

**MALCOLM
PIRNIE**

**SAMPLING REPORT AND REMEDIAL PLAN
FOR THE TRUSCON PROPERTY**

THE CITY OF BUFFALO

SEPTEMBER 1996

MALCOLM PIRNIE, INC.

**40 Centre Drive
P. O. Box 1938
Buffalo, New York 14219**

0848-260-100/RP

September 24, 1996

Mr. Peter Buechi, P.E.
NYS Dept. of Environmental Conservation
270 Michigan Avenue
Buffalo, NY 14203-2999

Re: Revised Remedial Plan
Truscon Site
1176-1184 South Park Avenue

Dear Mr. Buechi:

On behalf of the City of Buffalo, enclosed for your review is a Revised Sampling Report and Remedial Plan prepared by Malcolm Pirnie for petroleum-contaminated soil at 1176-1184 South Park Avenue (Truscon Site). The revised approach is based on the recent soil sampling program performed at the site, subsequent discussions with the NYSDEC and your September 17, 1996 concept approval letter.

As requested in your September 17, 1996 concept approval letter, we have included the following information in the enclosed report:

- A discussion of BSA requirements (see Section 5.7).
- A copy of the Site Developer's approval letter for use of on-site material for backfill.
- A copy of the Agreement between LTV and the City of Buffalo.

We will also forward copies of our Agreement with the City and LTV upon execution.

We would appreciate approval of the plan from the NYSDEC as soon as possible. The current project schedule calls for all excavation and backfilling activities to be complete by November 1, 1996. Construction is planned to begin by October 1, 1996.

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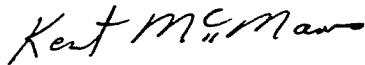
Mr. Peter Buechi, P.E.
NYSDEC - Buffalo

September 24, 1996
Page 2

If you have any questions or wish to discuss the work, please contact our office.

Very truly yours,

MALCOLM PIRNIE, INC.



Kent R. McManus, P.E.
Senior Associate

c: David Sengbusch, C-Buffalo
Jim Smith, C-Buffalo
Wayne Gould, LTV
Dale Papajcik, LTV
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**SAMPLING REPORT AND REMEDIAL PLAN
FOR THE TRUSCON PROPERTY**

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1
1.1 Background	1
1.2 Previous Investigations	2
2.0 METHODS OF INVESTIGATION	3
2.1 Purpose	3
2.2 Soil Boring Locations	3
2.3 Sample Collection	4
2.4 Sample Analysis	5
3.0 ANALYTICAL RESULTS	6
4.0 DELINEATION OF PETROLEUM CONTAMINATION	7
4.1 5.5 Million Gallon Tank Area	7
4.2 River Bank and Perimeter of Tank Area	7
4.3 4000-Gallon Tanks Area	8
5.0 REMEDIAL PLAN	9
5.1 Soil Excavation	9
5.2 Tank Removal	11
5.3 Backfilling	12
5.4 Transportation/Bioremediation Location	12
5.5 Bioremediation	13
5.6 Disposal of Treated Soil	14
5.7 Permits	14

LIST OF TABLES

Table No.	Description	Follows Page
1	Existing Soil Analytical Results	2
2	Summary of Soil Boring Data	4
3	Summary of Volatile Organic Analyses	6

TABLE OF CONTENTS (Continued)

LIST OF FIGURES

Figure No.	Description	Follows Page
1	Test Boring Locations	2
2	Total VOCs in Soil	3
3	Depth to Uppermost Contaminated Soil	9
4	Soil Stockpile/Bioremediation Area	13

LIST OF APPENDICES

Appendix	Description
A	Field Boring Logs
B	Laboratory Analytical Reports
C	Truscon Property Work Plan for Bench-Scale Bioremediation Study
D	Developer Approval for Use of On-site Material
E	Agreements Between the City of Buffalo and LTV Steel Company
F	NYSDEC Concept Approval Letters

1.0 INTRODUCTION

1.1 Background

The City of Buffalo purchased an approximately 50-acre parcel of property, located at 1176-1184 South Park Avenue, from LTV Steel Company approximately five years ago. Prior to the purchase, the City contracted for a Phase 1 Assessment of the site which uncovered NYSDEC-documented evidence of an approximately 20 year old spill of No. 6 fuel oil on the site. Subsequently the City, as part of the City's Brownfields redevelopment efforts, has worked closely with a Developer to put together a \$22 million development package for purchase and use of the site for hydroponics tomato manufacturing. During the development discussions, the spill history led to a site investigation by the City and discussions with the NYSDEC regarding site remedial requirements.

A proposed remedial plan was submitted to the NYSDEC by Foit-Albert on behalf of the City of Buffalo on June 19, 1996. That plan was revised by Foit-Albert on July 25, 1996.

At the request of the City of Buffalo and LTV, Malcolm Pirnie subsequently reviewed the July 25, 1996 Foit-Albert Remedial Plan in addition to the following four studies:

- Enasco, Inc. (November 1984) Limited Environmental Investigation.
- Enasco, Inc. (January 1995) Continuing Environmental Investigation Report.
- Foit-Albert Assoc. (February 1996) Groundwater Investigation.
- Foit-Albert Assoc. (May 1996) Subsurface Investigation.

Following discussions with the City, NYSDEC and LTV Steel it was concluded that the proposed remedial approach by Foit-Albert was too conservative and costly to implement.

A supplemental soil sampling program was completed in August 1996 to better define the vertical and horizontal limits of soil contamination and serve as the basis for development of a revised remedial plan. The sampling results and a revised remedial approach are discussed in this document.

LTV Steel and the City have agreed to share the cost and responsibility for implementing the remedial plan. Copies of the Agreement between the City and LTV Steel is included in Appendix E.

1.2 Previous Investigations

The previous studies performed by Enasco, Inc. and Foit-Albert & Associates indicate that soil sampling was performed in four areas of the site including:

Area A: Within the footprint and immediate vicinity of the 5.5 million gallon storage tank. Evidence of contamination was reported in 15 of 28 test pits and three borings. Soil samples were collected in areas of gross visual contamination (in the former tank footprint), and on the perimeter of the visual contamination. A large area in between the inner and outer sampling points was identified as contaminated based upon visual evidence and the presence of petroleum odors.

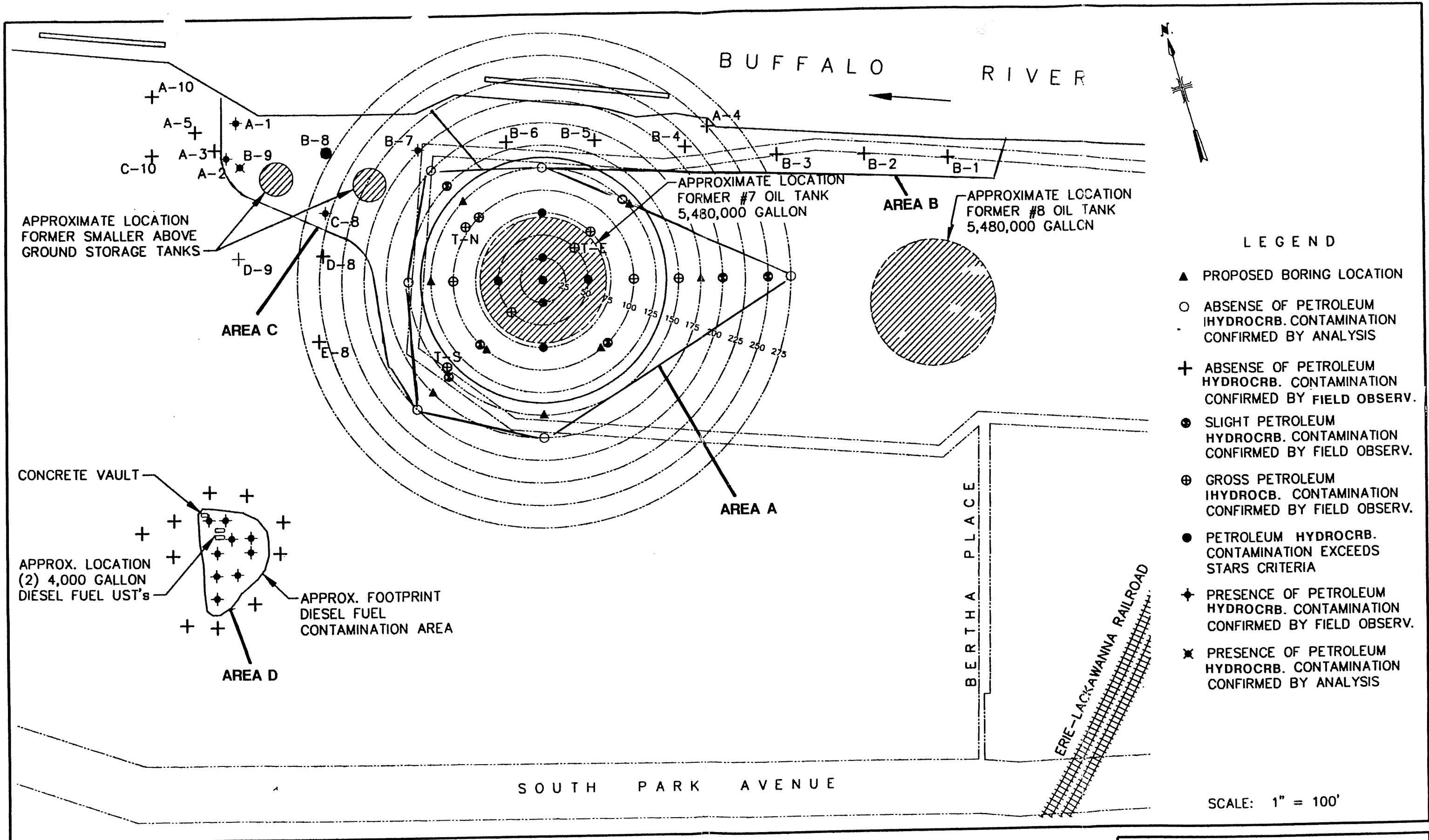
Figure 1 illustrates the distribution of sampling points, and illustrates the degree of contamination based on the test pit and boring logs. The written descriptions range from "gross contamination" to "slight odor".

Area B: Between Area A and the Buffalo River. No contamination was reported at test borings B-1 through B-6. Some petroleum odor, staining, and residual oil was reported at A-4.

Area C: Located between Area A and the opening in the concrete wall along the River. Evidence of contamination was reported in 6 of 13 test borings. Soil samples were collected and analyzed at two borings. Soil from only one boring (B-8) exceeded NYSDEC STARS soil guidance values. The remainder of the delineated contamination in Area C was classified as contaminated based on visual evidence and the presence of petroleum odors.

Area D: Located in the vicinity of two 4000 gallon underground storage tanks, which are suspected to be in-place. Evidence of contamination was reported in 9 of 20 test pits. No soil samples were analyzed. The extent of contamination is based on visual evidence and the presence of petroleum odors.

Table 1 summarizes the existing analytical data and the compares the results to NYSDEC spill clean-up guidance values.



SOUTH PARK AVENUE
SUB-SURFACE INVESTIGATION REPORT
TEST BORING LOCATIONS

AUGUST 1996

FIGURE #1

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0848FIGX.dwg

TABLE 1

TRUSCON SOIL REMEDIATION
EXISTING SOIL ANALYTICAL RESULTS

AREA A – TEST PITS																							
	Soil GV (ug/kg)	TCLP Extract GV	GW Stnd. (ug/l)	TP-5			TP-6			TP-7			TP-8			TP-9			TP-10			TP-11	
				SOIL (ug/kg)	TCLP (ug/l)	SOIL (ug/kg)	SOIL (ug/kg)	TCLP (ug/l)	SOIL (ug/kg)	TCLP (ug/l)	SOIL (ug/kg)	SOIL (ug/kg)	TCLP (ug/l)	SOIL (ug/kg)	TCLP (ug/l)	SOIL (ug/kg)	SOIL (ug/kg)	TCLP (ug/l)	SOIL (ug/kg)	SOIL (ug/kg)	TCLP (ug/l)	SOIL (ug/kg)	TCLP (ug/l)
Benzene	14	0.7	0.7	-	-	391	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ethylbenzene	100	5	5	3150	-	1270	-	-	-	-	-	3100	-	-	-	-	2510	-	-	3150	-	2610	
Toluene	100	5	5	-	-	684	-	-	-	-	-	2330	-	-	-	-	288	-	-	-	-	-	
Total Xylenes	100	5	5	6320	-	4850	-	-	-	-	-	10830	-	-	-	-	1790	-	-	6320	-	6570	
Isopropylbenzene	100	5	5	603	-	332	-	-	-	-	-	648	-	-	-	-	-	-	-	603	-	1140	
n-Propylbenzene	100	5	5	3540	-	1230	-	-	-	-	-	4990	-	-	-	-	-	-	-	3540	-	4610	
p-Isopropylbenzene	100	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1,2,4-Trimethylbenzene	100	5	5	12300	-	7320	-	-	-	-	-	13300	-	-	-	-	8580	-	-	12300	-	6800	
1,3,5-Trimethylbenzene	100	5	5	5110	-	2000	-	-	-	-	-	4530	-	-	-	-	1300	-	-	5110	-	3520	
n-Butylbenzene	100	5	5	10600	-	4750	-	-	-	-	-	9680	-	-	-	-	2830	-	-	10600	-	5310	
sec-Butylbenzene	100	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
t-Butylbenzene	100	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Naphthalene	200	10	10	21900	111	15800	81	-	15200	-	15800	81	24200	98	452/850*	10800	250	98	21900	11	9780	70	
Anthracene	1000	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fluorene	1000	50	50	-	11	-	8.3	-	-	-	-	-	-	7.6	-	-	12	257	-	-	11	8.1	
Phenanthrene	1000	50	50	-	13	-	12	-	-	-	-	-	-	9	-	-	16	708	-	-	13	11	
Pyrene	1000	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	102	-	-	-	-	
Acenaphthene	400	20	20	-	9.2	-	7.5	-	-	-	-	-	-	7.2	-	-	10	177	-	-	9.2	7.5	
Benzo(a)anthracene	0.04	0.002	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fluoranthene	1000	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	-	-	-	-	
Benzo(b)fluoranthene	0.04	0.002	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	
Benzo(k)fluoranthene	0.04	0.002	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	
Chrysene	0.04	0.002	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(a)pyrene	0.04	0.002	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(g,h,i)perylene	0.04	0.002	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Indeno(1,2,3-cd)pyrene	0.04	0.002	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	-	-	-	-	
Dibenzo(a,h)anthracene	1000	50	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	-	

VOCs in the soil and GW analyzed by Method 8021

PAHs in TCLP Extract and GW analyzed by 8270

* Naphthalene in GW sample analyzed
by both 8021/8270

- Not Analyzed

Shading indicates criteria exceeded

Blank space indicates parameter not detected

TABLE 1

TRUSCON SOIL REMEDIATION
EXISTING SOIL ANALYTICAL RESULTS

	Soil GV (ug/kg)	AREA A - TEST PITS				AREA C - BORINGS						B-10	
		TCLP Extract GV	GW Std. (ug/l)	TP-28			B-8		B-9		GW (ug/l)	SOIL (ug/kg)	GW (ug/l)
				SOIL (ug/kg)	TCLP (ug/l)	GW (ug/l)	SOIL (ug/kg)	GW (ug/l)	SOIL (ug/kg)	GW (ug/l)			
Benzene	14	0.7	0.7		-	2.9							
Ethylbenzene	100	5	5		-				6				
Toluene	100	5	5		-								
Total Xylenes	100	5	5		-								
Isopropylbenzene	100	5	5		-								
n-Propylbenzene	100	5	5		-								
p-Isopropylbenzene	100	5	5		-								
1,2,4-Trimethylbenzene	100	5	5		-								
1,3,5-Trimethylbenzene	100	5	5		-								
n-Butylbenzene	100	5	5		-								
sec-Butylbenzene	100	5	5		-								
t-Butylbenzene	100	5	5		-								
Naphthalene	200	10	10	2.2									
Anthracene	1000	50	50		-								
Fluorene	1000	50	50		-								
Phenanthrene	1000	50	50		-								
Pyrene	1000	50	50		-								
Acenaphthene	400	20	20		-								
Benzo(a)anthracene	0.04	0.002	0.002		-								
Fluoranthene	1000	50	50		-								
Benzo(b)fluoranthene	0.04	0.002	0.002		-								
Benzo(k)fluoranthene	0.04	0.002	0.002		-								
Chrysene	0.04	0.002	0.002		-								
Benzo(a)pyrene	0.04	0.002	0.002		-								
Benzo(g,h,i)perylene	0.04	0.002	0.002		-								
Indeno(1,2,3-cd)pyrene	0.04	0.002	0.002		-								
Dibenzo(a,h)anthracene	1000	50	50		-								

VOCs in the soil and GW analyzed by Method 8021

PAHs in TCLP Extract and GW analyzed by 8270

* Naphthalene in GW sample analyzed

by both 8021/8270

- Not Analyzed

Shading indicates criteria exceeded

Blank space indicates parameter not detected

2.0 METHODS OF INVESTIGATION

2.1 Purpose

A subsurface investigation was conducted to predefine the limits of contamination prior to excavation. Soil sampling and analysis were performed to define the vertical and horizontal limits of soil contamination that exceed NYSDEC groundwater protection criteria so that a revised remedial plan could be developed using the predefined limits of contaminated soil.

The NYSDEC petroleum spill policy includes clean-up criteria for protection of groundwater, human health, the environment, and protection from nuisance characteristics. Only criteria for the protection of groundwater are applicable in this case. The extent of contamination can be defined based on soils analyses and comparison to groundwater protection criteria. Soil that exhibits detectable odors and is visibly stained does not necessarily exceed the groundwater protection criteria and could be left in-place.

2.2 Soil Boring Locations

New boring locations were selected based on a review of subsurface descriptions presented by Enasco and Foit-Albert. Within the area investigated by Enasco using test pits, the descriptive information suggests that the contamination levels decrease outward from a central area (i.e., from "gross" levels to "slight" levels to absent). Borings were placed along the former radial pattern starting where petroleum hydrocarbon contamination was described as "slight". Within the area investigated by Foit-Albert using borings, new borings were located equidistant from B-8, which is the only boring that was analyzed and found to exceed the Stars criteria. In addition, five borings were placed along the river to verify the need to excavate close to the River. A total of sixteen soil borings were completed at locations illustrated on Figure 2, including:

- Six borings near river (SB-1, SB-2, SB-3, SB-6, SB-17, and SB-18)
- Nine borings near the former 5.5 million gal. tank (SB-7 to SB-15)
- One boring near two-4000 gal. tanks (SB-16)

BUFFALO

RIVER

LEGEND

BORING No
Depth
Total VOCs

X SOIL BORING OR
TEST PIT BY OTHERS

● SOIL BORING BY
MALCOLM PIRNIE

APPROXIMATE SHOULDER OF BANK



1" = 60'

FIGURE 2

TOTAL VOCs IN SOIL

(ug/kg)

SB-1
6-8'
12-14'
1,950
55,920

SB-18
14-16'
1,050

SB-2
GLENN

SB-17
12-16'
780
16-18'
260

SB-17

SB-18

SB-1

SB-9
14-18'
29

SB-8
11-15'
290

SB-6
6-8'
12-14'
ND
ND

SB-8
6-10'
9,470
12-14'
2,480

SB-7
4-6'
10-12'
ND
11,500

SB-16
2-4'
10-12'
ND
ND

SB-10
4-6'
8-10'
1,210
710

SB-16
2-4'
10-12'
ND
ND

SB-13
4-6'
8-12'
8,872
291

SB-12
NOT ANALYZED
(OILS)

FORMER LIMITS OF
PROPOSED SOIL EXCAVATION

SB-15
2-4'
12-16'
ND
ND

SB-14
2-4'
12-14'
660
ND

SB-11
NOT ANALYZED
(OILS)

SB-9
2-4'
6-8'
10-12'
76,500
26,900
ND

SB-3
8-10'
2,790

+ MON. 781

+ A-10

+ A-9

+ C-10

+ A-3

+ A-2

+ B-9

+ B-8

+ B-7

+ B-6

+ B-5

+ B-4

+ B-3

+ B-2

+ B-1

+ B-0

+ B-1

+ B-2

+ B-3

+ B-4

+ B-5

+ B-6

+ B-7

+ B-8

+ B-9

+ B-10

+ B-11

+ B-12

+ B-13

+ B-14

+ B-15

+ B-16

+ B-17

+ B-18

+ B-19

+ B-20

+ B-21

+ B-22

+ B-23

+ B-24

+ B-25

+ B-26

+ B-27

+ B-28

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+ B-92

+ B-93

+ B-94

+ B-95

+ B-96

+ B-97

+ B-98

+ B-99

+ B-100

+ B-101

+ B-102

+ B-103

+ B-104

+ B-105

Field boring logs are presented in Appendix A. The site is underlain by 2- to 4-feet of a coarse slag fill; and 2- to 6-feet of clayey silt with interbedded clay or fine sand lenses, which grades downward into fine to medium sand with occasional gravels to at least 18-feet. The previous soil borings and 17 of the previous test pits were also located and marked in the field using a survey performed by Foit-Albert to facilitate selecting new soil boring locations. The new borings were mapped based on measured distances from locations that were previously surveyed by Foit-Albert.

2.3 Sample Collection

Continuous split spoon soil samples were collected from each boring. Samples were transferred from the split spoon into air-tight bags (e.g. Zip-Loc™) immediately after opening the split spoon to reduce the potential for volatilization losses. A HNu photoionization meter was used to measure total volatile organics in the bag headspace. Sample material was transferred from the plastic bag to the appropriate laboratory sample jar. Two samples per boring were selected for laboratory analysis based on odor levels, visual appearance, and total organic vapor concentrations in the headspace. In general, one analytical sample was collected from the unsaturated zone and one from below the water table. In most borings, soil sampling was continued two to three split spoon sampling intervals below the water table to identify any visual evidence of contamination in the saturated zone.

Soil samples were selected for analysis based on the presence of visual discoloration and/or petroleum odors. Selected samples with residual oil were also submitted from borings near the former 5.5 million gallon tank (SB-8, SB-13), and borings near the river (SB-1, SB-17, and SB-18). Table 2 presents a summary of analytical sample intervals, the soil type (fill or native soil), and the type of evidence of contamination observed.

Samples are classified in Table 2 as having a petroleum odor and petroleum staining without visible residual oil, or as having an odor and staining with residual oil. Residual oil is defined as a separate phase present as discrete globules disseminated within the soil matrix, or as a separate phase that coats the soil particles. Both types of occurrences tended to transfer oily material to the surface of the plastic bag and created a sheen on saturated samples. An oily layer was observed in a bailer sample collected from the temporary well

TABLE 2

TRUSCON SOIL REMEDIATION
SUMMARY OF SOIL BORING DATA

DEPTH (ft)	SB-1		SB-2		SB-3		SB-4		SB-5		SB-6		SB-7	
	SOIL	PHC	SOIL	PHC	SOIL	PHC	SOIL	PHC	SOIL	PHC	SOIL	PHC	SOIL	PHC
0	0.0		0.0		0.0		0.0		0.0		0.0		0.0	
1	fill		fill		fill		fill		fill		fill		fill	
	fill		fill		fill		fill		fill		fill		fill	
	fill		fill		fill		fill		fill		fill		fill	
2	fill		fill		fill		fill		fill		fill		fill	
3	fill		fill		fill		fill		fill		fill		fill	
	fill		fill		fill		fill		fill		fill		fill	
	3.5		fill		fill		fill		fill		fill		3.0	
4	silt	odor	fill		fill		4.0		fill		4.0		clay	
5	silt	odor	fill		fill		REFUSAL		fill		silt		clay	
	silt	odor	fill		fill				5.0	oil	silt		clay	
	silt	odor	fill		fill				REFUSAL		silt		clay	
6	silt	odor	6.0		fill						silt		silt	
7	silt	odor	silt		fill						silt		silt	
	silt	odor	silt		7.0						silt		silt	
	silt	odor	silt		silt						7.3	odor	silt	
8	silt	8.0	silt		silt	odor					sand	odor	silt	
9	silt	oil	silt		silt	odor					sand	odor	silt	
	silt	oil	9.0		silt	odor					sand	odor	sand	
	9.4	oil	lms		silt	odor					sand	odor	sand	
10	sand	oil	lms		10.0	odor					sand	odor	sand	
11	sand	oil	lms		sand	odor					sand	odor	sand	
	sand	oil	lms		sand	odor					sand	odor	sand	
	sand	oil	lms		sand	odor					sand	odor	sand	odor
12	sand	oil	lms		sand	odor					sand	odor	12.0	
13	sand	oil	lms		sand	odor					sand	odor	EOB	
	sand	oil	lms		sand	odor					sand	odor		
	sand	oil	lms		sand	odor					sand	odor		
14	14.0	oil	lms		14.0	odor					14.0			
15	EOB		lms		EOB						EOB			
			lms											
			lms											
16			lms											
17			lms											
			lms											
			lms											
18			18.0											
			EOB											

EOB - End of Boring

odor- Petroleum odor and/or visual staining

oil - Residual oil product

fill/lms- Slag or Crushed Limestone Fill

silt- Predominantly silt, with clay or sand

sand- Predominantly fine sand with silt and/or gravel

PHC - Petroleum Hydrocarbon Contamination

Sample submitted for analysis

TABLE 2

TRUSCON SOIL REMEDIATION
SUMMARY OF SOIL BORING DATA

DEPTH (ft)	SB-8		SB-9		SB-10		SB-11		SB-12		SB-13		SB-14	
	SOIL	PHC	SOIL	PHC	SOIL	PHC	SOIL	PHC	SOIL	PHC	SOIL	PHC	SOIL	PHC
0	0.0		0.0		0.0		0.0		0.0		0.0		0.0	
1	fill		fill		fill		fill		fill		fill		fill	
	fill		fill		fill		fill	1.0	fill		fill		fill	
2	fill		fill		fill		fill	oil	fill	oil	fill	odor	fill	
	fill		fill		2.5		fill	oil	fill	oil	fill	odor	2.5	odor
3	3.0		fill		silt		fill	oil	fill	oil	fill	odor	silt	odor
	silt		3.5	odor	silt		fill	oil	fill	oil	fill	odor	silt	odor
4	silt		silt	odor	silt		4.0	oil	fill	oil	4.0	4.0	silt	odor
	silt	4.5	silt	odor	silt		EOB		fill	oil	silt	oil	silt	odor
5	silt	oil	silt	odor	silt	4.9			fill	oil	silt	oil	silt	odor
	silt	oil	silt	odor	silt	odor			fill	oil	silt	oil	silt	odor
6	silt	oil	silt	odor	silt	odor			6.0	oil	silt	oil	silt	odor
	silt	oil	silt	odor	silt	odor			EOB		silt	oil	silt	odor
7	silt	oil	7.0	odor	silt	odor					silt	oil	silt	odor
	silt	oil	sand	odor	7.5	odor					silt	oil	silt	odor
8	silt	oil	sand	odor	sand	odor					silt	8.0	silt	odor
	8.5	oil	sand	odor	sand	odor					silt	odor	silt	odor
9	sand	oil	sand	odor	sand	odor					silt	odor	silt	odor
	sand	oil	sand	9.5	sand	odor					silt	odor	silt	odor
10	sand	oil	sand		sand	odor					silt	odor	silt	odor
	sand	10.4	sand		sand	odor					silt	odor	10.3	odor
11	sand		sand		sand	odor					silt	odor	sand	odor
	sand		sand		sand	odor					11.4	odor	sand	odor
12	sand		sand		sand	odor					sand	odor	sand	odor
	sand		sand		sand	odor					sand	odor	sand	odor
13	sand		sand		sand	odor					sand	odor	sand	odor
	sand		sand		sand	odor					sand	odor	sand	odor
14	14.0		14.0		14.0	odor					sand	14.0	14.0	odor
	EOB		EOB		EOB						sand		EOB	
15											sand			
											sand			
16											16.0			
											EOB			
17														
18														

EOB - End of Boring

odor- Petroleum odor and/or visual staining

oil - Residual oil product

fill/lms- Slag or Crushed Limestone Fill

silt- Predominantly silt, with clay or sand

sand- Predominantly fine sand with silt and/or grvl

PHC - Petroleum Hydrocarbon Contamination

Sample submitted for analysis

TABLE 2

TRUSCON SOIL REMEDIATION
SUMMARY OF SOIL BORING DATA

DEPTH (ft)	SB-15		SB-16		SB-17		SB-18	
	SOIL	PHC	SOIL	PHC	SOIL	PHC	SOIL	PHC
0	0.0		0.0		0.0		0.0	
1	fill		fill		fill		fill	
	fill		fill		fill		fill	
	fill		fill		fill		fill	
2	fill		fill		fill		fill	
3	fill		fill		fill		fill	
	fill		fill		fill		fill	
	3.7		fill		fill		fill	
4	silt		4.0		fill		4.0	
5	silt		silt		fill		lms	
	silt		silt		fill		lms	
	silt		silt		fill		lms	
6	silt		silt		fill		lms	
7	silt		silt		6.5		lms	
	silt		silt		lms		lms	
	silt		silt		lms		lms	
8	8.0		silt		lms		lms	
9	sand		silt		lms		lms	
	sand		silt		lms		lms	
	sand		silt		lms		lms	
10	sand		silt		lms		lms	
11	sand		silt		lms		lms	
	sand		silt		lms		lms	
	sand		11.5		lms		lms	
12	sand		sand		lms		lms	odor
13	sand		12.0		lms		lms	odor
	sand		EOB		lms		lms	odor
	13.5				lms	13.5	lms	odor
14	gravel				lms	oil	lms	14.0
15	gravel				lms	oil	lms	oil
	gravel				lms	oil	lms	oil
	gravel				lms	oil	lms	oil
16	16.0				lms	oil	lms	oil
17	EOB				16.5	16.5	16.7	16.
					sand		silt	
					silt		silt	
18					18.0		18.0	
					EOB		EOB	

EOB - End of Boring

odor- Petroleum odor and/or visual staining

oil - Residual oil product

fill/lms- Slag or Crushed Limestone Fill

silt- Predominantly silt, with clay or sand

sand- Predominantly fine sand with silt and/or gravel

PHC - Petroleum Hydrocarbon Contamination

Sample submitted for analysis

installed at the SB-17 location. However, the oil was very hydrophobic and tended to adhere to the HDPE bailer, making transfer to a sample bottle extremely difficult.

Based on behavior observed during drilling and sampling, the residual oil has very low mobility.

2.4 Sample Analysis

A total of 25 soil samples were analyzed at Advanced Environmental Services for volatile organic compounds (VOCs) on the NYSDEC tank list by Method 8021; and for semi-volatile organics in the TCLP extract using Method 8270. The results of these analyses are compared directly to NYSDEC soil guidance values. In addition, at the request of the NYSDEC four soil samples were analyzed using NYSDOH Method 310-13 (petroleum products on soil) to potentially identify multiple spills.

One water sample was collected from a temporary PVC well installed in soil boring SB-17, and analyzed for volatile and semi-volatile organic compounds on the NYSDEC tank list using SW-846 8021 and SW-846 8270, respectively. An analysis of petroleum products in water by NYSDOH Method 310-13 was also performed.

3.0 ANALYTICAL RESULTS

Analytical results and a comparison to the STARS TCLP alternative guidance values are presented in the AES laboratory report (see Appendix B). The results of the analyses are discussed below.

Volatile Organic Compounds

The frequency of detection and the range of concentrations detected for each volatile parameter on the STARS tank list are summarized on Table 3. The lower molecular weight and more soluble compounds were detected less frequently, but all compounds except benzene were detected at concentrations exceeding the STARS criteria for groundwater protection in at least one location. Figure 2 illustrates the sum of total volatile organics detected in soil for each analysis. The volatile petroleum constituents were detected in the vicinity of the 5.5 million gallon tank and a short distance to the northwest. The delineation of contaminated soil is discussed in Section 4.0

Semi-volatile Organic Compounds

No semi-volatile organics compounds on the STARS tank list were detected in the TCLP Extract. These results indicate that the semi-volatile petroleum constituents are not likely to impact groundwater quality.

Petroleum Products

DOH 310-13 analyses on soil indicates #2 Fuel Oil ranging from 1000 to 180 mg/kg fuel oil. Because a spill of #6 Fuel Oil is known to have occurred, these results probably reflect weathering of the product. However, the analyses suggest that the observed contamination is of the same type of product.

Groundwater

No parameters were detected by Methods 8021, 8270, and 310-13 in groundwater from an interval in SB-17 with residual oil.

**TABLE 3
TRUSCON SOIL REMEDIATION**

SUMMARY OF VOLATILE ORGANIC ANALYSES

STARS - Volatile Organic Compounds of Concern	No. of Detections/ No. of Analyses	Concentration Range Detected (ug/kg)	No. of Samples Exceeding STARS Criteria⁽¹⁾
Benzene	0/25	ND	0
Ethylbenzene	8/25	92 - 7,000	7
Toluene	1/25	920	1
O-Xylene	6/25	68 - 9,400	5
M/P Xylene	5/25	100 - 2,700	4
Isopropylbenzene	5/25	82 - 2,600	4
n - Propylbenzene	5/25	250 - 4,400	5
p - Isopropyltoluene	9/25	220 - 8,000	9
1,2,4 - Trimethylbenzene	7/25	360 - 20,000	7
1,3,5 - Trimethylbenzene	8/25	100 - 5,400	7
n - Butylbenzene	12/25	110 - 8,900	12
sec - Butylbenzene	13/25	120 - 5,400	13
Naphthalene	16/25	81 - 25,000	14

⁽¹⁾ TCLP Alternative Guidance Values for the protection of groundwater.

4.0 DELINEATION OF PETROLEUM CONTAMINATION

Figure 2 illustrates the sampling locations, sampling depths, and analytical results as Total VOCs in ug/kg. Table 2 identifies the soil and petroleum nuisance characteristics observed at each boring, and analytical sample intervals. The extent of contamination is discussed below.

4.1 5.5 Million Gallon Tank Area

The area with residual oil observed above the water table is estimated as 53,830 ft². This area is identified in Figure 2 as the Limits of Proposed Soil Excavation. The depth to the water table is estimated to be nine feet.

An average of 1.5 feet of clean fill occurs above the uppermost petroleum contamination. Figure 3 illustrates the depth to the uppermost contaminated soil.

4.2 River Bank and Perimeter of Tank Area

Outside of the limits of soil excavation illustrated on Figure 2, the depth to the uppermost visual and olfactory evidence of petroleum contamination is generally below five feet and appears to increase toward the River. Residual oil was detected below the water table at SB-1, SB-7, SB-17, SB-18 and therefore, appears to have spread laterally along a former (deeper) water table.

An exception to the observed depth of residual oil occurs at SB-5, where residual oil was observed at 5.0 feet on a hard surface that caused auger and split spoon refusal. Auger refusal also occurred at SB-4, SB-6, and was reported for B-8. Boring locations SB-4 and SB-5 were abandoned due to auger refusal in several holes. Therefore, the vertical and lateral extent of residual oil above the water table in this area could not be investigated.

Evidence of possible previous remediation efforts was encountered at SB-2, SB-17, and SB-18, which show clean crushed limestone fill with minimal contamination. The presence of visual staining, petroleum odors, or residual oil was restricted to a thin zone (approx. 3 ft thick) below the water table. Outlying zones of contamination occur at SB-1 and SB-3, which are beyond the limits of the crushed limestone fill.

Soil samples analyzed from SB-6, B-8, and B-9 show levels of contamination only slightly above or below the STARS criteria. However, due to the residual oil detected at SB-5, the extent of contamination in this area is uncertain.

4.3 4000-Gallon Tanks Area

Previous data indicate that petroleum odors and staining are present to a depth of approximately 2.5 feet. Soil boring SB-16 was installed approximately 10 feet downgradient of the probable location of the tanks identified by Foit-Albert, to identify evidence of product that had formerly migrated from the area. No field evidence of contamination was detected and no compound on the STARS tank list was detected by laboratory analysis. Therefore, the original estimate of the extent of soil contamination in this area is assumed to be correct.

5.0 REMEDIAL PLAN

Remediation activities will include excavation of the contaminated soil; removal of three underground storage tanks (if present); backfill and compaction of excavation areas; transportation of the contaminated soil to an off-site bioremediation cell on nearby LTV Steel property; and bioremediation of the soil. Each element of the Remedial Plan is presented below.

5.1 Soil Excavation

Area of 5.5 Million Gallon Tank

The upper portion of clean surficial fill material, within the limits of proposed soil excavation shown on Figure 3 will be stripped off and stockpiled on-site (depth varies from 1.0 to 4.9-feet from existing ground surface)..

Soil will be excavated vertically to the depth that saturated soil conditions are encountered at the water table.

Soil will be excavated laterally to the limits of the excavation illustrated on Figure 3. Field modifications to the limits of excavation may occur based on observed conditions as follows:

- Where residual oil (as defined in Section 2.3) is observed along the perimeter of the excavation, continue excavating beyond the limits shown on Figure 3 until residual oil is not observed.
- Perform verification soil sampling of the sidewalls, where visual staining and petroleum odor (but not residual oil) is detected along the perimeter of the excavation. Analyze the soil for SW-846 8021 (direct on soil). Continue the lateral excavation until soil analyses indicate that the STARS groundwater protection criteria for volatile organics are met, or the NYSDEC agrees that no further excavation is required.
- Terminate the excavation inside the limits shown on Figure 3, where there is no field evidence of contamination and no previous testing location that indicated contamination beyond the excavation face.

Verification soil samples will be collected as composite samples where nuisance characteristics are evident along the sidewall of the excavation. Three composite samples will also be collected from the bottom of the excavation area to document residual contamination remaining in-place. All samples shall be taken no less than six inches below the exposed surface being sampled. Random samples will be used for compositing. All sampling equipment must be decontaminated between sample locations. Soil samples will be placed in precleaned sample containers, placed on ice, and transported to a NYSDOH ELAP certified analytical laboratory for testing.

Perimeter of Tank Area and River Bank

Soil will be excavated to the water table in the vicinity of SB-1, SB-3, SB-5, SB-17, and SB-18 within the limits shown on Figure 2. Soil that does not have visual staining or detectable odors will be stockpiled and used as backfill. The estimated quantity of soil that will need to be remediated from these five areas is 1550 cubic yards. These excavations will be modified as follows:

- Determine the lateral limits of excavation above the water table in the field using the logic presented above for the 5.5 million gallon tank area.
- Excavate approximately four to five feet below the water table at SB-1, approximately seven feet below the water table at SB-18 and nine feet below the water table at SB-17. Continue excavating below the water table in a lateral direction until gross contamination is not observed. The excavation will be terminated a suitable distance from the River's edge to prevent the River from encroaching into the excavation. Water entering the excavation will be removed by pumping and will be discharged to the Buffalo Sewer Authority. Should water enter the excavation faster than it can be pumped or should the excavation collapse as a result of water intrusion, the excavation process will cease and the hole will be immediately backfilled.

Engineering Controls

Dewatering of excavations during excavation of the petroleum-contaminated soil and UST removals may be required. No discharge of water to the Buffalo River or on the project site is anticipated.

Groundwater removed from the excavation areas (including the tank areas) will be discharged to the nearest sanitary sewer manhole. Permission to do so has been granted by the Buffalo Sewer Authority. The water will be either hauled by tank truck or pumped across the site through the pump discharge lines.

An earthen dam will be left in place at SB-1, SB-17 and SB-18 during the excavation process at those locations to prevent the river from flowing into the hole. No sheet piling as originally proposed by Foit-Albert will be installed.

5.2 Tank Removal

The Contractor shall remove the USTs at the site. A total of three underground storage tanks (USTs) are assumed to still exist at the site; two 4,000-gallon diesel fuel USTs in the center of the site and one 1,000-gallon fuel oil UST near the Truscon Building office. (It is assumed that the 1000-gallon tank is located outside of the building foundation.)

The Subsurface Investigation performed by Foit-Albert revealed an area of fill material, evident of a tank pit, in the probable location of the two 4,000-gallon USTs in the center of the site. Due to field conditions, it was impossible for Foit-Albert to positively determine existence of the two USTs.

An area of petroleum-contaminated soil was delineated in the area of the two USTs. Lateral extent of the contamination in this area is approximately 21,685 square feet with vertical extent of contamination at 2.5 feet. Total estimated volume of petroleum-contaminated soil in this area is 2,125 cubic yards.

For all UST removals, excavation soil sampling will be completed in accordance with the previously described protocols (except for the bottom of the tank pit excavations where only one composite sample will be collected). The Contractor shall not backfill the tank pit excavations until analytical results are reported to, and approved by, the NYSDEC. If excavation verification analysis reveals levels of constituents above guidance values, additional excavation and sample analysis will be required.

Contaminated soil encountered during tank removal will be transported to the designated off-site location and bioremediated with the petroleum-contaminated soil. Shallow groundwater which may be encountered in the tank excavation areas will be

pumped and disposed of in the Buffalo Sewer Authority (BSA) sanitary sewer system. Proper closure will include tank removal, residual tank liquid removal and proper disposal, tank cleaning, tank bottoms removal and proper disposal, tank decommissioning, and backfilling of the tank pits. The contractor shall file all proper waste manifests when disposing of residual tank liquids and tank bottoms. When transporting all petroleum-contaminated tank materials, the Contractor must comply with 6NYCRR Part 364 regulations.

The Engineer will document all UST removals with the NYSDEC on behalf of the City of Buffalo.

5.3 Backfilling

All excavated soil that does not have a detectable petroleum odor or visual evidence of petroleum contamination, and blocks of concrete or slag that are not tillable will be stockpiled on-site. This material will be reused as backfill and has an estimated quantity of 6,400 cubic yards (including soil from the vicinity of the large tank, SB-1, SB-3, SB-5, SB-17, and SB-18).

Existing fill material (0.5 to 1-foot) will be stripped off the remainder of the Truscon site for use as backfill (refer to Appendix D for a copy of the approved letter from the site Developer). Any putrescible materials, such as railroad ties will be segregated and not used as backfill. Any railroad ties or other materials that will not be biotreated or used as backfill will be stockpiled on-site for disposal by the City. No backfill characterization will be performed on the stripped material.

All backfill materials will be compacted in the excavation.

5.4 Transportation/Bioremediation Location

The City of Buffalo plans to use LTV Steel's Abby Street site for the ex-situ bioremediation operations. The City of Buffalo plans to enter into an agreement with LTV Steel for use of the property. The Contractor will be responsible for maintaining and protecting traffic during all transportation operations. The total estimated volume of soil to be removed and bioremediated is 23,000 cubic yards.

Formal permitting for use of the off-site location for ex-situ bioremediation will not be required by the NYSDEC. However, the petroleum-contaminated soil will be managed by the Contractor in accordance with provisions under 6 NYCRR Part 360.

No 6NYCRR Part 364 permits for the contaminated soil will be required since the haul route for trucks will be directly across the old LTV plant site property. Except for crossing South Park Avenue, no highway travel will be performed. The approximate haul distance is one mile. Travel across the plant site will be on a graded haul road to be constructed by the Contractor. The road will be wetted using a water truck on an as-needed basis to provide dust control. A flagman will be provided at the South Park crossing location if necessary.

5.5 Bioremediation

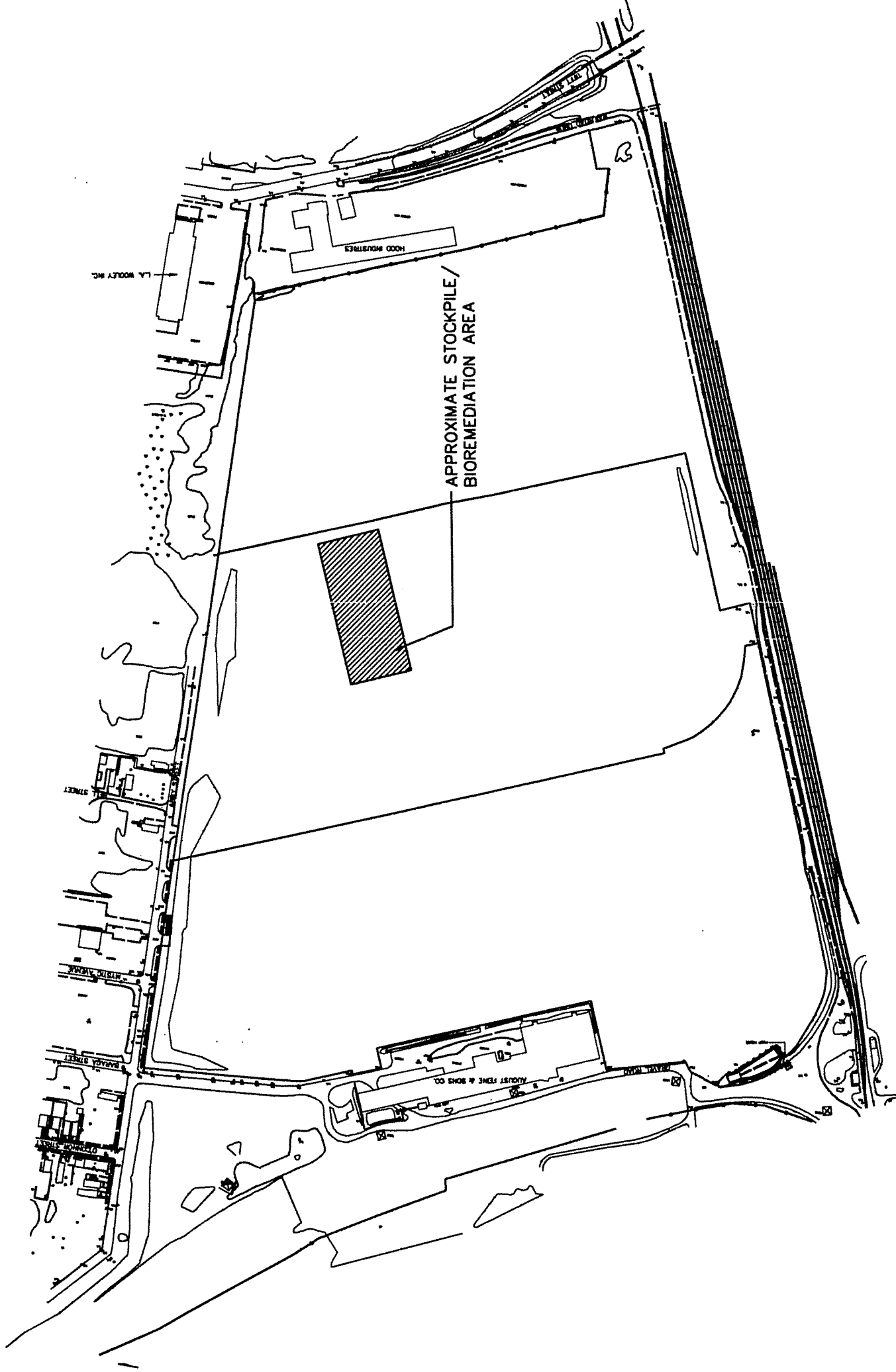
The contaminated soil will be stockpiled through the winter season. The stockpile will be located on LTV Steel's Abby Street property. A stockpile liner, consisting of 6-inches of low permeability soil (less than 10^{-5} cm/s) will be constructed prior to stockpile activities. The stockpile liner will be approximately 3 acres in size, will be rectangular in shape and will be graded to promote drainage toward the four corners. Once the excavation/stockpiling activities are complete, the stockpile will be covered with plastic sheeting, compacted soil material or a sprayed, landfill type synthetic cover system to prevent infiltration and erosion over the winter months. The stockpile liner will also serve as a bio-cell liner for bioremediation activities. The approximate location of the stockpile/bioremediation area is shown on Figure 4.

A bench scale soil bioremediation study will be conducted to determine the appropriate mixture of soil amendments and water, and to estimate whether an additional bio-cell or bio-cells are necessary as well as the duration of the bioremediation process. A work plan for the soil bioremediation study is presented in Appendix C.

Once the bench-scale study is complete, Malcolm Pirnie will prepare and submit a bioremediation plan for NYSDEC review which will detail:

- Results of the bench-scale study.

NOTE: A SIX-INCH THICK
RECOMPACTED SOIL LINER
(PERMEABILITY 1x10⁻⁵CM/S)
WILL BE CONSTRUCTED IN
THE SOIL STOCKPILE/BIOREMEDIATION
AREA PRIOR TO PLACEMENT OF SOIL
MATERIAL.



LEGEND

- EXISTING CONTOUR
- EXISTING CONTOUR
- RAILROAD TRACKS
- INTERMITTENT DRAINAGE
- CULVERT PIPE
- MATCHLINE
- FENCE
- ROAD / ACCESS DRIVEWAY
- TREE(S) / BRUSH
- WETLAND / WATER SURFACE
- UTILITY POLE
- LIGHT POLE
- FIRE HYDRANT
- MANHOLE

FIGURE #4

LTV STEEL COMPANY
BUFFALO, NEW YORK
SITE PLAN

SOIL STOCKPILE/BIOREMEDIATION AREA

MALCOLM PIRNIE, INC.
DATE ---SEPTEMBER, 1996---
SHEET ---OF---
DWG. NO. ---

MALCOLM
PIRNIE

REVISIONS			
NO.	BY	DATE	REVISIONS

N.T.S.

- Bioremediation goals.
- Major design elements (need for additional bio-cells).
- Storm water management plans.
- pH, moisture and nutrient additive requirements.
- Sampling and analysis plans.
- Reporting requirements.
- Schedule (startup Spring 1997).

5.6 Disposal of Treated Soil

Remediated soil is expected to be reused as fill material on LTV Steel properties. If it is decided instead to utilize the material off-site, a request will be submitted to the NYSDEC for approval.

5.7 Permits

Recent discussions with the U.S. Army Corps of Engineers indicated that no special Corps permits will be required.

The City of Buffalo will coordinate with the NYSDEC to obtain all permits required for work at the site. No special permits are expected since the work is being performed under a spill cleanup stipulation agreement. 6NYCRR Part 364 permits are not anticipated.

Permission to discharge groundwater that is collected from the excavation areas has already been granted by the BSA. The BSA has designated a location along South Park Avenue to dispose of the groundwater. No special BSA permits are required.

APPENDIX A
FIELD BORING LOGS

FIELD BOREHOLE LOG

PROJECT NAME: <u>TRUSCAN SOIL Remed.</u>					SURFACE ELEV.: _____		BOREHOLE NO.: <u>SB-1</u>			
PROJECT NO.: <u>0848-260-100</u>					REFERENCE ELEV.: _____		DATE STARTED: <u>8/21/96</u>			
CLIENT: <u>LTV STEEL COMPANY</u>					CONTRACTOR: <u>STB</u>		DATE FRESHED: <u>8/21/96</u>			
LOCATION: <u>1205 South Park Ave</u>					LOGGED BY: <u>KDR</u>		METHOD OF LOGGING: <u>3 1/4" HSA, 2" SS</u>			
DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (')	SOIL CLASSIFICATION:	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	LOG ELEV. (ppm)
			25			0.0 Med. Br. SILT, little g/sand, little gravel 1355				
			8			(SL to 1/2"), dry (FILL)				
			11			1.5 Dk Br (w/ yellow slag gravel) SILT, some				
2	1		16	1.5		f/c gravel (A-SA, to 1/4" → slag), little f/sand, dry, 1400				0.1
			2			SLAG/FILL				
			2							
			4			No Recovery - Driller notes cobbles (3-5") to				
11	2		2	0.0		about 3.5" while augering				-
			3							
			4			DK Grey SILT and v/f SAND, moist, 1410				
			2			(f/c) near 5' 6", slight petrol. odor				3.2
6	3		4	1.0						6.2
			2			6.0 DK Grey SILT, little clay, trace f/sand, moist 1415				
			3			6.5 Clay content increases, blk speckling w/in clay				
			3			silt matrix, little organic matter, strong petrol				24
8	4		3			odor ⇒ SILT and CLAY, tr. organic matter, moist				* 0.0
			1			Clay content decreases (SILT, some clay, little				SEM
			1			v/f sand), wet w/ oil residuals, v. strong odor				
			1			9.4 DK Olive Grey SILT and f/SAND, tr. clay, wet w/ oil				48.
10	5		1	1.6		9.6 DK Olive Grey f/SAND, some silt, wet w/ oil				EM
			100H			10.5 DK Olive Gr SILT, some v/f sand, little clay, 1430				
			1			wet, w/ petroleum				
			1			11.0 DK Oliv Grey f/m SAND, little silt, wet w/ petrol				55.
12	6		1	1.8		11.5 Sand DK Oliv Gr. SILT, some v/f sand, trace clay,				EM
			4			12.5 DK Oliv Grey f/m SAND, little silt, wet, petrol.				
			4			trace clay (silt and clay as lenses occas. 1440				
			4			within sand matrix), wet w/ petrol.				
14	7		4	2.0		(trace organic matter (coal))				EM
						14.0' Bottom of Boring				
						No Head space - collect sample into lab jars				

**MALCOLM
PIRNIE**

* Must be thru malfunction (why...?) - won't read strip - fan not running
 FN: Equipment malf. → samples on ice until Thurs. 5/22/96
 1515 Realib H/N - 4,9% - ran for 12 pm - same as this a.m. SHEET NO. 1 OF 1

SHEET NO. 1 OF 1

PROJECT NAME: TRUSCAN SOIL Remed. SURFACE ELEV.: _____ BOREHOLE NO.: SB-2
 PROJECT NO.: 0848-260-100 REFERENCE ELEV.: _____ DATE STARTED: 8/21/06
 CLIENT: LTV STEEL COMPANY CONTRACTOR: STB DATE FINISHED: 8/21/06
 LOCATION: 1205 South Park Ave LOGGED BY: KJR METHOD OF LOGGING: 3/4" HSA, 2" SS

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	10.2 H ₂ O (ppm)
			9			0.0 Lt-Med Br SILT, some f/m gravel (SR-SA, to 1/2"), 1605				
			16			dry (FILL)				
			12			0.7 Dy Br SILT, some c/sand and f/m gravel-size				
2	1		14	1.2		slag gravel (gravel SA-SR, to 1/2"), moist				5.2
			16			1610				
			10			(As above) moist to dry				
			11			(Driller notes very difficult augering through slag cobbles)				
4	2		10	0.6		1625				7.5
			12							
			13			As above, moist				
			13							
6	3		12	0.5		(Driller notes out of cobbly material at 6.0')				2.6
			12			Gravel (slag) content decreasing; poor recovery - 1645				
			6			probably gravel end of spoon; driller notes				
			6							
8	4		7	0.3						2.4
			7			8.0 Dy Br SILT, little organic matter (wood), 1700				
			6			tr f/ gravel (SA-SR, to 3/8") embedded in silt,				
			9			moist				
10	5		9	1.2		9.0 Lt Grey Br f/ GRAVEL and c/SAND, (Gravel A, to 5"-				2.3
			8			looks like crushed limestone/dolomite), little f/m sand size,				
			8			loet, no odors (water very muddy lt. brown)				
			5			(trace silt) 1705				
12	6		3	0.5						2.6
			4			1710				
			4							
			3			13.5 Color change to med. grey (limestone)				
14	7		3	0.8		(As above with finer grained material variable color)				3.1
			6			1720				
			5			(lt Grey to occas. yellow, white, brown, red (brick?), orange)				
			4							
16	8		2	0.7						1.2
			3			18.0' Bottom of Boring 1725				
			3							
			2			(Note: Fines go to top of spoon as it's driven)				
18	9		2	0.6		WL in open augers 8.3' BLS				0.8

FIELD BOREHOLE LOG

[illegible]

FIELD BOREHOLE LOG

[illegible]

FIELD BOREHOLE LOG

[illegible]

No Samples for Lab

FIELD BOREHOLE LOG

PROJECT NAME: TRUSCAN SOIL Remed. SURFACE ELEV.: _____ BOREHOLE NO.: SB-6

PROJECT NO.: 0848-260-100 REFERENCE ELEV.: _____ DATE STARTED: 8/21/96

CLIENT: LTV STEEL COMPANY CONTRACTOR: SJB DATE FINISHED: 8/21/96

LOCATION: 1205 South Park Ave LOGGED BY: KSR METHOD OF LOGGING: 3 1/2" HSA, 2" SS

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS	SAMPLES	MOISTURE (%)	PENETROMETER	10.2 ex H-Nu (ppm)
			45			1.0 Brown SILT, little f/m gravel (SR-SA, to 1/2"), 0910				
			40			trace f/c sand, dry				
			25			0.8 Dk brown SILT, some f/gravel (SA, to 1/2"), little				
2	1		34	1.8		g/m/c sand, moist (SLAG/FILL)				1.7
			78							
			5/10			As above, w/ coarser (slag) gravel (SA, to 3/4"), moist				
4	2			0.4		(Note: Can't auger thru - move ahead 3-4')				1.6
			3							
			3							
			4			No Recovery				
6	3		3	0.0						2.8
			3			6.0 Dk/Dk Grey SILT, some clay, moist				
			3							
			3			7.5 Clay content decreases				
8	4		4	2.0		7.6 BLK/f/SAND, some silt (decreasing w/ depth), moist				2.8
			2			(dk grey (stratified))				
			4			9.2-9.3 Organic matter (wood)				
			4			9.5 BLK/DK Grey f/m SAND (stratified), wet, odor				
10	5		3	1.6						4.8
			1							
			1			As above, wet, odor				
			1							
12	6		1	1.9						3.3
			1			As above, with occas. f/gravel (R to 1/2")				
			3			"pebbles" embedded w/ in sand, wet, odor				
			4							
14	7		5	2.0		13.6 Organic matter (wood), some m/sand, wet				3.6
						14.0' Bottom of Boring				

**MALCOLM
PIRNIE**

Note: 10.2 eV H₂ in calibr. to 62 ppm @ Q.E. span (span won't go up any more
to bring value down to 60 ppm.

SHEET NO. 1 OF 1

SHEET NO. 1 OF 1

FIELD BOREHOLE LOG

PROJECT NAME: TRUSCAN SOIL Remed. SURFACE ELEV.: _____ BOREHOLE NO.: 33-7

PROJECT NO.: 0848-260-100 REFERENCE ELEV.: _____ DATE STARTED: 8/20/96

CLIENT: LTV STEEL COMPANY CONTRACTOR: STB DATE FINISHED: 8/20/96

LOCATION: 1205 South Park Ave LOGGED BY: KOR METHOD OF LOGGING: 3/4" LSA, 2" SS

[illegible]

PROJECT NAME: TRUSCAN SOIL Remed. SURFACE ELEV.: _____ BOREHOLE NO.: SB-8
 PROJECT NO.: 0848-260-100 REFERENCE ELEV.: _____ DATE STARTED: 8/20/96
 CLIENT: LTV STEEL COMPANY CONTRACTOR: SJB DATE FINISHED: 8/20/96
 LOCATION: 1205 South Park Ave LOGGED BY: KJR METHOD OF LOGGING: 3 1/4" HSA, 2" SS

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION:	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	H ₂ O (ppm)
			18			0.0 L Br SILT, little sand, little fin gravel (SEA), 1435				
			32			to 3/4", dry (FILL)				
			27			1.0 DK Br SILT and fin SAND, little fin gravel (SA-A),				
2	1		30	1.8		to 3/4", moist (FILL)				480.
			50			2.0 Ag above w/ little wood (embedded) 1440				
			12			3.0 Dy Br SILT, little fin gravel (R-SA, to 3/4"), little sand,				
			13			moist				
4	2		23	1.6						500.
			14			(embedded) 1505				
			15			4.5 Dy Br SILT, some fin gravel (embedded), wet, some				
			9			4.8-5.0 Bk P/GRAVEL (SE-SA, to 1/4"), some mk sand, some				540
6	3		2	2.0		5.7 DK Oliv Gray CLAY and SILT, wet to moist, some				500. (g)
			1			1510				
			2			As above with oil globules embedded in silt/clay				
			1			wash & water from above in top of spoon has floating				400. (g)
8	4		1	1.7		product and globules.				340. (g)
			1			8.0 Silt content increases 1525				
			3			8.5 Interbedded thin (1-0.3") lenses of clayey silt, fin sand;				
			1			stratified, wet, oil globules w/in and floating on				
10	5		2	1.8		water 145				145.
			1			10.4 DK Gray fin SAND (stratified) trace silt, wet,				
			1			oil sheen on water & occas. globules 1530				
			2							
12	6		2	2.0						16.0
			2			As above, sheen on water but no 1540				
			2			product globules or floating - hard to				
			2			determine if contain'g oil at this depth or if				
14	7		2	2.0		dragged down w/ spoon through borehole. 13.4 (g)				13.4 (g)
						14.0 Bottom of Boring				
						Note: When doing headspace on 10-12 and 12-14; H ₂ O got				
						up to about 12 ppm then rapidly dropped to < 0; waited				
						for H ₂ O to return to normal background and re-sampled				
						headspace for values shown.				

Retested Headspace in sample #s 2 and 3 at 1300
 Only 5-7 ppm.

MALCOLM
 PIRNIE

FIELD BOREHOLE LOG

PROJECT NAME: TRUSCAN SOIL Remed. SURFACE ELEV.: _____ BOREHOLE NO.: 8B-9
 PROJECT NO.: 0848-260-100 REFERENCE ELEV.: _____ DATE STARTED: 8/20/96
 CLIENT: LTV STEEL COMPANY CONTRACTOR: SJB DATE FINISHED: 8/20/96
 LOCATION: 1205 South Park Ave LOGGED BY: KSR METHOD OF CORRECTION: 3 1/4" HSA, 2" SS

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	1.7 FeV HNu (ppm)
			20			0.0 Lt br. SILT, little f/m gravel (RSR to 3/8"), dry 1205				
			118			0.8 Grey & Yellow GRAVEL (SA-A, to 1 1/4") - broken concrete, slag & foundry brick - and m/c SAND, little silt, dry				
2	1		28	2.0		1.5 Dk brown SILT, some m/c gravel (SA-A, to 1") moist (FILL)				1.6
			15			2.0 Dk Br SILT and f/m SAND, trace (occas.) gravel (SA-SR, to 1/2"), moist (FILL) 1210				
4	2		8	1.3		3.5 Dk Br and dk Olive Grey mottled SILT, some to little clay, tr. w/f sand, moist to dry, odor				39.1
			4			1230				
			2							
			3			No Recovery				
6	3		4	0.0		1235				
			7							
			4			7.0 Dk Ol Grey f/SAND and SILT, moist, odor				
			3			← stratified →				
8	4		4	1.3		7.9 Dk Ol Grey SILT, little clay, tr. f/sand, moist, odor				33.1
			3			(w/ stringers of organic matter) 124.5				
			3			9.0 Dk Ol Grey f/SAND, some silt, tr. (occas.) f/gravel (SR to 3/8"), moist, odor				
10	5		4	1.0		9.5 Dk Grey f/m SAND, tr. silt, wet, odor				1.5
			1			(embedded) 1250				
			2			10.5 Grades to m/SAND with occas. f/gravel (R, to 3/8"), wet				
			2			11.5 with little organic matter (wood), wet				
12	6		3	1.4		1200				0.8
			2			12.0 Dk Grey m/SAND (stratified), wet, no noticeable odor				
			4			(As above w/out organic matter or gravel)				
			3							
14	7		4	2.0		14.0' Bottom of Boring				0.7

FIELD BOREHOLE LOG

PROJECT NAME: TRUSCAN SOIL Remed.		SURFACE ELEV.: _____		BOREHOLE NO.: SB-10						
PROJECT NO.: 0848-260-100		REFERENCE ELEV.: _____		DATE STARTED: 8/19/96						
CLIENT: LTV STEEL COMPANY		CONTRACTOR: SSB		DATE FRESHED: 8/19/96						
LOCATION: 1205 South Park Ave		LOGGED BY: KSR		METHOD OF CORRECTION: 34" HSA, 2" SS						
DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm)
			11			0.0 Lt Br SILT and v/f SAND, trace f/m Gravel (slag), dry				
			23			0.5 Brown/Grey/BLK SILT, some Gravel (slag), dry				
			30			1.7 Grey-white ash, some silt, trace gravel, dry to moist				
2	1		95	1.2		f/f gravel and c/m sand (sls), dry				4.5
			11			2.0 Variable color (blk, orange, br.) (to some) 1650				
			9			2.5 Mottled dk/yel br. and lt grey SILT and CLAY (silty clay)				
			3			trace f/gravel (to 1/2") embedded, very stiff, dry to moist				1.6
4	2		10	1.7		(strong odor) 1705				
			2			4.9 Dk grey v/f/m SAND, little silt, sand				
			2			5.5 Dk grey SILT, little clay, moist (odor)				
6	3		2	1.9		1710				17.6
			4							
			2							
			2			7.5 Grades to SILT and v/f SAND, trace clay, moist				
8	4		2	1.7		to wet, oil residuals (can't tell if moisture from oil or oil)				25
			2			f/silt/sand stratified) 1720				
			1			9.0 Dk grey v/f SAND, f/m SAND, little silt, stratified,				
			2			wet @ 9.0, very strong odor				
10	5		2	1.9		9.5 Interbedded SILT and SAND, fenses, wet, strong odor				14.5
			1			10.0 Dk Grey f/m SAND, trace silt, wet, odor. 1725				
			1							
12	6		3			1735				3.2
			4							
			3							
			5							
14	7		3			13.8' Dk Grey f/m SAND, some organic matter (wood), little silt, wet, odor				1.8
16	8					14.0' Bottom of Boring				

FIELD BOREHOLE LOG

[illegible]

PROJECT NAME: TRUSCAN SOIL Remed. SURFACE ELEV.: _____ BOREHOLE NO.: SB-12
 PROJECT NO.: 0848-260-100 REFERENCE ELEV.: _____ DATE STARTED: 8/19/96
 CLIENT: LTV STEEL COMPANY CONTRACTOR: STB DATE FINISHED: 8/19/96
 LOCATION: 1205 South Park Ave LOGGED BY: KJR METHOD OF LOGGING: 3 1/4" HSA, 2" SS

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION:	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	H ₂ O (ppm) #17
			150			0.0-0.5 ft br SILT and f/SAND, dry, tr. gravel 1350				
			62			0.5 Variable color SLAG FILL: GRAVEL (SA-A, to 1 1/2") and				
			21			SILT, some f/c sand, little ash (grey-white), dry				
2'	1		22	1.3		1.8' GRAVEL (SA, to 1 1/2"), some f/c sand, little silt, possibly carbon-res.				
			12			1400				
			11			Saturated w/ oil				
			8							
4'	2		6	0.4						40
			5			1415				
			4			GRAVEL and SILT, saturated with oil				
			4							
6'	3		6	0.1		(*) (Collect, one jar for Petrol. Fingerprint) (from 2-4' sample & 4-6' sample)				1
						1430				
8'	4					Bottom of Boring @ 6.0' (spoon hole) (augered to 14.0')				
10'	5									
12'	6									
14'	7									

* H₂O headspace values already account for background (Bgs on 8/19/96 typically 0.5-1.5 ppm)

PROJECT NAME: TRUSCON Soil Remed. SURFACE ELEV.: _____ BOREHOLE NO.: SB-13
 PROJECT NO.: 0848-260-100 REFERENCE ELEV.: _____ DATE STARTED: 8/19/96
 CLIENT: LTV STEEL COMPANY CONTRACTOR: SJB DATE FINISHED: 8/19/96
 LOCATION: 1205 South Park Ave LOGGED BY: KJR METHOD OF BORING: 3 3/4" H.S.A.; 2" SS

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	117 °C V
			10			0-1' ^{Wet} Dk Yel Br f/SAND, moist 10:45				
			95			1.0'-1.2' clay SILT, little f/gravel (A to 1/2"), moist			B6=1.5	
			30			1.2'-1.4' Med Yel Br SILT, fr. f/sand; 1.4'-1.7' Grey ash/slag			S-1=6.0	
2'	1	SS	13	1.4		1.7'-2.0' Dk Br-BLK SILT some c/sand, some f/gravel (slag), staining 11:00			S-1=4.5	
			13			Dk Yel Br m/c+ SAND, some				
			23			f/m gravel (R-SR, to 5/8"), moist (fill)			B6=1.5	
			6						4.0	
4'	2	SS	9	0.8					S-2=2.5	
			3			Dk Br to BLK clayey SILT, moist, visible staining, strong odor, visible residual product 11:20			B6=0.5	
			2						10.5	
			3							
6'	3	SS	4	1.6					S-3=10.0	*
			3			As above, wet near bottom of spacers (7.5'-8.0')				
			3			slight odor; staining & resid. product			B6=0.6	
			3						3.8	
8'	4	SS	2	1.9					S-4=3.2	
			2			As above, saturated 11:45				
			2						B6=0.6	
			2						5.0	
10'	5		2	0.1					S-5=4.4	?
			1			Dk Gray, slight odor 11:55				
			2			10'-11.0' As above; 11.0'-11.4' SILT, some organic matter (wood pcs); 11.4'-12.0' vf/f SAND, little			B6=0.5	
			2			silt, saturated (all above, esp 11.4'-12.0') (stratified)			3.5	
12'	6		2	1.8					S-6=3.0	*
			1			12'-13.5' Dk Gray f/SAND, little silt, wet 12:00				
			2			13.5'-14.0' Dk Grey SILT, some f/sand, some organic matter, wet to moist; slight odor			B6=0.5	
			3			Gr (wood pcs)			2.5	
14'	7		7	2.0					S-7=2.0	
			3			14-15' As above 12:05				
			8						B6=1.5	
			4			15.0' Dk Grey f/m SAND & silt, wet			1.5	
16'	8		6	2.0		15.5' Dk Grey m/c SAND and f/m GRAVEL (R-SR, to 3/4"), trace vf/f sand, wet			S-8=1.0	
						16' Bottom of Boring				

PROJECT NAME: TRUSCAN SOIL Remed.

SURFACE ELEV.: _____

BOREHOLE NO.: SB-14PROJECT NO.: 0848-260-100

REFERENCE ELEV.: _____

DATE STARTED: 8/20/96CLIENT: LTV STEEL COMPANYCONTRACTOR: SJBDATE FINISHED: 8/29/96LOCATION: 1205 South Park AveLOGGED BY: KJRMETHOD OF CORRECTION: 3 1/4" HSA, 2" SS

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6')	REC. (')	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	* H-Nu (ppm)
		#	28			0.0' (dk Br SILT, little f/m sand, tr. clay, tr. gravel (SP-SA, 1/16"), moist				
			58							
			36			1.0' Brown and Grey (mottled) ^(f/m) GRAVEL (SA to 3/4") and m/c SAND				
2	1		6	1.7		little silt, little ash material (gray), wet w/ resid. oil, str. odor				7.0
			3			2.5' Dk Olive Br SILT, little fine clay, wet				
			3			with str. odor and oil sheen on water				
			4							
4	2		4	1.1						4.2
			4			4.5' Clay content increases to "some"				
			2							
			1							
6	3		2	1.6						2.2
			4							
			2							
			3			7.7 Dk Cl. Grey/Br f/m SAND lens, wet, odor				
8	4		2	0.9		7.9 Dk Cl. Br SILT, little f/m sand, tr. clay, wet, odor				3.8
			1							
			2			8.5 Dk Olive ^{Gst} SILT, little clay, little w/f sand (seams),				
			3			trace gravel (SA, to 1"), wet, odor				
10	5		3	0.6		(occasional)				2.6
			1							
			1			10.3 Dk Grey f/m SAND, little silt, wet, sl. odor,				
			1			sheen on water				
12	6		1	1.4						1.6
			1							
			3			ORGANIC (wood) SILT and f/m SAND, wet				
			3			13.5 Dk Grey Br SILT and f/m SAND, some organic PR				
14	7		3	1.5		13.7 Dk Grey m/c SAND, little f/m GRAVEL (well-				0.5
						rounded - 1/16" to 1/8" sp. to 3/8"), wet, sl. odor				
						14.0' Bottom of Boring				
						8. half samples - composite 2 intervals for				
						each - for volume requirement				
						(Grab from each for VCAs)				

* H-Nu headspace values account for backround radon

FIELD BOREHOLE LOG

PROJECT NAME: TRUSCAN SOIL Remed. SURFACE ELEV.: _____ BOREHOLE NO.: SB-15
 PROJECT NO.: 0848-260-100 REFERENCE ELEV.: _____ DATE STARTED: 8/19/96
 CLIENT: LTV STEEL COMPANY CONTRACTOR: SJB DATE FINISHED: 8/19/96
 LOCATION: 1205 South Park Ave LOGGED BY: KJR METHOD OF CORRECTION: 3/4" HSA; 2" SS

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION:	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	HNu (ppm)
			11			Variable colors - 14 grey dk br orange-brown - SLAG				11.7
			40			FILL: GRAVEL (SLAG), some SILT, little m/sand, dry to moist				2.7
			30							
2	1		14	1.2		1330				0.3
			14			1340				
			13			2.5 DkYel Br m/SAND, trace silt, tr. c/sand, dry to moist				
			9							
4	2		3	1.8		3.7' Dy Br clayey SILT: SILT, little clay, moist				16.5*
			7			14:00				
			3							
			3							
6	3		3	0.0		No Recovery				1
			3			1405				
			3			Dy Br clayey SILT, moist				
			3							
8	4		4	0.2						1.7
			2			(Stratified sands/silts) 1415				
			1			8.5' - Dk grey f/m SAND, some silt, wet @ 8.5'				
			3			8.8' - Dk grey/BLK clayey SILT, trace organ matter, wet				
10	5		3	2.0		9.1' - Dk grey f/SAND and SILT wet				0.5
			2			9.7' - Dk grey f/m SAND, little silt, wet				
			1			10.6' Dk grey SILT, little f/sand tr. clay, wet				
			1			10.9' Dk grey f/m SAND (Some organic matter (wood))				
12	6		2	2.0		11.3' Dk grey SILT, h. sand (little silt, wet)				2.0
			1			11.5' Dk grey f/m SAND, little silt, wet 1435				
			2			(Some organic matter (wood))				
			5			13.6' Dk grey m/c SAND and GRAVEL (R-SR to 9/8"), trace v/f sand, wet				1.6
14	7		7	1.8		1445				
			8			(increasing grain-size of sand/gravel)				
			7							
			6			15.5' Multicolor GRAVEL (R, to 1/4"), some c/sand (Rounded), wet				2.8
16	8		8	1.7						
						16.6' Bottom of Boring				

* Head space values already account for back ground; Bb typically (8/19/96) 0.5-1.5 ppm

FIELD BOREHOLE LOG

PROJECT NAME: TRUSCAN SOIL Remed.

SURFACE ELEV.:

BOREHOLE NO.: SB-16

PROJECT NO: 0848-260-100

REFERENCE ELEV.:

DATE STARTED: 8/21/96

CLIENT: LTV STEEL COMPANY

CONTRACTOR: STB

DATE FRESHED: 8/21/96

LOCATION: 1205 South Park Ave

LOGGED BY: KJR

METHOD OF WORKING: 3/4" H&A, 2" SS

[illegible]

PROJECT NAME: TRUSCAN SOIL Remed. SURFACE ELEV.: _____ BOREHOLE NO.: SB-17
 PROJECT NO.: 0848-260-100 REFERENCE ELEV.: _____ DATE STARTED: 8/22/96
 CLIENT: LTV STEEL COMPANY CONTRACTOR: SJB DATE FINISHED: 8/22/96
 LOCATION: 1205 South Park Ave LOGGED BY: KJR METHOD OF LOGGING: 3 1/4" HSA 2" SS

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (')	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	PCZ H ₂ O (ppm)
			133			Lt Br SILT, little f/m gravel, tr. fm sand, clay: 1105 (SA, to 14") (FILL)				
			66							
			20			1.1 Dy Br color, moist, (sand + gravel includes				
2	1		30	1.4		foundry brick)				2.0
			34			(very moist)				
			16			As above, wet @ 3.8 (FILL, SLAG)				
			6							
4	2		8	1.5						1.6
			22							
			52			As above (FILL/SLAG)				
			65							
6	3		13	1.4						2.5
		46	28	1.7						
		17	28	1.7		6.5 Lt Br. Grey c/SAND, some f/gravel (A. to 3"), little				
		11				(FILL) silt and f/m sand (all same material of diff. size-				
8	4		12	1.5		crushed limestone/crushed stone/chert?), v. moist to wet				1.1
			6			8.0 As above, wet				
			14							
			14			9.8 Color Chg. to dk Br Grey, silt and f/m sand content				
10	5		10	1.2		increases; wet, no odors (FILL)				2.9
			10							
			5			Silt content decreases to "trace"				
			4							
12	6		3	0.5		(FILL)				0.7
			3							
			4							
			2							
14	7		5	0.5		13.5 Residual oil & globules (FILL)				3.5
			2			As above				
			3							
			2			14.8 AS ABOVE material, much less oil/staining (FILL)				
16	8		5	0.4		WL = 8.5' BLS inside augers, with augers				4.3
			4			at 14.0' @ 1305 (FILL)				
			3			16.5 Bottom of "crushed stone" fill, oil globes @ 1320				
			2			16.5 dk Grey w/SAND, little c/sand, little (Rounded) Gravel				
18	9		3	1.6		(to 3/4"), oil appears to be residuals carried down				6.6
						wt water in spoon				
						17.5 dk Grey SILT some clay, no oil w/in soil matrix				
						only in water from above.				

MALCOLM
PIRNIESHEET NO. 1 OF 2

Sample time on log 1230

FIELD BOREHOLE LOG

PROJECT NAME: <u>TRUSCAN SOIL Remed.</u>		SURFACE ELEV.: _____		BOREHOLE NO.: <u>SB-17</u>	
PROJECT NO.: <u>0848-260-100</u>		REFERENCE ELEV.: _____		DATE STARTED: <u>8/22/96</u>	
CLIENT: <u>LTV STEEL COMPANY</u>		CONTRACTOR: <u>SJB</u>		DATE FRESHED: <u>8/22/96</u>	
LOCATION: <u>1205 South Park Ave</u>		LOGGED BY: <u>KDR</u>		METHOD OF LOGGING: <u>3 1/2" H&A, 2" SS</u>	

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6")	REC. (")	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	H ₂ O (ppm)
						18.0' Bottom of Boring (Spoon hole)				
						13:30 Pull Augers to 14.0' and install 10.0' PVC screen (14.0-4.0') to get water/oil sample				
						No well installation, just PVC screen + riser w/ natural cave in as augers withdrawn - cutting back in hole around PVC				
						1340 WL = 8.1 BLS after PVC screen in hole				
						5 Bailers of water purged - oil globs on inside & outside bailer - muddy water w/ floating globules & heavy debris.				

PROJECT NAME: TRUSCAR SOIL Remed

SURFACE ELEV.: _____

BOREHOLE NO.: SB-18PROJECT NO.: 0848-260-100

REFERENCE ELEV.: _____

DATE STARTED: 8/23/96CLIENT: LTV Steel CompanyCONTRACTOR: SJBDATE FINISHED: 8/23/96LOCATION: 1205 South Park AveLOGGED BY: RLDMETHOD OF BORING: 3 1/4" HSA / 2" SS

DEPTH (BGS)	SAMPLE NO.	SAMPLE TYPE	BLOWS (6')	REC. (')	SOIL CLASSIFICATION	DESCRIPTION AND REMARKS Density/Consistency, Color, Plasticity, Soil Types, Texture, Fabric, Bedding, Moisture, Other Characteristics	SAMPLES	MOISTURE (%)	PENETROMETER	H ₂ O (ppm)
			12	1'		Fr med SILT & GRAVEL to 1" dia. BLACK/GRAY SLAG (FILL) DRY				16
			14							
			17							
2	1		17							
			16	.7"		Same AS Above - Slightly moist				24
			12							
			12							
4	2		17							
			19	1.8'		0-1' AIA				2
			17			1.0-1.8' white/gray med Sand & crushed stone (FILL) moist				
			14							
6	3		18							
			17	1.4'		0-.4 AIA .4-1.4' white/gray med Sand & Angular gravel - moist				1.2
			10							
			8							
8	4		7							
			4	1.3'		CRS gravel med CRS Sand Light tan - Brown wet - NO odor (FILL)				0
			4							
10	5		3							
			4	.5'		Angular gravel (crushed stone) med Sand				0
			2			Light tan - Brown wet				
			2							
12	6		2							
			2	.9'		CRS gravel Angular, LT BRN TO BLACK				1
			2			Some OIL staining - Slight odor wet				
			1							
14	7		2							
			10	.4'		CRS gravel, Fr Sand LT BRN TO GRAY				
			2			OIL Sheen in split spoon - saturated				
			2							
16	8		2							
			4	1.0'		0-7' AIA .7-1.0' gray clayey silt/sediment				5
			2			Some BLACK staining, petroleum type product observed.				
			1							
18	9		1							

APPENDIX B

**LABORATORY ANALYTICAL REPORTS
PREPARED BY ADVANCED ENVIRONMENTAL SERVICES, INC.**

Sample Date:	Sample ID:
8/19/96	SB-13, SB-15
8/19 - 8/20/96	SB-14, SB-9, SB-8, SB-7, SB-10
8/21/96	SB-6, SB-16, SB-1
8/22/96	SB-3, SB-17 (soil and water)
8/23/96	SB-18
8/23/96	Petroleum Products: SB-1, SB-8, SB-12, SB-17

MALCOM PIRNIE, INC.

TRUSCON SOIL REMEDIATION/ PROJ: 0848-260

1205 SOUTH PARK AVENUE

SAMPLE DATE: 8/19/96

SAMPLE IDs: SB-13, SB-15

Prepared By:

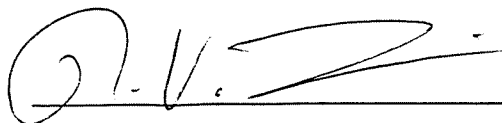


"A Company Dedicated to Honesty, Quality and Service"

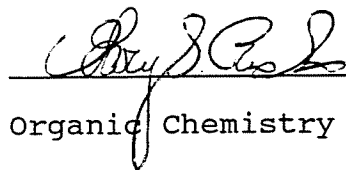
August 26, 1996
REF: ERJ562TN/OR
62TL

QA/QC VERIFICATION FOR PROJECT ID 62TL

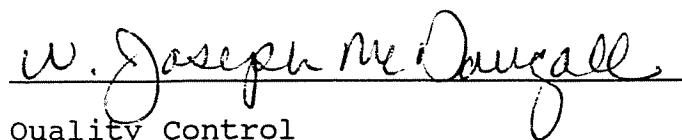
The following report, as well as the supporting data, have been carefully reviewed for accuracy, adherence to the cited methods, and completeness. All data contained in this report was generated in accordance with the AES Laboratory Quality Assurance/Quality Control Program.



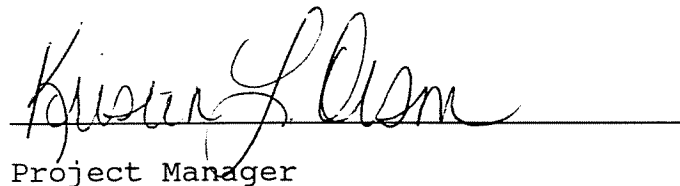
Metals Department



Organic Chemistry



Quality Control



Project Manager

All 'Total' results on soil matrices are calculated on a dry weight basis, unless otherwise noted. Analyses noted as 'Performed in the laboratory' require immediate testing and should be performed in the field.

The following are standard abbreviations:

BQL - Below Quantifiable Limits
ND - None Detected
NG - No Growth of Colonies
NR - Not Requested
D - Indicates a dilution was required

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-13 (4-6')
 COLLECTION METHOD: Composite
 COLLECTION DATE(S): 08/19/96 - 11:20
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62TL-1

PROJECT ID: 62TL

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-13 (4-6')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/19/96 - 11:20
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62TN-1

PROJECT ID: 62TN

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	640	SW 846 8021
Ethylbenzene	92 D	100	640	SW 846 8021
Toluene	ND	100	640	SW 846 8021
o-Xylene	68 D	100	640	SW 846 8021
m/p-Xylene (++)	100 D	100	640	SW 846 8021
Isopropylbenzene	82 D	100	640	SW 846 8021
n-Propylbenzene	290 D	100	640	SW 846 8021
p-Isopropyltoluene	220 D	100	640	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	3200 D	100	1280	SW 846 8021
1,3,5-Trimethylbenzene	100 D	100	640	SW 846 8021
n-Butylbenzene	4000 D	100	640	SW 846 8021
sec-Butylbenzene	320 D	100	640	SW 846 8021
Naphthalene	400 D	200	640	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	3200	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-13 (8-10/10-12')
 COLLECTION METHOD: Composite
 COLLECTION DATE(S): 08/19/96 - 11:50
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62TL-2

PROJECT ID: 62TL

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-13 (8-10/10-12')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/19/96 - 11:50
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62TN-2

PROJECT ID: 62TN

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	68	SW 846 8021
Ethylbenzene	ND	100	68	SW 846 8021
Toluene	ND	100	68	SW 846 8021
o-Xylene	ND	100	68	SW 846 8021
m/p-Xylene (++)	ND	100	68	SW 846 8021
Isopropylbenzene	ND	100	68	SW 846 8021
n-Propylbenzene	ND	100	68	SW 846 8021
p-Isopropyltoluene	ND	100	68	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	136	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	68	SW 846 8021
n-Butylbenzene	110 D	100	68	SW 846 8021
sec-Butylbenzene	ND	100	68	SW 846 8021
Naphthalene	81 D	200	68	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	340	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-15 (2-4')
 COLLECTION METHOD: Composite
 COLLECTION DATE(S): 08/19/96 - 13:40
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62TL-3

PROJECT ID: 62TL

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-15 (2-4')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/19/96 - 13:40
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62TN-3

PROJECT ID: 62TN

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	56	SW 846 8021
Ethylbenzene	ND	100	56	SW 846 8021
Toluene	ND	100	56	SW 846 8021
o-Xylene	ND	100	56	SW 846 8021
m/p-Xylene (++)	ND	100	56	SW 846 8021
Isopropylbenzene	ND	100	56	SW 846 8021
n-Propylbenzene	ND	100	56	SW 846 8021
p-Isopropyltoluene	ND	100	56	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	112	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	56	SW 846 8021
n-Butylbenzene	ND	100	56	SW 846 8021
sec-Butylbenzene	ND	100	56	SW 846 8021
Naphthalene	ND	200	56	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	280	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-15 (12-14/ 14-16')
 COLLECTION METHOD: Composite
 COLLECTION DATE(S): 08/19/96 - 14:40
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62TL-4

PROJECT ID: 62TL

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-15 (12-14/ 14-16')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/19/96 - 14:40
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62TN-4

PROJECT ID: 62TN

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	67	SW 846 8021
Ethylbenzene	ND	100	67	SW 846 8021
Toluene	ND	100	67	SW 846 8021
o-Xylene	ND	100	67	SW 846 8021
m/p-Xylene (++)	ND	100	67	SW 846 8021
Isopropylbenzene	ND	100	67	SW 846 8021
n-Propylbenzene	ND	100	67	SW 846 8021
p-Isopropyltoluene	ND	100	67	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	134	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	67	SW 846 8021
n-Butylbenzene	ND	100	67	SW 846 8021
sec-Butylbenzene	ND	100	67	SW 846 8021
Naphthalene	ND	200	67	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	330	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: METHOD BLANK
 COLLECTION METHOD:
 COLLECTION DATE(S):
 SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62TL

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: METHOD BLANK
 COLLECTION METHOD:
 COLLECTION DATE(S):
 SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62TN

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	2.00	SW 846 8021
Ethylbenzene	ND	100	2.00	SW 846 8021
Toluene	ND	100	2.00	SW 846 8021
o-Xylene	ND	100	2.00	SW 846 8021
m/p-Xylene (++)	ND	100	2.00	SW 846 8021
Mixed Xylenes	ND	100	2.00	SW 846 8021
Isopropylbenzene	ND	100	2.00	SW 846 8021
n-Propylbenzene	ND	100	2.00	SW 846 8021
p-Isopropyltoluene	ND	100	2.00	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	2.00	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	2.00	SW 846 8021
n-Butylbenzene	ND	100	2.00	SW 846 8021
sec-Butylbenzene	ND	100	2.00	SW 846 8021
Naphthalene	ND	200	2.00	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	10	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62TL

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Anthracene	SW 846 8270	---	Independent Standard	69
Fluorene	SW 846 8270	---	Independent Standard	64
Phenanthrene	SW 846 8270	---	Independent Standard	68
Pyrene	SW 846 8270	---	Independent Standard	73
Acenaphthene	SW 846 8270	---	Independent Standard	61
Benzo(a)anthracene	SW 846 8270	---	Independent Standard	73
Fluoranthene	SW 846 8270	---	Independent Standard	69
Benzo(b)fluoranthene	SW 846 8270	---	Independent Standard	82
Benzo(k)fluoranthene	SW 846 8270	---	Independent Standard	78
Chrysene	SW 846 8270	---	Independent Standard	71
Benzo(a)pyrene	SW 846 8270	---	Independent Standard	79
Benzo(g,h,i)perylene	SW 846 8270	---	Independent Standard	54
Indeno(1,2,3-cd)pyrene	SW 846 8270	---	Independent Standard	58
Dibenzo(a,h)anthracene	SW 846 8270	---	Independent Standard	52

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62TN

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Benzene	SW 846 8021	---	Independent Standard	95
Ethylbenzene	SW 846 8021	---	Independent Standard	90
Toluene	SW 846 8021	---	Independent Standard	85
o-Xylene	SW 846 8021	---	Independent Standard	95
m/p-Xylene (++)	SW 846 8021	---	Independent Standard	92
Isopropylbenzene	SW 846 8021	---	Independent Standard	95
n-Propylbenzene	SW 846 8021	---	Independent Standard	95
p-Isopropyltoluene	SW 846 8021	---	Independent Standard	91
124-Trimethylbenzene/t-Butylbenzene	SW 846 8021	---	Independent Standard	90
1,3,5-Trimethylbenzene	SW 846 8021	---	Independent Standard	94
n-Butylbenzene	SW 846 8021	---	Independent Standard	93
sec-Butylbenzene	SW 846 8021	---	Independent Standard	90
Naphthalene	SW 846 8021	---	Independent Standard	90

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62TL

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
2-Fluorophenol	SW 846 8270	62TL-1	21-100	2 *
2-Fluorophenol	SW 846 8270	62TL-2	21-100	26
2-Fluorophenol	SW 846 8270	62TL-3	21-100	1 *
2-Fluorophenol	SW 846 8270	62TL-4	21-100	51
2-Fluorophenol	SW 846 8270	BLANK	21-100	**
Phenol-d6	SW 846 8270	62TL-1	10-94	2 *
Phenol-d6	SW 846 8270	62TL-2	10-94	22
Phenol-d6	SW 846 8270	62TL-3	10-94	0 *
Phenol-d6	SW 846 8270	62TL-4	10-94	41
Phenol-d6	SW 846 8270	BLANK	10-94	**
2,4,6-Tribromophenol	SW 846 8270	62TL-1	10-123	11
2,4,6-Tribromophenol	SW 846 8270	62TL-2	10-123	26
2,4,6-Tribromophenol	SW 846 8270	62TL-3	10-123	4 *
2,4,6-Tribromophenol	SW 846 8270	62TL-4	10-123	54
2,4,6-Tribromophenol	SW 846 8270	BLANK	10-123	**
Nitrobenzene-d5	SW 846 8270	62TL-1	35-114	115 *
Nitrobenzene-d5	SW 846 8270	62TL-2	35-114	120 *
Nitrobenzene-d5	SW 846 8270	62TL-3	35-114	126 *
Nitrobenzene-d5	SW 846 8270	62TL-4	35-114	125 *
Nitrobenzene-d5	SW 846 8270	BLANK	35-114	**
2-Fluorobiphenyl	SW 846 8270	62TL-1	43-116	79
2-Fluorobiphenyl	SW 846 8270	62TL-2	43-116	93
2-Fluorobiphenyl	SW 846 8270	62TL-3	43-116	111
2-Fluorobiphenyl	SW 846 8270	62TL-4	43-116	110
2-Fluorobiphenyl	SW 846 8270	BLANK	43-116	**
Terphenyl-d4	SW 846 8270	62TL-1	33-141	122
Terphenyl-d4	SW 846 8270	62TL-2	33-141	86
Terphenyl-d4	SW 846 8270	62TL-3	33-141	107
Terphenyl-d4	SW 846 8270	62TL-4	33-141	103

* Surrogate recovery out of range due to matrix interferences.

** No surrogate added by prep; however, all internal standard areas are acceptable.

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT
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PAGE 7

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62TN

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62TN-1	32-140	66
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62TN-2	32-140	78
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62TN-3	32-140	88
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62TN-4	32-140	78
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	BLANK	32-140	74
1,4-Dichlorobutane	SW 846 8021	62TN-1	37-169	90
1,4-Dichlorobutane	SW 846 8021	62TN-2	37-169	120
1,4-Dichlorobutane	SW 846 8021	62TN-3	37-169	130
1,4-Dichlorobutane	SW 846 8021	62TN-4	37-169	115
1,4-Dichlorobutane	SW 846 8021	BLANK	37-169	105

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT
=====

PAGE 8

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62TL

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
Terphenyl-d4	SW 846 8270	BLANK	33-141	**

** No surrogate added by prep; however, all internal standard areas are acceptable.

AES Job Code ERTJ AES Project Reference 627L

[illegible]

FR5 027C

FR5 027C

[illegible]

Please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

ÉRJ 627L

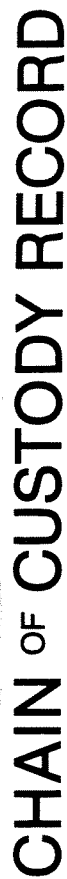
[illegible]

please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

Project Identification

ERJ 62TN

please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.



105 # 0848-260
JOB CODE: ERJ562TC

SAMPLER'S SIGNATURE:

23/12/2019

IDENTIFICATION OF
BLIND FIELD DUPLICATE SITE:

[illegible]

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

1. RELINQUISHED BY: 	DATE 8/19/96	TIME 1730	RECEIVED BY: 
2. RELINQUISHED BY: 	DATE 8/19/96	TIME 18:00	RECEIVED BY: 
3. RELINQUISHED BY: 	DATE	TIME	RECEIVED BY:

MALCOM PIRNIE, INC.

TRUSCON SOIL REMEDIATION/ PROJ: 0848-260

1205 SOUTH PARK AVENUE

SAMPLE DATE: 8/19/96 AND 8/20/96

SAMPLES: SB-14, SB-9, SB-8, SB-7, SB-10

Prepared By:

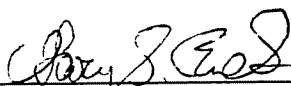


"A Company Dedicated to Honesty, Quality and Service"

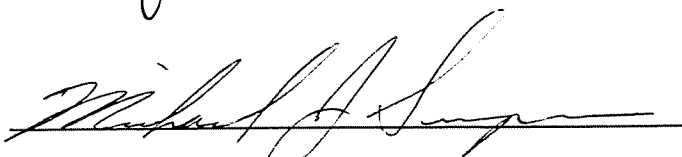
August 26, 1996
REF: ERJ562U4/OR
62U8

QA/QC VERIFICATION FOR PROJECT ID 62U8

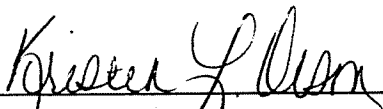
The following report, as well as the supporting data, have been carefully reviewed for accuracy, adherence to the cited methods, and completeness. All data contained in this report was generated in accordance with the AES Laboratory Quality Assurance/Quality Control Program.



Organic Chemistry



Quality Control



Project Manager

All 'Total' results on soil matrices are calculated on a dry weight basis, unless otherwise noted. Analyses noted as 'Performed in the laboratory' require immediate testing and should be performed in the field.

The following are standard abbreviations:

BQL - Below Quantifiable Limits
ND - None Detected
NG - No Growth of Colonies
NR - Not Requested
D - Indicates a dilution was required

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-14 (2-4')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 0920
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U4-1

PROJECT ID: 62U4

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-14 (2-4')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 0920
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U8-1

PROJECT ID: 62U8

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	135	SW 846 8021
Ethylbenzene	ND	100	135	SW 846 8021
Toluene	ND	100	135	SW 846 8021
o-Xylene	ND	100	135	SW 846 8021
m/p-Xylene (++)	ND	100	135	SW 846 8021
Isopropylbenzene	ND	100	135	SW 846 8021
n-Propylbenzene	ND	100	135	SW 846 8021
p-Isopropyltoluene	270 D	100	135	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	270	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	135	SW 846 8021
n-Butylbenzene	ND	100	135	SW 846 8021
sec-Butylbenzene	ND	100	135	SW 846 8021
Naphthalene	390 D	200	135	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	675	SW 846 8021

(+) The Detection Limit is ... "considered acceptable for meeting the Guidance Value".
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-14 (12-14')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 0955
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U4-2

PROJECT ID: 62U4

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ... "considered acceptable for meeting the Guidance Value".

(++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-14 (12-14')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 0955
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U8-2

PROJECT ID: 62U8

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	140	SW 846 8021
Ethylbenzene	ND	100	140	SW 846 8021
Toluene	ND	100	140	SW 846 8021
o-Xylene	ND	100	140	SW 846 8021
m/p-Xylene (++)	ND	100	140	SW 846 8021
Isopropylbenzene	ND	100	140	SW 846 8021
n-Propylbenzene	ND	100	140	SW 846 8021
p-Isopropyltoluene	ND	100	140	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	280	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	140	SW 846 8021
n-Butylbenzene	ND	100	140	SW 846 8021
sec-Butylbenzene	ND	100	140	SW 846 8021
Naphthalene	ND	200	140	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	710	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-9 (2-4')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1210
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U4-3

PROJECT ID: 62U4

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...''considered acceptable for meeting the Guidance Value''.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-9 (2-4')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1210
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U8-3

PROJECT ID: 62U8

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	570	SW 846 8021
Ethylbenzene	2800 D	100	570	SW 846 8021
Toluene	ND	100	570	SW 846 8021
o-Xylene	1100 D	100	570	SW 846 8021
m/p-Xylene (++)	2700 D	100	570	SW 846 8021
Isopropylbenzene	1600 D	100	570	SW 846 8021
n-Propylbenzene	4000 D	100	570	SW 846 8021
p-Isopropyltoluene	1500 D	100	570	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	20000 D	100	1140	SW 846 8021
1,3,5-Trimethylbenzene	4900 D	100	570	SW 846 8021
n-Butylbenzene	7500 D	100	570	SW 846 8021
sec-Butylbenzene	5400 D	100	570	SW 846 8021
Naphthalene	25000 D	200	570	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	2800	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-9 (6-8')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1235
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U4-4

PROJECT ID: 62U4

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-9 (6-8')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1235
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U8-4

PROJECT ID: 62U8

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	630	SW 846 8021
Ethylbenzene	1400 D	100	630	SW 846 8021
Toluene	ND	100	630	SW 846 8021
o-Xylene	1100 D	100	630	SW 846 8021
m/p-Xylene (++)	1600 D	100	630	SW 846 8021
Isopropylbenzene	ND	100	630	SW 846 8021
n-Propylbenzene	4400 D	100	630	SW 846 8021
p-Isopropyltoluene	ND	100	630	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	2900 D	100	1260	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	630	SW 846 8021
n-Butylbenzene	8100 D	100	630	SW 846 8021
sec-Butylbenzene	1200 D	100	630	SW 846 8021
Naphthalene	6200 D	200	630	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	3200	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-9 (10-12')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1250
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U4-5

PROJECT ID: 62U4

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-9 (10-12')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1250
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U8-5

PROJECT ID: 62U8

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	140	SW 846 8021
Ethylbenzene	ND	100	140	SW 846 8021
Toluene	ND	100	140	SW 846 8021
o-Xylene	ND	100	140	SW 846 8021
m/p-Xylene (++)	ND	100	140	SW 846 8021
Isopropylbenzene	ND	100	140	SW 846 8021
n-Propylbenzene	ND	100	140	SW 846 8021
p-Isopropyltoluene	ND	100	140	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	280	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	140	SW 846 8021
n-Butylbenzene	ND	100	140	SW 846 8021
sec-Butylbenzene	ND	100	140	SW 846 8021
Naphthalene	ND	200	140	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	680	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-8 (6-10')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1515
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U4-6

PROJECT ID: 62U4

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-8 (6-10')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1515
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U8-6

PROJECT ID: 62U8

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	260	SW 846 8021
Ethylbenzene	880 D	100	260	SW 846 8021
Toluene	ND	100	260	SW 846 8021
o-Xylene	1400 D	100	260	SW 846 8021
m/p-Xylene (++)	1900 D	100	260	SW 846 8021
Isopropylbenzene	280 D	100	260	SW 846 8021
n-Propylbenzene	1500 D	100	260	SW 846 8021
p-Isopropyltoluene	1600 D	100	260	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	530 D	100	520	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	260	SW 846 8021
n-Butylbenzene	310 D	100	260	SW 846 8021
sec-Butylbenzene	290 D	100	260	SW 846 8021
Naphthalene	780 D	200	260	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	1300	SW 846 8021

(+) The Detection Limit is ...''considered acceptable for meeting the Guidance Value''.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-8 (12-14')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1540
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U4-7

PROJECT ID: 62U4

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.

(++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-8 (12-14')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1540
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U8-7

PROJECT ID: 62U8

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	270	SW 846 8021
Ethylbenzene	ND	100	270	SW 846 8021
Toluene	ND	100	270	SW 846 8021
o-Xylene	ND	100	270	SW 846 8021
m/p-Xylene (++)	ND	100	270	SW 846 8021
Isopropylbenzene	ND	100	270	SW 846 8021
n-Propylbenzene	ND	100	270	SW 846 8021
p-Isopropyltoluene	ND	100	270	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	540	SW 846 8021
1,3,5-Trimethylbenzene	390 D	100	270	SW 846 8021
n-Butylbenzene	810 D	100	270	SW 846 8021
sec-Butylbenzene	280 D	100	270	SW 846 8021
Naphthalene	1000 D	200	270	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	1300	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.

(++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-7 (4-6')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1625
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U4-8

PROJECT ID: 62U4

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ... "considered acceptable for meeting the Guidance Value".
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-7 (4-6')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1625
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U8-8

PROJECT ID: 62U8

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	110	SW 846 8021
Ethylbenzene	ND	100	110	SW 846 8021
Toluene	ND	100	110	SW 846 8021
o-Xylene	ND	100	110	SW 846 8021
m/p-Xylene (++)	ND	100	110	SW 846 8021
Isopropylbenzene	ND	100	110	SW 846 8021
n-Propylbenzene	ND	100	110	SW 846 8021
p-Isopropyltoluene	ND	100	110	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	220	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	110	SW 846 8021
n-Butylbenzene	ND	100	110	SW 846 8021
sec-Butylbenzene	ND	100	110	SW 846 8021
Naphthalene	ND	200	110	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	560	SW 846 8021

(+) The Detection Limit is ...''considered acceptable for meeting the Guidance Value''.

(++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-7 (10-12')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1645
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U4-9

PROJECT ID: 62U4

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-7 (10-12')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/20/96 - 1645
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U8-9

PROJECT ID: 62U8

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	850	SW 846 8021
Ethylbenzene	ND	100	850	SW 846 8021
Toluene	ND	100	850	SW 846 8021
o-Xylene	ND	100	850	SW 846 8021
m/p-Xylene (++)	ND	100	850	SW 846 8021
Isopropylbenzene	910 D	100	850	SW 846 8021
n-Propylbenzene	ND	100	850	SW 846 8021
p-Isopropyltoluene	2200 D	100	850	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	1700	SW 846 8021
1,3,5-Trimethylbenzene	1200 D	100	850	SW 846 8021
n-Butylbenzene	1100 D	100	850	SW 846 8021
sec-Butylbenzene	1600 D	100	850	SW 846 8021
Naphthalene	4100 D	200	850	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	4200	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.

(++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-10 (4-6')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/19/96 - 1705
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U4-10

PROJECT ID: 62U4

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.

(++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-10 (4-6')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/19/96 - 1705
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U8-10

PROJECT ID: 62U8

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	130	SW 846 8021
Ethylbenzene	210 D	100	130	SW 846 8021
Toluene	ND	100	130	SW 846 8021
o-Xylene	ND	100	130	SW 846 8021
m/p-Xylene (++)	ND	100	130	SW 846 8021
Isopropylbenzene	ND	100	130	SW 846 8021
n-Propylbenzene	ND	100	130	SW 846 8021
p-Isopropyltoluene	230 D	100	130	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	260	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	130	SW 846 8021
n-Butylbenzene	170 D	100	130	SW 846 8021
sec-Butylbenzene	170 D	100	130	SW 846 8021
Naphthalene	430	200	130	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	670	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.

(++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-10 (8-10')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/19/96 - 1720
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U4-11

PROJECT ID: 62U4

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-10 (6-8')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/19/96 - 1720
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62U8-11

PROJECT ID: 62U8

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	260	SW 846 8021
Ethylbenzene	ND	100	260	SW 846 8021
Toluene	ND	100	260	SW 846 8021
o-Xylene	ND	100	260	SW 846 8021
m/p-Xylene (++)	ND	100	260	SW 846 8021
Isopropylbenzene	ND	100	260	SW 846 8021
n-Propylbenzene	ND	100	260	SW 846 8021
p-Isopropyltoluene	ND	100	260	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	520	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	260	SW 846 8021
n-Butylbenzene	ND	100	260	SW 846 8021
sec-Butylbenzene	290 D	100	260	SW 846 8021
Naphthalene	420 D	200	260	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	1300	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.

(++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: METHOD BLANK
 COLLECTION METHOD:
 COLLECTION DATE(S):
 SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62U4

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...''considered acceptable for meeting the Guidance Value''.

(++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: METHOD BLANK
 COLLECTION METHOD:
 COLLECTION DATE(S):
 SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62U8

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	2.00	SW 846 8021
Ethylbenzene	ND	100	2.00	SW 846 8021
Toluene	ND	100	2.00	SW 846 8021
o-Xylene	ND	100	2.00	SW 846 8021
m/p-Xylene (++)	ND	100	2.00	SW 846 8021
Isopropylbenzene	ND	100	2.00	SW 846 8021
n-Propylbenzene	ND	100	2.00	SW 846 8021
p-Isopropyltoluene	ND	100	2.00	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	4.00	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	2.00	SW 846 8021
n-Butylbenzene	ND	100	2.00	SW 846 8021
sec-Butylbenzene	ND	100	2.00	SW 846 8021
Naphthalene	ND	200	2.00	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	10	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62U8

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Benzene	SW 846 8021	---	Independent Standard	105
Ethylbenzene	SW 846 8021	---	Independent Standard	100
Toluene	SW 846 8021	---	Independent Standard	100
o-Xylene	SW 846 8021	---	Independent Standard	110
m/p-Xylene (++)	SW 846 8021	---	Independent Standard	100
n-Propylbenzene	SW 846 8021	---	Independent Standard	105
p-Isopropyltoluene	SW 846 8021	---	Independent Standard	100
124-Trimethylbenzene/t-Butylbenzene	SW 846 8021	---	Independent Standard	37
1,3,5-Trimethylbenzene	SW 846 8021	---	Independent Standard	105
n-Butylbenzene	SW 846 8021	---	Independent Standard	100
sec-Butylbenzene	SW 846 8021	---	Independent Standard	100
Naphthalene	SW 846 8021	---	Independent Standard	105

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62U4

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Anthracene	SW 846 8270	---	Independent Standard	74
Fluorene	SW 846 8270	---	Independent Standard	81
Phenanthrene	SW 846 8270	---	Independent Standard	79
Pyrene	SW 846 8270	---	Independent Standard	78
Acenaphthene	SW 846 8270	---	Independent Standard	81
Benzo(a)anthracene	SW 846 8270	---	Independent Standard	80
Fluoranthene	SW 846 8270	---	Independent Standard	77
Benzo(b)fluoranthene	SW 846 8270	---	Independent Standard	83
Benzo(k)fluoranthene	SW 846 8270	---	Independent Standard	80
Chrysene	SW 846 8270	---	Independent Standard	78
Benzo(a)pyrene	SW 846 8270	---	Independent Standard	79
Benzo(g,h,i)perylene	SW 846 8270	---	Independent Standard	39
Indeno(1,2,3-cd)pyrene	SW 846 8270	---	Independent Standard	63
Dibenzo(a,h)anthracene	SW 846 8270	---	Independent Standard	69

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62U8

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62U8-1	32-140	76
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62U8-2	32-140	80
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62U8-3	32-140	96
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62U8-4	32-140	80
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62U8-5	32-140	72
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62U8-6	32-140	78
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62U8-7	32-140	70
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62U8-8	32-140	76
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62U8-9	32-140	76
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62U8-10	32-140	76
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62U8-11	32-140	74
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	BLANK	32-140	78
1,4-Dichlorobutane	SW 846 8021	62U8-1	37-169	120
1,4-Dichlorobutane	SW 846 8021	62U8-2	37-169	115
1,4-Dichlorobutane	SW 846 8021	62U8-3	37-169	130
1,4-Dichlorobutane	SW 846 8021	62U8-4	37-169	95
1,4-Dichlorobutane	SW 846 8021	62U8-5	37-169	110
1,4-Dichlorobutane	SW 846 8021	62U8-6	37-169	105
1,4-Dichlorobutane	SW 846 8021	62U8-7	37-169	105
1,4-Dichlorobutane	SW 846 8021	62U8-8	37-169	120
1,4-Dichlorobutane	SW 846 8021	62U8-9	37-169	100
1,4-Dichlorobutane	SW 846 8021	62U8-10	37-169	115
1,4-Dichlorobutane	SW 846 8021	62U8-11	37-169	110
1,4-Dichlorobutane	SW 846 8021	BLANK	37-169	115

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62U4

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
2-Fluorophenol	SW 846 8270	62U4-1	21-100	61
2-Fluorophenol	SW 846 8270	62U4-2	21-100	60
2-Fluorophenol	SW 846 8270	62U4-3	21-100	79
2-Fluorophenol	SW 846 8270	62U4-4	21-100	80
2-Fluorophenol	SW 846 8270	62U4-5	21-100	88
2-Fluorophenol	SW 846 8270	62U4-6	21-100	80
2-Fluorophenol	SW 846 8270	62U4-7	21-100	88
2-Fluorophenol	SW 846 8270	62U4-8	21-100	88
2-Fluorophenol	SW 846 8270	62U4-9	21-100	78
2-Fluorophenol	SW 846 8270	62U4-10	21-100	48
2-Fluorophenol	SW 846 8270	62U4-11	21-100	81
2-Fluorophenol	SW 846 8270	BLANK	21-100	57
Phenol-d6	SW 846 8270	62U4-1	10-94	50
Phenol-d6	SW 846 8270	62U4-2	10-94	51
Phenol-d6	SW 846 8270	62U4-3	10-94	69
Phenol-d6	SW 846 8270	62U4-4	10-94	72
Phenol-d6	SW 846 8270	62U4-5	10-94	80
Phenol-d6	SW 846 8270	62U4-6	10-94	76
Phenol-d6	SW 846 8270	62U4-7	10-94	78
Phenol-d6	SW 846 8270	62U4-8	10-94	76
Phenol-d6	SW 846 8270	62U4-9	10-94	66
Phenol-d6	SW 846 8270	62U4-10	10-94	40
Phenol-d6	SW 846 8270	62U4-11	10-94	74
Phenol-d6	SW 846 8270	BLANK	10-94	51
2,4,6-Tribromophenol	SW 846 8270	62U4-1	10-123	60
2,4,6-Tribromophenol	SW 846 8270	62U4-2	10-123	56
2,4,6-Tribromophenol	SW 846 8270	62U4-3	10-123	76
2,4,6-Tribromophenol	SW 846 8270	62U4-4	10-123	78
2,4,6-Tribromophenol	SW 846 8270	62U4-5	10-123	81

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62U4

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
2,4,6-Tribromophenol	SW 846 8270	62U4-6	10-123	75
2,4,6-Tribromophenol	SW 846 8270	62U4-7	10-123	81
2,4,6-Tribromophenol	SW 846 8270	62U4-8	10-123	82
2,4,6-Tribromophenol	SW 846 8270	62U4-9	10-123	75
2,4,6-Tribromophenol	SW 846 8270	62U4-10	10-123	43
2,4,6-Tribromophenol	SW 846 8270	62U4-11	10-123	78
2,4,6-Tribromophenol	SW 846 8270	BLANK	10-123	57
Nitrobenzene-d5	SW 846 8270	62U4-1	35-114	93
Nitrobenzene-d5	SW 846 8270	62U4-2	35-114	89
Nitrobenzene-d5	SW 846 8270	62U4-3	35-114	126 *
Nitrobenzene-d5	SW 846 8270	62U4-4	35-114	124 *
Nitrobenzene-d5	SW 846 8270	62U4-5	35-114	126 *
Nitrobenzene-d5	SW 846 8270	62U4-6	35-114	127 *
Nitrobenzene-d5	SW 846 8270	62U4-7	35-114	125 *
Nitrobenzene-d5	SW 846 8270	62U4-8	35-114	129 *
Nitrobenzene-d5	SW 846 8270	62U4-9	35-114	116 *
Nitrobenzene-d5	SW 846 8270	62U4-10	35-114	118 *
Nitrobenzene-d5	SW 846 8270	62U4-11	35-114	119 *
Nitrobenzene-d5	SW 846 8270	BLANK	35-114	100
2-Fluorobiphenyl	SW 846 8270	62U4-1	43-116	102
2-Fluorobiphenyl	SW 846 8270	62U4-2	43-116	97
2-Fluorobiphenyl	SW 846 8270	62U4-3	43-116	129 *
2-Fluorobiphenyl	SW 846 8270	62U4-4	43-116	131 *
2-Fluorobiphenyl	SW 846 8270	62U4-5	43-116	131 *
2-Fluorobiphenyl	SW 846 8270	62U4-6	43-116	133 *
2-Fluorobiphenyl	SW 846 8270	62U4-7	43-116	131 *
2-Fluorobiphenyl	SW 846 8270	62U4-8	43-116	135 *
2-Fluorobiphenyl	SW 846 8270	62U4-9	43-116	126 *
2-Fluorobiphenyl	SW 846 8270	62U4-10	43-116	125 *

* Surrogate recovery out of range; data unaffected.

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
 PROJECT ID: 62U4

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
2-Fluorobiphenyl	SW 846 8270	62U4-11	43-116	125 *
2-Fluorobiphenyl	SW 846 8270	BLANK	43-116	100
Terphenyl-d4	SW 846 8270	62U4-1	33-141	104
Terphenyl-d4	SW 846 8270	62U4-2	33-141	101
Terphenyl-d4	SW 846 8270	62U4-3	33-141	127
Terphenyl-d4	SW 846 8270	62U4-4	33-141	133
Terphenyl-d4	SW 846 8270	62U4-5	33-141	135
Terphenyl-d4	SW 846 8270	62U4-6	33-141	138
Terphenyl-d4	SW 846 8270	62U4-7	33-141	130
Terphenyl-d4	SW 846 8270	62U4-8	33-141	136
Terphenyl-d4	SW 846 8270	62U4-9	33-141	130
Terphenyl-d4	SW 846 8270	62U4-10	33-141	128
Terphenyl-d4	SW 846 8270	62U4-11	33-141	126
Terphenyl-d4	SW 846 8270	BLANK	33-141	100

* Surrogate recovery out of range; data unaffected.

Advanced Environmental Services, Inc.
Sample Traceability Report

Project Identification ERS 6208

Sample #	Sample Collection	Group #	Run #	Prep Method	Prep Date	Analyst	Analytical Methodology	Analysis Date	Analyst
6208-1	8-20-96	5100	24	—	—	—	8021	8-21-96	MM
-2				—	—	—			
-3				—	—	—			
-4				—	—	—		8-22-96	
-5				—	—	—		8-21-96	
-6				—	—	—			
-7				—	—	—			
-8				—	—	—		8-22-96	
-9				—	—	—		8-21-96	
-10				—	—	—			
-11				—	—	—			

Please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

AES Job Code ERS AES Project Reference 6244

[illegible]

Project Identification

please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.



PROJECT NAME: TRUSCO SOIL REMEDIATION

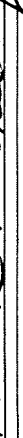
SAMPLER'S SIGNATURE: 

MP
PROJECT I.D. #: C248-260

JOB CODE: ERTJ5 6248 ; 6244

PROJECT NAME: TRUSSON SOIL REMEDIATION					PROJECT I.D. #: C898-200												
SAMPLER'S SIGNATURE: [Signature]					JOB CODE: ERJ5 6248 : 62												
DATE		TIME	SAMPLE IDENTIFICATION	GRAB COMP	SAMPLE TYPE	CONTAINER CLASSIFICATION							PARAMETERS/REMARKS				
						UNPRESERVED	HNO ₃	H ₂ SO ₄	HCL	NAOH	VIAL (PRES)	VIAL (UNPRES)	TOTAL				
8/20/96		0920	SB-14 (2-4')	X	Soil	X							2 STARS 8021 + MBE / STARS TELP82AC				
		0955	SB-14 (12-14')														
		1210	SB-9 (2-4')														
		1235	SB-9 (6-8')														
		1250	SB-9 (10-12')														
		1515	SB-8 (6-10')	X										and Debelum Fingerpr			
		1540	SB-8 (12-14')														
		1625	SB-7 (4-6')														
		1645	SB-7 (10-12')														
8/19/96		1705	SB-10 (4-6')														
		1720	SB-10 (6-8') (8-10')														
			[verified by R. D'Onofrey 8/22/96]														
					TOTAL NUMBER OF CONTAINERS										22		

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

1. RELINQUISHED BY: 	DATE 8/20/96	TIME 1900	RECEIVED BY: 
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

MALCOM PIRNIE, INC.

TRUSCON SOIL REMEDIATION/ PROJ:0848-260

1205 SOUTH PARK AVENUE

SAMPLE DATE: 8/21/96 - STARS 8021 & 8270

SAMPLES: SB-6,SB-16,SB-1

Prepared By:

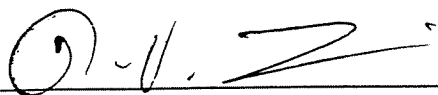


"A Company Dedicated to Honesty, Quality and Service"

August 26, 1996
REF: ERJ562UH/OR
62UI

QA/QC VERIFICATION FOR PROJECT ID 62UI

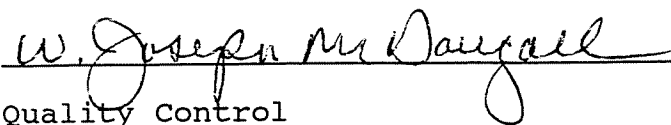
The following report, as well as the supporting data, have been carefully reviewed for accuracy, adherence to the cited methods, and completeness. All data contained in this report was generated in accordance with the AES Laboratory Quality Assurance/Quality Control Program.



Metals Department



Organic Chemistry



Quality Control



Project Manager

All 'Total' results on soil matrices are calculated on a dry weight basis, unless otherwise noted. Analyses noted as 'Performed in the laboratory' require immediate testing and should be performed in the field.

The following are standard abbreviations:

BQL - Below Quantifiable Limits
ND - None Detected
NG - No Growth of Colonies
NR - Not Requested
D - Indicates a dilution was required

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-6 (6-8')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/21/96 - 10:30
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UH-1

PROJECT ID: 62UH

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	130	SW 846 8021
Ethylbenzene	ND	100	130	SW 846 8021
Toluene	ND	100	130	SW 846 8021
o-Xylene	ND	100	130	SW 846 8021
m/p-Xylene (++)	ND	100	130	SW 846 8021
Isopropylbenzene	ND	100	130	SW 846 8021
n-Propylbenzene	ND	100	130	SW 846 8021
p-Isopropyltoluene	ND	100	130	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	260	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	130	SW 846 8021
n-Butylbenzene	ND	100	130	SW 846 8021
sec-Butylbenzene	ND	100	130	SW 846 8021
Naphthalene	ND	200	130	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	660	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-6 (6-8')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/21/96 - 10:30
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UI-1

PROJECT ID: 62UI

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-6 (12-14')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/21/96 - 10:55
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UH-2

PROJECT ID: 62UH

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	260	SW 846 8021
Ethylbenzene	ND	100	260	SW 846 8021
Toluene	ND	100	260	SW 846 8021
o-Xylene	ND	100	260	SW 846 8021
m/p-Xylene (++)	ND	100	260	SW 846 8021
Isopropylbenzene	ND	100	260	SW 846 8021
n-Propylbenzene	ND	100	260	SW 846 8021
p-Isopropyltoluene	ND	100	260	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	420	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	260	SW 846 8021
n-Butylbenzene	ND	100	260	SW 846 8021
sec-Butylbenzene	ND	100	260	SW 846 8021
Naphthalene	ND	200	260	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	1300	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-6 (12-14')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/21/96 - 10:55
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UI-2

PROJECT ID: 62UI

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-16 (2-4')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/21/96 - 11:30
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UH-3

PROJECT ID: 62UH

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	120	SW 846 8021
Ethylbenzene	ND	100	120	SW 846 8021
Toluene	ND	100	120	SW 846 8021
o-Xylene	ND	100	120	SW 846 8021
m/p-Xylene (++)	ND	100	120	SW 846 8021
Isopropylbenzene	ND	100	120	SW 846 8021
n-Propylbenzene	ND	100	120	SW 846 8021
p-Isopropyltoluene	ND	100	120	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	240	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	120	SW 846 8021
n-Butylbenzene	ND	100	120	SW 846 8021
sec-Butylbenzene	ND	100	120	SW 846 8021
Naphthalene	ND	200	120	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	600	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-16 (2-4')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/21/96 - 11:30
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UI-3

PROJECT ID: 62UI

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-16 (10-12')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/21/96 - 12:05
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UH-4

PROJECT ID: 62UH

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	130	SW 846 8021
Ethylbenzene	ND	100	130	SW 846 8021
Toluene	ND	100	130	SW 846 8021
o-Xylene	ND	100	130	SW 846 8021
m/p-Xylene (++)	ND	100	130	SW 846 8021
Isopropylbenzene	ND	100	130	SW 846 8021
n-Propylbenzene	ND	100	130	SW 846 8021
p-Isopropyltoluene	ND	100	130	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	260	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	130	SW 846 8021
n-Butylbenzene	ND	100	130	SW 846 8021
sec-Butylbenzene	ND	100	130	SW 846 8021
Naphthalene	ND	200	130	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	630	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-16 (10-12')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/21/96 - 12:05
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UI-4

PROJECT ID: 62UI

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-1 (6-8')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/21/96 - 14:15
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UH-5

PROJECT ID: 62UH

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	130	SW 846 8021
Ethylbenzene	180 D	100	130	SW 846 8021
Toluene	ND	100	130	SW 846 8021
o-Xylene	260 D	100	130	SW 846 8021
m/p-Xylene (++)	ND	100	130	SW 846 8021
Isopropylbenzene	ND	100	130	SW 846 8021
n-Propylbenzene	ND	100	130	SW 846 8021
p-Isopropyltoluene	220 D	100	130	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	360 D	100	130	SW 846 8021
1,3,5-Trimethylbenzene	380 D	100	130	SW 846 8021
n-Butylbenzene	190 D	100	130	SW 846 8021
sec-Butylbenzene	ND	100	130	SW 846 8021
Naphthalene	360 D	200	130	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	650	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value''.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-1 (6-8')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/21/96 - 14:15
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UI-5

PROJECT ID: 62UI

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-1 (12-14')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/21/96 - 14:40
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UH-6

PROJECT ID: 62UH

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	625	SW 846 8021
Ethylbenzene	7000 D	100	2.00	SW 846 8021
Toluene	920 D	100	2.00	SW 846 8021
o-Xylene	9400 D	100	2.00	SW 846 8021
m/p-Xylene (++)	ND	100	2.00	SW 846 8021
Mixed Xylenes	ND	100	3100	SW 846 8021
Isopropylbenzene	2600 D	100	2.00	SW 846 8021
n-Propylbenzene	ND	100	2.00	SW 846 8021
p-Isopropyltoluene	8000 D	100	2.00	SW 846 8021
1,2,4-Trimethylbenzene	8300 D	100	2.00	SW 846 8021
1,3,5-Trimethylbenzene	5400 D	100	2.00	SW 846 8021
n-Butylbenzene	8900 D	100	2.00	SW 846 8021
sec-Butylbenzene	1300 D	100	2.00	SW 846 8021
Naphthalene	4100 D	200	2.00	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	3100	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-1 (12-14')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/21/96 - 14:40
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UI-6

PROJECT ID: 62UI

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...''considered acceptable for meeting the Guidance Value''.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: METHOD BLANK
 COLLECTION METHOD:
 COLLECTION DATE(S):
 SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62UH

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	2.00	SW 846 8021
Ethylbenzene	ND	100	2.00	SW 846 8021
Toluene	ND	100	2.00	SW 846 8021
o-Xylene	ND	100	2.00	SW 846 8021
m/p-Xylene (++)	ND	100	2.00	SW 846 8021
Isopropylbenzene	ND	100	2.00	SW 846 8021
n-Propylbenzene	ND	100	2.00	SW 846 8021
p-Isopropyltoluene	ND	100	2.00	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	2.00	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	2.00	SW 846 8021
n-Butylbenzene	ND	100	2.00	SW 846 8021
sec-Butylbenzene	ND	100	2.00	SW 846 8021
Naphthalene	ND	200	2.00	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	10	SW 846 8021

(+) The Detection Limit is ...''considered acceptable for meeting the Guidance Value''.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: METHOD BLANK
 COLLECTION METHOD:
 COLLECTION DATE(S):
 SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62UI

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62UH

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Benzene	SW 846 8021	---	Independent Standard	100
Ethylbenzene	SW 846 8021	---	Independent Standard	95
Toluene	SW 846 8021	---	Independent Standard	95
o-Xylene	SW 846 8021	---	Independent Standard	100
m/p-Xylene (++)	SW 846 8021	---	Independent Standard	95
Isopropylbenzene	SW 846 8021	---	Independent Standard	100
n-Propylbenzene	SW 846 8021	---	Independent Standard	100
p-Isopropyltoluene	SW 846 8021	---	Independent Standard	95
124-Trimethylbenzene/t-Butylbenzene	SW 846 8021	---	Independent Standard	95
1,3,5-Trimethylbenzene	SW 846 8021	---	Independent Standard	100
n-Butylbenzene	SW 846 8021	---	Independent Standard	95
sec-Butylbenzene	SW 846 8021	---	Independent Standard	95
Naphthalene	SW 846 8021	---	Independent Standard	75

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62UI

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Anthracene	SW 846 8270	---	Independent Standard	73
Fluorene	SW 846 8270	---	Independent Standard	75
Phenanthrene	SW 846 8270	---	Independent Standard	74
Pyrene	SW 846 8270	---	Independent Standard	77
Acenaphthene	SW 846 8270	---	Independent Standard	76
Benzo(a)anthracene	SW 846 8270	---	Independent Standard	78
Fluoranthene	SW 846 8270	---	Independent Standard	72
Benzo(b)fluoranthene	SW 846 8270	---	Independent Standard	81
Benzo(k)fluoranthene	SW 846 8270	---	Independent Standard	78
Chrysene	SW 846 8270	---	Independent Standard	77
Benzo(a)pyrene	SW 846 8270	---	Independent Standard	81
Benzo(g,h,i)perylene	SW 846 8270	---	Independent Standard	51
Indeno(1,2,3-cd)pyrene	SW 846 8270	---	Independent Standard	64
Dibenzo(a,h)anthracene	SW 846 8270	---	Independent Standard	61

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62UH

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62UH-1	32-140	82
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62UH-2	32-140	76
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62UH-3	32-140	74
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62UH-4	32-140	80
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62UH-5	32-140	80
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62UH-6	32-140	80
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	BLANK	32-140	90
1,4-Dichlorobutane	SW 846 8021	62UH-1	37-169	130
1,4-Dichlorobutane	SW 846 8021	62UH-2	37-169	115
1,4-Dichlorobutane	SW 846 8021	62UH-3	37-169	105
1,4-Dichlorobutane	SW 846 8021	62UH-4	37-169	120
1,4-Dichlorobutane	SW 846 8021	62UH-5	37-169	130
1,4-Dichlorobutane	SW 846 8021	62UH-6	37-169	115
1,4-Dichlorobutane	SW 846 8021	BLANK	37-169	110

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62UI

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
2-Fluorophenol	SW 846 8270	62UI-1	21-100	70
2-Fluorophenol	SW 846 8270	62UI-2	21-100	72
2-Fluorophenol	SW 846 8270	62UI-4	21-100	70
2-Fluorophenol	SW 846 8270	62UI-5	21-100	68
2-Fluorophenol	SW 846 8270	62UI-6	21-100	57
2-Fluorophenol	SW 846 8270	BLANK	21-100	70
Phenol-d6	SW 846 8270	62UI-1	10-94	55
Phenol-d6	SW 846 8270	62UI-2	10-94	55
Phenol-d6	SW 846 8270	62UI-4	10-94	52
Phenol-d6	SW 846 8270	62UI-5	10-94	53
Phenol-d6	SW 846 8270	62UI-6	10-94	45
Phenol-d6	SW 846 8270	BLANK	10-94	52
2,4,6-Tribromophenol	SW 846 8270	62UI-1	10-123	92
2,4,6-Tribromophenol	SW 846 8270	62UI-2	10-123	94
2,4,6-Tribromophenol	SW 846 8270	62UI-4	10-123	88
2,4,6-Tribromophenol	SW 846 8270	62UI-5	10-123	92
2,4,6-Tribromophenol	SW 846 8270	62UI-6	10-123	77
2,4,6-Tribromophenol	SW 846 8270	BLANK	10-123	87
Nitrobenzene-d5	SW 846 8270	62UI-1	35-114	92
Nitrobenzene-d5	SW 846 8270	62UI-2	35-114	97
Nitrobenzene-d5	SW 846 8270	62UI-4	35-114	89
Nitrobenzene-d5	SW 846 8270	62UI-5	35-114	93
Nitrobenzene-d5	SW 846 8270	62UI-6	35-114	74
Nitrobenzene-d5	SW 846 8270	BLANK	35-114	92
2-Fluorobiphenyl	SW 846 8270	62UI-1	43-116	81
2-Fluorobiphenyl	SW 846 8270	62UI-2	43-116	88
2-Fluorobiphenyl	SW 846 8270	62UI-4	43-116	80
2-Fluorobiphenyl	SW 846 8270	62UI-5	43-116	81
2-Fluorobiphenyl	SW 846 8270	62UI-6	43-116	67

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT
=====

PAGE 10

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62UI

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
2-Fluorobiphenyl	SW 846 8270	BLANK	43-116	81
Terphenyl-d4	SW 846 8270	62UI-1	33-141	89
Terphenyl-d4	SW 846 8270	62UI-2	33-141	94
Terphenyl-d4	SW 846 8270	62UI-4	33-141	92
Terphenyl-d4	SW 846 8270	62UI-5	33-141	92
Terphenyl-d4	SW 846 8270	62UI-6	33-141	78
Terphenyl-d4	SW 846 8270	BLANK	33-141	87

Project Identification

ERJ 6204

Please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

AES Project Reference 624I

[illegible]

ERT 626T

Please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

MALCOM PIRNIE, INC.

TRUSCON SOIL REMEDIATION/PROJ: 0848-260

1205 SOUTH PARK AVENUE

SAMPLE DATE: 8/23/96

SAMPLE ID: SB-18

Prepared By:

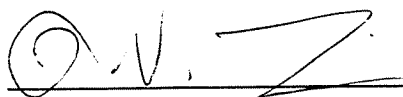


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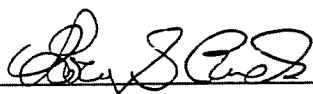
August 26, 1996
REF: ERJ562V8/OR

QA/QC VERIFICATION FOR PROJECT ID 62V8

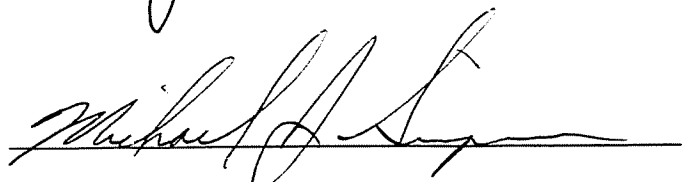
The following report, as well as the supporting data, have been carefully reviewed for accuracy, adherence to the cited methods, and completeness. All data contained in this report was generated in accordance with the AES Laboratory Quality Assurance/Quality Control Program.



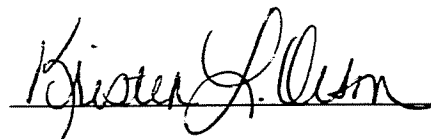
Metals Department



Organic Chemistry



Quality Control



Project Manager

All 'Total' results on soil matrices are calculated on a dry weight basis, unless otherwise noted. Analyses noted as 'Performed in the laboratory' require immediate testing and should be performed in the field.

The following are standard abbreviations:

BQL - Below Quantifiable Limits
ND - None Detected
NG - No Growth of Colonies
NR - Not Requested
D - Indicates a dilution was required

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-18 (14-16')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/23/96
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62V8-1

PROJECT ID: 62V8

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: METHOD BLANK
 COLLECTION METHOD:
 COLLECTION DATE(S):
 SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62V8

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.

(++) m and p Xylene Isomers co-elute.

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT
=====

PAGE 3

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62V8

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Anthracene	SW 846 8270	---	Independent Standard	81
Fluorene	SW 846 8270	---	Independent Standard	81
Phenanthrene	SW 846 8270	---	Independent Standard	82
Pyrene	SW 846 8270	---	Independent Standard	88
Acenaphthene	SW 846 8270	---	Independent Standard	83
Benzo(a)anthracene	SW 846 8270	---	Independent Standard	86
Fluoranthene	SW 846 8270	---	Independent Standard	80
Benzo(b)fluoranthene	SW 846 8270	---	Independent Standard	87
Benzo(k)fluoranthene	SW 846 8270	---	Independent Standard	83
Chrysene	SW 846 8270	---	Independent Standard	86
Benzo(a)pyrene	SW 846 8270	---	Independent Standard	89
Benzo(g,h,i)perylene	SW 846 8270	---	Independent Standard	34
Indeno(1,2,3-cd)pyrene	SW 846 8270	---	Independent Standard	61
Dibenzo(a,h)anthracene	SW 846 8270	---	Independent Standard	68

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT
=====

PAGE 4

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62V8

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
Nitrobenzene-d5	SW 846 8270	62V8-1	35-114	95
Nitrobenzene-d5	SW 846 8270	BLANK	35-114	94
2-Fluorobiphenyl	SW 846 8270	62V8-1	43-116	94
2-Fluorobiphenyl	SW 846 8270	BLANK	43-116	89
Terphenyl-d4	SW 846 8270	62V8-1	33-141	78
Terphenyl-d4	SW 846 8270	BLANK	33-141	90

AES Job Code ERJ

AES Project Reference 67VB

[illegible]

FR562V8

FR562V8

FR562V8

FR562V8

MALCOM PIRNIE, INC.

TRUSCON SOIL REMEDIATION /PROJ:0848-260

1205 SOUTH PARK AVENUE

SAMPLE DATE: 8/23/96

SAMPLE ID: SB-18 - 8021 + MTBE

Prepared By:

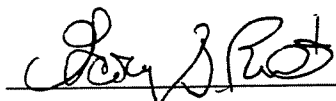


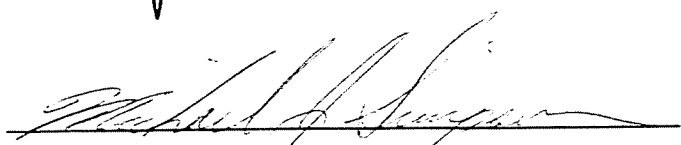
"A Company Dedicated to Honesty, Quality and Service"

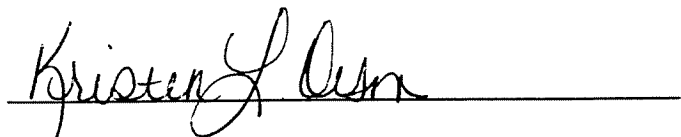
August 26, 1996
REF: ERJ562V9/OR

QA/QC VERIFICATION FOR PROJECT ID 62V9

The following report, as well as the supporting data, have been carefully reviewed for accuracy, adherence to the cited methods, and completeness. All data contained in this report was generated in accordance with the AES Laboratory Quality Assurance/Quality Control Program.


Organic Chemistry


Quality Control


Project Manager

All 'Total' results on soil matrices are calculated on a dry weight basis, unless otherwise noted. Analyses noted as 'Performed in the laboratory' require immediate testing and should be performed in the field.

The following are standard abbreviations:

BQL - Below Quantifiable Limits
ND - None Detected
NG - No Growth of Colonies
NR - Not Requested
D - Indicates a dilution was required

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-18 (14-16')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/23/96
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62V9-1

PROJECT ID: 62V9

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	120	SW 846 8021
Ethylbenzene	ND	100	120	SW 846 8021
Toluene	ND	100	120	SW 846 8021
o-Xylene	ND	100	120	SW 846 8021
m/p-Xylene (++)	170 D	100	120	SW 846 8021
Isopropylbenzene	ND	100	120	SW 846 8021
n-Propylbenzene	ND	100	120	SW 846 8021
p-Isopropyltoluene	ND	100	120	SW 846 8021
1,2,4-Trimethylbenzene/t-Butylbenzene	ND	100	240	SW 846 8021
1,3,5-Trimethylbenzene	190 D	100	120	SW 846 8021
n-Butylbenzene	ND	100	120	SW 846 8021
sec-Butylbenzene	140 D	100	120	SW 846 8021
Naphthalene	550 D	200	120	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	580	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: METHOD BLANK
 COLLECTION METHOD:
 COLLECTION DATE(S):
 SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62V9

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	2.00	SW 846 8021
Ethylbenzene	ND	100	2.00	SW 846 8021
Toluene	ND	100	2.00	SW 846 8021
o-Xylene	ND	100	2.00	SW 846 8021
m/p-Xylene (++)	ND	100	2.00	SW 846 8021
Isopropylbenzene	ND	100	2.00	SW 846 8021
n-Propylbenzene	ND	100	2.00	SW 846 8021
p-Isopropyltoluene	ND	100	2.00	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	4.00	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	2.00	SW 846 8021
n-Butylbenzene	ND	100	2.00	SW 846 8021
sec-Butylbenzene	ND	100	2.00	SW 846 8021
Naphthalene	ND	200	2.00	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	10	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT
=====

PAGE 3

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62V9

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Benzene	SW 846 8021	---	Independent Standard	90
Ethylbenzene	SW 846 8021	---	Independent Standard	85
Toluene	SW 846 8021	---	Independent Standard	85
o-Xylene	SW 846 8021	---	Independent Standard	95
m/p-Xylene (++)	SW 846 8021	---	Independent Standard	86
n-Propylbenzene	SW 846 8021	---	Independent Standard	90
p-Isopropyltoluene	SW 846 8021	---	Independent Standard	90
124-Trimethylbenzene/t-Butylbenzene	SW 846 8021	---	Independent Standard	88
1,3,5-Trimethylbenzene	SW 846 8021	---	Independent Standard	89
n-Butylbenzene	SW 846 8021	---	Independent Standard	90
sec-Butylbenzene	SW 846 8021	---	Independent Standard	90
Naphthalene	SW 846 8021	---	Independent Standard	90

ADVANCED ENVIRONMENTAL SERVICES, INC.
QUALITY CONTROL REPORT
=====

PAGE 4

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62V9

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62V9-1	64-112	82
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	BLANK	64-112	76
1,4-Dichlorobutane	SW 846 8021	62V9-1	47-161	120
1,4-Dichlorobutane	SW 846 8021	BLANK	47-161	120

Project Identification

please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.



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FAX (716) 283-4727

PROJECT I.D. #: 0848-

JOB CODE: ERJ5 62V9

SAMPLER'S SIGNATURE:

JOB CODE: ERJ5 62V9

[illegible]

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

1. RELINQUISHED BY: 	DATE 8/23/96	TIME 1515	RECEIVED BY: 
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

MALCOM PIRNIE, INC.

TRUSCON SOIL REMEDIATION/ PROJ:0848-260N

1205 SOUTH PARK AVENUE

PETROLEUM PRODUCTS

SAMPLES: SB-12, SB-8, SB-1, SB-17

Prepared By:

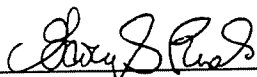


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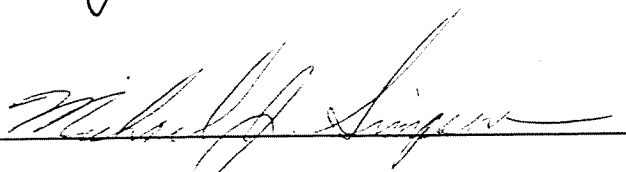
August 26, 1996
REF: ERJ562TM/OR

QA/QC VERIFICATION FOR PROJECT ID 62TM

The following report, as well as the supporting data, have been carefully reviewed for accuracy, adherence to the cited methods, and completeness. All data contained in this report was generated in accordance with the AES Laboratory Quality Assurance/Quality Control Program.



Organic Chemistry



Quality Control



Project Manager

All 'Total' results on soil matrices are calculated on a dry weight basis, unless otherwise noted. Analyses noted as 'Performed in the laboratory' require immediate testing and should be performed in the field.

The following are standard abbreviations:

BQL - Below Quantifiable Limits
ND - None Detected
NG - No Growth of Colonies
NR - Not Requested
D - Indicates a dilution was required

CLIENT: Malcom Pirnie, Inc.
SAMPLE ID: SB-12 (2-6')
COLLECTION METHOD: Composite
COLLECTION DATE(S): 08/19/96 - 16:30
SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
AES SAMPLE ID: 62TM-1

PROJECT ID: 62TM

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Kerosene	ND	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #2	200	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #4	ND	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #6	ND	mg/kg	1.0	DOH 310-13 Modified
Diesel	ND	mg/kg	1.0	DOH 310-13 Modified
Gasoline	ND	mg/kg	---	DOH 310-13 Modified
Lubricating Oil	ND	mg/kg	---	DOH 310-13 Modified

CLIENT: Malcom Pirnie, Inc.
SAMPLE ID: SB-8 (6-10')
COLLECTION METHOD: Composite
COLLECTION DATE(S): 08/20/96 - 15:15
SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
AES SAMPLE ID: 62TM-2

PROJECT ID: 62TM

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Kerosene	ND	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #2	180	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #4	ND	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #6	ND	mg/kg	1.0	DOH 310-13 Modified
Diesel	ND	mg/kg	1.0	DOH 310-13 Modified
Gasoline	ND	mg/kg	---	DOH 310-13 Modified
Lubricating Oil	ND	mg/kg	---	DOH 310-13 Modified

CLIENT: Malcom Pirnie, Inc.
SAMPLE ID: SB-1 (12-14')
COLLECTION METHOD: Grab
COLLECTION DATE(S): 08/21/96 - 14:40
SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
AES SAMPLE ID: 62TM-3

PROJECT ID: 62TM

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Kerosene	ND	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #2	1000	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #4	ND	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #6	ND	mg/kg	1.0	DOH 310-13 Modified
Diesel	ND	mg/kg	1.0	DOH 310-13 Modified
Gasoline	ND	mg/kg	---	DOH 310-13 Modified
Lubricating Oil	ND	mg/kg	---	DOH 310-13 Modified

CLIENT: Malcom Pirnie, Inc.
SAMPLE ID: SB-17 (12-16')
COLLECTION METHOD: Grab
COLLECTION DATE(S): 08/22/96 - 12:30
SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
AES SAMPLE ID: 62TM-4

PROJECT ID: 62TM

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Kerosene	ND	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #2	ND	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #4	ND	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #6 *	ND	mg/kg	1.0	DOH 310-13 Modified
Diesel	ND	mg/kg	1.0	DOH 310-13 Modified
Gasoline	ND	mg/kg	---	DOH 310-13 Modified
Lubricating Oil	ND	mg/kg	---	DOH 310-13 Modified

* There is a pattern present which may be Fuel Oil #6, but it isn't quantifiable due to sample deterioration.

CLIENT: Malcom Pirnie, Inc.
SAMPLE ID: METHOD BLANK
COLLECTION METHOD:
COLLECTION DATE(S):
SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62TM

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Kerosene	ND	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #2	ND	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #4	ND	mg/kg	1.0	DOH 310-13 Modified
Fuel Oil #6	ND	mg/kg	1.0	DOH 310-13 Modified
Diesel	ND	mg/kg	1.0	DOH 310-13 Modified
Gasoline	ND	mg/kg	---	DOH 310-13 Modified
Lubricating Oil	ND	mg/kg	---	DOH 310-13 Modified

Sample Traceability Report

625 627M

[illegible]

Please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.



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TRUSCAN SOIL REMEDIATION

Signature: [Signature]

CONTAINER CLASSIFICATION	UNPRESERVED HNO ₃ H ₂ SO ₄ HCL NaOH VIAL (PRES.) VIAL (UNPRES.) TOTAL
--------------------------	---

MP
PROJECT I.D. #: C848-260
JOB CODE: ERJ5 627M

[illegible]

NOTE: Please indicate required analysis, and whom we may contact with questions, if you have not yet done so through your customer service representative.

1. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
	8/20/96	1900	Jannie K Kennedy
2. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
3. RELINQUISHED BY:	DATE	TIME	RECEIVED BY:

MALCOM PIRNIE, INC.

TRUSCON SOIL REMEDIATION/ PROJ: 0848-260

1205 SOUTH PARK AVENUE

SAMPLE DATE: 8/22/96

SAMPLES: SB-3, SB-17 (SOIL AND WATER)

Prepared By:

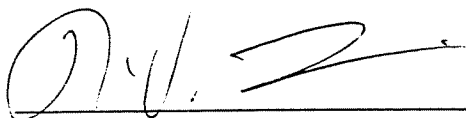


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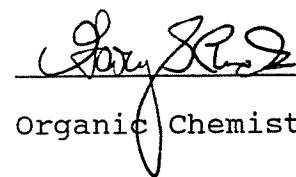
August 26, 1996
REF: ERJ562UY/OR
62UZ 62V1

QA/QC VERIFICATION FOR PROJECT ID 62UZ

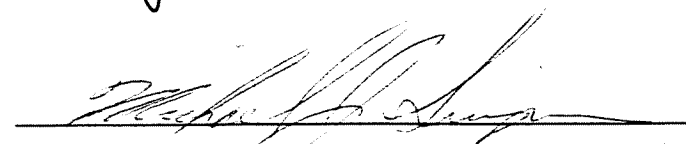
The following report, as well as the supporting data, have been carefully reviewed for accuracy, adherence to the cited methods, and completeness. All data contained in this report was generated in accordance with the AES Laboratory Quality Assurance/Quality Control Program.



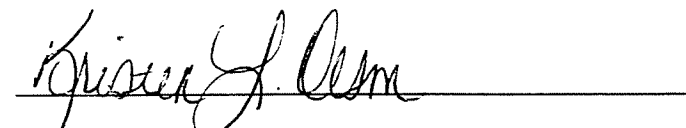
Metals Department



Organic Chemistry



Quality Control



Project Manager

All 'Total' results on soil matrices are calculated on a dry weight basis, unless otherwise noted. Analyses noted as 'Performed in the laboratory' require immediate testing and should be performed in the field.

The following are standard abbreviations:

BQL - Below Quantifiable Limits
ND - None Detected
NG - No Growth of Colonies
NR - Not Requested
D - Indicates a dilution was required

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-3 (8-10')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/22/96 - 0925
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UY-1

PROJECT ID: 62UY

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	130	SW 846 8021
Ethylbenzene	150 D	100	130	SW 846 8021
Toluene	ND	100	130	SW 846 8021
o-Xylene	ND	100	130	SW 846 8021
m/p-Xylene (++)	ND	100	130	SW 846 8021
Isopropylbenzene	ND	100	130	SW 846 8021
n-Propylbenzene	250 D	100	130	SW 846 8021
p-Isopropyltoluene	190 D	100	130	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	380 D	100	260	SW 846 8021
1,3,5-Trimethylbenzene	220 D	100	130	SW 846 8021
n-Butylbenzene	440 D	100	130	SW 846 8021
sec-Butylbenzene	400 D	100	130	SW 846 8021
Naphthalene	760 D	200	130	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	630	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-3 (8-10')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/22/96 - 0925
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UZ-1

PROJECT ID: 62UZ

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.

(++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-17 (12-16')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/22/96 - 1230
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UY-2

PROJECT ID: 62UY

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	110	SW 846 8021
Ethylbenzene	ND	100	110	SW 846 8021
Toluene	ND	100	110	SW 846 8021
o-Xylene	ND	100	110	SW 846 8021
m/p-Xylene (++)	ND	100	110	SW 846 8021
Isopropylbenzene	ND	100	110	SW 846 8021
n-Propylbenzene	ND	100	110	SW 846 8021
p-Isopropyltoluene	ND	100	110	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	220	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	110	SW 846 8021
n-Butylbenzene	150 D	100	110	SW 846 8021
sec-Butylbenzene	120 D	100	110	SW 846 8021
Naphthalene	510 D	200	110	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	530	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-17 (12-16')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/22/96 - 1230
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UZ-2

PROJECT ID: 62UZ

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-17 (16-18')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/22/96 - 1320
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UY-3

PROJECT ID: 62UY

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	120	SW 846 8021
Ethylbenzene	ND	100	120	SW 846 8021
Toluene	ND	100	120	SW 846 8021
o-Xylene	ND	100	120	SW 846 8021
m/p-Xylene (++)	ND	100	120	SW 846 8021
Isopropylbenzene	ND	100	120	SW 846 8021
n-Propylbenzene	ND	100	120	SW 846 8021
p-Isopropyltoluene	ND	100	120	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	240	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	120	SW 846 8021
n-Butylbenzene	ND	100	120	SW 846 8021
sec-Butylbenzene	120 D	100	120	SW 846 8021
Naphthalene	140 D	200	120	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	580	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-17 (16-18')
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/22/96 - 1320
 SAMPLE TYPE: Soil

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62UZ-3

PROJECT ID: 62UZ

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ... "considered acceptable for meeting the Guidance Value".

(++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: SB-17
 COLLECTION METHOD: Grab
 COLLECTION DATE(S): 08/22/96 - 1700
 SAMPLE TYPE: Water

AES CLIENT ID: ERJ2
 AES SAMPLE ID: 62V1-1

PROJECT ID: 62V1

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Benzene	ND	µg/L	2.00	SW 846 8021
Ethylbenzene	ND	µg/L	2.00	SW 846 8021
Toluene	ND	µg/L	2.00	SW 846 8021
o-Xylene	ND	µg/L	2.00	SW 846 8021
m/p-Xylene	ND	µg/L	2.00	SW 846 8021
Isopropylbenzene	ND	µg/L	2.00	SW 846 8021
n-Propylbenzene	ND	µg/L	2.00	SW 846 8021
p-Isopropyltoluene	ND	µg/L	2.00	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	µg/L	4.00	SW 846 8021
1,3,5-Trimethylbenzene	ND	µg/L	2.00	SW 846 8021
n-Butylbenzene	ND	µg/L	2.00	SW 846 8021
sec-Butylbenzene	ND	µg/L	2.00	SW 846 8021
Naphthalene	ND	µg/L	2.00	SW 846 8021
Anthracene	ND	µg/L	5.0	SW 846 8270
Fluorene	ND	µg/L	5.0	SW 846 8270
Phenanthrene	ND	µg/L	5.0	SW 846 8270
Pyrene	ND	µg/L	5.0	SW 846 8270
Acenaphthene	ND	µg/L	5.0	SW 846 8270
Benzo(a)anthracene	ND	µg/L	5.0	SW 846 8270
Fluoranthene	ND	µg/L	5.0	SW 846 8270
Benzo(b)fluoranthene	ND	µg/L	5.0	SW 846 8270
Benzo(k)fluoranthene	ND	µg/L	10	SW 846 8270
Chrysene	ND	µg/L	5.0	SW 846 8270
Benzo(a)pyrene	ND	µg/L	5.0	SW 846 8270
Benzo(g,h,i)perylene	ND	µg/L	10	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	µg/L	10	SW 846 8270
Dibenzo(a,h)anthracene	ND	µg/L	10	SW 846 8270
Kerosene	ND	mg/L	1.0	DOH 310-13
Fuel Oil #2	ND	mg/L	1.0	DOH 310-13

CLIENT: Malcom Pirnie, Inc.
SAMPLE ID: SB-17
COLLECTION METHOD: Grab
COLLECTION DATE(S): 08/22/96 - 1700
SAMPLE TYPE: Water

AES CLIENT ID: ERJ2
AES SAMPLE ID: 62V1-1

PROJECT ID: 62V1

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Fuel Oil #4	ND	mg/L	1.0	DOH 310-13
Fuel Oil #6	ND	mg/L	1.0	DOH 310-13
Diesel	ND	mg/L	1.0	DOH 310-13
Gasoline	ND	mg/L	---	DOH 310-13
Lubricating Oil	ND	mg/L	---	DOH 310-13

CLIENT: Malcom Pirnie, Inc.
SAMPLE ID: Trip Blank
COLLECTION METHOD: Grab
COLLECTION DATE(S): 08/22/96
SAMPLE TYPE: DI Water

AES CLIENT ID: ERJ2
AES SAMPLE ID: 62V1-2

PROJECT ID: 62V1

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Benzene	ND	µg/L	2.00	SW 846 8021
Ethylbenzene	ND	µg/L	2.00	SW 846 8021
Toluene	ND	µg/L	2.00	SW 846 8021
o-Xylene	ND	µg/L	2.00	SW 846 8021
m/p-Xylene	ND	µg/L	2.00	SW 846 8021
Isopropylbenzene	ND	µg/L	2.00	SW 846 8021
n-Propylbenzene	ND	µg/L	2.00	SW 846 8021
p-Isopropyltoluene	ND	µg/L	2.00	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	µg/L	4.00	SW 846 8021
1,3,5-Trimethylbenzene	ND	µg/L	2.00	SW 846 8021
n-Butylbenzene	ND	µg/L	2.00	SW 846 8021
sec-Butylbenzene	ND	µg/L	2.00	SW 846 8021
Naphthalene	ND	µg/L	2.00	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	µg/L	10	SW 846 8021

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: METHOD BLANK
 COLLECTION METHOD:
 COLLECTION DATE(S):
 SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62UY

STARS ALTERNATIVE PROCEDURE FOR GASOLINE CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-1)

Analytical Parameters	Analytical Results (ppb)	TCLP Alternate Guidance Value (ppb)	Detection Limit (ppb)	Method
Benzene	ND	14	2.00	SW 846 8021
Ethylbenzene	ND	100	2.00	SW 846 8021
Toluene	ND	100	2.00	SW 846 8021
o-Xylene	ND	100	2.00	SW 846 8021
m/p-Xylene (++)	ND	100	2.00	SW 846 8021
Isopropylbenzene	ND	100	2.00	SW 846 8021
n-Propylbenzene	ND	100	2.00	SW 846 8021
p-Isopropyltoluene	ND	100	2.00	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	100	4.00	SW 846 8021
1,3,5-Trimethylbenzene	ND	100	2.00	SW 846 8021
n-Butylbenzene	ND	100	2.00	SW 846 8021
sec-Butylbenzene	ND	100	2.00	SW 846 8021
Naphthalene	ND	200	2.00	SW 846 8021
Methyl t-butyl ether (MTBE)	ND	1000	10	SW 846 8021

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.
 (++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: METHOD BLANK
 COLLECTION METHOD:
 COLLECTION DATE(S):
 SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62UZ

STARS TCLP PROCEDURE FOR FUEL OIL (METHOD 8270 ONLY) CONTAMINATED SOIL
 See NYS DEC STARS Memo #1 - Page (B-2), (B-3)

Analytical Parameters	Analytical Results (ppb)	TCLP Extraction Guidance Value (ppb)	Detection Limit (ppb)	Method
Anthracene	ND	NA	0.020	SW 846 8270
Fluorene	ND	NA	0.020	SW 846 8270
Phenanthrene	ND	NA	0.020	SW 846 8270
Pyrene	ND	NA	0.020	SW 846 8270
Acenaphthene	ND	NA	0.020	SW 846 8270
Benzo(a)anthracene	ND	NA	0.020	SW 846 8270
Fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(b)fluoranthene	ND	NA	0.020	SW 846 8270
Benzo(k)fluoranthene	ND	NA	0.020	SW 846 8270
Chrysene	ND	NA	0.020	SW 846 8270
Benzo(a)pyrene	ND	NA	0.020	SW 846 8270
Benzo(g,h,i)perylene	ND	NA	0.020	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	NA	0.020	SW 846 8270
Dibenzo(a,h)anthracene	ND	NA	0.020	SW 846 8270

(+) The Detection Limit is ...'considered acceptable for meeting the Guidance Value'.

(++) m and p Xylene Isomers co-elute.

CLIENT: Malcom Pirnie, Inc.
 SAMPLE ID: METHOD BLANK
 COLLECTION METHOD:
 COLLECTION DATE(S):
 SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62V1

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Benzene	ND	µg/L	2.00	SW 846 8021
Ethylbenzene	ND	µg/L	2.00	SW 846 8021
Toluene	ND	µg/L	2.00	SW 846 8021
o-Xylene	ND	µg/L	2.00	SW 846 8021
m/p-Xylene	ND	µg/L	2.00	SW 846 8021
Isopropylbenzene	ND	µg/L	2.00	SW 846 8021
n-Propylbenzene	ND	µg/L	2.00	SW 846 8021
p-Isopropyltoluene	ND	µg/L	2.00	SW 846 8021
124-Trimethylbenzene/t-Butylbenzene	ND	µg/L	4.00	SW 846 8021
1,3,5-Trimethylbenzene	ND	µg/L	2.00	SW 846 8021
n-Butylbenzene	ND	µg/L	2.00	SW 846 8021
sec-Butylbenzene	ND	µg/L	2.00	SW 846 8021
Naphthalene	ND	µg/L	2.00	SW 846 8021
Anthracene	ND	µg/L	5.0	SW 846 8270
Fluorene	ND	µg/L	5.0	SW 846 8270
Phenanthrene	ND	µg/L	5.0	SW 846 8270
Pyrene	ND	µg/L	5.0	SW 846 8270
Acenaphthene	ND	µg/L	5.0	SW 846 8270
Benzo(a)anthracene	ND	µg/L	5.0	SW 846 8270
Fluoranthene	ND	µg/L	5.0	SW 846 8270
Benzo(b)fluoranthene	ND	µg/L	5.0	SW 846 8270
Benzo(k)fluoranthene	ND	µg/L	10	SW 846 8270
Chrysene	ND	µg/L	5.0	SW 846 8270
Benzo(a)pyrene	ND	µg/L	5.0	SW 846 8270
Benzo(g,h,i)perylene	ND	µg/L	10	SW 846 8270
Indeno(1,2,3-cd)pyrene	ND	µg/L	10	SW 846 8270
Dibenzo(a,h)anthracene	ND	µg/L	10	SW 846 8270
Kerosene	ND	mg/L	0.25	DOH 310-13
Fuel Oil #2	ND	mg/L	0.50	DOH 310-13

CLIENT: Malcom Pirnie, Inc.
SAMPLE ID: METHOD BLANK
COLLECTION METHOD:
COLLECTION DATE(S):
SAMPLE TYPE:

AES CLIENT ID: ERJ2

PROJECT ID: 62V1

Analytical Parameters	Analytical Results	Units	Practical Quantifiable Limit	Method
Fuel Oil #4	ND	mg/L	0.50	DOH 310-13
Fuel Oil #6	ND	mg/L	0.50	DOH 310-13
Diesel	ND	mg/L	0.50	DOH 310-13
Gasoline	ND	mg/L	---	DOH 310-13
Lubricating Oil	ND	mg/L	---	DOH 310-13

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62UY

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Benzene	SW 846 8021	---	Independent Standard	90
Ethylbenzene	SW 846 8021	---	Independent Standard	85
Toluene	SW 846 8021	---	Independent Standard	85
o-Xylene	SW 846 8021	---	Independent Standard	95
m/p-Xylene (++)	SW 846 8021	---	Independent Standard	86
n-Propylbenzene	SW 846 8021	---	Independent Standard	90
p-Isopropyltoluene	SW 846 8021	---	Independent Standard	90
124-Trimethylbenzene/t-Butylbenzene	SW 846 8021	---	Independent Standard	88
1,3,5-Trimethylbenzene	SW 846 8021	---	Independent Standard	89
n-Butylbenzene	SW 846 8021	---	Independent Standard	90
sec-Butylbenzene	SW 846 8021	---	Independent Standard	90
Naphthalene	SW 846 8021	---	Independent Standard	90

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62UZ

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Anthracene	SW 846 8270	---	Independent Standard	73
Fluorene	SW 846 8270	---	Independent Standard	75
Phenanthrene	SW 846 8270	---	Independent Standard	74
Pyrene	SW 846 8270	---	Independent Standard	77
Acenaphthene	SW 846 8270	---	Independent Standard	76
Benzo(a)anthracene	SW 846 8270	---	Independent Standard	78
Fluoranthene	SW 846 8270	---	Independent Standard	72
Benzo(b)fluoranthene	SW 846 8270	---	Independent Standard	81
Benzo(k)fluoranthene	SW 846 8270	---	Independent Standard	78
Chrysene	SW 846 8270	---	Independent Standard	77
Benzo(a)pyrene	SW 846 8270	---	Independent Standard	81
Benzo(g,h,i)perylene	SW 846 8270	---	Independent Standard	51
Indeno(1,2,3-cd)pyrene	SW 846 8270	---	Independent Standard	64
Dibenzo(a,h)anthracene	SW 846 8270	---	Independent Standard	61

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62V1

ACCURACY

Analytical Parameter(s)	Method	Sample ID	Type	Percent Recovery
Benzene	SW 846 8021	---	Independent Standard	90
Ethylbenzene	SW 846 8021	---	Independent Standard	85
Toluene	SW 846 8021	---	Independent Standard	85
o-Xylene	SW 846 8021	---	Independent Standard	95
m/p-Xylene	SW 846 8021	---	Independent Standard	86
n-Propylbenzene	SW 846 8021	---	Independent Standard	90
p-Isopropyltoluene	SW 846 8021	---	Independent Standard	90
124-Trimethylbenzene/t-Butylbenzene	SW 846 8021	---	Independent Standard	88
1,3,5-Trimethylbenzene	SW 846 8021	---	Independent Standard	89
n-Butylbenzene	SW 846 8021	---	Independent Standard	90
sec-Butylbenzene	SW 846 8021	---	Independent Standard	90
Naphthalene	SW 846 8021	---	Independent Standard	90
Anthracene	SW 846 8270	---	Independent Standard	73
Fluorene	SW 846 8270	---	Independent Standard	75
Phenanthrene	SW 846 8270	---	Independent Standard	74
Pyrene	SW 846 8270	---	Independent Standard	77
Acenaphthene	SW 846 8270	---	Independent Standard	76
Benzo(a)anthracene	SW 846 8270	---	Independent Standard	78
Fluoranthene	SW 846 8270	---	Independent Standard	72
Benzo(b)fluoranthene	SW 846 8270	---	Independent Standard	81
Benzo(k)fluoranthene	SW 846 8270	---	Independent Standard	78
Chrysene	SW 846 8270	---	Independent Standard	77
Benzo(a)pyrene	SW 846 8270	---	Independent Standard	81
Benzo(g,h,i)perylene	SW 846 8270	---	Independent Standard	51
Indeno(1,2,3-cd)pyrene	SW 846 8270	---	Independent Standard	64
Dibenzo(a,h)anthracene	SW 846 8270	---	Independent Standard	61

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
 PROJECT ID: 62UY

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62UY-1	80-118	76
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62UY-2	80-118	76
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	62UY-3	80-118	76
alpha,alpha,alpha-Trifluorotoluene	SW 846 8021	BLANK	80-118	76
1,4-Dichlorobutane	SW 846 8021	62UY-1	43-125	120
1,4-Dichlorobutane	SW 846 8021	62UY-2	43-125	125
1,4-Dichlorobutane	SW 846 8021	62UY-3	43-125	120
1,4-Dichlorobutane	SW 846 8021	BLANK	43-125	120

CLIENT: Malcom Pirnie, Inc.

AES CLIENT ID: ERJ2
PROJECT ID: 62UZ

ACCURACY - SURROGATE RECOVERIES

Analytical Parameter(s)	Method	Sample ID	Acceptable Range	Percent Recovery
Nitrobenzene-d5	SW 846 8270	62UZ-1	35-114	78
Nitrobenzene-d5	SW 846 8270	62UZ-2	35-114	95
Nitrobenzene-d5	SW 846 8270	62UZ-3	35-114	91
Nitrobenzene-d5	SW 846 8270	BLANK	35-114	97
2-Fluorobiphenyl	SW 846 8270	62UZ-1	43-116	90
2-Fluorobiphenyl	SW 846 8270	62UZ-2	43-116	86
2-Fluorobiphenyl	SW 846 8270	62UZ-3	43-116	86
2-Fluorobiphenyl	SW 846 8270	BLANK	43-116	95
Terphenyl-d4	SW 846 8270	62UZ-1	33-141	56
Terphenyl-d4	SW 846 8270	62UZ-2	33-141	53
Terphenyl-d4	SW 846 8270	62UZ-3	33-141	52
Terphenyl-d4	SW 846 8270	BLANK	33-141	95

Sample Traceability Report

ERT 6204

[illegible]

Please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

AES Job Code

AES Project Refernce

[illegible]

FRJ 62-47

[illegible]

Please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

Project Identification

ERJ 6261

please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

FRJ 62v1

[illegible]

Please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology

Project Identification

CRJ 62181

please note: Areas marked by a dash indicate that no sample preparation is required under the applied methodology.

APPENDIX C

**TRUSCON PROPERTY WORK PLAN
FOR
BENCH-SCALE SOIL BIOREMEDIATION STUDY**

APPENDIX C

**TRUSCON PROPERTY
WORK PLAN FOR
BENCH-SCALE SOIL BIOREMEDIATION STUDY**

STUDY OBJECTIVES

A bench-scale soil bioremediation study will be performed over the winter months. The overall objectives of this laboratory study are to illustrate the rate of bioremediation of petroleum hydrocarbon contaminants from the excavated/stockpiled soils and to demonstrate that the target cleanup concentration can be achieved. The study is designed to illustrate the impact of the variables of nutrient concentration, and microbe population on the rate of bioremediation. The study results should provide the information necessary to establish the most cost-effective approach for bioremediation of the soils to cleanup goals.

PROCEDURE

1. Sample Collection

- A. Obtain representative samples from the stockpile area.
- B. The samples will then be combined and thoroughly mixed in the field. This may entail breaking apart the bigger clods of soil with a spade or shovel. As soon as the material is sufficiently homogeneous, a representative sample will be collected and analyzed for the parameters identified in Table C-1 with the remainder returned bulk into pails. The pails will be packed full, thoroughly sealed, placed in a cooler with ice and transported to Malcolm Pirnie's Soils Testing Laboratory. If it is not possible to adequately mix the soil in the field, the material will be packed as tightly as possible into buckets for transportation to the lab. Following receipt at the lab, the material will be removed from the buckets for easier mixing and characterization. Six five-gallon pails of material will be sufficient to satisfy laboratory requirements.

TABLE C-1**LTV STEEL TRUSCON PROPERTY SOILS
BENCH-SCALE BIOREMEDIATION STUDY*****INITIAL SOIL CHARACTERIZATION PARAMETERS***

Test	USEPA Method
Total VOCs	8021
Total PAHs	8270
N, P	
pH	9040
Cation Exchange Capacity	9080
Total Organic Carbon	9060
Moisture Content	ASTM D2216
Particle Size Distribution	ASTM D422
Atterberg Limits	ASTM D4318
Contaminant-Specific Microbe Count	

2. *Sample Preparation/Conditioning*

- A. At the soils lab, following mixing, the soil will be split into half. One pile will be placed in 24 uncovered stainless pans. The remaining pile will be returned to the buckets for cool storage. Room temperature and relative humidity will be recorded periodically for the duration of the test. All of the pans will be maintained at a constant moisture content representing 50%-80% of field capacity and will be placed at room temperature inside a fume hood with a mechanical fan to circulate air across the samples to simulate field conditions. Each pan will be manually turned using a spatula once per week to simulate field tilling of the full-scale remediation plot for the duration of the test.
- B. Four pans of soil will be maintained under each of six differing conditions. The first set of four will be maintained as control samples. The second set will undergo nutrient addition with ammonium nitrogen and orthophosphate to achieve a 100:10:1 ratio of hydrocarbon/nitrogen/phosphorous. The next three sets will undergo nutrient addition with bioaugmentation using three different microbial addition products. The sixth set of pans will undergo nutrient addition and bioaugmentation and also be enhanced with a biosurfactant.

3. *Bioremediation Monitoring*

- A. Active bioremediation using manual turning of the samples will continue on the segregated material at ambient room temperature and on the control sample is for up to a six-month period. Samples will be collected for moisture content every other day over the duration of the study and the results will be used to maintain the moisture content at 60% field capacity ($\pm 10\%$). At the beginning of this bioremediation period, and each subsequent week, composite samples of the soil will be taken from each sample fraction plus the control sample. The first sample will be used to perform screening headspace analysis (using an HNu photoionization detector), as well as, moisture content determination. The second sample will be retained for quantitative analysis of N and P concentrations.
- B. PAHs are more difficult to bioremediate than the VOCs of concern. Therefore, samples for quantitative analysis for Total PAHs in soil will be collected monthly. When the PAH concentration reaches cleanup goals a sample for VOCs will be collected to confirm that VOCs have also reached cleanup goals. A contaminant-specific microbe count for each set of conditions will be performed at the mid-point and end of the study.

4. *Sampling and Analytical QA/QC*

A chain-of-custody record will be maintained from the time of sample collection. Immediately following sample collection, each sample container will be marked with the following information:

- Sample Code
- Project Number
- Date/Time
- Sample Type
- Sampler's Initials

The sample code will indicate the site location, media sampled, and sample station.

After sample identification information has been recorded, the sample will be prepared for shipment in accordance with ASTM D421 and hand-delivered to Malcolm Pirnie's Soils Testing Laboratory. Each sample label will be covered with waterproof clear plastic tape to preserve its integrity. Samples will be recorded and tracked under strict chain-of-custody protocols. In the field, each sample will be sealed and checked for proper labeling. Samples will then be packed into coolers with ice and shipped to the laboratory. The Chain-of-Custody form will be signed and dated by the person who collected the samples, the person the samples were relinquished to for transport to the laboratory, and the laboratory sample controller/custodian who receives the samples. Sample handling will be performed in accordance with ASTM D4220. Samples will be analyzed for physical characteristics in accordance with ASTM methodologies and contaminant characteristic in accordance with the methodologies described in Table C-1. One blind duplicate sample will be submitted with each round of samples submitted to the laboratory. Soil physical characteristics testing will be performed by Malcolm Pirnie's AASHTO-certified Soils Testing Laboratory. Analytical testing will be performed by General Testing.

APPENDIX D

DEVELOPER APPROVAL FOR USE OF ON-SITE FILL MATERIAL



A Western New York Based Corporation

Amended Sept. 8, 1996

Mr. David Sengbusch
Director of Development
920 City Hall
Buffalo, NY 14202

Mr. Stewart Levy
B.E.D.C.
620 Main St.
Buffalo, NY 14202

Dear Gentlemen:

Per the request of Mr. Dave Sengbusch, ATDM Corp. and our partners APD Inc. are advising you of our needs in respect to the intended purchase and financing of the former Republic Steel Site.

As you are both aware, the financing issue is moving forward positively. One element that is crucial to the banking institutions position on the project is the Environmental Status of the property.

- A "statement of indemnification" is necessary prior to September 10, 1996 to alleviate any obstacles in the financing process. This indemnification letter will be part of an official document to the banks on September 24, 1996.

This official statement is to be contractually binding upon closing, but effective no later than Nov. 1, 1996. The statement must also include or imply the following and pass the test for legalities:

1. That the property will be transferred upon closing, environmentally safe from all known hazards.
2. That the purchasers, its heirs, successors, or assignees, are indemnified from liability, financial or otherwise, on all matters of the environment of the land and current structure.
3. The statement must also "certify" that all disturbed areas of the land affected by remediation efforts are returned to its original compressed state able to accommodate the requirements for construction without further cost to us.
4. This "Certification" with warranties, must become an attached document signed by the remediator and/or contractor prior to any closing.

Sincerely,

Nelson G. Rauch
President, ATDM Corp.

cc: File

Alan DeLisle - Fax 854-0172

See Amendment (s) Attached

Amendment: Per the request of Mr. Sengbusch, ATDM Corp. is authorizing the use of existing soil combinations on the former parking lot of the Republic Steel to be use as environmentally clean fill for the remediated area (s) of the property. The amount authorized is the material existing 8' below and to the east of the floor height of the Truscon Building

Per this authorization, ATDM Corp. is requesting that this activity be performed under the following conditions:

A) That a uniform and rough grade condition exist throughout the area east of the "Truscon" building and 75'/100' of the boundary, parallel to South Park Avenue. Final grade depth should not exceed -8" (+/- 2") of the Truscon floor, which is documented to be 520.85" on the current topographic survey. It is assumed also, that clean material currently piled west of the building may want to be used. That can be taken to existing grade only.

B) Item 3 & 4 Applies to this amendment.

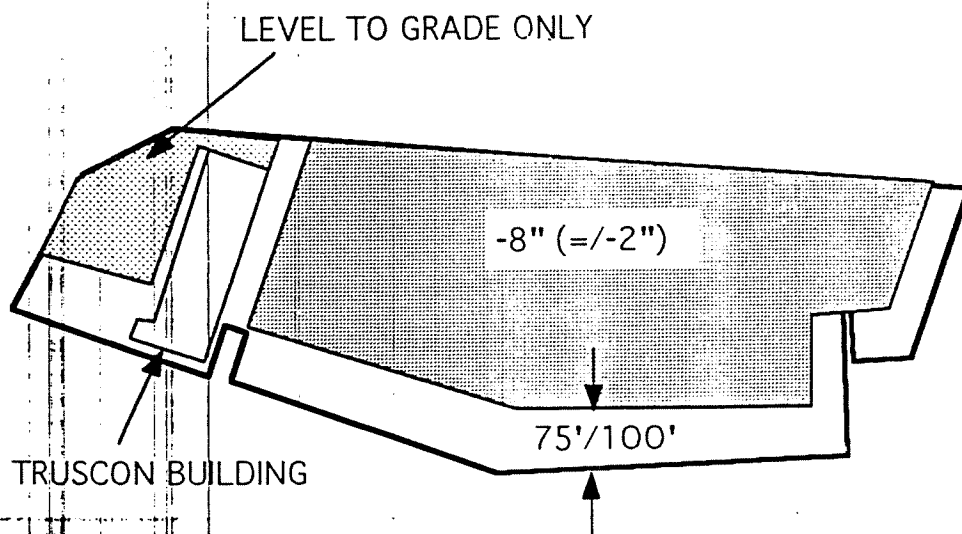
C) ATDM Corp., recommends that the City strongly consider that the current topographic survey be updated. ATDM Corp. is to be advised.

D) It is assumed, that during the releveled of the areas required to secure fill for the remediated areas, any items* uncovered in this process will be removed.

E) It is assumed, existing debris will be removed before process begins.

*Items: Meaning, items which would impede future construction.

Attachment: Property Layout



APPENDIX E

**AGREEMENTS BETWEEN THE CITY OF BUFFALO
AND
LTV STEEL REGARDING SITE REMEDIATION ACTIVITIES**



CITY OF BUFFALO
DEPARTMENT OF LAW

ANTHONY M. MASIELLO
MAYOR

EDWARD D. PEACE
CORPORATION COUNSEL

1100 CITY HALL
BUFFALO, NY 14202
(716) 851-4348
FAX: (716) 851-4105

September 18, 1996

Dale E. Papajcik, Senior Attorney
LTV Steel Company, Inc.
Law Department
LTV Steel Building
26 West Prospect Avenue
Cleveland, Ohio 44115-1069

Re: 1176 - 1184 South Park Avenue, Buffalo, New York

Dear Mr. Papajcik:

Since our discussion last week, Dave Sengbush has had several discussions with Wayne Gould concerning LTV Steel Company, Inc.'s ("LTV Steel") participation in the remediation of petroleum contaminated soil at 1176 - 1184 South Park Avenue, Buffalo, New York (the "Property"). The following is a summary of the agreement reached between Messrs. Sengbush and Gould:

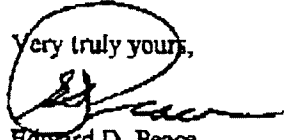
1. The City shall enter into a stipulation with the New York State Department of Environmental Conservation ("DEC") for the excavation and removal of petroleum contaminated soil and any underground storage tanks from the Property.
2. The City shall retain Malcolm Pirnie, Inc. to (a) excavate and remove the petroleum contaminated soil and any underground storage tanks from the Property, (b) transport the petroleum contaminated soil to site designated by LTV, (c) properly dispose of any underground storage tanks, (d) backfill all excavations with clean fill and (e) compact all excavated areas to grade and to its former degree of compression (the "City Contract"). The petroleum contaminated soil will become the property of LTV Steel when it is removed from the Property.
3. LTV Steel shall enter into a stipulation with the New York State Department of Environmental Conservation ("DEC") for the bioremediation of the petroleum contaminated soil removed from the Property.
4. LTV Steel shall retain Malcolm Pirnie, Inc. to bioremediate the petroleum contaminated soil removed from the Property at a site designated by LTV Steel (the "LTV Contract").
5. The City shall pay the first \$200,000 of costs incurred pursuant to the City Contract. LTV Steel shall then pay the remainder of the costs incurred pursuant to the City Contract, if any, up to a \$410,000 contribution by LTV Steel. It is anticipated that the total costs to be incurred under the City Contract should not exceed \$325,000.

Dale E. Papajcik, Senior Attorney
LTV Steel Company, Inc.
September 18, 1996
Page 2

6. LTV Steel shall pay the costs incurred pursuant to the LTV Contract; provided, however, that in the event the total expended by LTV Steel pursuant to the City Contract and the LTV Contract exceeds \$410,000, the City shall reimburse LTV Steel for 50% of the first \$150,000 of such excess and the City's obligation to LTV Steel pursuant to the LTV Contract shall not exceed \$75,000.
7. It is anticipated that DEC will issue a letter in the attached form when the City Contract is completed. It is also anticipated the DEC will issue a similar letter when the LTV Contract is completed.
8. LTV Steel's commitment is contingent on its receiving a letter from DEC approving LTV Steel's proposal to remediate wetlands adjacent to LTV Steel's Marilla Street landfill.
9. The City, LTV Steel and The LTV Corporation hereby mutually waive any claims any of them has or may have against the other, any of their directors, officers or employees and associated with, in any way, the Property other than claims associated with this letter.

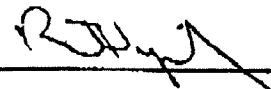
DPF
Please execute a copy of this letter and return it me by fax and return mail to indicate LTV Steel's acceptance of these terms.

Very truly yours,


Edward D. Peace
Corporation Counsel

Accepted and agreed this
18th day of September, 1996

LTV STEEL COMPANY, INC.

by 

EDP

cc: Alan H. DeLisle
David K. Sengbusch

Spills-18

CLOSEOUT - COMPLETE

Dear

Spill Number

_____ County

We have reviewed the analytical results for the excavation and/or groundwater samples. The results are below our soil guidance values - OR - below New York State groundwater standards. No further work will be required; the site is closed.

Your cooperation is appreciated. If you have any questions, please call _____ at (716) 851-7220.

Sincerely,

APPENDIX F
NYSDEC CONCEPT APPROVAL LETTERS



Michael D. Zagata
Commissioner

September 17, 1996

Mr. Kent Mcmanus
Malcolm Pirnie, Inc.
P.O. Box 1938
Buffalo, New York 14219

Dear Mr. Mcmanus:

RE: Spill #9513284
1205 South Park Avenue

Reference is made to the Remedial Plan Outline submitted on August 29, 1996 for the Truscon Site, 1205 South Park Avenue, Buffalo. This office has reviewed the outline and has found the conceptual approach to remediation of the petroleum contamination at the Truscon Site as presented in the outline to be acceptable. However, the following comments must be addressed in the detailed remediation work plan to be submitted to the Department:

- A copy of the permit/approval from the Buffalo Sewer Authority (BSA) to discharge groundwater to the BSA system must be provided.
- A copy of the agreement with the site developer relative to the removal of existing on site fill material for use as backfill must be provided.
- A copy of the agreement between the City of Buffalo, LTV and Malcolm Pirnie must be provided. Those portions of the agreement that deal with distribution of costs between the City and LTV can be redacted.
- The detailed boring logs from the 18 borings installed by Malcolm Pirnie must be submitted.

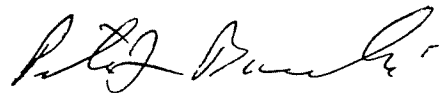
- The details of the sampling to be conducted along the sidewalls and bottom of the excavations must be provided. The STARS guidance document should be consulted to determine the appropriate sampling frequency.
- The disposition of railroad ties encountered in the excavations, and any other materials that will not be biotreated or used as backfill, must be identified.
- The method of managing shallow groundwater encountered in the tank area excavation must be identified.
- Surface material stripped from the site for backfill can only be used for backfill if it shows no visual staining and has no detectable petroleum odors.
- Regarding the use of excavated material tested to be below STARS guidance values for backfill, since the remedial plan does not call for the excavation of this material in the first place, there should be none of it available for backfill.
- The bioremediation treatability study work plan must be submitted.
- The Bioremediation Plan must also be submitted. This plan must address such issues as: monitoring during treatment, closure sampling, location of the biocell, specifics of the liner and stockpile cover, and the ultimate disposition of the bioremediated soil.
- Excavations along the Buffalo River must address the visible oil that was encountered at depth in boreholes SB-17 and SB-18.

Mr. Kent Mcma ;
September 17, 1996
Page 3

The detailed Remediation Work Plan will be attached to the Stipulation to be signed by the City of Buffalo and the Department for the cleanup of the subject site.

Should you have any questions regarding this matter, please contact me at (716) 851-7220.

Sincerely,



Peter J. Buechi, P.E.
Regional Environmental Remediation

Engineer

PJB:pw

cc: Mr. J. Ryan
Mr. T. Dieffenbach
Mr. J. Smith, City of Buffalo
Mr. D. Sengbush, City of Buffalo
Ms. S. Nasca, City of Buffalo



Michael D. Zagata
Commissioner

September 24, 1996

Mr. Kent Mcmanus
Malcolm Pirnie, Inc.
P.O. Box 1938
Buffalo, NY 14219

Dear Mr. Mcmanus:

RE: Spill # 951284
1205 South Park Avenue

This is in response to your request of this date for clarification of one comment in my letter of September 17, 1996 regarding the Remedial Plan Outline submitted for the subject site.

The sampling to be conducted along the bottom of the excavations is intended to provide documentation of the conditions in the excavations at the conclusion of the remedial action. The Department has concurred with the conceptual approach to remediation of the petroleum contamination at the site, i.e. excavation to the water table, based on the data provided by the City of Buffalo and Malcolm Pirnie.

I trust that the above clarifies the Department's request. Feel free to contact me at (716) 851-7220 if you have further questions.

Sincerely,

A handwritten signature in dark ink, appearing to read "Peter J. Buechi".

Peter J. Buechi, P.E.
Regional Environmental Remediation Engineer

PJB:pw

cc: Mr. J. Ryan
Mr. T. Dieffenbach
Mr. J. Smith, City of Buffalo
Mr. D. Sengbush, City of Buffalo

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