	2008/08/13 EENVSOP-00005	EPA 8260C / CCME
			EENVSOP-00002	
CCME Hydrocarbons (F2-F4 in soil)	11	2008/08/11	2008/08/12 EENVSOP-00007	CWS PHCS Tier 1
			EENVSOP-00006	
Moisture	11	N/A	2008/08/12 EENVSOP-00139	Carter SSMA 51.2

<sup>\*</sup> Results relate only to the items tested.

**Encryption Key** 

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

JEREMY WAKARUK, B.Sc., Senior Project Manager Email: jwakaruk@maxxamanalytics.com Phone# (780) 577-7105 Ext:7105

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. SCC and CAEAL have approved this reporting process and electronic report format.

Total cover pages: 1



EBA ENGINEERING CONSULTANTS LTD.

Client Project #: Y22101066.002 NIPISAR JET FUEL Site Reference: RANKIN INLET Sampler Initials: KL

# AT1 BTEX AND F1-F4 IN SOIL (SOIL)

Maxxam ID		L05963	L05964	L05965	L05966	L05967	L05968	L05969	L05970	L05980	L05981	L05982		
	Units	JF1	JF2	JF3	JF4	JF5	JF6	JF7	JF1	JF2	JF3	JF4	RDL	QC Batch
		(0.3M)	(0.3M)	(0.3M)	(0.3M)				(1.0M)	(1.0M)	(1.0M)	(1.0M)		
Physical Properties														
Moisture	%	4.5	6.6	3.1	6.4	36	12	37	4.9	6.9	12	7.7	0.3	2499752
Ext. Pet. Hydrocarbon														
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	12	<10	14	<10	15	13	<10	<10	<10	<10	10	2498806
F3 (C16-C34 Hydrocarbons)	mg/kg	44	18	<10	11	97	40	110	55	<10	11	<10	10	2498806
F4 (C34-C50 Hydrocarbons)	mg/kg	32	<10	<10	<10	25	20	25	39	<10	<10	<10	10	2498806
Reached Baseline at C50	mg/kg	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES		2498806
Surrogate Recovery (%)														
O-TERPHENYL (sur.)	%	102	95	114	90	94	96	97	96	104	99	104		2498806
Volatiles														
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	< 0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	< 0.0050	<0.0050	0.0050	2498894
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	2498894
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	2498894
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	2498894
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	2498894
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	2498894
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	12	2498894
(C6-C10)	mg/kg	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	<12	12	2498894
Surrogate Recovery (%)														
4-BROMOFLUOROBENZENE (sur.)	%	99	107	106	104	98	104	103	107	107	105	107		2498894
D10-ETHYLBENZENE (sur.)	%	97	100	96	98	105	94	104	102	98	102	102		2498894
D4-1,2-DICHLOROETHANE (sur.)	%	105	103	104	103	103	105	106	104	106	105	107		2498894
D8-TOLUENE (sur.)	%	101	102	100	99	103	100	101	101	102	103	101		2498894



EBA ENGINEERING CONSULTANTS LTD.

Client Project #: Y22101066.002 NIPISAR JET FUEL Site Reference: RANKIN INLET

Sampler Initials: KL

12.0°C Package 1

Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments** 



EBA ENGINEERING CONSULTANTS LTD.

Client Project #: Y22101066.002 NIPISAR JET FUEL Site Reference: RANKIN INLET Sampler Initials: KL

#### **QUALITY ASSURANCE REPORT**

		Matrix 9	Spike	Spil	(e	Blank		RPD		
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
2498806	O-TERPHENYL (sur.)	2008/08/12	93	50 - 130	92	50 - 130	102	%		
2498806	F2 (C10-C16 Hydrocarbons)	2008/08/12	91	50 - 130	90	80 - 120	<10	mg/kg	NC	50
2498806	F3 (C16-C34 Hydrocarbons)	2008/08/12	90	50 - 130	89	80 - 120	<10	mg/kg	NC	50
2498806	F4 (C34-C50 Hydrocarbons)	2008/08/12	91	50 - 130	87	80 - 120	<10	mg/kg	NC	50
2498894	4-BROMOFLUOROBENZENE (sur.)	2008/08/12	101	60 - 140	102	60 - 140	105	%		
2498894	D10-ETHYLBENZENE (sur.)	2008/08/12	102	30 - 130	99	30 - 130	100	%		
2498894	D4-1,2-DICHLOROETHANE (sur.)	2008/08/12	107	60 - 140	102	60 - 140	104	%		
2498894	D8-TOLUENE (sur.)	2008/08/12	101	60 - 140	101	60 - 140	101	%		
2498894	Benzene	2008/08/12	105	60 - 140	99	60 - 140	<0.0050	mg/kg	NC	50
2498894	Toluene	2008/08/12	109	60 - 140	108	60 - 140	<0.020	mg/kg	NC	50
2498894	Ethylbenzene	2008/08/12	106	60 - 140	105	60 - 140	<0.010	mg/kg	NC	50
2498894	m & p-Xylene	2008/08/12	104	60 - 140	102	60 - 140	<0.040	mg/kg	NC	50
2498894	o-Xylene	2008/08/12	103	60 - 140	101	60 - 140	<0.020	mg/kg	NC	50
2498894	(C6-C10)	2008/08/12	97	60 - 140	95	80 - 120	<12	mg/kg	NC	50
2498894	Xylenes (Total)	2008/08/12					<0.040	mg/kg	NC	50
2498894	F1 (C6-C10) - BTEX	2008/08/12					<12	mg/kg	NC	50
2499752	Moisture	2008/08/12					<0.3	%	4.3	20

# **APPENDIX**

APPENDIX C GENERAL CONDITIONS



### ENVIRONMENTAL REPORT - GENERAL CONDITIONS

This report incorporates and is subject to these "General Conditions".

#### 1.0 USE OF REPORT

This report pertains to a specific site, a specific development, and a specific scope of work. It is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site or proposed development would necessitate a supplementary investigation and assessment.

This report and the assessments and recommendations contained in it are intended for the sole use of EBA's client. EBA does not accept any responsibility for the accuracy of any of the data, the analysis or the recommendations contained or referenced in the report when the report is used or relied upon by any party other than EBA's client unless otherwise authorized in writing by EBA. Any unauthorized use of the report is at the sole risk of the user.

This report is subject to copyright and shall not be reproduced either wholly or in part without the prior, written permission of EBA. Additional copies of the report, if required, may be obtained upon request.

## 2.0 LIMITATIONS OF REPORT

This report is based solely on the conditions which existed on site at the time of EBA's investigation. The client, and any other parties using this report with the express written consent of the client and EBA, acknowledge that conditions affecting the environmental assessment of the site can vary with time and that the conclusions and recommendations set out in this report are time sensitive.

The client, and any other party using this report with the express written consent of the client and EBA, also acknowledge that the conclusions and recommendations set out in this report are based on limited observations and testing on the subject site and that conditions may vary across the site which, in turn, could affect the conclusions and recommendations made.

The client acknowledges that EBA is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the client.

#### 2.1 INFORMATION PROVIDED TO EBA BY OTHERS

During the performance of the work and the preparation of this report, EBA may have relied on information provided by persons other than the client. While EBA endeavours to verify the accuracy of such information when instructed to do so by the client, EBA accepts no responsibility for the accuracy or the reliability of such information which may affect the report.

## 3.0 LIMITATION OF LIABILITY

The client recognizes that property containing contaminants and hazardous wastes creates a high risk of claims brought by third parties arising out of the presence of those materials. In consideration of these risks, and in consideration of EBA providing the services requested, the client agrees that EBA's liability to the client, with respect to any issues relating to contaminants or other hazardous wastes located on the subject site shall be limited as follows:

- With respect to any claims brought against EBA by the client arising out of the provision or failure to provide services hereunder shall be limited to the amount of fees paid by the client to EBA under this Agreement, whether the action is based on breach of contract or tort;
- With respect to claims brought by third parties arising out of the presence of contaminants or hazardous wastes on the subject site, the client agrees to indemnify, defend and hold harmless EBA from and against any and all claim or claims, action or actions, demands, damages, penalties, fines, losses, costs and expenses of every nature and kind whatsoever, including solicitor-client costs, arising or alleged to arise either in whole or part out of services provided by EBA, whether the claim be brought against EBA for breach of contract or tort.



## 4.0 JOB SITE SAFETY

EBA is only responsible for the activities of its employees on the job site and is not responsible for the supervision of any other persons whatsoever. The presence of EBA personnel on site shall not be construed in any way to relieve the client or any other persons on site from their responsibility for job site safety.

### 5.0 DISCLOSURE OF INFORMATION BY CLIENT

The client agrees to fully cooperate with EBA with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The client acknowledges that in order for EBA to properly provide the service, EBA is relying upon the full disclosure and accuracy of any such information.

#### 6.0 STANDARD OF CARE

Services performed by EBA for this report have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practicing under similar conditions in the jurisdiction in which the services are provided. Engineering judgement has been applied in developing the conclusions and/or recommendations provided in this report. No warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of this report.

#### 7.0 EMERGENCY PROCEDURES

The client undertakes to inform EBA of all hazardous conditions, or possible hazardous conditions which are known to it. The client recognizes that the activities of EBA may uncover previously unknown hazardous materials or conditions and that such discovery may result in the necessity to undertake emergency procedures to protect EBA employees, other persons and the environment. These procedures may involve additional costs outside of any budgets previously agreed upon. The client agrees to pay EBA for any expenses incurred as a result of such discoveries and to compensate EBA through payment of additional fees and expenses for time spent by EBA to deal with the consequences of such discoveries.

# 8.0 NOTIFICATION OF AUTHORITIES

The client acknowledges that in certain instances the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by EBA in its reasonably exercised discretion.

#### 9.0 OWNERSHIP OF INSTRUMENTS OF SERVICE

The client acknowledges that all reports, plans, and data generated by EBA during the performance of the work and other documents prepared by EBA are considered its professional work product and shall remain the copyright property of EBA.

#### 10.0 ALTERNATE REPORT FORMAT

Where EBA submits both electronic file and hard copy versions of reports, drawings and other project-related documents and deliverables (collectively termed EBA's instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by EBA shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancies, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by EBA shall be deemed to be the overall original for the Project.

The Client agrees that both electronic file and hard copy versions of EBA's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except EBA. The Client warrants that EBA's instruments of professional service will be used only and exactly as submitted by EBA.

The Client recognizes and agrees that electronic files submitted by EBA have been prepared and submitted using specific software and hardware systems. EBA makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

