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# REPORTS

AUG DATE:  
1995

2R-6

**Remediation Systems Operations  
1995 Second Quarterly Report**

**August 1995**

**Amoco Pipeline Station  
Artesia, New Mexico**

*Prepared For:*

**AMOCO CORPORATION  
One Mid America Plaza  
Suite 300  
Oakbrook Terrace, IL 60181**

**RECEIVED**  
JUL 31 1995  
Environmental Bureau  
Oil Conservation Division

*Prepared By:*

**MITTELHAUSER CORPORATION  
1240 Iroquois Drive  
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Project 2775.00-02

**August 1995**

**Mittelhauser**  
CORPORATION

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## 1.0 INTRODUCTION

This report summarizes the results of the remediation system operations for the period of April 1995 through June 1995.

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

- Approximately 100 gallons of product have been recovered.
- No BETX or free product has been observed in the downgradient wells.
- The air stripper is operating at greater than 99 percent efficiency.

Fouling of the air stripper unit with calcium carbonate continues to create operational difficulties. However, installation of a prefilter and sequestering agent during the first half of April has reduced the maintenance requirements of the system. Information on the prefilter and sequestering agent was included in the 1995 First Quarterly Report.

A release of recovered material occurred at the product recovery tank in early July due to a system upset and operational problems. Released materials were contained by the berms surrounding the treatment building. Soils stained by the release will be removed and placed in the landfarm area for treatment. Clean backfill will be placed in the excavated areas. In addition, a high level shut-off switch will be installed in the product recovery tank to eliminate the possibility of future releases.

System maintenance will be taken over by Sweatt Construction Company in August, upon receipt of the proper OSHA training and certifications. Sweatt Construction Company assisted Mittelhauser Corporation in the installation of the remediation system and is intimately familiar with the operation of the system. Utilization of

Sweatt Construction for routine maintenance should significantly reduce the number of problems encountered during the first two quarters of 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 April sampling event were included in the 1995 First Quarterly Report. Analytical results for the samples taken on 7/12/95 are included in Appendix A. Note that all effluent results meet the regulatory requirements and demonstrate that the system is performing as designed.

Sampling results from the May sampling event are not reported since a sampling error resulted in the influent and effluent samples being improperly sampled and labeled. In June the system was shut down and improperly restarted. The startup resulted in the discharge of approximately 180 gallons of partially treated groundwater during a one-hour time frame. The effluent samples were obtained from the partially treated water resulting in unreliable results. As discussed in the Introduction, steps have been taken to eliminate the operational problems which occurred in May and June.

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

Benzene . . . . .	99.8%
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. Results are presented for Monitoring Well 6 on 2/16/95 only since the monitoring well contained free product during the other sampling events. The analytical results are presented in Appendix A for the samples taken on 6/16/95. Results for samples taken on 11/25/94 and 12/28/94 were provided in the Interception Trench System Installation Report. Results for samples taken on 2/16/95 were provided in the 1995 First 1995 Remediation Systems Operations Quarterly Report, dated May 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 analyses were performed on the influent (from the west sump) to the air stripper and the effluent from the air stripper. Alkalinity as Carbonate and Bicarbonate were run on both the influent and the effluent. These results are included in Appendix A. The results were used to measure the effectiveness of the sequestering agent and prefilter used to control the scale buildup on the system.

## 3.0 PRODUCT THICKNESS

Product thickness measurements were taken in the monitoring wells during the June sampling event. Table 3 contains product thickness information. The free product thickness map is shown in Figure 1. The product thickness map from the February sampling event is included as Figure 2 for comparison. On February 15, 1995 a free

product bail down test was performed on monitoring well MW-5 to evaluate the use of the monitoring well as a product collection point. The initial product thickness level was 8.01 feet. The free product layer was bailed down to 1.54 feet. Recovery was initially monitored for a three hour period, during which no significant increase in the product thickness layer occurred. As of June 16, 1995, the product layer thickness has increased to 1.70 feet. This test demonstrates that the monitoring well would be ineffective for product collection. Performing the test created the significant drop in product thickness.

The results presented in Table 3 provide a preliminary indication that the product level thickness is decreasing in the three monitoring wells (Wells 1,2, and 3) closest to the release.

#### 4.0 FLUIDS PUMPED

During the second quarter of operation, it is estimated that the separation and treatment system recovered, treated, and discharged approximately 118,000 gallons of water. The estimated volume of 118,000 gallons is based on an average daily flowrate calculated for the month of June, multiplied by the number of operational days through the end of the second quarter. 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.

Free product recovery by the separation and treatment system is estimated at 75 gallons for the second quarter compared to our estimate of 25 gallons during the first quarter. The amount recovered is based on product level measurements taken in the product recovery tank, in addition to an estimate of the recovered oil removed from the treatment system and placed in the recovery tank during maintenance operations.

## 5.0 SOIL REMEDIATION

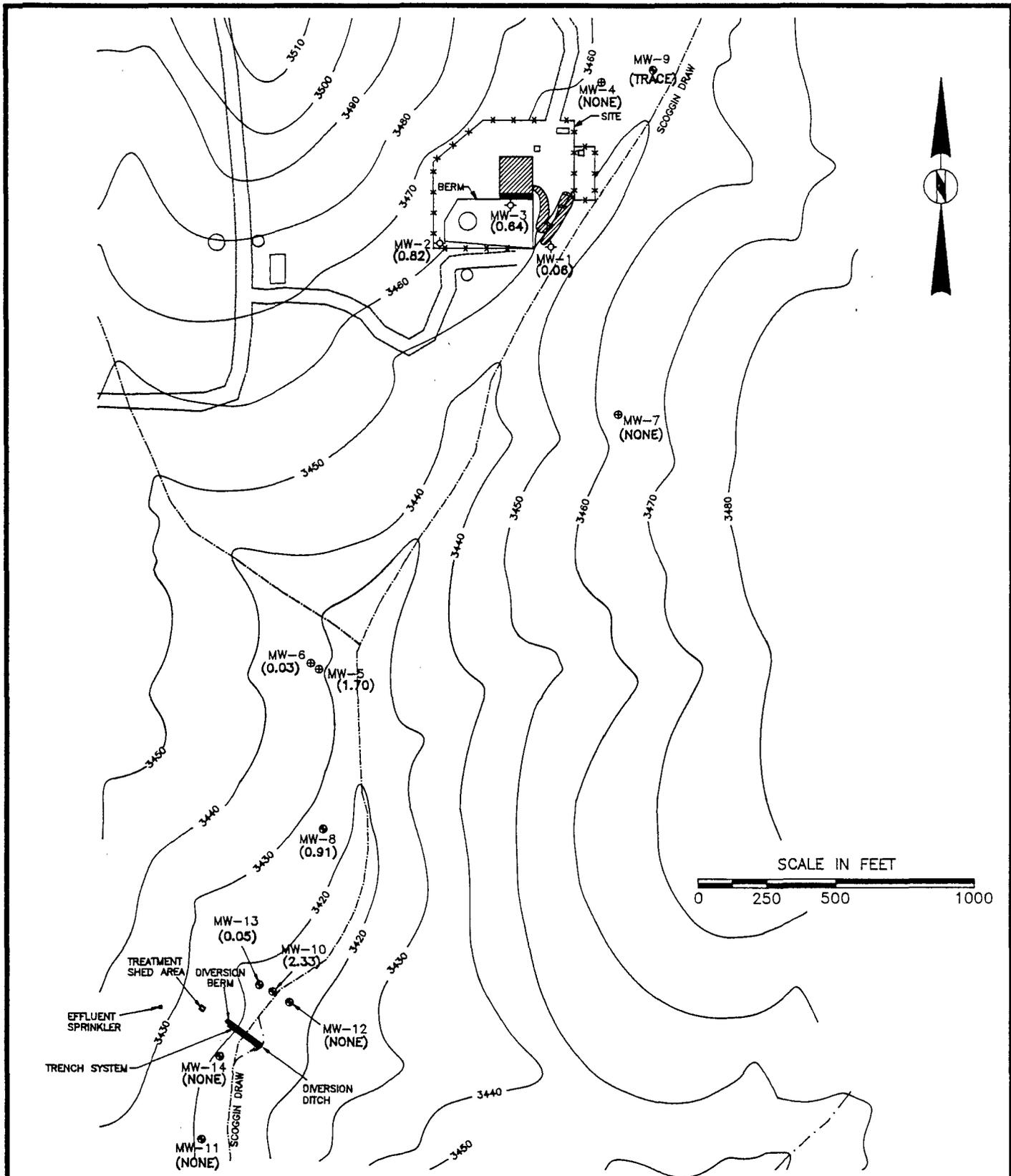
As stated in the May quarterly report, samples of soils were taken after the first disking on April 27, 1995. The results are contained in Appendix B and summarized below:

Location	TPH (Modified Method 8015)		
	As Gas (mg/kg)	As Diesel (mg/kg)	As Oil (mg/kg)
South	< 100	3,410	29,600
East	< 100	6,200	58,800
West	< 100	7,940	44,900
Average	< 100	5,847	44,433

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

All samples were taken approximately half way through the depth of the disked area. The area was disked in May 1995 by Sweatt Construction Company. Contaminated material was removed from around the pipelines and backfilled with clean top soil in June. After this work was completed, there were heavy rains which prevented further disking. The soils were disked on the 5th of July. The analytical results from the samples taken after the disking in July will be included in the next quarterly report.

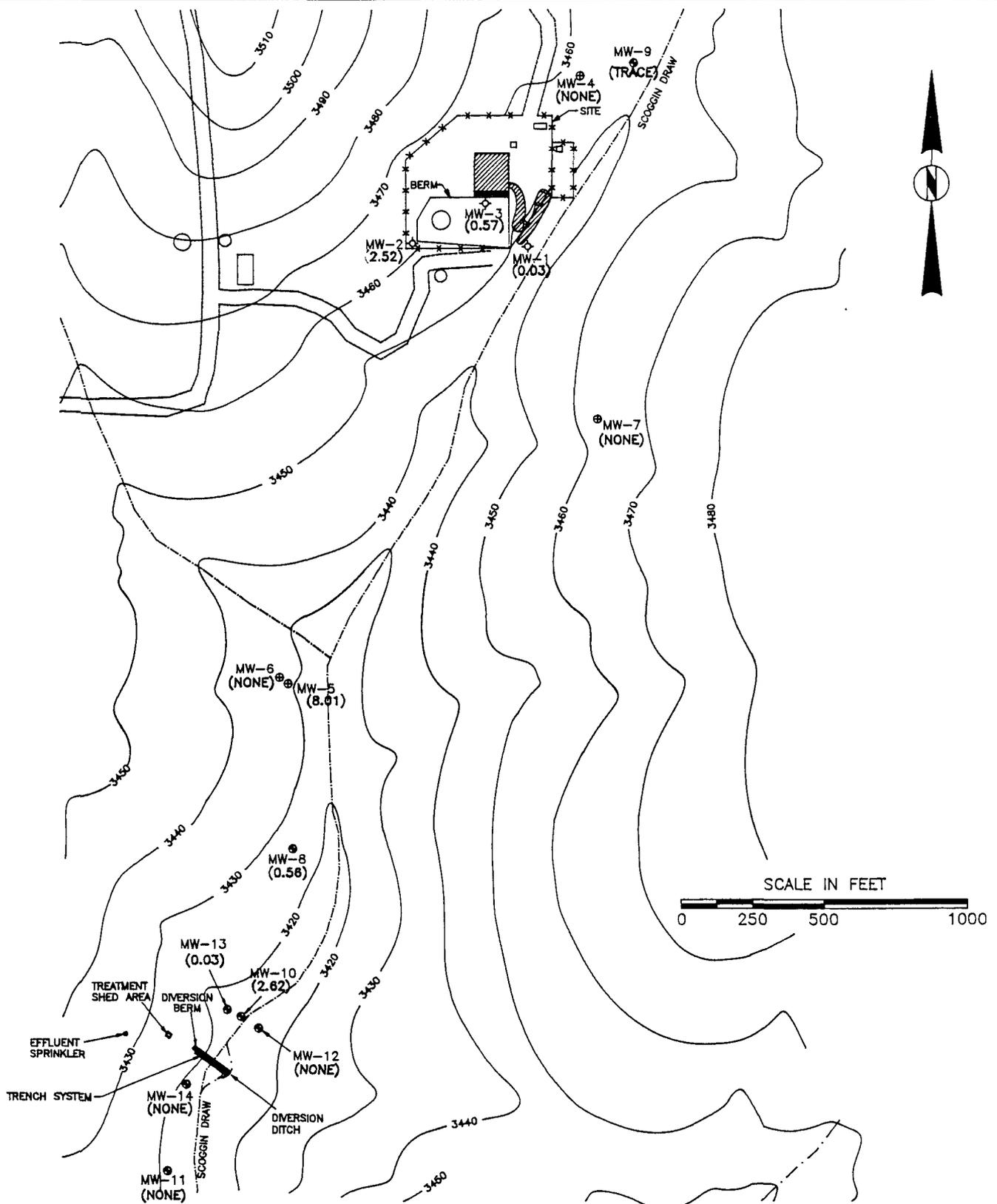
## FIGURES



**LEGEND**

- MW-1 TO 3 ◊ MONITORING WELL LOCATION (CURA, 1993)
- MW-4 TO 7 ⊕ PHASE II MONITORING WELL
- MW-8 TO 14 ⊙ PHASE III MONITORING WELL
- (0.57) PRODUCT LEVEL THICKNESS (IN FEET)

<p><b>Mittelhauser</b> CORPORATION</p>	CHECK BY HMM
	DRAWN BY BCP
<p>FREE PRODUCT THICKNESS MAP JUNE 6, 1995 AMOCO PIPELINE COMPANY ARTESIA, NEW MEXICO</p>	DATE 7-25-95
	SCALE AS SHOWN
	CAD NO. 2775102E
	PRJ NO. 2775.00-02
	FIGURE
	1



**LEGEND**

- MW-1 TO 3 ◊ MONITORING WELL LOCATION (CURA, 1993)
- MW-4 TO 7 ⊕ PHASE II MONITORING WELL
- MW-8 TO 14 ● PHASE III MONITORING WELL
- (0.57) PRODUCT LEVEL THICKNESS (IN FEET)

**Mittelhauser**  
CORPORATION

FREE PRODUCT  
THICKNESS MAP  
FEBRUARY 9, 1995  
AMOCO PIPELINE COMPANY  
ARTESIA, NEW MEXICO

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

## TABLES

Remediation Systems 1995 Second Quarterly Report  
Amoco Pipeline Station / Artesia, NM  
2775RD01.KDL (072794/bdp)

 **Mittelhauser**  
CORPORATION

**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
Benzene	2970	3070	3060	3300	2700
Ethylbenzene	364	338	442	476	380
Toluene	808	1220	1350	1130	420
Xylene	1770	2130	2750	2500	1900
EFFLUENT					
Sample Date:	11/25/94	12/21/94	02/28/95	04/12/95	07/12/95
Benzene	1.8	6.6	3.3	3.6	4.6
Ethylbenzene	<1.0	<1.0	1.4	2.8	1.5
Toluene	<1.0	5.1	2.2	2.8	1.1
Xylene	<1.0	5.7	6.6	14.5	6.5

*NOTE: 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
Benzene	<1	<1	<1	54.4
Ethylbenzene	<1	<1	<1	2.5
Toluene	<1	<1	<1	<1
Xylene	<1	<1	<1	6.7
WELL 6				
Sample Date:	11/25/94	12/21/94	02/16/95	06/16/95
Benzene	FREE	FREE	2.2	FREE
Ethylbenzene	PRODUCT	PRODUCT	<1	PRODUCT
Toluene	PRESENT	PRESENT	<1	PRESENT
Xylene			<1	
WELL 7				
Sample Date:	11/25/94	12/22/94	02/16/95	06/16/95
Benzene	<1	1590	846	3100
Ethylbenzene	<1	39	20.9	58.7
Toluene	<1	<10	<10	3.6
Xylene	<1	86.5	52.7	140
WELL 11				
Sample Date:	11/17/94	12/22/94	02/16/95	06/14/95
Benzene	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1
Toluene	<1	<1	<1	<1
Xylene	<1	<1	<1	<1
WELL 12				
Sample Date:	11/17/94	12/22/94	02/16/95	06/16/95
Benzene	75	5.6	<1	<1
Ethylbenzene	1	<1	<1	<1
Toluene	1.1	<1	<1	<1
Xylene	1	<1	<1	<1
WELL 14				
Sample Date:	11/17/94	12/22/94	02/16/95	06/16/95
Benzene	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1
Toluene	<1	<1	<1	<1
Xylene	<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
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
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
MW-4	11/17/94	NONE	28.28	NONE
	02/09/95	NONE	28.51	NONE
	06/16/95	NONE	29.58	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
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
MW-7	11/17/94	NONE	34.33	NONE
	02/09/95	NONE	34.67	NONE
	06/16/95	NONE	35.61	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
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
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
MW-11	11/17/94	NONE	19.34	NONE
	02/09/95	NONE	19.61	NONE
	06/16/95	NONE	20.08	NONE

**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-12	11/17/94	NONE	16.47	NONE
	02/09/95	NONE	16.78	NONE
	06/16/95	NONE	17.28	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
MW-14	11/17/94	NONE	18.11	NONE
	02/09/95	NONE	18.45	NONE
	06/16/95	NONE	18.93	NONE

## APPENDIX A

### Laboratory Results

- BETX Results for the Influent to and Effluent from the Air Stripper - Samples Taken 7/12/95.
- Alkalinity as Bicarbonate and Carbonate ( $\text{CaO}_3$ ) Results for the Influent to and Effluent from the Air Stripper - Samples Taken 6/26/95.
- BETX Results for Monitoring Wells 4, 7, 11, 12, and 14 - Samples Taken 6/16/95.



NATIONAL ENVIRONMENTAL TESTING, INC.

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Fax: (708) 289-5445

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

07/21/1995

NET Job Number: 95.05032

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

Sample Number	Sample Description	Date Taken	Date Received
312990	Influent; Grab	07/12/1995	07/13/1995
312991	Effluent; Grab	07/12/1995	07/13/1995

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:

Jean-Pierre C. Rouanet  
Operations Manager





ANALYTICAL REPORT

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

07/21/1995  
Sample No. : 312990  
NET Job No.: 95.05032

Sample Description: Influent; Grab  
Amoco Pipeline Co., Artesia Station

Date Taken: 07/12/1995  
Time Taken: 14:15  
IEPA Cert. No. 100221

Date Received: 07/13/1995  
Time Received: 10:00  
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
VOLATILE COMPDS - 8240 AQUEOUS							
Benzene	2,700	D100 ug/L	07/19/1995	1.0	jap	1107	8240 (1)
Ethyl Benzene	380	ug/L	07/20/1995	1.0	jap	1108	8240 (1)
Toluene	420	ug/L	07/20/1995	1.0	jap	1108	8240 (1)
Xylenes, total	1,900	ug/L	07/20/1995	1.0	jap	1108	8240 (1)
Surr: 1,2-Dichloroethane-d4	90.0	%	07/20/1995	76-114	jap	1108	8240 (1)
Surr: Toluene-d8	94.0	%	07/20/1995	88-110	jap	1108	8240 (1)
Surr: 4-Bromofluorobenzene	92.0	%	07/20/1995	86-115	jap	1108	8240 (1)

VOA ANALYZED AT A 10X DILUTION.  
D100 : Parameter analyzed at a 100x dilution.





ANALYTICAL REPORT

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

07/21/1995  
Sample No. : 312991  
NET Job No.: 95.05032

Sample Description: Effluent; Grab  
Amoco Pipeline Co., Artesia Station

Date Taken: 07/12/1995  
Time Taken: 14:20  
IEPA Cert. No. 100221

Date Received: 07/13/1995  
Time Received: 10:00  
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
VOLATILE COMPDS - 8240 AQUEOUS							
Benzene	4.6	ug/L	07/20/1995	1.0	jap	1108	8240 (1)
Ethyl Benzene	1.5	ug/L	07/20/1995	1.0	jap	1108	8240 (1)
Toluene	1.1	ug/L	07/20/1995	1.0	jap	1108	8240 (1)
Xylenes, total	6.5	ug/L	07/20/1995	1.0	jap	1108	8240 (1)
Surr: 1,2-Dichloroethane-d4	90.0	%	07/20/1995	76-114	jap	1108	8240 (1)
Surr: Toluene-d8	94.0	%	07/20/1995	88-110	jap	1108	8240 (1)
Surr: 4-Bromofluorobenzene	90.0	%	07/20/1995	86-115	jap	1108	8240 (1)





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## QUALITY CONTROL REPORT

### CONTINUING CALIBRATION VERIFICATION

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

07/21/1995

NET Job Number: 95.05032

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
VOLATILE COMPOS - 8240 AQUEOUS				
Benzene	1107	50.0	53.3	106.6
Ethyl Benzene	1107	50.0	49.1	98.2
Toluene	1107	50.0	50.3	100.6
Xylenes, total	1107	150	151	100.7
Surr: 1,2-Dichloroethane-d4	1107	50	51	102.0
Surr: Toluene-d8	1107	50	48	96.0
Surr: 4-Bromofluorobenzene	1107	50	46	92.0

CCV - Continuing Calibration Verification





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## QUALITY CONTROL REPORT

### CONTINUING CALIBRATION VERIFICATION

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

07/21/1995

NET Job Number: 95.05032

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
VOLATILE COMPDS - 8240 AQUEOUS				
Benzene	1108	50.0	50.5	101.0
Ethyl Benzene	1108	50.0	50.0	100.0
Toluene	1108	50.0	52.0	104.0
Xylenes, total	1108	150	150	100.0
Surr: 1,2-Dichloroethane-d4	1108	50	51	102.0
Surr: Toluene-d8	1108	50	51	102.0
Surr: 4-Bromofluorobenzene	1108	50	51	102.0

CCV - Continuing Calibration Verification





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ENVIRONMENTAL  
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## QUALITY CONTROL REPORT

### BLANK ANALYSIS

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

07/21/1995

NET Job Number: 95.05032

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
VOLATILE COMPS - 8240 AQUEOUS						8240 (1)
Benzene		1107	<1.0	ug/L	1.0	8240 (1)
Ethyl Benzene		1107	<1.0	ug/L	1.0	8240 (1)
Toluene		1107	<1.0	ug/L	1.0	8240 (1)
Xylenes, total		1107	<1.0	ug/L	1.0	8240 (1)
Surr: 1,2-Dichloroethane-d4		1107	94.0	%	76-114	8240 (1)
Surr: Toluene-d8		1107	110.0	%	88-110	8240 (1)
Surr: 4-Bromofluorobenzene		1107	94.0	%	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.





QUALITY CONTROL REPORT

BLANK ANALYSIS

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

07/21/1995

NET Job Number: 95.05032

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
VOLATILE COMPS - 8240 AQUEOUS						8240 (1)
Benzene		1108	<1.0	ug/L	1.0	8240 (1)
Ethyl Benzene		1108	<1.0	ug/L	1.0	8240 (1)
Toluene		1108	<1.0	ug/L	1.0	8240 (1)
Xylenes, total		1108	<1.0	ug/L	1.0	8240 (1)
Surr: 1,2-Dichloroethane-d4		1108	92.0	%	76-114	8240 (1)
Surr: Toluene-d8		1108	92.0	%	88-110	8240 (1)
Surr: 4-Bromofluorobenzene		1108	92.0	%	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.





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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

07/21/1995

NET Job Number: 95.05032

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
VOLATILE COMPS - 8240 AQUEOUS					
Benzene		1107	20.0	21	105.0
Ethyl Benzene		1107	20.0	18.1	90.5
Toluene		1107	20.0	20.2	101.0
Xylenes, total		1107	60.0	58.4	97.3
Surr: 1,2-Dichloroethane-d4		1107	50.0	50.0	100.0
Surr: Toluene-d8		1107	50.0	48.0	96.0
Surr: 4-Bromofluorobenzene		1107	50.0	46.0	92.0





NATIONAL ENVIRONMENTAL TESTING, INC.

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

QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

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

07/21/1995

NET Job Number: 95.05032

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
VOLATILE COMPS - 8240 AQUEOUS					
Benzene		1108	20.0	22.0	110.0
Ethyl Benzene		1108	20.0	19.0	95.0
Toluene		1108	20.0	20.0	100.0
Xylenes, total		1108	60.0	59.0	98.3
Surr: 1,2-Dichloroethane-d4		1108	50.0	49.0	98.0
Surr: Toluene-d8		1108	50.0	46.0	92.0
Surr: 4-Bromofluorobenzene		1108	50.0	46.0	92.0





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

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

07/21/1995

NET Job Number: 95.05032

Analyte	Prep	Run	Matrix	Sample	Spike	Percent	MSD	MSD		Percent	MS/MSD	
	Batch	Batch	Spike					Spike	Recovery			Result
	Number	Number	Result	Result	Amount	Units	Recovery	Result	Amount	Units	Recovery	RPD
VOLATILE COMPDS - 8240 AQUE												
Benzene		1107	19.2	<1.0	20.0	ug/L	96.0	20.9	20.0	ug/L	104.5	8.4
Ethyl Benzene		1107	16.5	<1.0	20.0	ug/L	82.5	18.1	20.0	ug/L	90.5	9.2
Toluene		1107	18.2	<1.0	20.0	ug/L	91.0	20.2	20.0	ug/L	101.0	10.3
Xylenes, total		1107	53.1	<1.0	60.0	ug/L	88.5	58.4	60.0	ug/L	97.3	9.5

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.

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

Mr. Hank Mittelhauser  
MITTELHAUSER CORPORATION  
1240 Iroquois Dr.  
Ste 206  
Naperville, IL 60563

06/26/1995

NET Job Number: 95.04311

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, Eddy Co.

Sample Number	Sample Description	Date Taken	Date Received
308708	Influent; Grab	06/13/1995	06/16/1995
308709	Effluent; Grab	06/14/1995	06/16/1995

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





ANALYTICAL REPORT

Mr. Hank Mittelhauser  
MITTELHAUSER CORPORATION  
1240 Iroquois Dr.  
Ste 206  
Naperville, IL 60563

06/26/1995

Sample No. : 308708

NET Job No.: 95.04311

Sample Description: Influent; Grab  
Amoco Pipeline Artesia Station, Eddy Co.

Date Taken: 06/13/1995  
Time Taken: 18:00

Date Received: 06/16/1995  
Time Received: 10:20

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Alkalinity, bicarb (CaCO3)	1,100		mg/L	5	06/22/1995	sdf	310.1(3)
Alkalinity, total (CaCO3)	1,100		mg/L	5	06/22/1995	sdf	310.1(3)





ANALYTICAL REPORT

Mr. Hank Mittelhauser  
MITTELHAUSER CORPORATION  
1240 Iroquois Dr.  
Ste 206  
Naperville, IL 60563

06/26/1995

Sample No. : 308709

NET Job No.: 95.04311

Sample Description: Effluent; Grab  
Amoco Pipeline Artesia Station, Eddy Co.

Date Taken: 06/14/1995  
Time Taken: 16:30

Date Received: 06/16/1995  
Time Received: 10:20

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
Alkalinity, bicarb (CaCO3)	440		mg/L	5	06/22/1995	sdf	310.1(3)
Alkalinity, total (CaCO3)	440		mg/L	5	06/22/1995	sdf	310.1(3)



## 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.

ATTENTION: Mike Holland

**CHAIN OF CUSTODY RECORD**

COMPANY Amoco Pipe Line Company  
 ADDRESS Mail Code Pat 30 L-2 P.O. Box 7513 Chicago IL 60680-7513  
 PHONE 312-856-7251 FAX 312-856-3731  
 PROJECT NAME/LOCATION Amoco Pipeline AUSTIN STATION Facility 101155  
 PROJECT NUMBER Amoco Pumping Station Facility 101155  
 PROJECT MANAGER Ducias S. Ensey

REPORT TO: Ducias Ensey  
 INVOICE TO: Amoco Pipeline Co  
 Eddy G. M  
 P.O. NO. \_\_\_\_\_  
 NET QUOTE NO. \_\_\_\_\_

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**

No Reservations

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	HCl	NaOH	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	OTHER	ANALYSES	
											AKALINITY	Bi-CARBONATE
1/15/85	6:00 AM	250 ml 2me TDFluent	H <sub>2</sub> O	X							X	AKALINITY
1/15/85	6:15 AM	250 ml 2me TDFluent	H <sub>2</sub> O	X							X	Bi-CARBONATE
1/15/85	6:30 AM	250 ml 2me TDFluent	H <sub>2</sub> O	X							X	BTEX 8020
1/15/85	4:15 PM	250 ml 2me TDFluent	H <sub>2</sub> O	X							X	
1/15/85	4:30 PM	250 ml 2me TDFluent	H <sub>2</sub> O	X							X	
1/15/85	4:45 PM	250 ml 2me TDFluent	H <sub>2</sub> O	X							X	

CONDITION OF SAMPLE: BOTTLES INTACT? YES/NO N/A FIELD FILTERED? YES/NO N/A  
 COC SEALS PRESENT AND INTACT? YES/NO N/A VOLATILES FREE OF HEADSPACE? YES/NO N/A  
 TEMPERATURE UPON RECEIPT: 17.20  
 Bottles supplied by NET? YES/NO YES

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA \_\_\_\_\_  
 I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS \_\_\_\_\_

RELINQUISHED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_  
 RECEIVED BY: \_\_\_\_\_ DATE: 6-16-95 TIME: 10:20  
 RECEIVED FOR NET BY: \_\_\_\_\_

REMARKS: Send copy of the report to A. Mittelman  
 H 2775



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 Dr.  
Ste. 206  
Naperville, IL 60563

06/26/1995

NET Job Number: 95.04322

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 Pumping Station, Facility 10195

Sample Number	Sample Description	Date Taken	Date Received
308787	MW-11; Grab	06/14/1995	06/19/1995
308788	MW-14; Grab	06/16/1995	06/19/1995
308789	MW-12; Grab	06/16/1995	06/19/1995
308790	MW-7; Grab	06/16/1995	06/19/1995
308791	MW-4; Grab	06/16/1995	06/19/1995

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





ANALYTICAL REPORT

Mr. Hank Mittelhauser  
MITTELHAUSER CORPORATION  
1240 Iroquois Dr.  
Ste. 206  
Naperville, IL 60563

06/26/1995  
Sample No. : 308787  
NET Job No.: 95.04322

Sample Description: MW-11; Grab  
Amoco Pumping Station, Facility 10195

Date Taken: 06/14/1995  
Time Taken: 15:30

Date Received: 06/19/1995  
Time Received: 10:00

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
VOLATILE COMPDS - 8240 AQUEOUS							
Benzene	<1.0		ug/L	1.0	06/21/1995	jap	8240 (1)
Ethyl Benzene	<1.0		ug/L	1.0	06/21/1995	jap	8240 (1)
Toluene	<1.0		ug/L	1.0	06/21/1995	jap	8240 (1)
Xylenes, total	<1.0		ug/L	1.0	06/21/1995	jap	8240 (1)
Surr: 1,2-Dichloroethane-d4	85.8		%	76-114	06/21/1995	jap	8240 (1)
Surr: Toluene-d8	109.2		%	88-110	06/21/1995	jap	8240 (1)
Surr: 4-Bromofluorobenzene	101.2		%	86-115	06/21/1995	jap	8240 (1)





ANALYTICAL REPORT

Mr. Hank Mittelhauser  
MITTELHAUSER CORPORATION  
1240 Iroquois Dr.  
Ste. 206  
Naperville, IL 60563

06/26/1995  
Sample No. : 308788  
NET Job No.: 95.04322

Sample Description: MW-14; Grab  
Amoco Pumping Station, Facility 10195

Date Taken: 06/16/1995 Date Received: 06/19/1995  
Time Taken: 10:50 Time Received: 10:00

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
VOLATILE COMPS - 8240 AQUEOUS							
Benzene	<1.0		ug/L	1.0	06/21/1995	jap	8240 (1)
Ethyl Benzene	<1.0		ug/L	1.0	06/21/1995	jap	8240 (1)
Toluene	<1.0		ug/L	1.0	06/21/1995	jap	8240 (1)
Xylenes, total	<1.0		ug/L	1.0	06/21/1995	jap	8240 (1)
Surr: 1,2-Dichloroethane-d4	95.8		%	76-114	06/21/1995	jap	8240 (1)
Surr: Toluene-d8	102.0		%	88-110	06/21/1995	jap	8240 (1)
Surr: 4-Bromofluorobenzene	92.4		%	86-115	06/21/1995	jap	8240 (1)





ANALYTICAL REPORT

Mr. Hank Mittelhauser  
MITTELHAUSER CORPORATION  
1240 Iroquois Dr.  
Ste. 206  
Naperville, IL 60563

06/26/1995  
Sample No. : 308789  
NET Job No.: 95.04322

Sample Description: MW-12; Grab  
Amoco Pumping Station, Facility 10195

Date Taken: 06/16/1995  
Time Taken: 11:50

Date Received: 06/19/1995  
Time Received: 10:00

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
VOLATILE COMPDS - 8240 AQUEOUS							
Benzene	<1.0		ug/L	1.0	06/23/1995	jap	8240 (1)
Ethyl Benzene	<1.0		ug/L	1.0	06/23/1995	jap	8240 (1)
Toluene	<1.0		ug/L	1.0	06/23/1995	jap	8240 (1)
Xylenes, total	<1.0		ug/L	1.0	06/23/1995	jap	8240 (1)
Surr: 1,2-Dichloroethane-d4	93.8		%	76-114	06/23/1995	jap	8240 (1)
Surr: Toluene-d8	103.0		%	88-110	06/23/1995	jap	8240 (1)
Surr: 4-Bromofluorobenzene	94.4		%	86-115	06/23/1995	jap	8240 (1)





ANALYTICAL REPORT

Mr. Hank Mittelhauser  
MITTELHAUSER CORPORATION  
1240 Iroquois Dr.  
Ste. 206  
Naperville, IL 60563

06/26/1995

Sample No. : 308790

NET Job No.: 95.04322

Sample Description: MW-7; Grab  
Amoco Pumping Station, Facility 10195

Date Taken: 06/16/1995  
Time Taken: 13:50

Date Received: 06/19/1995  
Time Received: 10:00

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
VOLATILE COMPDS - 8240 AQUEOUS							
Benzene	3,100	D25	ug/L	1.0	06/23/1995	jap	8240 (1)
Ethyl Benzene	58.7		ug/L	1.0	06/23/1995	jap	8240 (1)
Toluene	3.6		ug/L	1.0	06/23/1995	jap	8240 (1)
Xylenes, total	140		ug/L	1.0	06/23/1995	jap	8240 (1)
Surr: 1,2-Dichloroethane-d4	103.0		%	76-114	06/23/1995	jap	8240 (1)
Surr: Toluene-d8	109.0		%	88-110	06/23/1995	jap	8240 (1)
Surr: 4-Bromofluorobenzene	99.8		%	86-115	06/23/1995	jap	8240 (1)

VOA Analysis performed at a 2x dilution.

D25 : Parameter analysis performed at a 25x dilution.





ANALYTICAL REPORT

Mr. Hank Mittelhauser  
MITTELHAUSER CORPORATION  
1240 Iroquois Dr.  
Ste. 206  
Naperville, IL 60563

06/26/1995  
Sample No. : 308791  
NET Job No.: 95.04322

Sample Description: MW-4; Grab  
Amoco Pumping Station, Facility 10195

Date Taken: 06/16/1995  
Time Taken: 14:50

Date Received: 06/19/1995  
Time Received: 10:00

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Analytical Method
VOLATILE COMPS - 8240 AQUEOUS							
Benzene	54.4		ug/L	1.0	06/21/1995	jap	8240 (1)
Ethyl Benzene	2.5		ug/L	1.0	06/21/1995	jap	8240 (1)
Toluene	<1.0		ug/L	1.0	06/21/1995	jap	8240 (1)
Xylenes, total	6.7		ug/L	1.0	06/21/1995	jap	8240 (1)
Surr: 1,2-Dichloroethane-d4	90.6		%	76-114	06/21/1995	jap	8240 (1)
Surr: Toluene-d8	110.0		%	88-110	06/21/1995	jap	8240 (1)
Surr: 4-Bromofluorobenzene	102.4		%	86-115	06/21/1995	jap	8240 (1)



## 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

ATTENTION: Merica Holland

MAR Services

SAMPLED BY Clayton M Barkhill

SIGNATURE Clayton M Barkhill

(PRINT NAME)

SIGNATURE

H. Miller/merusa  
Dacelas Energy

REPORT TO:

INVOICE TO: Merica Pipeline Co.

COMPANY Merica Pipeline Company  
ADDRESS Merica Pipeline Company  
PHONE 312-856-7251 FAX 312-856-3731  
PROJECT NAME/LOCATION Merica Pipeline Co. Artesia Station NW  
PROJECT NUMBER Merica Pumping Station Facility 10155  
PROJECT MANAGER Dacelas Energy

NET QUOTE NO. \_\_\_\_\_

## 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

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	HCI	NaOH	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	OTHER	# and Type of Containers	
6/14/15	3:30pm	(2) 40ml Vials MW-11	H <sub>2</sub> O	X	X	X						
6/14/15	10:50 AM	(2) 40ml Vials MW-14	H <sub>2</sub> O	X	X	X						
6/16/15	11:50 AM	(2) 40ml Vials MW-12	H <sub>2</sub> O	X	X	X						
6/16/15	1:50 PM	(2) 40ml Vials MW-7	H <sub>2</sub> O	X	X	X						
6/16/15	2:50 PM	(2) 40ml Vials MW-4	H <sub>2</sub> O	X	X	X						

BTEX 8020

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO  
FIELD FILTERED? YES / NO

COC SEALS PRESENT AND INTACT? YES / NO  
VOLATILES FREE OF HEADSPACE? YES / NO

TEMPERATURE UPON RECEIPT: 10.00  
Bottles supplied by NET? YES / NO

SAMPLE REMAINDER DISPOSAL: RETURN SAMPLE REMAINDER TO CLIENT VIA \_\_\_\_\_  
REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINERS \_\_\_\_\_

RELINQUISHED BY: Clayton M Barkhill DATE: 6/17/15 TIME: 9:10 AM

RECEIVED BY: \_\_\_\_\_ DATE: 6/19/15 TIME: 10:00 AM

RECEIVED FOR NET BY: Merica Pipeline

METHOD OF SHIPMENT \_\_\_\_\_

REMARKS: SEND COPY OF THE REPORT TO H. MITTELHAUSEN # 2795

## APPENDIX B

### Laboratory Results

- TPH Results for the Soils Remediation Area - Samples Taken 5/3/95.



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

05/15/1995

NET Job Number: 95.03055

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:

Sample Number	Sample Description	Date Taken	Date Received
303365	SS#1 South; Grab	05/03/1995	05/05/1995
303366	SS#2 East; Grab	05/03/1995	05/05/1995
303367	SS#3 West; Grab	05/03/1995	05/05/1995

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





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

05/15/1995

Sample No. : 303365

NET Job No.: 95.03055

Sample Description: SS#1 South; Grab

Date Taken: 05/03/1995  
Time Taken: 09:00  
IEPA Cert. No. 100221

Date Received: 05/05/1995  
Time Received: 13:19  
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	82.2	%	05/09/1995	0.1	sdf	1256	2540 (4)
Prep, TPH Mod 8015 - NONAQ	extracted		05/08/1995		seh	107	Modified 8015 (1)





ANALYTICAL REPORT

Mr. Hank Mittelhauser  
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05/15/1995  
Sample No. : 303365  
NET Job No.: 95.03055

Sample Description: SS#1 South; Grab

Date Taken: 05/03/1995  
Time Taken: 09:00  
IEPA Cert. No. 100221

Date Received: 05/05/1995  
Time Received: 13:19  
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
TPH Modified 8015							
TPH as Gas	<100	D10 mg/Kg	05/12/1995	10	seh	107 175	Modified 8015 (1)
TPH as Diesel	3,410	D100 mg/Kg	05/12/1995	10	seh	107 175	Modified 8015 (1)
TPH as Oil	29,600	D500 mg/Kg	05/12/1995	10	seh	107 175	Modified 8015 (1)

D10 : Parameter analysis performed at a 10x dilution.  
D100 : Parameter analysis performed at a 100x dilution.





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ANALYTICAL REPORT

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

05/15/1995  
Sample No. : 303366  
NET Job No.: 95.03055

Sample Description: SS#2 East; Grab

Date Taken: 05/03/1995  
Time Taken: 09:00  
IEPA Cert. No. 100221

Date Received: 05/05/1995  
Time Received: 13:19  
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total Prep, TPH Mod 8015 - NONAQ	85.5 extracted	%	05/09/1995 05/08/1995	0.1	sdf seh	1256 2540 (4) 107	Modified 8015 (1)





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ANALYTICAL REPORT

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

05/15/1995

Sample No. : 303366

NET Job No.: 95.03055

Sample Description: SS#2 East; Grab

Date Taken: 05/03/1995  
Time Taken: 09:00  
IEPA Cert. No. 100221

Date Received: 05/05/1995  
Time Received: 13:19  
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
TPH Modified 8015							
TPH as Gas	<100	D10 mg/Kg	05/12/1995	10	seh	107 175	Modified 8015 (1)
TPH as Diesel	6,200	D100 mg/Kg	05/12/1995	10	seh	107 175	Modified 8015 (1)
TPH as Oil	58,800	D500 mg/Kg	05/12/1995	10	seh	107 175	Modified 8015 (1)

D10 : Parameter analysis performed at a 10x dilution.  
D100 : Parameter analysis performed at a 100x dilution.





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ANALYTICAL REPORT

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

05/15/1995

Sample No. : 303367  
NET Job No.: 95.03055

Sample Description: SS#3 West; Grab

Date Taken: 05/03/1995  
Time Taken: 09:00  
IEPA Cert. No. 100221

Date Received: 05/05/1995  
Time Received: 13:19  
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	80.5	%	05/09/1995	0.1	sdf	1256	2540 (4)
Prep, TPH Mod 8015 - NONAQ	extracted		05/08/1995		seh	107	Modified 8015 (1)





ANALYTICAL REPORT

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

05/15/1995  
Sample No. : 303367  
NET Job No.: 95.03055

Sample Description: SS#3 West; Grab

Date Taken: 05/03/1995  
Time Taken: 09:00  
IEPA Cert. No. 100221

Date Received: 05/05/1995  
Time Received: 13:19  
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
TPH Modified 8015							
TPH as Gas	<100	D10 mg/Kg	05/12/1995	10	seh	107 175	Modified 8015 (1)
TPH as Diesel	7,940	D500 mg/Kg	05/12/1995	10	seh	107 175	Modified 8015 (1)
TPH as Oil	44,900	D500 mg/Kg	05/12/1995	10	seh	107 175	Modified 8015 (1)

D10 : Parameter analysis performed at a 10x dilution.  
D500 : Parameter analysis performed at a 500x dilution.





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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

05/15/1995

NET Job Number: 95.03055

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
TPH Modified 8015 Method				
TPH as Gas	175	200	180	90.0
TPH as Diesel	175	200	188	94.0
TPH as Oil	175	200	193	96.5

CCV - Continuing Calibration Verification





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Bartlett Division  
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QUALITY CONTROL REPORT  
BLANK ANALYSIS

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

05/15/1995

NET Job Number: 95.03055

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
TPH Modified 8015 Method						
TPH as Gas	107	172	<10	mg/Kg	10	Modified 8015 (1)
TPH as Diesel	107	172	<10	mg/Kg	10	Modified 8015 (1)
TPH as Oil	107	172	<10	mg/Kg	10	Modified 8015 (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

BLANK ANALYSIS

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

05/15/1995

NET Job Number: 95.03055

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
TPH Modified 8015 Method						
TPH as Gas	107	174	<10	mg/Kg	10	Modified 8015 (1)
TPH as Diesel	107	174	<10	mg/Kg	10	Modified 8015 (1)
TPH as Oil	107	174	<10	mg/Kg	10	Modified 8015 (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

05/15/1995

NET Job Number: 95.03055

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
TPH Modified 8015 Method					
TPH as Gas	107	172	50	48	96.0
TPH as Diesel	107	172	50	50	100.0
TPH as Oil	107	172	50	49	98.0





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QUALITY CONTROL REPORT  
LABORATORY CONTROL STANDARD

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

05/15/1995

NET Job Number: 95.03055

Analyte	Prep Batch Number	Run Batch Number	LCS Amount	Units	LCS Result	Percent Recovery	LCSD Result	Percent Recovery	Relative Percent Difference
TPH Modified 8015 Method									
TPH as Gas	107	172	50	mg/Kg	48	96.0			
TPH as Diesel	107	172	50	mg/Kg	50	100.0			
TPH as Oil	107	172	50	mg/Kg	49	98.0			





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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

05/15/1995

NET Job Number: 95.03055

Analyte	Prep	Run	Matrix	Sample	Spike	Units	Percent	MSD	MSD		Percent	MS/MSD
	Batch	Batch	Spike						Result	Spike		
TPH Modified 8015 Method												
TPH as Gas	107	172	47	<10	50	mg/Kg	94.0	43	50	mg/Kg	86.0	8.9
TPH as Diesel	107	172	27	<10	50	mg/Kg	54.0	37	50	mg/Kg	74.0	31.3
TPH as Oil	107	172	Masked	1,540	50	mg/Kg		Masked	50	mg/Kg		0.00

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

05/15/1995

NET Job Number: 95.03055

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	RPD
Solids, Total		1256	85.5	85.4	%	0.1
Solids, Total		1256	99.1	98.4	%	0.7

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.





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.

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





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- (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.



COMPANY: *Mittelhauser Corp*  
 ADDRESS: *124A Fragelle's Dr. #206*  
 PHONE: *(208) 369-0201* FAX: *(208) 369-1279*

REPORT TO: *H. Mittelhauser*  
 INVOICE TO: *H. Mittelhauser*

PROJECT NAME/LOCATION  
 PROJECT NUMBER  
 PROJECT MANAGER

P.O. NO.

NET QUOTE NO. *MA18A*

SAMPLED BY: *Colt Armstrong*  
 (PRINT NAME)  
 SIGNATURE: *[Signature]*  
 SIGNATURE: *[Signature]*

DATE	TIME	SAMPLE ID/DESCRIPTION	# and Type of Containers							ANALYSES	COMMENTS	
			MATRIX	GRAB	COMP	HCl	NaOH	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>			OTHER
5-3-95	11:00am	SS #1		X								Please designate Method 8015 In Report
5-3-95	11:00am	SS #2		X								
5-3-95	11:00am	SS #3		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 \_\_\_

CONDITION OF SAMPLE: BOTTLES INTACT? YES/NO  
 FIELD FILTERED? YES/NO  
 VOC SEALS PRESENT AND INTACT? YES/NO  
 VOLATILES FREE OF HEADSPACE? YES/NO  
 TEMPERATURE UPON RECEIPT: *82.7°C*  
 Bottles supplied by NET? YES/NO

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

RECEIVED BY: *[Signature]* DATE: *5-3-95* TIME: *11:00am*  
 RELINQUISHED BY: *[Signature]* DATE: *5-5-95* TIME: *13:00*  
 METHOD OF SHIPMENT: *Federal Express*  
 REMARKS: *Questions To H Mittelhauser (208) 369-0201*