



CORE LABORATORIES

CORE LABORATORIES ANALYTICAL REPORT

Job Number: 931487
Prepared For:

AMOCO PRODUCTION COMPANY
MIKE GREENWOOD
P.O. BOX 189
SWEENEY, TX 77480

Date: 06/25/93

soil analysis

Chip Meador
Signature

6/25/93
Date:

Name: Chip Meador

CORE LABORATORIES
1733 NORTH PADRE ISLAND DRIVE
CORPUS CHRISTI, TX 78408

Title: Regional Manager



JOB NUMBER: 931487

COMPANY NAME	COMPANY MAILING ADDRESS	COMPANY CITY	STATE	COMPANY ZIP CODE
AMOCO PRODUCTION COMPANY MIKE GREENWOOD	P.O. BOX 189	SWEENEY	TX	77480

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CORE LABORATORIES

LABORATORY TESTS RESULTS 06/25/93

JOB NUMBER: 931487

CUSTOMER: AMOCO PRODUCTION COMPANY

ATTN: MIKE GREENWOOD

CLIENT I.D.: APC-SBU SB #3 5 FT

DATE SAMPLED: 06/16/93

TIME SAMPLED:

WORK DESCRIPTION: APC-SBU SB #3 5 FT

LABORATORY I.D.: 931487-0001

DATE RECEIVED: 06/17/93

TIME RECEIVED: 11:15

REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Volatile Organics, High Level		*1		EPA SW-846 8020	06/22/93	HJK
Benzene-Soil	92500	2500	ug/kg	EPA SW-846 8020		
Toluene-Soil	40000	2500	ug/kg	EPA SW-846 8020		
Ethylbenzene-Soil	141000	2500	ug/kg	EPA SW-846 8020		
Xylenes-Soil	324000	2500	ug/kg	EPA SW-846 8020		
Extraction - BTEX (Soil/Solids)	Completed			EPA SW-846 5030	06/22/93	HJK
Total Petroleum Hydrocarbons	37600	400	mg/kg	EPA 418.1/3550	06/18/93	RAD

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LABORATORY TESTS RESULTS 06/25/93

JOB NUMBER: 931487

CUSTOMER: AMOCO PRODUCTION COMPANY

ATTN: MIKE GREENWOOD

CLIENT I.D.: APC-SBU SB #3 2 FT
DATE SAMPLED: 06/16/93
TIME SAMPLED: 15:05
WORK DESCRIPTION: APC-SBU SB #3 2 FT

LABORATORY I.D.: 931487-0002
DATE RECEIVED: 06/17/93
TIME RECEIVED: 11:15
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Volatile Organics, High Level		*1		EPA SW-846 8020	06/22/93	HJK
Benzene-Soil	176000	2500	ug/kg	EPA SW-846 8020		
Toluene-Soil	71200	2500	ug/kg	EPA SW-846 8020		
Ethylbenzene-Soil	245000	2500	ug/kg	EPA SW-846 8020		
Xylenes-Soil	575000	2500	ug/kg	EPA SW-846 8020		
Extraction - BTEX (Soil/Solids)	Completed			EPA SW-846 5030	06/22/93	HJK
Total Petroleum Hydrocarbons	48900	400	mg/kg	EPA 418.1/3550	06/18/93	RAD

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LABORATORY TESTS RESULTS 06/25/93

JOB NUMBER: 931487

CUSTOMER: AMOCO PRODUCTION COMPANY

ATTN: MIKE GREENWOOD

CLIENT I.D.: APC-SBU HP #5 SOIL 36"
DATE SAMPLED: 06/17/93
TIME SAMPLED: 08:15
WORK DESCRIPTION: APC-SBU HP #5 SOIL 36"

LABORATORY I.D.: 931487-0003
DATE RECEIVED: 06/17/93
TIME RECEIVED: 11:15
REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Volatile Organics, High Level		*1		EPA SW-846 8020	06/22/93	HJK
Benzene-Soil	<100	100	ug/kg	EPA SW-846 8020		
Toluene-Soil	<100	100	ug/kg	EPA SW-846 8020		
Ethylbenzene-Soil	<100	100	ug/kg	EPA SW-846 8020		
Xylenes-Soil	<100	100	ug/kg	EPA SW-846 8020		
Extraction - BTEX (Soil/Solids)	Completed			EPA SW-846 5030	06/22/93	HJK
Total Petroleum Hydrocarbons	45300	400	mg/kg	EPA 418.1/3550	06/18/93	RAD

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LABORATORY TESTS RESULTS

06/25/93

JOB NUMBER: 931487

CUSTOMER: AMOCO PRODUCTION COMPANY

ATTN: MIKE GREENWOOD

CLIENT I.D.: APC-SBU HP #4 SOIL 36"

LABORATORY I.D.: 931487-0004

DATE SAMPLED: 06/17/93

DATE RECEIVED: 06/17/93

TIME SAMPLED: 07:30

TIME RECEIVED: 11:15

WORK DESCRIPTION: APC-SBU HP #4 SOIL 36"

REMARKS:

TEST DESCRIPTION	FINAL RESULT	LIMITS/*DILUTION	UNITS OF MEASURE	TEST METHOD	DATE	TECHN
Volatile Organics, High Level		*1		EPA SW-846 8020	06/22/93	HJK
Benzene-Soil	88800	2500	ug/kg	EPA SW-846 8020		
Toluene-Soil	62500	2500	ug/kg	EPA SW-846 8020		
Ethylbenzene-Soil	233000	2500	ug/kg	EPA SW-846 8020		
Xylenes-Soil	496000	2500	ug/kg	EPA SW-846 8020		
Extraction - BTEX (Soil/Solids)	Completed			EPA SW-846 5030	06/22/93	HJK
Total Petroleum Hydrocarbons	32	10	mg/kg	EPA 418.1/3550	06/18/93	RAD

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CORE LABORATORIES

QUALITY ASSURANCE REPORT 06/25/93

JOB NUMBER: 931487

CUSTOMER: AMOCO PRODUCTION COMPANY

ATTN: MIKE GREENWOOD

ANALYSIS				DUPLICATES		REFERENCE STANDARDS		MATRIX SPIKES		
ANALYSIS TYPE	ANALYSIS SUB-TYPE	ANALYSIS I.D.	ANALYZED VALUE (A)	DUPLICATE VALUE (B)	RPD or (A-B)	TRUE VALUE	PERCENT RECOVERY	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY
PARAMETER: Total Petroleum Hydrocarbons				DATE/TIME ANALYZED: 06/18/93 14:00				QC BATCH NUMBER: 941742		
REPORTING LIMIT/DF: 10 UNITS: mg/kg				METHOD REFERENCE : EPA 418.1/3550				TECHNICIAN: RAD		
BLANK	MB	Freon	<10							
STANDARD	LCS	281.49.33	94.8			100	95			
STANDARD	LCS-1	208.98.20	89.8			98.8	91			
STANDARD	LCS-2	208.98.20	93.1			98.8	94			
STANDARD	LCS-3	208.98.20	94.8			98.8	96			
SPIKE	MS	931313-0	198					<10	200	99
SPIKE	MS	931444-0	198					<10	200	99
SPIKE	MS	931467-2	205					17	200	94
SPIKE	MS	931474-1	8770					6850	2000	96
DUPLICATE	MD	931313-0	<10	<10	NC					
DUPLICATE	MD	931444-0	<10	<10	NC					
DUPLICATE	MD	931467-2	17	16	1					
DUPLICATE	MD	931474-1	6850	6780	1					

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QUALITY ASSURANCE REPORT 06/25/93

JOB NUMBER: 931487

CUSTOMER: AMOCO PRODUCTION COMPANY

ATTN: MIKE GREENWOOD

BTEX (Soil)

DATE ANALYZED: 06/22/93 TIME ANALYZED: 13:35 METHOD: EPA SW-846 8020

QC NUMBER: 941925

REFERENCE STANDARDS

TEST DESCRIPTION	ANALYSIS SUB-TYPE	ANALYSIS I. D.	DILUTION FACTOR	ANALYZED VALUE	TRUE VALUE	PERCENT RECOVERY	DETECTION LIMITS	UNITS OF MEASURE
Benzene-Soil	RS	B.285.32.2	1	44	40	110	10	ug/kg
Toluene-Soil	RS	B.285.32.2	1	40	40	100	10	ug/kg
Ethylbenzene-Soil	RS	B.285.32.2	1	39	40	98	10	ug/kg
Xylenes-Soil	RS	B.285.32.2	1	118	120	98	10	ug/kg
4-Bromofluorobenzene	RS	B.285.32.1	1	2490	2500	100	100	ug/kg

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QUALITY ASSURANCE REPORT 06/25/93

JOB NUMBER: 931487

CUSTOMER: AMOCO PRODUCTION COMPANY

ATTN: MIKE GREENWOOD

BTEX (Soil)

DATE ANALYZED: 06/22/93

TIME ANALYZED: 13:35

METHOD: EPA SW-846 8020

QC NUMBER: 941925

MATRIX SPIKES

TEST DESCRIPTION	ANALYSIS SUB-TYPE	ANALYSIS I. D.	DILUTION FACTOR	ANALYZED VALUE	ORIGINAL VALUE	SPIKE ADDED	PERCENT RECOVERY	DETECTION LIMITS	UNITS OF MEASURE
Benzene-Soil	MS	931487-3	1	2560	0	2500	102	10	ug/kg
Toluene-Soil	MS	931487-3	1	2400	0	2500	96	10	ug/kg
Ethylbenzene-Soil	MS	931487-3	1	2410	0	2500	96	10	ug/kg
Xylenes-Soil	MS	931487-3	1	7380	0	7500	98	10	ug/kg
4-Bromofluorobenzene	MS	931487-3	1	2010	0	2500	80	100	ug/kg

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CORE LABORATORIES

QUALITY ASSURANCE FOOTER 06/25/93

Standard Methods for the Examination of Water and Wastewater, 17th Ed. APHA, AWWA, WPCF.
USEPA SW-846 3rd. Edition, Test Methods for the Evaluation of Solid Waste
EPA-600/4-79-020, Methods for the Analysis of Water and Wastes, March 1983
Federal Register, Friday, October 26, 1984 (40 CFR Part 136).
EPA-600/2-78-054, Field and Laboratory Methods Applicable to Overburdens and Minesoils.

Quality control acceptance criteria are method dependent.
GCMS tuning criteria meet EPA CLP Statement of Work OLM01.0.
All data reported on sample "as received" unless noted.

NC = Not Calculated due to value at or below detection limit.

NOTE: Data in QA report may differ from final results due to digestion and/or dilution of sample into analytical range.

The "TIME ANALYZED" in the QA Report refers to the start time of the analytical batch which may not reflect the actual time of each analysis. The "DATE ANALYZED" is the actual date of analysis.

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QC SAMPLE IDENTIFICATION

1. BLANKS	Method or Method / Type	MB or MB / type*
	Reagent	RB
	Initial Calibration	ICB
	Continuing Calibration	CCB
	Storage	SB
2. STANDARDS	Laboratory Control	LCS
	Reference	RS
	Initial Calibration	ICV
	Continuing Calibration	CCV
3. SPIKES	Matrix	MS
	Blank	BS
	Post Digestion Spike	PDS
	Matrix Spike Duplicate	MSD
4. DUPLICATES	Matrix	MD
	Post Digestion Duplicate	PDD

* In the event that several different method blanks are analyzed, the blank type will be designated ZHE, TCLP, 3010, 3050, etc.

Subcontracted Analysis Codes

Anaheim	*AN
Aurora	*AU
Casper	*CA
Houston	*HP
Lake Charles	*LC
Long Beach	*LB
Other Laboratories	*XX

* The asterisk in the "TECHN" column signifies that the analysis was performed by a subcontract laboratory.



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Analysis Request and Chain of Custody Record

White - Return With Results Of Analysis

