

**Applied GeoSystems**

43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

• FREMONT • COSTA MESA • SACRAMENTO • HOUSTON

June 28, 1988  
AGS 018039-2  
0628mmey

Ms. Mary Jo Meyers - BARNES  
Alameda County Health Department  
80 Swan Way No. 200  
Oakland, California 94621

Subject: Laboratory samples from tank pit excavations at  
ARCO Service Station No. 374, Telegraph and Alcatraz  
Avenues, Oakland, California.

Ms. Meyers:

Enclosed are copies of the laboratory Analysis Reports and Chain of Custody Records for soil samples collected from the tank-pit excavations at the above-referenced site. The approximate locations of the samples are shown on the Generalized Site Plan, Plate P-1. Applied GeoSystems will be preparing a formal report of the tank removal operations in the near future. Please call Kyle Christie of ARCO Products Company at (415) 571-2434 if you have any questions or comments.

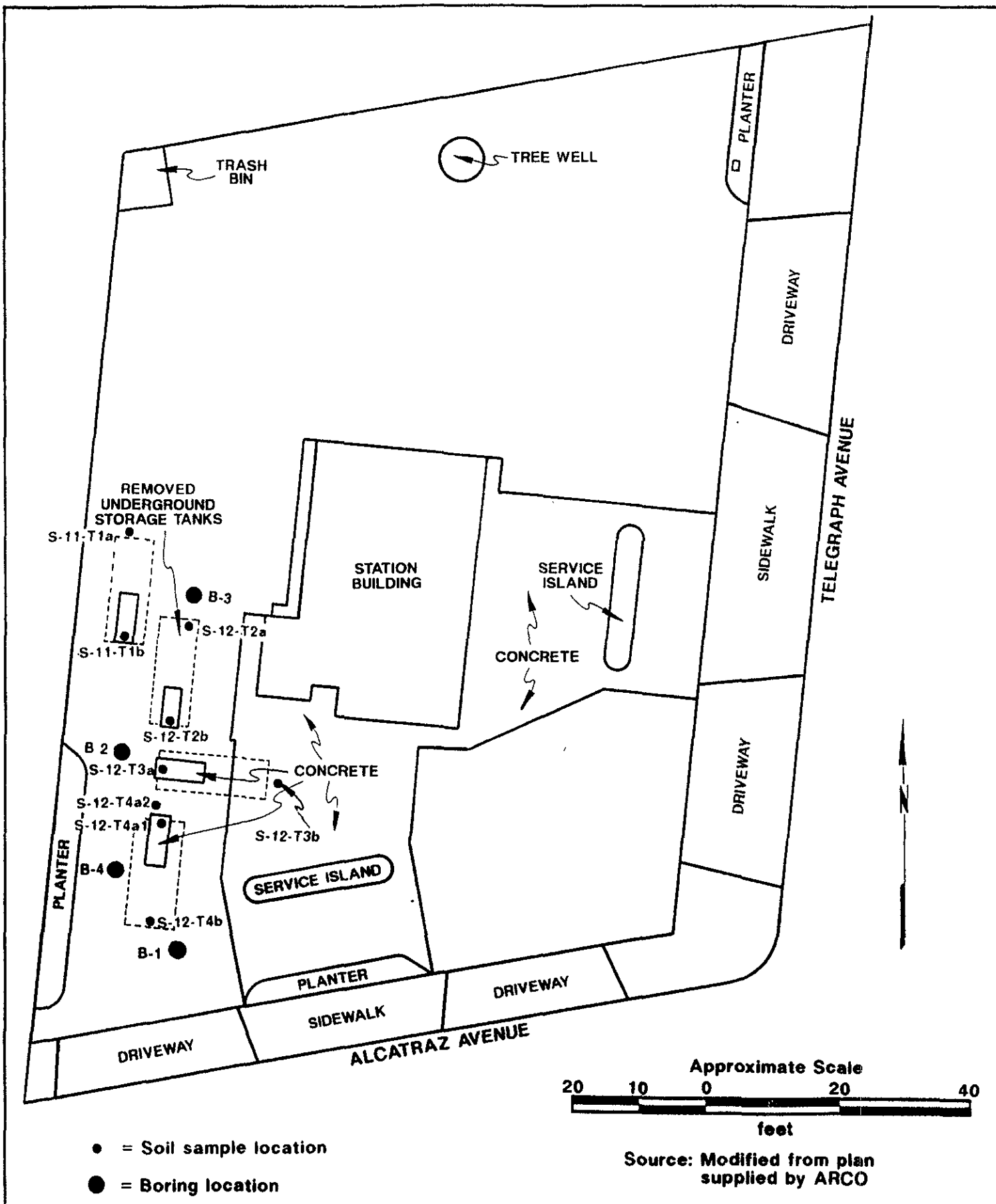
Sincerely,  
Applied GeoSystems

William R. Short  
Project Geologist

Enclosures

**RECEIVED**  
JUL 6 1988

HAZARDOUS MATERIALS/  
WASTE PROGRAM



PROJECT NO. 18039-2

**GENERALIZED SITE PLAN**  
**ARCO Station No. 374**  
**Telegraph and Alcatraz Avenues**  
**Oakland, California**

PLATE  
**P - 1**





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## ANALYSIS REPORT

Report Prepared for:  
Applied GeoSystems  
43255 Mission Blvd.  
Fremont, CA 94539  
Attention: William R. Short

0212lab.frm  
Date Received: 6-07-88  
Laboratory Number: 06025S01  
Project: 018039-2  
Sample: S-11-T1A  
Matrix: Soil

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline						NR
TPH as Gasoline	<u>399</u>		5		06-08-88	
TEH as Diesel						NR
Benzene	14.7		0.5		06-08-88	
Toluene	20.5		0.5		06-08-88	
Ethylbenzene	20.0		0.5		06-08-88	
Total Xylenes	91.9		0.5		06-08-88	

mg/kg = milligrams per kilogram = parts per million (ppm).

mg/L = milligrams per liter = ppm.

ND = Not detected. Compound(s) may be present at concentrations below the detection limit.

NR = Analysis not required.

### PROCEDURES

**TVH/BTEX**--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

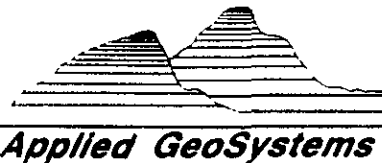
**TPH**--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

**TEH**--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

Tia Tran, Laboratory Supervisor

6-20-88

Date Reported



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## ANALYSIS REPORT

Report Prepared for: Applied GeoSystems  
 43255 Mission Blvd.  
 Fremont, CA 94539  
 Attention: William R. Short

Date Received: 6-07-88  
 Laboratory Number: 06025S02  
 Project: 018039-2  
 Sample: S-11-T1B  
 Matrix: Soil

0212lab.frm

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline						NR
TPH as Gasoline	8		2		06-08-88	
TEH as Diesel						NR
Benzene	2.57		0.05		06-08-88	
Toluene	0.39		0.05		06-08-88	
Ethylbenzene	0.74		0.05		06-08-88	
Total Xylenes	2.75		0.05		06-08-88	

mg/kg = milligrams per kilogram = parts per million (ppm).

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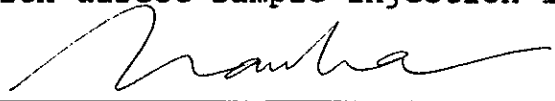
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**TPH**--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

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43255 Mission Blvd.  
Fremont, CA 94539  
Attention: William R. Short

0212lab.frm  
Date Received: 6-07-88  
Laboratory Number: 06025S03  
Project: 018039-2  
Sample: S-12-T2A  
Matrix: Soil

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline						NR
TPH as Gasoline	4		2		06-08-88	
TEH as Diesel						NR
Benzene	0.35		0.05		06-08-88	
Toluene	0.38		0.05		06-08-88	
Ethylbenzene	0.10		0.05		06-08-88	
Total Xylenes	0.70		0.05		06-08-88	

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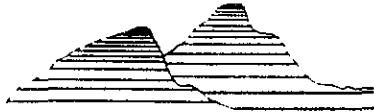
**TPH**--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

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## ANALYSIS REPORT

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Report Prepared for:  
Applied GeoSystems  
43255 Mission Blvd.  
Fremont, CA 94539  
Attention: William R. Short

Date Received: 6-07-88  
Laboratory Number: 06025S04  
Project: 018039-2  
Sample: S-12-T2B  
Matrix: Soil

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline						NR
TPH as Gasoline	75		2		06-08-88	
TEH as Diesel						NR
Benzene	0.91		0.05		06-08-88	
Toluene	3.61		0.05		06-08-88	
Ethylbenzene	1.77		0.05		06-08-88	
Total Xylenes	11.92		0.05		06-08-88	

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### PROCEDURES

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Report Prepared for:  
Applied GeoSystems  
43255 Mission Blvd.  
Fremont, CA 94539  
Attention: William R. Short

0212lab.frm  
Date Received: 6-09-88  
Laboratory Number: 06032W01  
Project: 018039-2  
Sample: W-13-PIT  
Matrix: Water

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline						NR
TPH as Gasoline		3.6		0.1	06-09-88	
TEH as Diesel						NR
Benzene		0.738		0.005	06-09-88	
Toluene		0.154		0.005	06-09-88	
Ethylbenzene		0.038		0.005	06-09-88	
Total Xylenes		0.566		0.005	06-09-88	

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mg/L = milligrams per liter = ppm.

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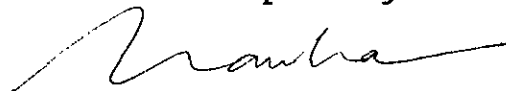
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Attention: William R. Short

0212lab.frm  
Date Received: 6-09-88  
Laboratory Number: 06031S01  
Project: 018039-2  
Sample: S-12-T3A  
Matrix: Soil

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline						NR
TPH as Gasoline	4		2		06-09-88	
TEH as Diesel						NR
Benzene	2.54		0.05		06-09-88	
Toluene	ND		0.05		06-09-88	
Ethylbenzene	0.13		0.05		06-09-88	
Total Xylenes	0.13		0.05		06-09-88	

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mg/L = milligrams per liter = ppm.

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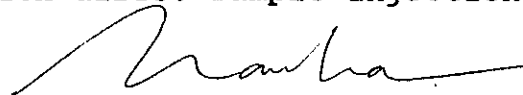
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### PROCEDURES

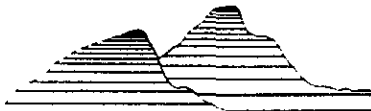
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## ANALYSIS REPORT

0212lab.frm

Report Prepared for:  
Applied GeoSystems  
43255 Mission Blvd.  
Fremont, CA 94539  
Attention: William R. Short

Date Received: 6-09-88  
Laboratory Number: 06031S02  
Project: 018039-2  
Sample: S-12-T3B  
Matrix: Soil

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline						NR
TPH as Gasoline	ND		2		06-09-88	
TEH as Diesel						NR
Benzene	ND		0.05		06-09-88	
Toluene	ND		0.05		06-09-88	
Ethylbenzene	ND		0.05		06-09-88	
Total Xylenes	ND		0.05		06-09-88	

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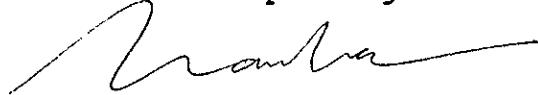
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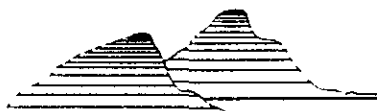
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43255 Mission Blvd.  
Fremont, CA 94539  
Attention: William R. Short

0212lab.frm  
Date Received: 6-09-88  
Laboratory Number: 06031S03  
Project: 018039-2  
Sample: S-12-T4A  
Matrix: Soil

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline	1097				06-09-88	NR
TPH as Gasoline			20			NR
TEH as Diesel						
Benzene	16.3		0.5		06-09-88	
Toluene	81.6		0.5		06-09-88	
Ethylbenzene	34.5		0.5		06-09-88	
Total Xylenes	188.2		0.5		06-09-88	

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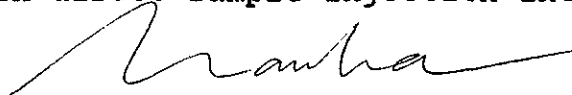
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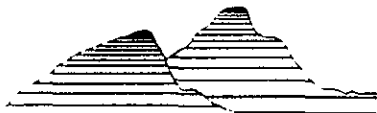
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Attention: William R. Short

Date Received: 6-09-88  
Laboratory Number: 06031S04  
Project: 018039-2  
Sample: S-12-T4B  
Matrix: Soil

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline						NR
TPH as Gasoline	3		2		06-09-88	
TEH as Diesel						NR
Benzene	0.76		0.05		06-09-88	
Toluene	ND		0.05		06-09-88	
Ethylbenzene	ND		0.05		06-09-88	
Total Xylenes	ND		0.05		06-09-88	

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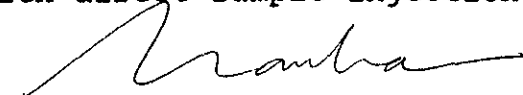
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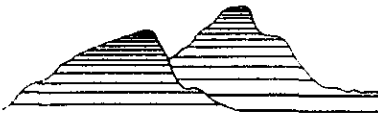
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43255 Mission Blvd.  
Fremont, CA 94539  
Attention: William R. Short

0212lab.frm  
Date Received: 6-10-88  
Laboratory Number: 06038S01  
Project: 018039-2  
Sample: S-12-T4A2  
Matrix: Soil

Parameter	Result		Detection Limit		Date Analyzed	Notes
	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)		
TVH as Gasoline						NR
TPH as Gasoline	795		20		06-10-88	
TEH as Diesel						NR
Benzene	23.1		0.5		06-10-88	
Toluene	67.1		0.5		06-10-88	
Ethylbenzene	24.9		0.5		06-10-88	
Total Xylenes	130.9		0.5		06-10-88	

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### PROCEDURES

**TVH/BTEX**--Total volatile hydrocarbons (TVH) and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) are measured by extraction according to EPA Method 5030 followed by analysis by a EPA Method 8020/602 (modified for TVH) which uses a gas chromatograph (GC) equipped with a photo-ionization detector (PID) and a flame-ionization detector (FID) in series. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

**TPH**--Total petroleum hydrocarbons (low-to-medium boiling points) are measured by extraction according to EPA Method 5030 followed by analysis by a modified EPA Method 8015 which uses a GC equipped with an FID. Soil extracts and water samples are subjected to purge-and-trap introduction into the GC.

**TEH**--Total extractable hydrocarbons (high boiling points) are measured by extraction according to EPA Method 3550 for soils or EPA Method 3510 for water followed by a modified EPA Method 8015 with direct sample injection into a GC equipped with an FID.

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