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REPORTS

DATE:

OCT 1995

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Remediation Systems Operations
1995 Third Quarterly Report

Amoco Pipeline Station
Artesia, New Mexico

RECEIVED
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Environmental Bureau
Oil Conservation Division

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Project 2775.00-02

October 26, 1995

Clayton Mittelhauser

Clayton
ENVIRONMENTAL
CONSULTANTS

TABLE OF CONTENTS

1.0 INTRODUCTION

This report summarizes the results of the remediation system operations for the period of July 1995 through September 1995, plus additional results received in October 1995.

The primary objectives of the remediation system continue to have been met since the system installation, namely:

- Approximately 101 gallons of product have been recovered.
- No benzene, ethylbenzene, toluene, and xylene (BETX) or free product has been observed in the downgradient wells.
- The air stripper is operating at greater than 99% efficiency.

Installation of a prefilter and sequestering agent during the first half of April reduced the maintenance requirements of the system; however, fouling of the air stripper unit with calcium carbonate continues to create operational difficulties. Maintenance of the air stripper system discharge pump, caused by buildup of the calcium carbonate, resulted in system shutdowns on three occasions during third quarter operations. Discharge pump maintenance issues included a failed pump shaft seal, a failed pump head seal, and a seized pump head which resulted in a burned out pump motor.

Groundwater quality samples were taken in September from the west sump of the interception trench. Data from the water quality sampling is currently being used to specify a sequestering agent for the groundwater treatment system. While the installation of the Scaltec™ has reduced the amount of calcium carbonate precipitation, additional measures are under consideration to improve system performance and reduce maintenance requirements.

Impacted soils in the treatment system berm area from the July product recovery tank release (discussed in the Remediations Systems Operations 1995 Second Quarterly Report) were placed in the landfarm area for treatment. Clean backfill was placed in the excavated areas. A high level shut-off switch was installed in the product recovery tank to eliminate the possibility of future releases. The high level shut off switch is designed to shut down the recovery pumps in the interception trench upon activation.

Damage to the interception trench diversion berm and recovery sump areas was repaired during the third quarter. Another flood event in Scoggin Draw overtopped the diversion berm in early September, necessitating additional repairs to the diversion berm.

System maintenance was taken over by Sweatt Construction Company (Sweatt) in late August, upon receipt of the proper OSHA training and certifications. Sweatt assisted Mittelhauser Corporation (Mittelhauser) in the installation of the remediation system and is intimately familiar with the operation of the system. Utilization of Sweatt for routine maintenance should significantly reduce the number of problems encountered during future operation.

2.0 LABORATORY RESULTS

2.1 MONTHLY BETX RESULTS FOR THE INFLUENT AND EFFLUENT TO THE AIR STRIPPER

BETX results for the influent to the air stripper and the effluent from the air stripper are presented in Table 1. All Figures and Tables are presented at the end of the text before the Appendices. Analytical results for the July sampling event were included in the Remediation Systems Operations 1995 Second Quarterly Report. Analytical results for the samples taken on October 12, 1995 are included in Appendix A of this report. Note that all effluent results meet the regulatory requirements and demonstrate that the system is performing as designed.

Sampling results from the August sampling event are not reported since unexpected high levels of calcium carbonate produced unrepresentative results. We are now using inspection sheets, that will be filled out twice per week by Sweatt, to alert us in advance of potential operational problems. In September, the system was shut down due to failure of the discharge pump, as stated in the introduction. Also, as stated earlier, we are investigating new systems to reduce or eliminate the calcium carbonate problem.

Based on the results shown in Table 1 the average removal efficiencies of the air stripper have been:

Benzene	99.9%
Ethylbenzene	99.6%
Toluene	99.7%
Xylene	99.7%

2.2 QUARTERLY BETX RESULTS FOR MONITORING WELLS WITH NO FREE PRODUCT

The quarterly BETX results for monitoring wells which did not contain free product are presented in Table 2. The analytical results are presented in Appendix A for the samples taken on October 12, 1995. Results for samples taken on November 25 and December 28 1994 were provided in the Interception Trench System Installation Report. Results for samples taken on February 16, 1995 were provided in the Remediation Systems Operations Quarterly Report, dated May 1995. Results for samples taken on June 16, 1995 were provided in the Remediation Systems Operations 1995 Second Quarterly Report, dated August 1995.

The two monitoring wells south of the interception trench (monitoring wells 11 and 14) continue to show no indication of free product or BETX.

2.3 OTHER LABORATORY RESULTS

Due to the fouling problems encountered, additional water quality analyses were performed on the influent (from the west sump) to the air stripper. These results are included in Appendix A. The results are being used to evaluate alternate systems to reduce the calcium carbonate problem.

3.0 PRODUCT THICKNESS

Product thickness measurements were taken in the monitoring wells during the October sampling event. Table 3 contains product thickness information. The free product thickness map is shown in Figure 1. The product thickness map from the June sampling event is included as Figure 2, and the map from February is included as Figure 3 for comparison. Monitoring well MW-10 is showing a downward trend in product thickness levels from the June sampling event. Monitoring well MW-2 is showing a marked increase in product level thickness. A total product thickness of 4.17 feet was observed during the October sampling event, compared with 0.82 feet total product thickness measurement during the June sampling event. A product bail down/recovery test is scheduled for November. Once initial water and product levels have been recorded for each monitoring well, product will removed from the monitoring wells. Product/water levels in each well will be taken periodically over the next quarter.

4.0 FLUIDS PUMPED

During the Third quarter of operation, it is estimated that the separation and treatment system recovered, treated, and discharged approximately 17,000 gallons of water. Scale buildup in the flowmeter vane due to the excessively high alkalinity and TDS values of the groundwater continues to create operational problems. We are currently investigating additional methods over and above installation of the Scaltec™ System to reduce this problem. As a result, exact discharge values for the third quarter are unavailable.

Free product recovery by the separation and treatment system is estimated at 1 gallon for the third quarter. The amount recovered is based on product level measurements taken in the product recovery tank. Product recovery enhancements will be pursued based on the results of the product bail down tests.

5.0 SOIL REMEDIATION

The soils were disked on the 5th of July. All samples were taken approximately half way through the depth of the disked area. Samples of soils were taken on July 28, 1995. The results are contained in Appendix B and summarized below:

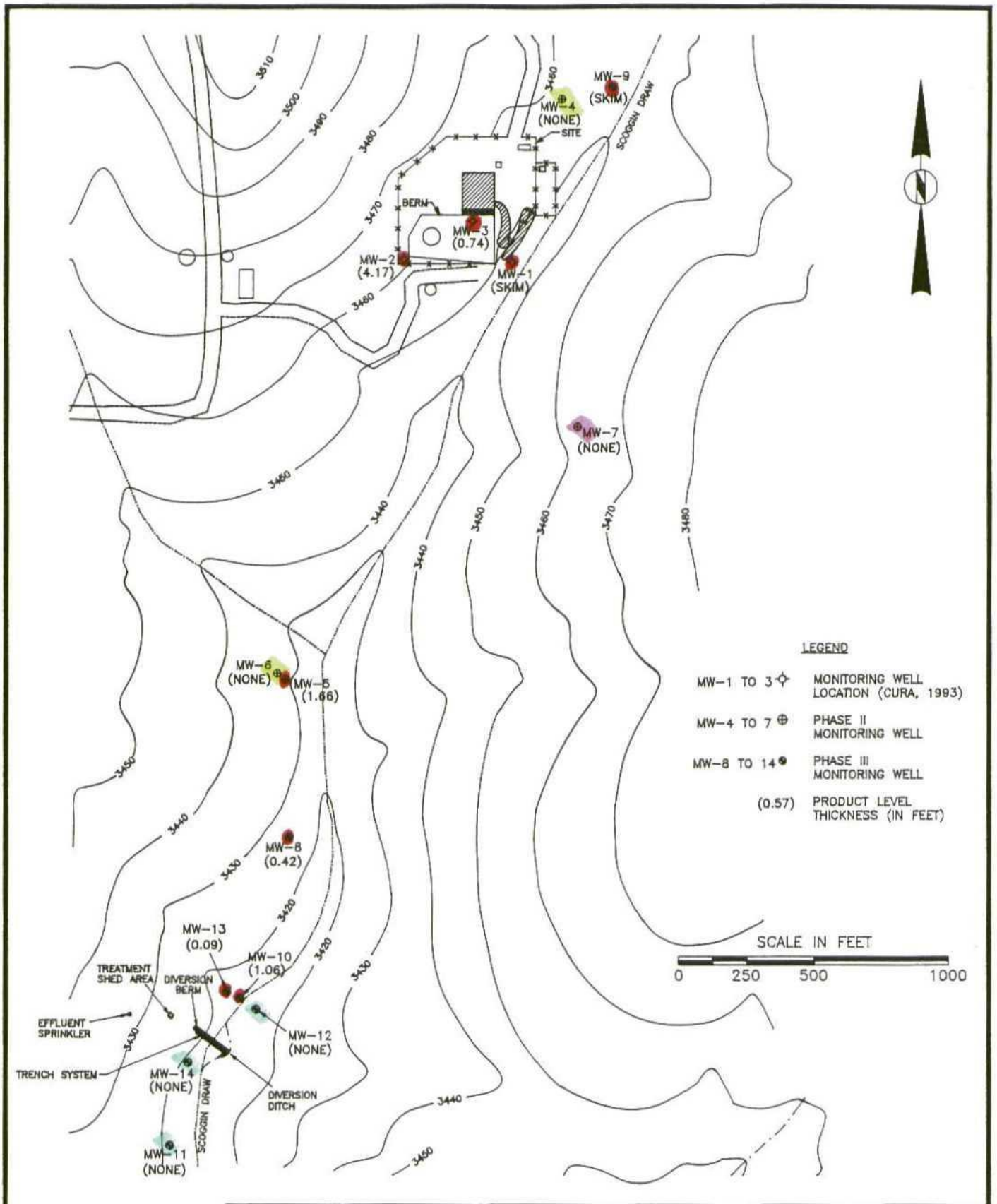
Designation	TPH (Modified Method 8015)		
	As Gas (mg/kg)	As Diesel (mg/kg)	As Oil (mg/kg)
SS #1	< 100	3,410	80,200
SS #2	< 10	<10	6,460
SS #3	< 10	<10	15,700
Average	< 100	1,149	34,130

NOTE: *Cleanup objective is 5,000 mg/kg TPH.*

The analytical results from the samples taken after the disking in October will be included in the next quarterly report. Three diskings occurred between the results presented above and the October 1995 sampling (in August, September, and October).

The cleanup objective has been met for TPH as gas and diesel, but not as oil. The average TPH value as oil, however, has decreased from 44,333 (sample taken May 3, 1995) to 34,130 (sample taken July 28, 1995). This 23 percent reduction in average TPH values was achieved after only two diskings (May and July).

FIGURES



CHECK BY	HMM
DRAWN BY	BCP
DATE	10-16-95
SCALE	AS SHOWN
CAD NO.	2775.00-02
PRJ NO.	2775102F

FREE PRODUCT
THICKNESS MAP
OCTOBER 2, 1995

AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

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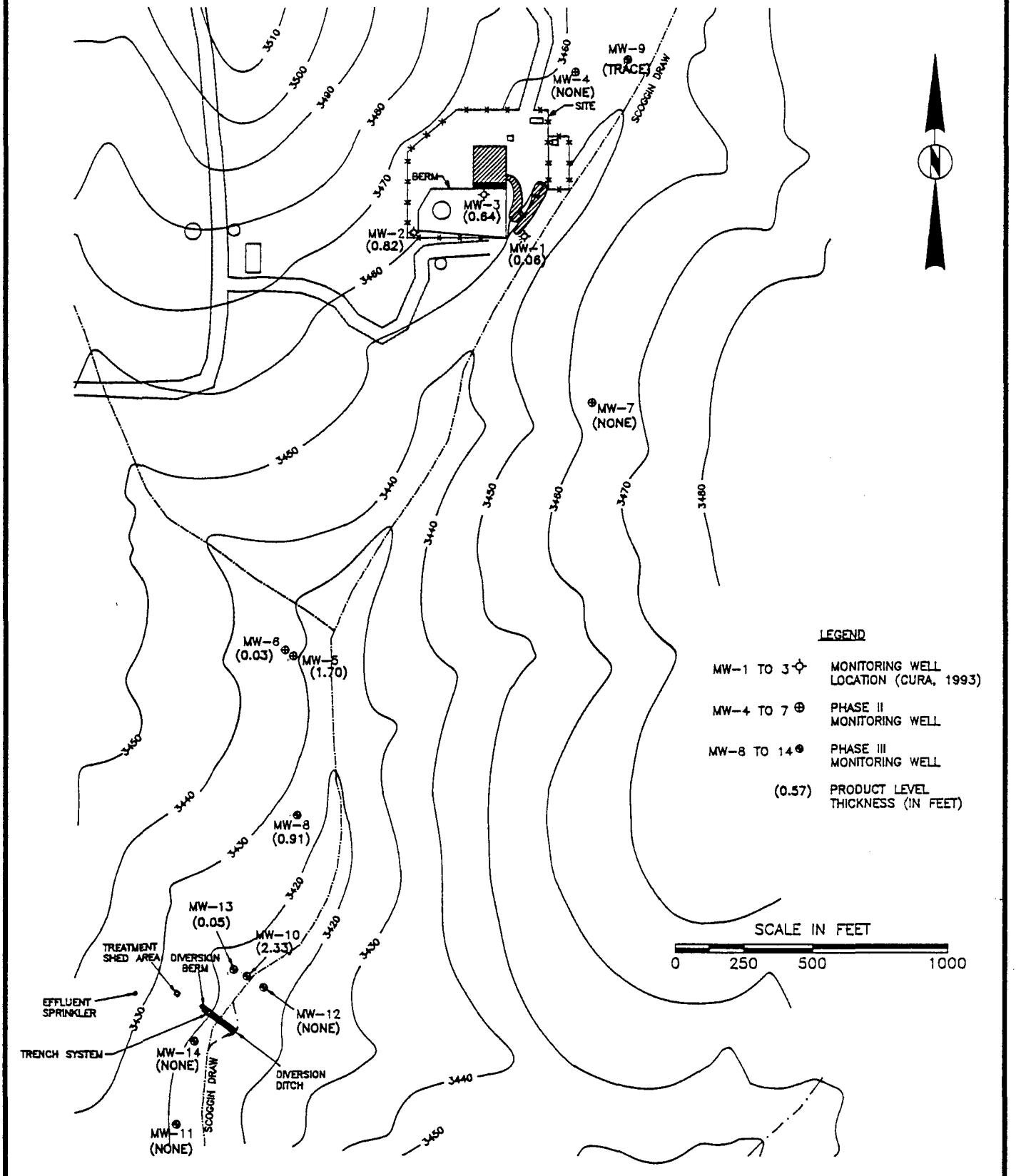
FIGURE 1



CHECK BY	HMM
DRAWN BY	BCP
DATE	7-25-95
SCALE	AS SHOWN
CAD NO.	2775102E
PRJ NO.	2775.00-02

FREE PRODUCT
THICKNESS MAP
JUNE 16, 1995

AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

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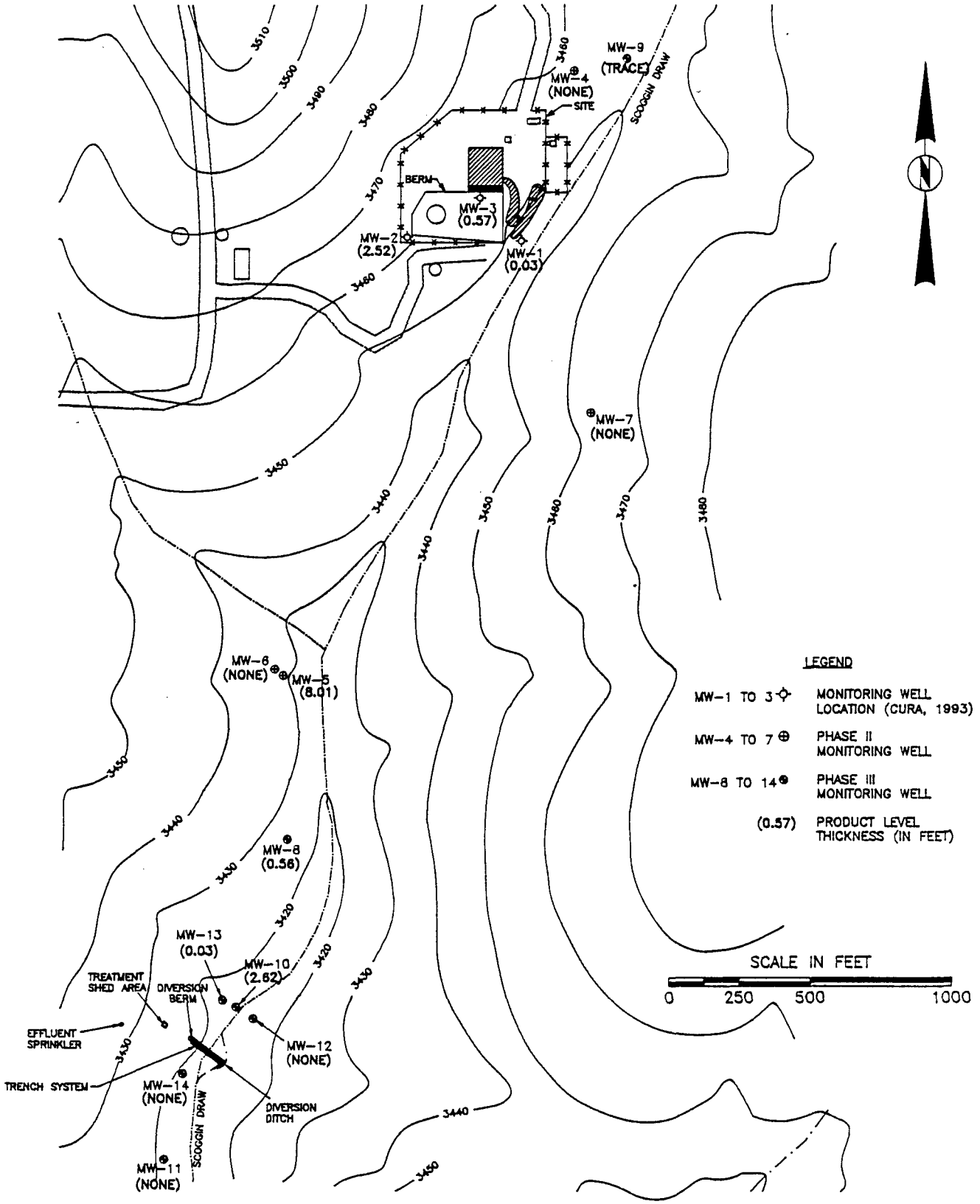
FIGURE
2



CHECK BY	HMM
DRAWN BY	BCP
DATE	5-3-95
SCALE	AS SHOWN
CAD NO.	2775.00-02
PRJ NO.	2775102C

FREE PRODUCT
THICKNESS MAP
FEBRUARY 9, 1995

AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

Clayton
ENVIRONMENTAL CONSULTANTS

FIGURE 3

TABLES

TABLE 1

Monthly BETX Results for the Influent To and Effluent From the Air Stripper

Amoco Pipeline Company
Artesia, New Mexico

INFLUENT						
Sample Date:	11/25/94	12/21/94	02/28/95	04/12/95	07/12/95	10/12/95
Benzene	2,970	3,070	3,060	3,300	2,700	1,900
Ethylbenzene	364	338	442	476	380	250
Toluene	808	1,220	1,350	1,130	420	190
Xylene	1,770	2,130	2,750	2,500	1,900	1,100
EFFLUENT						
Sample Date:	11/25/94	12/21/94	02/28/95	04/12/95	07/12/95	10/12/95
Benzene	1.8	6.6	3.3	3.6	4.6	<1.0
Ethylbenzene	<1.0	<1.0	1.4	2.8	1.5	<1.0
Toluene	<1.0	5.1	2.2	2.8	1.1	<1.0
Xylene	<1.0	5.7	6.6	14.5	6.5	<1.0

NOTES: 1. All results are in ug/L.

2. Permit effluent limits are benzene (10 ug/L), ethylbenzene (750 ug/L), xylene (620 ug/L), and toluene (750 ug/L).

TABLE 2

Quarterly BETX Results for Monitoring Wells With No Free Product

Amoco Pipeline Company
Artesia, New Mexico

WELL 4					
Sample Date:	11/25/94	12/22/94	02/16/95	06/16/95	10/02/95
Benzene	<1	<1	<1	54.4	9.8
Ethylbenzene	<1	<1	<1	2.5	<1
Toluene	<1	<1	<1	<1	<1
Xylene	<1	<1	<1	6.7	<1
WELL 6					
Sample Date:	11/25/94	12/21/94	02/16/95	06/16/95	10/02/95
Benzene	FREE PRODUCT PRESENT	FREE PRODUCT PRESENT	2.2	FREE PRODUCT PRESENT	3.1
Ethylbenzene			<1		<1
Toluene			<1		<1
Xylene			<1		2.5
WELL 7					
Sample Date:	11/25/94	12/22/94	02/16/95	06/16/95	10/02/95
Benzene	<1	1590	846	3100	880
Ethylbenzene	<1	39	20.9	58.7	17
Toluene	<1	<10	<10	3.6	<10
Xylene	<1	86.5	52.7	140	35
WELL 11					
Sample Date:	11/17/94	12/22/94	02/16/95	06/14/95	10/02/95
Benzene	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	<1
Xylene	<1	<1	<1	<1	<1
WELL 12					
Sample Date:	11/17/94	12/22/94	02/16/95	06/16/95	10/02/95
Benzene	75	5.6	<1	<1	<1
Ethylbenzene	1	<1	<1	<1	<1
Toluene	1.1	<1	<1	<1	<1
Xylene	1	<1	<1	<1	<1
WELL 14					
Sample Date:	11/17/94	12/22/94	02/16/95	06/16/95	10/02/95
Benzene	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	<1
Xylene	<1	<1	<1	<1	<1

NOTE: *All results are in ug/l.*

TABLE 3

Monitoring Well Water / Product Levels

Amoco Pipeline Company – Artesia, New Mexico

WELL IDENTIFICATION	DATE	DEPTH TO PRODUCT (feet)	DEPTH TO WATER (feet)	PRODUCT LEVEL THICKNESS (feet)
MW-1	05/21/93		20.73	0.21
	11/17/94	17.54	17.56	0.02
	02/09/95	18.02	18.05	0.03
	06/16/95	19.15	19.21	0.06
	10/02/95	SKIM	16.48	SKIM
MW-2	05/21/93		27.56	1.75
	11/17/94	23.28	26.67	3.39
	02/09/95	23.98	26.50	2.52
	06/16/95	25.63	26.45	0.82
	10/02/95	22.01	26.18	4.17
MW-3	05/21/93		17.81	1.36
	11/17/94	13.07	13.65	0.58
	02/09/95	13.75	14.32	0.57
	06/16/95	15.20	15.84	0.64
	10/02/95	10.69	11.43	0.74
MW-4	11/17/94	NONE	28.28	NONE
	02/09/95	NONE	28.51	NONE
	06/16/95	NONE	29.58	NONE
	10/02/95	NONE	24.42	NONE
MW-5	11/17/94	16.22	24.19	7.97
	02/09/95	16.84	24.85	8.01
	06/16/95	19.44	21.14	1.70
	10/02/95	16.19	17.85	1.66
MW-6	11/17/94	TRACE	14.53	TRACE
	02/09/95	NONE	15.02	NONE
	06/16/95	16.24	16.27	0.03
	10/02/95	NONE	13.55	NONE
MW-7	11/17/94	NONE	34.33	NONE
	02/09/95	NONE	34.67	NONE
	06/16/95	NONE	35.61	NONE
	10/02/95	NONE	33.79	NONE
MW-8	11/17/94	13.69	14.95	1.26
	02/09/95	14.46	15.02	0.56
	06/16/95	15.50	16.41	0.91
	10/02/95	13.03	13.45	0.42
MW-9	11/17/94	23.07	23.10	0.03
	02/09/95	TRACE	23.41	TRACE
	06/16/95	TRACE	24.65	TRACE
	10/02/95	SKIM	20.73	SKIM

TABLE 3

Monitoring Well Water / Product Levels

Amoco Pipeline Company – Artesia, New Mexico

WELL IDENTIFICATION	DATE	DEPTH TO PRODUCT (feet)	DEPTH TO WATER (feet)	PRODUCT LEVEL THICKNESS (feet)
MW-10	11/17/94	19.02	21.24	2.22
	02/09/95	19.74	22.36	2.62
	06/16/95	20.97	23.30	2.33
	10/02/95	18.49	19.55	1.06
MW-11	11/17/94	NONE	19.34	NONE
	02/09/95	NONE	19.61	NONE
	06/16/95	NONE	20.08	NONE
	10/02/95	NONE	19.74	NONE
MW-12	11/17/94	NONE	16.47	NONE
	02/09/95	NONE	16.78	NONE
	06/16/95	NONE	17.28	NONE
	10/02/95	NONE	16.03	NONE
MW-13	11/17/94	20.41	20.49	0.08
	02/09/95	20.84	20.87	0.03
	06/16/95	21.35	21.40	0.05
	10/02/95	19.35	19.44	0.09
MW-14	11/17/94	NONE	18.11	NONE
	02/09/95	NONE	18.45	NONE
	06/16/95	NONE	18.93	NONE
	10/02/95	NONE	18.63	NONE

APPENDIX A

Laboratory Results

- BETX Results for the Influent to and Effluent from the Air Stripper - Samples Taken 10/12/95.
- BETX Results for Monitoring Wells 4, 6, 7, 11, 12, and 14 -Samples Taken 10/02/95.
- Chemical analyses on the influent to the treatment system. Sample taken 09/26/97

NATIONAL ENVIRONMENTAL TESTING, INC.

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Fax: (708) 289-5445

Mr. Hank Mittelhauser
CLAYTON/MITTELHAUSER
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/19/1995

NET Job Number: 95.08101

IEPA Cert. No.: 100221
WDNR Cert. No.: 999447130
A2LA Cert. No.: 0453-01

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of NET, Inc. for analysis.

Project Description: Amoco Pipeline Co-Artesia Station 10195

Sample Number	Sample Description	Date Taken	Date Received
325983	Influent; Grab	10/12/1995	10/13/1995
325984	Effluent; Grab	10/12/1995	10/13/1995
325985	Trip Blank	10/12/1995	10/13/1995

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow NET Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Mary Pearson

Mary Pearson
Project Manager

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON/MITTELHAUSER
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/19/1995

Sample No. : 325983

NET Job No.: 95.08101

Sample Description: Influent; Grab
Amoco Pipeline Co-Artesia Station 10195

Date Taken: 10/12/1995
Time Taken: 08:38
IEPA Cert. No. 100221

Date Received: 10/13/1995
Time Received: 10:10
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS	S						
Benzene	1,900	ug/L	10/18/1995	1.0	out	1212	8240 (1)
Ethyl Benzene	250	ug/L	10/18/1995	1.0	out	1212	8240 (1)
Toluene	190	ug/L	10/18/1995	1.0	out	1212	8240 (1)
Xylenes, Total	1,100	ug/L	10/18/1995	1.0	out	1212	8240 (1)
Surr: Toluene-d8	101.0	%	10/18/1995	88-110	out	1212	8240 (1)
Surr: Bromofluorobenzene	111.0	%	10/18/1995	86-115	out	1212	8240 (1)
Surr: 1,2-Dichloroethane-d4	80.0	%	10/18/1995	76-114	out	1212	8240 (1)

S : VOC analysis was sub-contracted to the NET Rockford Division.

OCEAN GROUP

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ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON/MITTELHAUSER
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/19/1995

Sample No. : 325984

NET Job No.: 95.08101

Sample Description: Effluent; Grab
Amoco Pipeline Co-Artesia Station 10195

Date Taken: 10/12/1995
Time Taken: 08:38
IEPA Cert. No. 100221

Date Received: 10/13/1995
Time Received: 10:10
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS	S						
Benzene	<1.0	ug/L	10/18/1995	1.0	out	1212	8240 (1)
Ethyl Benzene	<1.0	ug/L	10/18/1995	1.0	out	1212	8240 (1)
Toluene	<1.0	ug/L	10/18/1995	1.0	out	1212	8240 (1)
Xylenes, Total	<1.0	ug/L	10/18/1995	1.0	out	1212	8240 (1)
Surr: Toluene-d8	98.0	%	10/18/1995	88-110	out	1212	8240 (1)
Surr: Bromofluorobenzene	111.0	%	10/18/1995	86-115	out	1212	8240 (1)
Surr: 1,2-Dichloroethane-d4	84.0	%	10/18/1995	76-114	out	1212	8240 (1)

S : VOC analysis was sub-contracted to the NET Rockford Division.

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ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON/MITTELHAUSER
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/19/1995

Sample No. : 325985

NET Job No.: 95.08101

Sample Description: Trip Blank
Amoco Pipeline Co-Artesia Station 10195

Date Taken: 10/12/1995
Time Taken: 08:38
IEPA Cert. No. 100221

Date Received: 10/13/1995
Time Received: 10:10
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS		S						
Benzene	<1.0		ug/L	10/18/1995	1.0	out	1212	8240 (1)
Ethyl Benzene	<1.0		ug/L	10/18/1995	1.0	out	1212	8240 (1)
Toluene	<1.0		ug/L	10/18/1995	1.0	out	1212	8240 (1)
Xylenes, Total	<1.0		ug/L	10/18/1995	1.0	out	1212	8240 (1)
Surr: Toluene-d8	100.0		%	10/18/1995	88-110	out	1212	8240 (1)
Surr: Bromofluorobenzene	114.0		%	10/18/1995	86-115	out	1212	8240 (1)
Surr: 1,2-Dichloroethane-d4	80.0		%	10/18/1995	76-114	out	1212	8240 (1)

S : VOC analysis was sub-contracted to the NET Rockford Division.

OCEAN GROUP

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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

CLAYTON/MITTELHAUSER
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

10/19/1995

NET Job Number: 95.08101

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
UST VOLATILES 8240 - AQUEOUS				
Ethyl Benzene	1212	50.0	47.0	94.0
Toluene	1212	50.0	46.0	92.0

CCV - Continuing Calibration Verification

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QUALITY CONTROL REPORT

BLANK ANALYSIS

CLAYTON/MITTELHAUSER
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

10/19/1995

NET Job Number: 95.08101

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
UST VOLATILES 8240 - AQUEOUS						8240 (1)
Benzene		1212	<1.0	ug/L	1.0	8240 (1)
Ethyl Benzene		1212	<1.0	ug/L	1.0	8240 (1)
Toluene		1212	<1.0	ug/L	1.0	8240 (1)
Xylenes, Total		1212	<1.0	ug/L	1.0	8240 (1)
Surr: 1,2-Dichloroethane-d4		1212	82.0	%	76-114	8240 (1)
Surr: Toluene-d8		1212	98.0	%	88-110	8240 (1)
Surr: Bromofluorobenzene		1212	114.0	%	86-115	8240 (1)

Advisory Control Limits for Blanks:

All compounds should be less than the Reporting Limit, except for phthalate esters, toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit.

OCEAN GROUP

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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

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10/19/1995

NET Job Number: 95.08101

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found		LCS % Recovery
UST VOLATILES 8240 - AQUEOUS						
Benzene		1212	20.0	19.0	S	95.0
Ethyl Benzene		1212	20.0	18.0	S	90.0
Toluene		1212	20.0	17.0	S	85.0
Xylenes, Total		1212	60.0	57.0	S	95.0

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

CLAYTON/MITTELHAUSER
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

10/19/1995

NET Job Number: 95.08101

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD
UST VOLATILES 8240 - AQUEOUS												
Benzene		1212	48.0	<1.0	50.0	ug/L	96.0	47.0	50.0	ug/L	94.0	2.1
Toluene		1212	44.0	<1.0	50.0	ug/L	88.0	45.0	50.0	ug/L	90.0	2.2

NOTE: Matrix Spike Samples may not be samples from this job.

Advisory Control Limits for MS/MSDs:

For Inorganic Parameters and GC Volatiles, the spike recovery should be 75 - 125% if the spike added value was greater than or equal to one fourth of the sample result value. If not, the control limits are not established. The RPD for the MS/MSD pair should be less than 20.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

OCEAN GROUP

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

H. Mittelhauser
D. Earney

COMPANY Amoco Pipeline Co. — REPORT TO:
ADDRESS Mail Code P0630 L2 POB 7513 Chicago, IL 60680-7513
PHONE 312-856-7251 FAX 312-856-3731 — INVOICE TO: Amoco Pipeline Co.
PROJECT NAME/LOCATION Amoco Pipeline Co. Artesia Station — P.O. NO.
PROJECT NUMBER Artesia Pumping Station Facility 10185
PROJECT MANAGER Mr. Douglas Earney — NET QUOTE NO.

ATTN: Molly Holland

MBF Services

SAMPLED BY
CLAYTON M BARNHILL (PRINT NAME) — SIGNATURE
(PRINT NAME) — SIGNATURE

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	# and Type of Containers: HCl	NaOH	HNO_3	H_2SO_4	OTHER	ANALYSES: BTEX 8020
10/14/95	8:35a	2 40ml VIALS Influent	H_2O	X		X					X
10/14/95	8:36a	2 40ml Vials Effluent	H_2O	X		X					X
10/12/95	8:36a	2 TRIP BLANKS									

To assist us in selecting the proper method
Is this work being conducted for regulatory compliance monitoring? Yes ✓ No ___
Is this work being conducted for regulatory enforcement action? Yes ___ No ___
Which regulations apply: RCRA ___ NPDES Wastewater ___ UST ___ Drinking Water ___ Other ___ None ___

COMMENTS

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
FIELD FILTERED? YES (NO)
COC SEALS PRESENT AND INTACT? YES / NO
VOLATILES FREE OF HEADSPACE? YES (NO) 1 is not
TEMPERATURE UPON RECEIPT: 2.2°
Bottles supplied by NET? YES (NO) KO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA ___
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS ___ DATE ___

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED FOR NET BY:
[signature]	10/14/95	10:24			10/13/95	10:10	K O'Hara

METHOD OF SHIPMENT

REMARKS: Please Send Copy of Report to H. Mittelhauser #2775

10/19/95 10:16 ☎708 289 5445 NET BARTLETT DIV →→→ MITTELHAUSER ☑010/010

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/13/1995

NET Job Number: 95.07782

IEPA Cert. No.: 100221
WDNR Cert. No.: 999447130
A2LA Cert. No.: 0453-01

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of NET, Inc. for analysis.

Project Description: Amoco Pipeline Artesia Station

Sample Number	Sample Description	Date Taken	Date Received
324446	Monitor Well #4; Grab	10/02/1995	10/04/1995
324447	Monitor Well #12; Grab	10/02/1995	10/04/1995
324448	Monitor Well #11; Grab	10/02/1995	10/04/1995
324449	Monitor Well #6; Grab	10/02/1995	10/04/1995
324450	Monitor Well #7; Grab	10/02/1995	10/04/1995
324451	Monitor Well #14; Grab	10/02/1995	10/04/1995
324452	Trip Blank	10/03/1995	10/04/1995

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow NET Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

information contained in this report
in which your sample(s) were analyzed.

Approved by:

Mary Pearson

Mary Pearson
Project Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/13/1995

Sample No. : 324446

NET Job No.: 95.07782

Sample Description: Monitor Well #4; Grab
Amoco Pipeline Artesia Station

Date Taken: 10/02/1995
Time Taken: 18:05
IEPA Cert. No. 100221

Date Received: 10/04/1995
Time Received:
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	9.8	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Ethyl Benzene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Toluene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Xylenes, Total	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Surr: Toluene-d8	90.6	%	10/12/1995	88-110	jap	1203	8240 (1)
Surr: Bromofluorobenzene	89.8	%	10/12/1995	86-115	jap	1203	8240 (1)
Surr: 1,2-Dichloroethane-d4	90.4	%	10/12/1995	76-114	jap	1203	8240 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/13/1995

Sample No. : 324447

NET Job No.: 95.07782

Sample Description: Monitor Well #12; Grab
Amoco Pipeline Artesia Station

Date Taken: 10/02/1995
Time Taken: 15:25
IEPA Cert. No. 100221

Date Received: 10/04/1995
Time Received:
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Ethyl Benzene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Toluene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Xylenes, Total	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Surr: Toluene-d8	91.0	%	10/12/1995	88-110	jap	1203	8240 (1)
Surr: Bromofluorobenzene	92.0	%	10/12/1995	86-115	jap	1203	8240 (1)
Surr: 1,2-Dichloroethane-d4	82.8	%	10/12/1995	76-114	jap	1203	8240 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/13/1995

Sample No. : 324448

NET Job No.: 95.07782

Sample Description: Monitor Well #11; Grab
Amoco Pipeline Artesia Station

Date Taken: 10/02/1995
Time Taken: 13:55
IEPA Cert. No. 100221

Date Received: 10/04/1995
Time Received:
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Ethyl Benzene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Toluene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Xylenes, Total	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Surr: Toluene-d8	90.6	%	10/12/1995	88-110	jap	1203	8240 (1)
Surr: Bromofluorobenzene	89.6	%	10/12/1995	86-115	jap	1203	8240 (1)
Surr: 1,2-Dichloroethane-d4	88.4	%	10/12/1995	76-114	jap	1203	8240 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/13/1995

Sample No. : 324449

NET Job No.: 95.07782

Sample Description: Monitor Well #6; Grab
Amoco Pipeline Artesia Station

Date Taken: 10/02/1995
Time Taken: 16:05
IEPA Cert. No. 100221

Date Received: 10/04/1995
Time Received:
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	3.1	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Ethyl Benzene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Toluene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Xylenes, Total	2.5	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Surr: Toluene-d8	90.8	%	10/12/1995	88-110	jap	1203	8240 (1)
Surr: Bromofluorobenzene	88.6	%	10/12/1995	86-115	jap	1203	8240 (1)
Surr: 1,2-Dichloroethane-d4	88.6	%	10/12/1995	76-114	jap	1203	8240 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/13/1995

Sample No. : 324450

NET Job No.: 95.07782

Sample Description: Monitor Well #7; Grab
Amoco Pipeline Artesia Station

Date Taken: 10/02/1995
Time Taken: 17:20
IEPA Cert. No. 100221

Date Received: 10/04/1995
Time Received:
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	880	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Ethyl Benzene	17	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Toluene	<10.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Xylenes, Total	35	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Surr: Toluene-d8	90.0	%	10/12/1995	88-110	jap	1203	8240 (1)
Surr: Bromofluorobenzene	90.0	%	10/12/1995	86-115	jap	1203	8240 (1)
Surr: 1,2-Dichloroethane-d4	82.0	%	10/12/1995	76-114	jap	1203	8240 (1)

VOA ANALYZED AT A 10X DILUTION

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/13/1995

Sample No. : 324451

NET Job No.: 95.07782

Sample Description: Monitor Well #14; Grab
Amoco Pipeline Artesia Station

Date Taken: 10/02/1995
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 10/04/1995
Time Received:
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Ethyl Benzene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Toluene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Xylenes, Total	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Surr: Toluene-d8	92.0	%	10/12/1995	88-110	jap	1203	8240 (1)
Surr: Bromofluorobenzene	90.0	%	10/12/1995	86-115	jap	1203	8240 (1)
Surr: 1,2-Dichloroethane-d4	86.0	%	10/12/1995	76-114	jap	1203	8240 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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Bartlett, IL 60103
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ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/13/1995

Sample No. : 324452

NET Job No.: 95.07782

Sample Description: Trip Blank
Amoco Pipeline Artesia Station

Date Taken: 10/03/1995
Time Taken: 07:00
IEPA Cert. No. 100221

Date Received: 10/04/1995
Time Received:
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Ethyl Benzene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Toluene	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Xylenes, Total	<1.0	ug/L	10/12/1995	1.0	jap	1203	8240 (1)
Surr: Toluene-d8	90.0	%	10/12/1995	88-110	jap	1203	8240 (1)
Surr: Bromofluorobenzene	90.0	%	10/12/1995	86-115	jap	1203	8240 (1)
Surr: 1,2-Dichloroethane-d4	88.0	%	10/12/1995	76-114	jap	1203	8240 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

10/13/1995

NET Job Number: 95.07782

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
UST VOLATILES 8240 - AQUEOUS				
Benzene	1203	50.0	45.7	91.4
Ethyl Benzene	1203	50.0	46.7	93.4
Toluene	1203	50.0	46.8	93.6
Xylenes, Total	1203	150	140	93.3
Surr: 1,2-Dichloroethane-d4	1203	50	46.2	92.4
Surr: Toluene-d8	1203	50	45.3	90.6
Surr: Bromofluorobenzene	1203	50	45.7	91.4

CCV - Continuing Calibration Verification

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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Bartlett, IL 60103
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QUALITY CONTROL REPORT

BLANK ANALYSIS

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

10/13/1995

NET Job Number: 95.07782

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
UST VOLATILES 8240 - AQUEOUS						8240 (1)
Benzene		1203	<1.0	ug/L	1.0	8240 (1)
Ethyl Benzene		1203	<1.0	ug/L	1.0	8240 (1)
Toluene		1203	<1.0	ug/L	1.0	8240 (1)
Xylenes, Total		1203	<1.0	ug/L	1.0	8240 (1)
Surr: 1,2-Dichloroethane-d4		1203	84.4	%	76-114	8240 (1)
Surr: Toluene-d8		1203	90.8	%	88-110	8240 (1)
Surr: Bromofluorobenzene		1203	88.8	%	86-115	8240 (1)

Advisory Control Limits for Blanks:

All compounds should be less than the Reporting Limit, except for phthalate esters, toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit.

NATIONAL ENVIRONMENTAL TESTING, INC.

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Bartlett, IL 60103
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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

10/13/1995

NET Job Number: 95.07782

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
UST VOLATILES 8240 - AQUEOUS					
Benzene		1203	20.0	17.3	86.5
Ethyl Benzene		1203	20.0	17.8	89.0
Toluene		1203	20.0	17.4	87.0
Xylenes, Total		1203	60.0	51.9	86.5
Surr: 1,2-Dichloroethane-d4		1203	50.0	46.3	92.6
Surr: Toluene-d8		1203	50.0	45.0	90.0
Surr: Bromofluorobenzene		1203	50.0	44.7	89.4

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY Amoco Pipeline Co.
ADDRESS Mail Code P0632L2 POB 7513 Chicago, IL 60680-7513
PHONE 312-856-7251 FAX 312-856-3731
PROJECT NAME/LOCATION Amoco Pipeline Artesia Station
PROJECT NUMBER Artesia Pumping Station, Facility 10185
PROJECT MANAGER Mr. Douglas Earney.

REPORT TO: Mr. H. Mittelhauser
INVOICE TO: Amoco Pipeline Co.
P.O. NO.
NET QUOTE NO.

ATTN: Moira Holland
MBF Services

SAMPLED BY
Clayton M Bachtia
(PRINT NAME)
Clayton M Bachtia
SIGNATURE

(PRINT NAME)
SIGNATURE

(2) H2O # and Type of Containers each well.

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	HCl	NaOH	HNO_3	H_2SO_4	OTHER	BTEX 8020
10/2/95	6:05pm	Monitor Well #4	H2O	X		X					X
10/2/95	3:25pm	Monitor Well #12	H2O	X		X					X
10/2/95	1:55pm	Monitor Well #11	H2O	X		X					X
10/2/95	4:05pm	Monitor Well #6	H2O	X		X					X
10/2/95	5:20pm	Monitor Well #7	H2O	X		X					X
10/2/95	3:00pm	Monitor Well #14	H2O	X		X					X
10/3/95	7Am	Trip Blank	X	X		X					X

ANALYSES

To assist us in selecting the proper method
Is this work being conducted for regulatory compliance monitoring? Yes ✓ No ___
Is this work being conducted for regulatory enforcement action? Yes ___ No ___
Which regulations apply: RCRA ___ NPDES Wastewater ___ UST ___ Drinking Water ___ Other ___ None ___

COMMENTS
8240 OK Past History always run 8240 MD 10-4

CONDITION OF SAMPLE: BOTTLES INTACT? (YES) / NO
FIELD FILTERED? YES / NO N/A
COC SEALS PRESENT AND INTACT? YES / NO N/A
VOLATILES FREE OF HEADSPACE? YES (NO) Small air bubbles in vials from well #4
TEMPERATURE UPON RECEIPT: 5.9°
Bottles supplied by NET? (YES) / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA ___
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS ___ DATE ___

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED FOR NET BY:
Clayton M Bachtia	10/3/95	7:11Am					

METHOD OF SHIPMENT

REMARKS: Please Send Copy of Report to H. Mittelhauser # 2775

PT 1 - ORIGINAL - WHITE PT 2 - NET PROJECT MANAGER - YELLOW PT 3 - CUSTOMER COPY - PINK

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/02/1995

NET Job Number: 95.07540

IEPA Cert. No.: 100221
WDNR Cert. No.: 999447130
A2LA Cert. No.: 0453-01

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of NET, Inc. for analysis.

Project Description: Artesia Pumping Facility 10195

Sample Number	Sample Description	Date Taken	Date Received
323499	Ground Water; Grab	09/26/1995	09/27/1995

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow NET Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Mary Pearson

Mary Pearson
Project Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

10/03/1995

Sample No. : 323499

NET Job No.: 95.07540

Sample Description: Ground Water; Grab
Artesia Pumping Facility 10195

Date Taken: 09/26/1995
Time Taken: 14:00
IEPA Cert. No. 100221

Date Received: 09/27/1995
Time Received: 10:34
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Alkalinity, bicarb (CaCO3)	1,020	mg/L	09/29/1995	5	sdf		304	310.1(3)
Alkalinity, carbonate (CaCO3)	<5	mg/L	09/29/1995	5	sdf		304	310.1(3)
Chloride	1,030	mg/L	09/29/1995	5	tdw		435	325.3(3)
Hardness, Total	2,760	mg/L	09/29/1995	5	jjc		159	130.2(3)
pH	6.86	units	09/27/1995	0.10	kaf		1019	150.1(3)
Solids, Total Dissolved	4,670	mg/L	09/28/1995	25	out		658	160.1(3)
Solids, Total Suspended	12	mg/L	09/28/1995	5	sdf		783	160.2(3)
Sulfate	1,620	mg/L	09/27/1995	10	kaf		382	375.4(3)
Calcium, AA	740	mg/L	10/03/1995	1.0	jmt	890	232	7140 (1)
Iron, ICP	0.100	mg/L	10/02/1995	0.050	jmt	890	2283	6010 (1)
Magnesium, AA	150	mg/L	10/03/1995	1.0	jmt	890	223	7450 (1)
Manganese, ICP	0.497	mg/L	10/02/1995	0.010	jmt	890	1274	6010 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

10/03/1995

NET Job Number: 95.07540

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
Alkalinity, bicarb (CaCO3)	304	100	102	102.0
Hardness, Total	159	80	82	102.5
pH	1019	7.02	7.04	100.3
pH	1019	7.02	7.02	100.0
Sulfate	382	20.0	20.2	101.0
Calcium, AA	232	0.50	0.532	106.4
Iron, ICP	2283	2.00	2.11	105.5
Magnesium, AA	223	0.500	0.502	100.4
Manganese, ICP	1274	1.00	1.03	103.0

CCV - Continuing Calibration Verification

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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QUALITY CONTROL REPORT

BLANK ANALYSIS

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

10/03/1995

NET Job Number: 95.07540

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
Alkalinity, bicarb (CaCO3)		304	<5	mg/L	5	310.1(3)
Chloride		435	<5	mg/L	5	325.3(3)
Hardness, Total		159	<5	mg/L	5	130.2(3)
Solids, Total Dissolved		658	<25	mg/L	25	160.1(3)
Solids, Total Suspended		783	<5	mg/L	5	160.2(3)
Sulfate		382	<10	mg/L	10	375.4(3)
Calcium, AA	890	232	<1.0	mg/L	1.0	7140 (1)
Iron, ICP	890	2286	<0.050	mg/L	0.050	6010 (1)
Magnesium, AA	890	223	<1.0	mg/L	1.0	7450 (1)
Manganese, ICP	890	1276	<0.010	mg/L	0.010	6010 (1)

Advisory Control Limits for Blanks:

All compounds should be less than the Reporting Limit, except for phthalate esters, toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit.

NATIONAL ENVIRONMENTAL TESTING, INC.

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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

10/03/1995

NET Job Number: 95.07540

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
Chloride		435	100	108	108.0
Chloride		435	100	100	100.0
Chloride		435	100	100	100.0
Chloride		435	100	100	100.0
Solids, Total Dissolved		658	2000	2027	101.4
Solids, Total Suspended		783	100.0	95	95.0
Calcium, AA	890	232	1.00	0.931	93.1
Iron, ICP	890	2286	1.00	1.03	103.0
Magnesium, AA	890	223	0.50	0.480	96.0
Manganese, ICP	890	1276	0.500	0.498	99.6

NATIONAL ENVIRONMENTAL TESTING, INC.

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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

10/03/1995

NET Job Number: 95.07540

Analyte	Prep Batch Number	Run Batch Number	LCS Amount	Units	LCS Result	Percent Recovery	LCSD Result	Percent Recovery	Relative Percent Difference
Chloride		435	100	mg/L	108	108.0			
Chloride		435	100	mg/L	100	100.0			
Chloride		435	100	mg/L	100	100.0			
Chloride		435	100	mg/L	100	100.0			
Solids, Total Dissolved		658	2000	mg/L	2027	101.4			
Solids, Total Suspended		783	100.0	mg/L	95	95.0			
Calcium, AA	890	232	1.00	mg/L	0.931	93.1			
Iron, ICP	890	2286	1.00	mg/L	1.03	103.0			
Magnesium, AA	890	223	0.50	mg/L	0.480	96.0			
Manganese, ICP	890	1276	0.500	mg/L	0.498	99.6			

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QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

10/03/1995

NET Job Number: 95.07540

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD
Alkalinity, bicarb (CaCO3)		304	845	350	500	mg/L	99.0	860	500	mg/L	102.0	2.9
Chloride		435	400	300	100	mg/L	100.0	400	100	mg/L	100.0	0.0
Chloride		435	3500	3400	100	mg/L	100.0	3500	100	mg/L	100.0	0.0
Hardness, Total		159	3,060	2,760	400	mg/L	75.0	3,080	400	mg/L	80.0	6.5
Sulfate		382	42	21	20.0	mg/L	105.0	40	20.0	mg/L	95.0	9.9

NOTE: Matrix Spike Samples may not be samples from this job.

Advisory Control Limits for MS/MSDs:

For Inorganic Parameters and GC Volatiles, the spike recovery should be 75 - 125% if the spike added value was greater than or equal to one fourth of the sample result value. If not, the control limits are not established. The RPD for the MS/MSD pair should be less than 20.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

NATIONAL ENVIRONMENTAL TESTING, INC.

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QUALITY CONTROL REPORT

DUPLICATES

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

10/03/1995

NET Job Number: 95.07540

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	RPD
pH		1019	8.31	8.34	units	0.4
pH		1019	7.42	7.44	units	0.3
pH		1019	6.86	6.88	units	0.3
pH		1019	7.60	7.61	units	0.1
Solids, Total Suspended		783	24	23	mg/L	4.3
Solids, Total Suspended		783	24	23	mg/L	4.3
Sulfate		382	41	37	mg/L	10.3

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

OCEAN GROUT

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

APPENDIX B

Laboratory Results

- TPH Results for the Soils Remediation Area - Samples Taken 07/28/95.

NATIONAL ENVIRONMENTAL TESTING, INC.

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Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

08/07/1995

NET Job Number: 95.05666

IEPA Cert. No.: 100221
WDNR Cert. No.: 999447130
A2LA Cert. No.: 0453-01

Enclosed is the Analytical and Quality Control reports for the following samples submitted to Bartlett Division of NET, Inc. for analysis.

Project Description: Amoco Pipeline Co.-Artesia; 2775.00-02

Sample Number	Sample Description	Date Taken	Date Received
315548	SS #1; Grab	07/28/1995	08/01/1995
315549	SS #2; Grab	07/28/1995	08/01/1995
315550	SS #3; Grab	07/28/1995	08/01/1995

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Procedures used follow NET Standard Operating Procedures which reference the methods listed on your report. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Jean-Pierre C. Rouanet
Operations Manager

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

08/07/1995

Sample No. : 315548

NET Job No.: 95.05666

Sample Description: SS #1; Grab
Amoco Pipeline Co.-Artesia; 2775.00-02

Date Taken: 07/28/1995
Time Taken: 08:20
IEPA Cert. No. 100221

Date Received: 08/01/1995
Time Received: 12:10
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	84.8	%	08/04/1995	0.1	seh	1312	2540 (4)
Prep, TPH Method 8015m	extracted		08/02/1995		tls	117	8015m(1)

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

08/07/1995

Sample No. : 315548

NET Job No.: 95.05666

Sample Description: SS #1; Grab
Amoco Pipeline Co.-Artesia; 2775.00-02

Date Taken: 07/28/1995
Time Taken: 08:20
IEPA Cert. No. 100221

Date Received: 08/01/1995
Time Received: 12:10
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
TPH as Gas	<100	D	mg/Kg	08/03/1995	10	seh	117	195	8015m (1)
TPH as Diesel	<100	D	mg/Kg	08/03/1995	10	seh	117	195	8015m (1)
TPH as Oil	80,200	DX	mg/Kg	08/03/1995	10	seh	117	195	8015m (1)

D : Parameter analyzed at a dilution due to matrix interference.
DX : Parameter exceeds calibration range, analysis performed on a dilution

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

08/07/1995

Sample No. : 315549

NET Job No.: 95.05666

Sample Description: SS #2; Grab
Amoco Pipeline Co.-Artesia; 2775.00-02

Date Taken: 07/28/1995
Time Taken: 08:21
IEPA Cert. No. 100221

Date Received: 08/01/1995
Time Received: 12:10
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	91.8	%	08/04/1995	0.1	seh	1312	2540 (4)
Prep, TPH Method 8015m	extracted		08/02/1995		tls	117	8015m(1)

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

08/07/1995

Sample No. : 315549

NET Job No.: 95.05666

Sample Description: SS #2; Grab
Amoco Pipeline Co.-Artesia; 2775.00-02

Date Taken: 07/28/1995
Time Taken: 08:21
IEPA Cert. No. 100221

Date Received: 08/01/1995
Time Received: 12:10
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
TPH as Gas	<10		mg/Kg	08/03/1995	10	seh	117	195	8015m (1)
TPH as Diesel	<10		mg/Kg	08/03/1995	10	seh	117	195	8015m (1)
TPH as Oil	6,460	DX	mg/Kg	08/03/1995	10	seh	117	195	8015m (1)

DX : Parameter exceeds calibration range, analysis performed on a dilution

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

08/07/1995

Sample No. : 315550

NET Job No.: 95.05666

Sample Description: SS #3; Grab
Amoco Pipeline Co.-Artesia; 2775.00-02

Date Taken: 07/28/1995
Time Taken: 08:23
IEPA Cert. No. 100221

Date Received: 08/01/1995
Time Received: 12:10
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	88.5	%	08/04/1995	0.1	seh	1312	2540 (4)
Prep, TPH Method 8015	extracted		08/02/1995		tls	117	8015m(1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

08/07/1995

Sample No. : 315550

NET Job No.: 95.05666

Sample Description: SS #3; Grab
Amoco Pipeline Co.-Artesia; 2775.00-02

Date Taken: 07/28/1995
Time Taken: 08:23
IEPA Cert. No. 100221

Date Received: 08/01/1995
Time Received: 12:10
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
TPH as Gas	<10		mg/Kg	08/03/1995	10	seh	117	195	8015m (1)
TPH as Diesel	<10		mg/Kg	08/03/1995	10	seh	117	195	8015m (1)
TPH as Oil	15,700	DX	mg/Kg	08/03/1995	10	seh	117	195	8015m (1)

DX : Parameter exceeds calibration range, analysis performed on a dilution

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

08/07/1995

NET Job Number: 95.05666

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
TPH as Gas	195	300	287	95.7
TPH as Diesel	195	300	286	95.3
TPH as Oil	195	300	286	95.3

CCV - Continuing Calibration Verification

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

QUALITY CONTROL REPORT

BLANK ANALYSIS

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

08/07/1995

NET Job Number: 95.05666

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
TPH as Gas	117	194	<10	mg/Kg	10	8015m (1)
TPH as Diesel	117	194	<10	mg/Kg	10	8015m (1)
TPH as Oil	117	194	<10	mg/Kg	10	8015m (1)

Advisory Control Limits for Blanks:

All compounds should be less than the Reporting Limit, except for phthalate esters, toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit.

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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

08/07/1995

NET Job Number: 95.05666

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
TPH as Gas	117	194	50	46	92.0
TPH as Diesel	117	194	50	40	80.0
TPH as Oil	117	194	50	35	70.0

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QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

08/07/1995

NET Job Number: 95.05666

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD
TPH as Gas	117	194	47	<10	50	mg/Kg	94.0	69	50	mg/Kg	138.0	37.8
TPH as Diesel	117	194	33	<10	50	mg/Kg	66.0	41	50	mg/Kg	82.0	21.6
TPH as Oil	117	194	41	<10	50	mg/Kg	82.0	48	50	mg/Kg	96.0	15.7

NOTE: Matrix Spike Samples may not be samples from this job.

Advisory Control Limits for MS/MSDs:

For Inorganic Parameters and GC Volatiles, the spike recovery should be 75 - 125% if the spike added value was greater than or equal to one fourth of the sample result value. If not, the control limits are not established. The RPD for the MS/MSD pair should be less than 20.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

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QUALITY CONTROL REPORT

DUPLICATES

MITTELHAUSER CORPORATION
1240 Iroquois Drive
Suite 206
Naperville, IL 60563
Mr. Hank Mittelhauser

08/07/1995

NET Job Number: 95.05666

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	RPD
Solids, Total		1312	1.59	1.69	%	6.1
Solids, Total		1312	83.1	83.0	%	0.1
Solids, Total		1312	83.2	83.1	%	0.1
Solids, Total		1312	90.6	89.4	%	1.3
Solids, Total		1312	98.8	99.1	%	0.3

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

OCEAN GROUP

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY: Mittle Houser Corp
ADDRESS: 1240 Iroquois Dr. #206
PHONE: (708) 369-0201 FAX: (708) 369-1279
PROJECT NAME/LOCATION: Amoco Pipeline Co.-Artesia
PROJECT NUMBER: 2775.00-02
PROJECT MANAGER: Mark Mittlehouser

REPORT TO: H. Mittlehouser
INVOICE TO: H. Mittlehouser
P.O. NO.:
NET QUOTE NO.: MoiRA

SAMPLED BY: Chet Armstrong (PRINT NAME) Chet Armstrong (SIGNATURE)
(PRINT NAME) (SIGNATURE)

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	# and Type of Containers: HCl	NaOH	HNO_3	H_2SO_4	OTHER	ANALYSES: XTPH needed	8015 (EPA)
7-28	8:20	SS #1		X							X	
7-28	8:21	SS #2		X							X	
7-28	8:23	SS #3		X							X	

To assist us in selecting the proper method

Is this work being conducted for regulatory compliance monitoring? Yes ____ No ____

Is this work being conducted for regulatory enforcement action? Yes ____ No ____

Which regulations apply: RCRA ____ NPDES Wastewater ____ UST ____ Drinking Water ____ Other ____ None ____

COMMENTS

Please designate (EPA) Method 8015 in Report

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
FIELD FILTERED? YES / NO N/A
COC SEALS PRESENT AND INTACT? YES / NO
VOLATILES FREE OF HEADSPACE? YES / NO
TEMPERATURE UPON RECEIPT: 29.7°
Bottles supplied by NET? YES / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA ____
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS ____ DATE ____

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED FOR NET BY:
Chet Armstrong	7-28	9:00			8.1.95	13:10	Karen Waldy

METHOD OF SHIPMENT: Federal Express

REMARKS: Questions to H. Mittlehouser @ (708) 369-0201