

September 30, 1997

Canadian Turbo (1993) Inc.
400, 630 - 4th Avenue S.W.
Calgary, Alberta
T2P 0J9

SEACOR
ENVIRONMENTAL
ENGINEERING INC

Attention: Mr. Rob Harriott

Dear Sir:

RE: *MONITORING RESULTS FOR BARONS BULK TURBO #2520*
235 MAIN STREET, BARONS, ALBERTA
SEACOR JOB #H0031-093.

INTRODUCTION

SEACOR Environmental Engineering Ltd. (SEACOR) of Calgary, Alberta was retained by Canadian Turbo (1993) Inc. (Turbo) to monitor stockpiled soil at the Barons Turbo Bulk Station #2520 located at 235 Main Street in Barons, Alberta. The purpose of the monitoring was to determine the level of hydrocarbon contamination in soil stockpiled at the above-referenced Turbo facility.

SCOPE OF WORK

The scope of work consisted of the following:

- Collect representative soil samples from the soil stockpile and to field screen samples for vapour headspace level.
- Have select soil samples submitted for laboratory analysis of BTEX constituents.
- Preparation of a short letter report on the monitoring data.

FIELD OBSERVATIONS

Monitoring Data

Soil stockpiled at the Turbo site was sampled on August 21, 1997 by Eric A. Paradis of SEACOR. The soil pile was sectioned off into a grid consisting of sixteen sections. One soil sample was collected from each section at varying depths. Each sample was field screened for headspace vapour level. Three of the sixteen soil samples collected from the soil stockpile were submitted to Philip Analytical Services (Philip) of Calgary, Alberta for laboratory analysis of BTEX constituents. Samples were selected for laboratory analysis based upon headspace vapour levels and sample location. Table 1 summarizes field test data.

100



100

TABLE 1: SOIL STOCKPILE, SOIL HEADSPACE VAPOUR READINGS			
Sample Number	Co-ordinates (X,Y) (meter)	Depth (mbg) (meters)	Headspace Vapour Levels (ppmv)
001	10.5, 14.0	0.5	1000
002	7.5, 14.0	1.5	52
003	4.5, 14.0	1.0	44
004	1.5, 14.0	1.5	640
005	10.5, 10.0	1.0	82
006	7.5, 10.0	1.5	84
007	4.5, 10.0	1.25	200
008	1.5, 10.0	0.75	28
009	10.5, 6.0	0.75	760
010	7.5, 6.0	1.0	1000
011	4.5, 6.0	1.0	40
012	1.5, 6.0	1.5	1000
013	10.5, 2.0	1.0	880
014	7.5, 2.0	1.0	74
015	4.5, 2.0	1.0	62
016	1.5, 2.0	1.0	72

- Notes
- ppmv - parts per million by volume, total organic vapour
 - mbg - metres below grade
 - Origin of coordinate grid system is the south-east corner of the concrete berm wall

Analytical Results

Three soil samples (Samples 004, 010, and 012) were submitted to Philip for BTEX analysis. A summary of the analytical results is presented in Table 2. The detailed analytical report has been attached to this letter.

TABLE 2: ANALYTICAL CHEMISTRY RESULTS				
Sample Number	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)
004	<0.04	<0.04	<0.04	0.42
010	<0.04	0.16	0.16	1.6
012	0.06	0.09	0.11	2.8
AEP RMC Level I	0.2	40	300	110

Notes: • all concentrations in parts per million (ppm) equivalent to milligrams per litre
• Alberta Environmental Protection (AEP) Risk Management Criteria (RMC) Level I for fine grained soils (FGS) as outlined in the environmental guidelines entitled "Remediation Guidelines for Petroleum Tank Sites - July 1994"

The laboratory results confirmed all three samples to be below the AEP RMC Level I FGS criteria.

DISCUSSION

A maximum hydrocarbon vapour level of 1000 ppmv was detected from stockpiled soil at the site. The soil analytical results indicated that the three samples submitted to Philip were below AEP RMC Level I FGS criteria. Based on the above information, SEACOR recommends that no further monitoring of stockpiled soil is necessary. Soils may now be used on-site as regular fill material.

We trust the information presented meets your current needs. If you require any further information in the interim or if you have any questions, please do not hesitate to call.

Yours truly,

SEACOR Environmental Engineering Inc.



Fredrick K. Schuetz, P.Eng.
Manager, Calgary



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Certificate of Analysis

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

Reported To :

SEACOR ENVIRONMENTAL INC.

Client Code S1

130-630 4TH AVENUE SW
CALGARY, ALBERTA
T2P 0J9

Attention : FRED SCHUETZ
Phone : (403) 266-2030
FAX : (403) 263-7906

Project Information :

Project ID : BARONS H0031-093
Submitted By : PARADIS

Requisition Forms :

Form 07000720 logged on 8-Sep-97 completed on 15-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

A handwritten signature in dark ink, appearing to read "Jack Wilson", is written over the printed name.



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ANALYTICAL REPORT
Form 07000720

Client : SEACOR ENVIRONMENTAL INC.
Project : BARONS H0031-093

Philip ID :	METHOD	97032181	97032181	97032182	97032183
Client ID :	BLANK	004	Duplicate	010	012

Sparcode	Parameter	Unit	MDC					
PHYSICAL								
00250760	Moisture	%(W/W)	0.1	---	19.9	20.5	17.6	21.5
VOLATILE ORGANICS								
EX014000	Extraction:MeOH BTEX	date			970909		970909	970909
B020PT12	Benzene	ug/g	0.04	< 0.04	< 0.04	---	< 0.04	0.06
T001PT12	Toluene	ug/g	0.04	< 0.04	< 0.04	---	0.16	0.09
B021PT12	Ethylbenzene	ug/g	0.04	< 0.04	< 0.04	---	0.16	0.11
X003PT12	m,p - Xylene	ug/g	0.03	< 0.03	0.42	---	1.5	2.6
X002PT12	o - Xylene	ug/g	0.03	< 0.03	< 0.03	---	0.14	0.18
SURROGATE RECOVERY								
VS03PT12	d8-Toluene	%	0	98	98	---	98	98
Matrix : Sampled on: Soil 97/08/21 06:40 Soil 97/08/21 10:00 Soil 97/08/21 10:00								



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SPIKE SUMMARY
Form 07000720

Parameter	Client ID	Philip ID	Sample Conc.	Sample & Spike Conc.	Spike Amount	Unit	Percent Recovery
Benzene	Blank Spike. Batch :	74503056	< 0.04	2.3	2.14	ug/g	106
Toluene	Blank Spike. Batch :	74503056	< 0.04	2.2	2.15	ug/g	103
Ethylbenzene	Blank Spike. Batch :	74503056	< 0.04	2.3	2.15	ug/g	109
m,p - Xylene	Blank Spike. Batch :	74503056	< 0.03	4.5	4.29	ug/g	104
o - Xylene	Blank Spike. Batch :	74503056	< 0.03	2.3	2.15	ug/g	105



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ANALYSIS DATES**Form 07000720**

Philip ID:

97032181

97032182

97032183

Client ID:

004

010

012

00250760
PKG-BT17Moisture
BTEX by P&T10-SEP-1997
14-SEP-199710-SEP-1997
14-SEP-199710-SEP-1997
14-SEP-1997

Matrix:

Soil

Soil

Soil

Sampled on:

21-AUG-1997

21-AUG-1997

21-AUG-1997