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REPORTS

DATE:

JAN 1997

Remediation System Operations

1996 Fourth Quarterly Report and Second Annual Report

Amoco Pipeline Station
Artesia, New Mexico

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1.0 INTRODUCTION

This report summarizes the results of the remediation system operations for the period of October 15, 1996 through January 15, 1997. This report serves as both the 1996 Fourth Quarter Report and the Second Annual Report.

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

- Approximately 131 gallons of product have been recovered.
- No free product has been observed in the downgradient wells.

It is apparent that the only oil which was recovered in the fourth quarter, and for most of 1996, is the oil that was placed in the recovery tank from wells which were bailed. Free product is not reaching the interception trench, and free product appeared in only one of the three wells (MW-10, MW-12, and MW-13) located in close proximity and north of the trench. In addition, the level in this well (MW-10) was only .05 feet.

The trench is preventing flow of water downgradient so that the soluble constituents in the water can be air stripped. The trench is accomplishing this objective quite well, as shown by the absence or extremely low levels of BETX in the two downgradient wells (MW-12 and MW-14).

As stated in the 1996 Third Quarter Report, two operational problems were encountered during the third quarter. First, the pump in the recovery trench failed for approximately three weeks. The pump was replaced and was fully operational during the fourth quarter. Second, the flow totalizer was not functioning correctly in the third quarter. It was repaired during the fourth quarter of 1996 and no problems were encountered during the period of 11/10/96 to 1/10/97.

The discharge limit for benzene, for one sample taken during the fourth quarter, was exceeded, but the discharge limits for ethylbenzene, toluene, and xylene were met. This sample was inadvertently taken the day before scheduled cleaning when the system was known to be experiencing failure due to calcium buildup in the air stripper. The two subsequent samples met all discharge requirements. The other two samples obtained during the third quarter were taken in January, since scheduling conflicts resulted between the personnel providing maintenance and the personnel performing the sampling.

The major system improvement in 1996 was development of an improved sequestering agent which reduced fouling and therefore reduced maintenance requirements and allowed proper operation of the totalizer. Another improvement was establishment of a gate valve, which prevented excess accumulation of water in the oil/water separator.

An evaluation of the remediation system operation will be conducted during the first quarter of 1997 to determine what, if any, additional measures can be taken to expedite the completion of the remediation activities.

The cleanup objectives for the landfarming area were met in 1996 for TPH as gas and diesel. A dramatic reduction in the TPH value as oil was achieved, but the values still slightly exceed the objective of 5,000 mg/Kg. Landfarming was suspended in November 1996 and will resume in the spring of 1997. The landfarming will continue until the cleanup objectives are met.

2.0 LABORATORY RESULTS

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

The monthly samples for the influent and effluent of the air stripper were taken on 11/10/96 and 1/10/97. The results from these sampling events are summarized in Table 1. All figures and tables are presented at the end of the text before the appendices. The analytical results are presented in Appendix A. Samples were not obtained during December 1996 due to conflict of schedules between the personnel maintaining the system and the personnel obtaining samples. Two samples were obtained in January 1997 in order to, in part, make up for the missing samples and, in part, to provide a duplicate set of analyses. The results show that all discharge requirements were met during the January 1997 sampling events. The discharge requirements were not met during the November 1996 sampling event for the reason described in the Introduction.

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 1/10/97.

The two monitoring wells south of the interception trench (monitoring wells MW-11 and MW-14) have never shown any indication of free product.

2.3 ANNUAL RESULTS

The results for the annual analyses are presented in Appendix A. In addition to the BETX results discussed in Sections 2.1 and 2.2, the annual analyses for the influent and effluent of the air stripper, and wells not containing free product, include (per the approved Discharge Plan dated January 12, 1995 from the Energy, Minerals and Natural Resource Department to Amoco Oil Corporation):

- PAHs
- Heavy Metals
- Cations/Anions

Appendix A contains complete sets of laboratory reports and therefore different sets of analyses are presented in different reports.

3.0 PRODUCT THICKNESS

Product thickness measurements were taken in the monitoring wells during the January sampling event. Table 3 contains product thickness information. The free product thickness map is shown in Figure 8. The product thickness maps from September 30, 1996; April 16 and 17, 1996; November 25 and 26, 1995; October 2, 1995; June 16, 1995; February 9, 1995; and July 2, 1996 are shown in Figures 7, 6, 5, 4, 3, 2, and 1. It is clear from the data that the product thickness has decreased in all of the wells (with the exception of Well No. 2) over the duration of the remediation period.

4.0 FLUIDS PUMPED

During the time period of November 10, 1996 to January 10, 1997, 556,639 gallons of water were pumped. This is equivalent to an average flow rate of 6.3 gallons per minute. The use of a new sequestering agent has resulted in elimination of the problem of the totalizer fouling and being inoperative.

No oil was recovered between November 1996 and January 1997. As noted in the Introduction, there currently appears to be no movement of the oil. The only well showing a depth in excess of .15 feet is Well No. 2, which is near the storage tank. The wells in closest proximity to the interception trench (8, 10, 12, 13) contain .05 feet of product, or less.

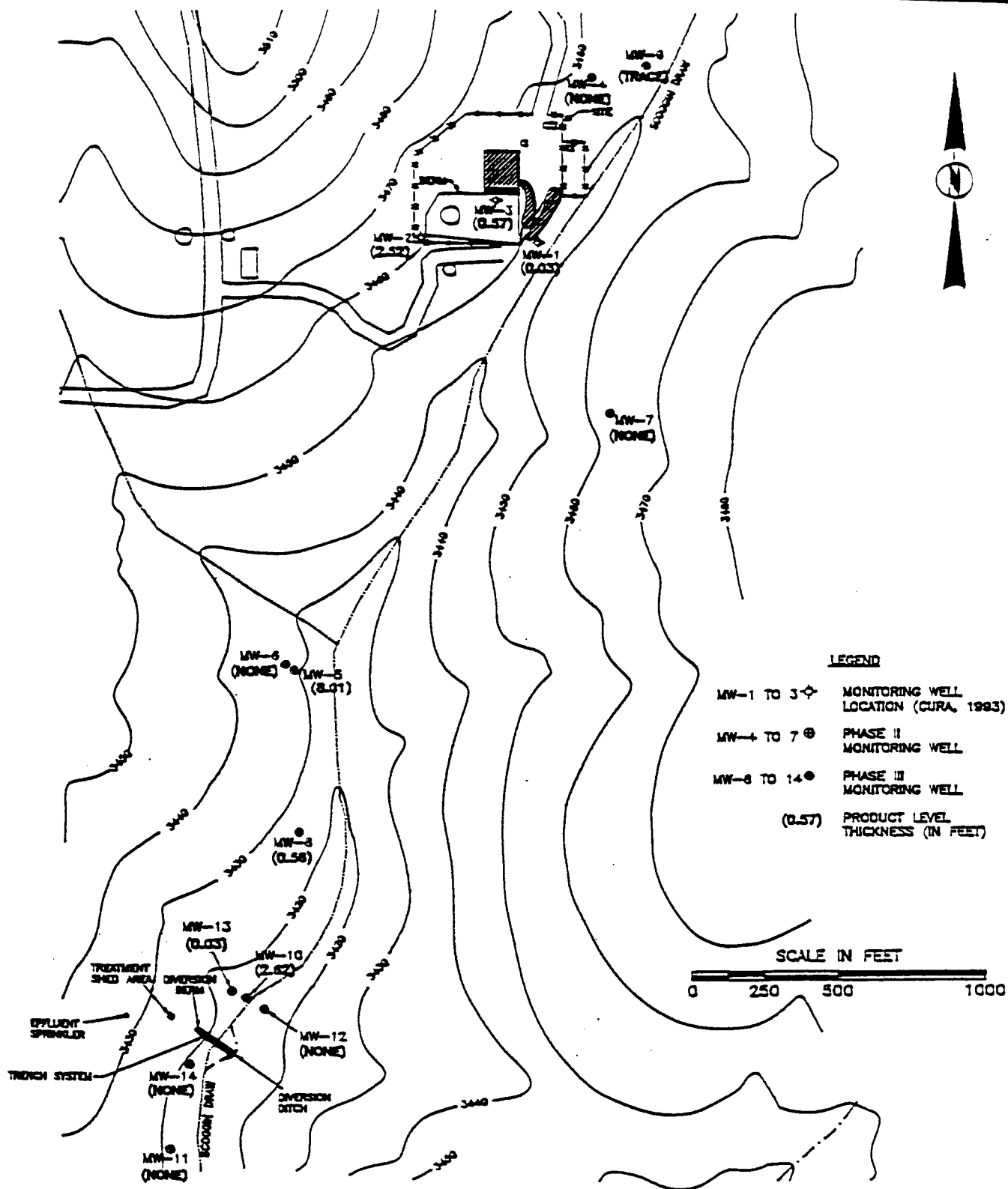
5.0 SOIL REMEDIATION

The soil remediation program began in early 1995. The remediation goal is TPH values of 5,000 mg/Kg, expressed as gas, diesel, or oil. The table below summarizes all results, to date:

Sampling Date	Average TPH Values (Values in mg/Kg)			
	As Gas	As Diesel	As Oil	Number of Samples
4/27/95	< 100	5,847	44,433	3
7/28/95	< 100	1,149	34,130	3
10/12/95	< 10	< 100	6,247	3
12/29/95	< 100	4,200	19,666	3
4/22/96	< 10	< 10	6,750	3
6/28/96	< 100	< 100	9,700	4
7/2/96	< 50	< 50	6,673	9
10/14/96	< 10	1,333	6,386	9

All analytical results are included in previous quarterly reports. As shown by the table, the TPH goals for gas and diesel have been met, while the TPH goal as oil has not yet been met. Disking and sampling were discontinued in November 1996 due to the low biological activity and frozen soils encountered during the winter months. Disking and sampling will begin again in the spring of 1997 until the TPH goal as oil is met.

FIGURES



CHECK BY	HMM
DRAWN BY	BCP
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SCALE	AS SHOWN
CAD NO.	2775.00-02
PRJ NO.	2775:02C

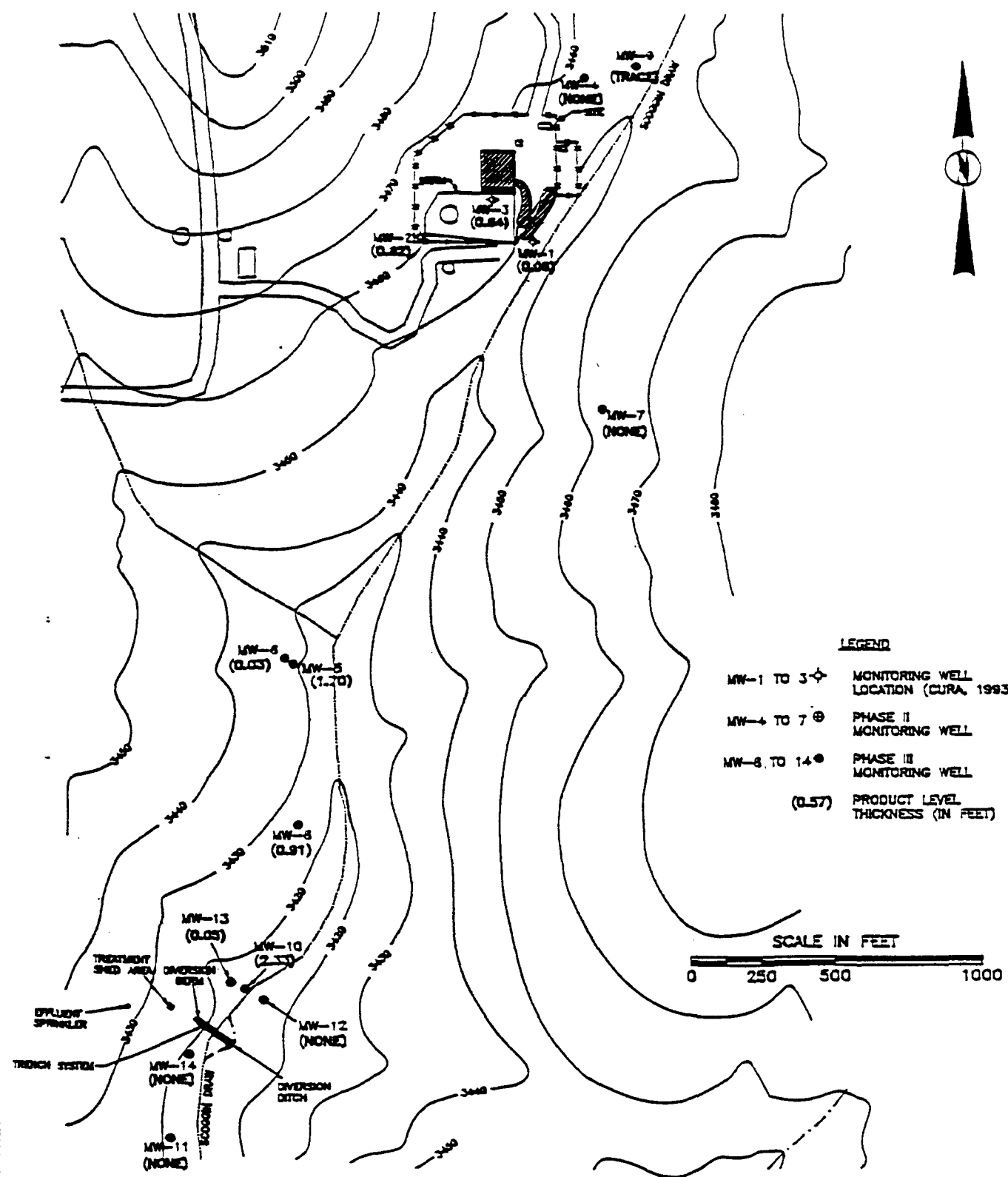
FREE PRODUCT
THICKNESS MAP
FEBRUARY 9, 1995

AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

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FIGURE

1



LEGEND

- MW-1 TO 3 $\diamond$ MONITORING WELL LOCATION (CURA, 1993)
- MW-4 TO 7 $\oplus$ PHASE II MONITORING WELL
- MW-8 TO 14 $\bullet$ PHASE III MONITORING WELL
- (0.57) PRODUCT LEVEL THICKNESS (IN FEET)

SCALE IN FEET



CHECK BY	HMM
DRAWN BY	BCP
DATE	7-25-95
SCALE	AS SHOWN
CAD NO.	2773102E
PRJ NO.	2773.00-02

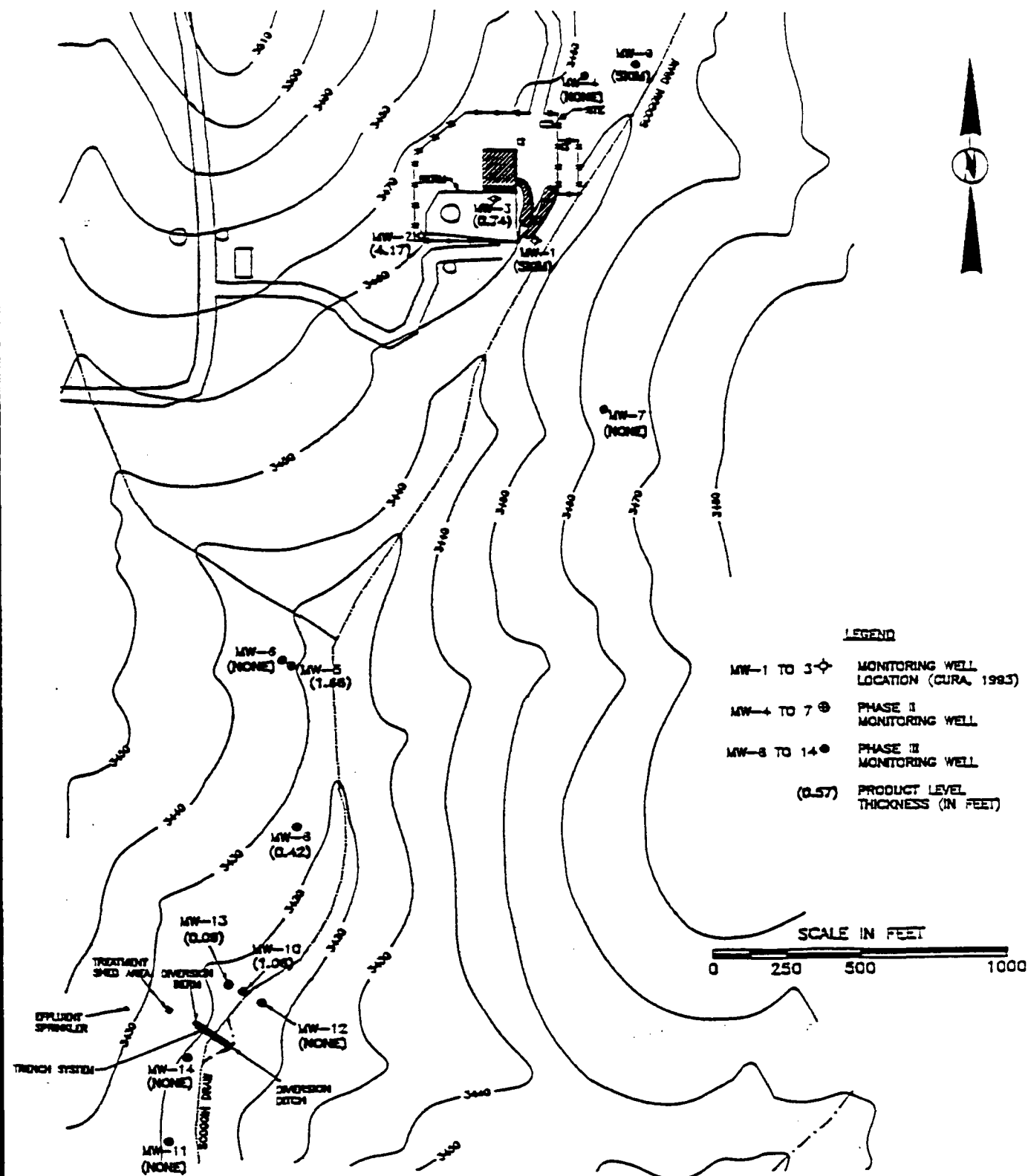
FREE PRODUCT
THICKNESS MAP
JUNE 16, 1995

AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

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FIGURE

2



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

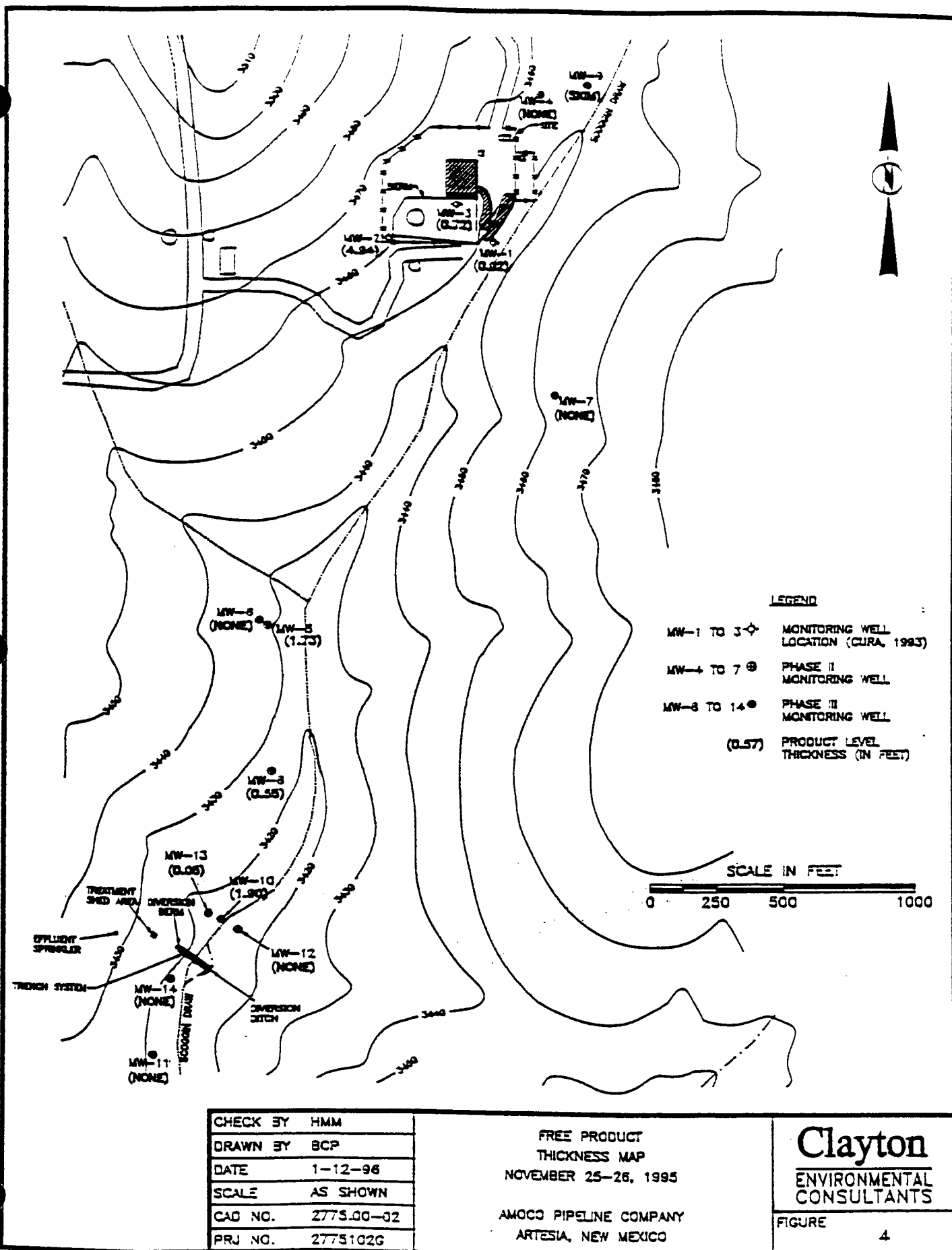
FREE PRODUCT
THICKNESS MAP
OCTOBER 2, 1995

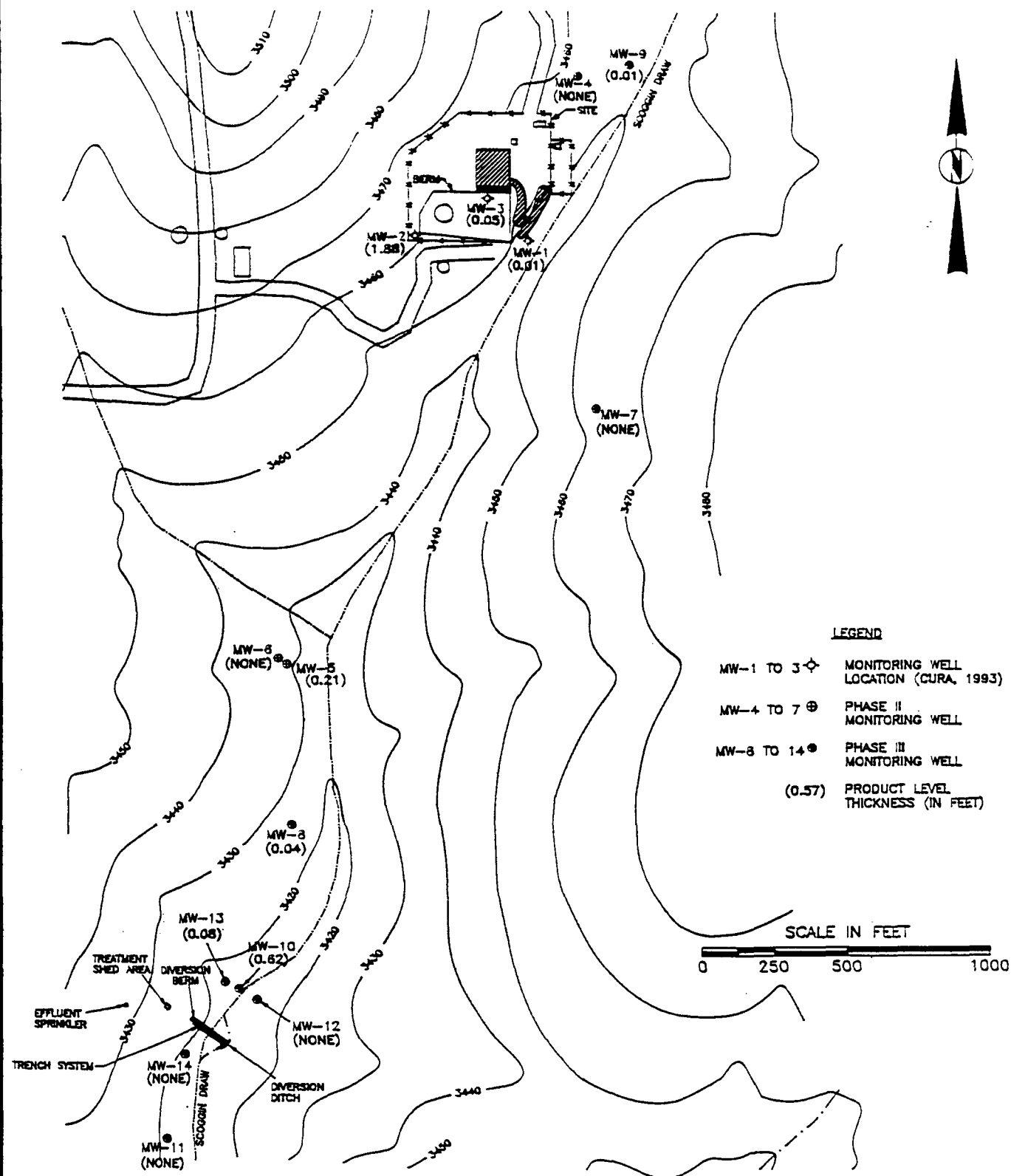
AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

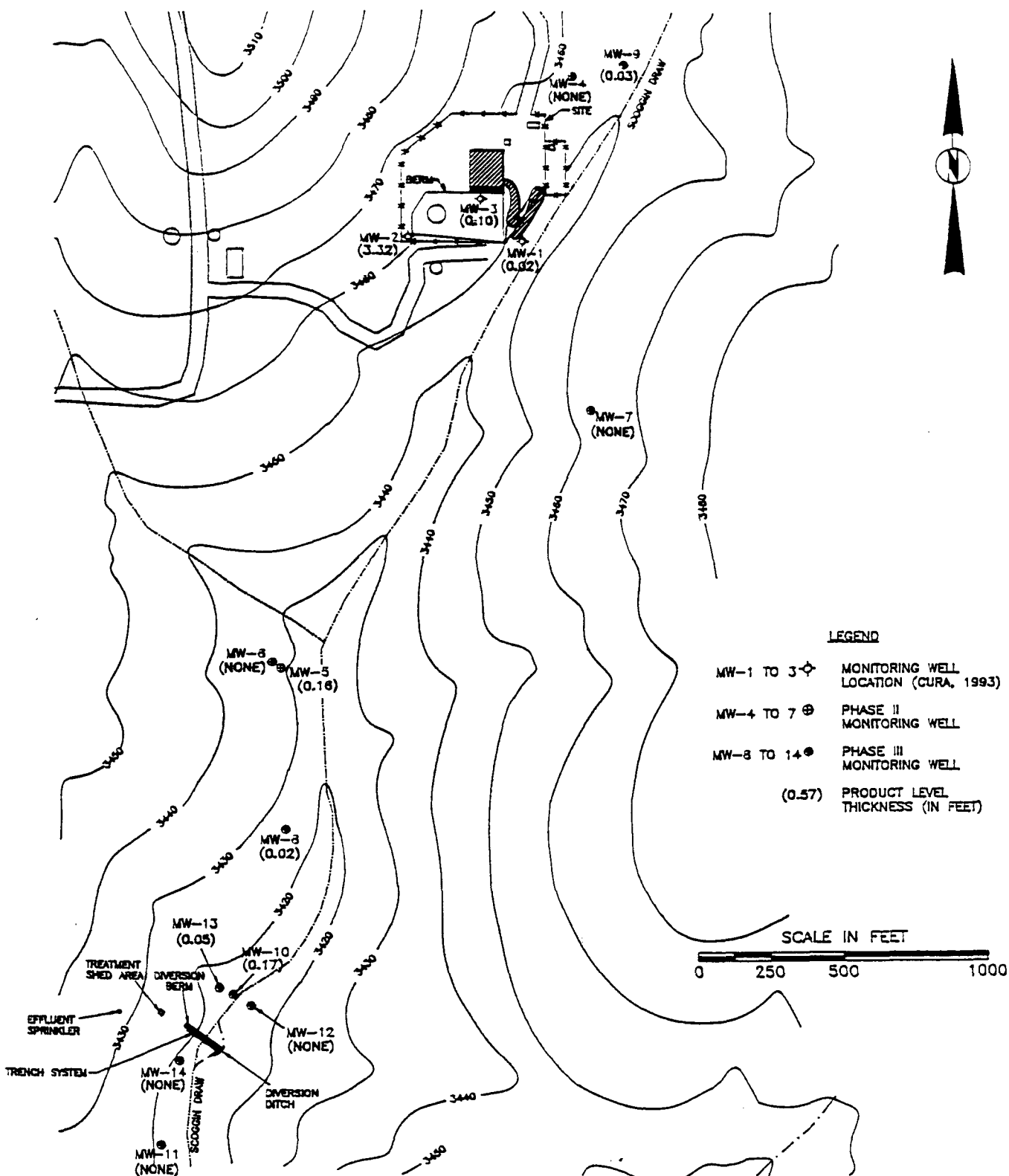
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FIGURE

3



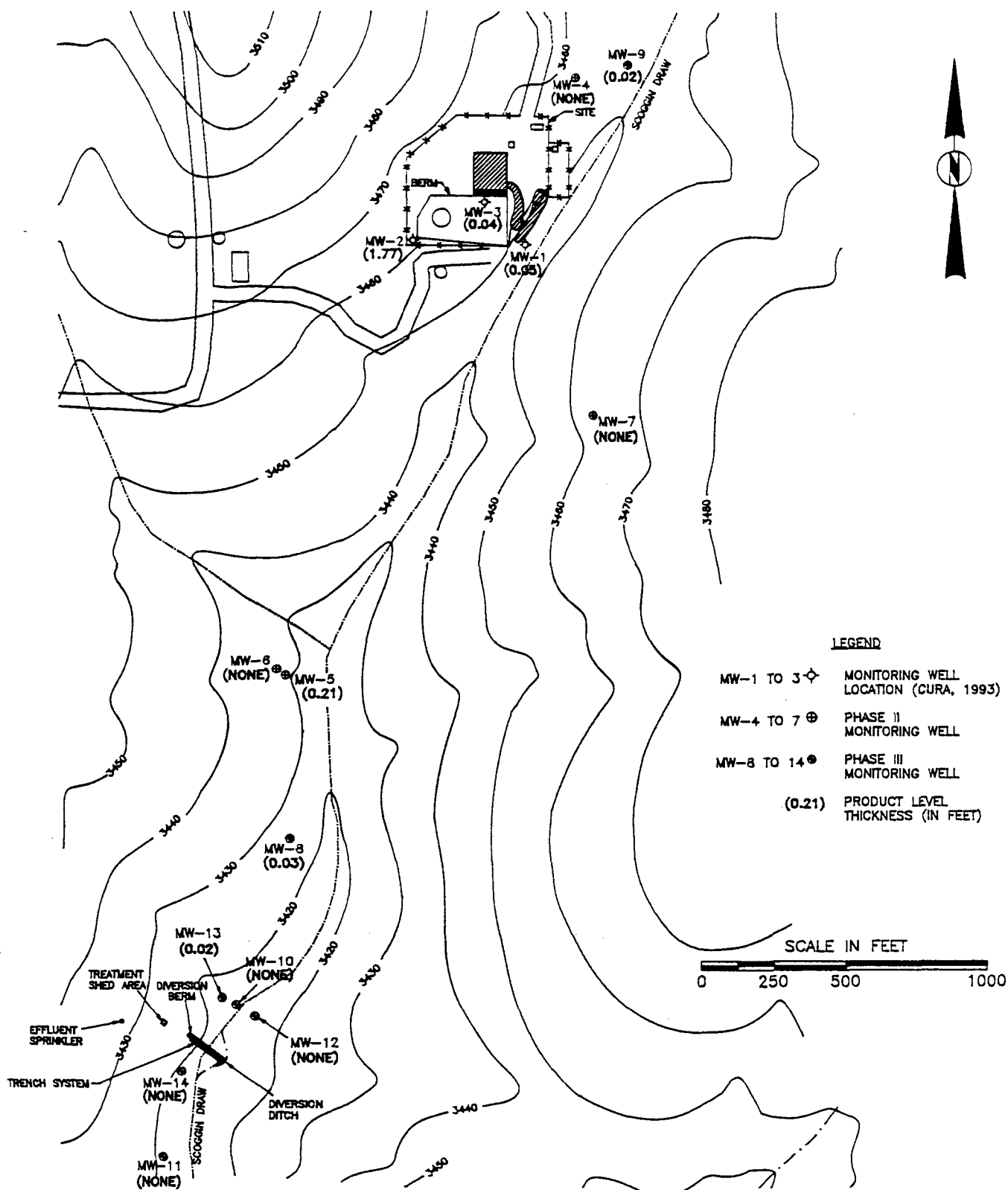




CHECK BY	HMM
DRAWN BY	BCP
DATE	7-16-96
SCALE	AS SHOWN
CAD NO.	2775.00-02
PRJ NO.	27751021

FREE PRODUCT
THICKNESS MAP
JULY 2, 1996
AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

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FIGURE 6



CHECK BY	HMM
DRAWN BY	BCP
DATE	10-9-96
SCALE	AS SHOWN
CAD NO.	2775.00-02
PRJ NO.	2775102J

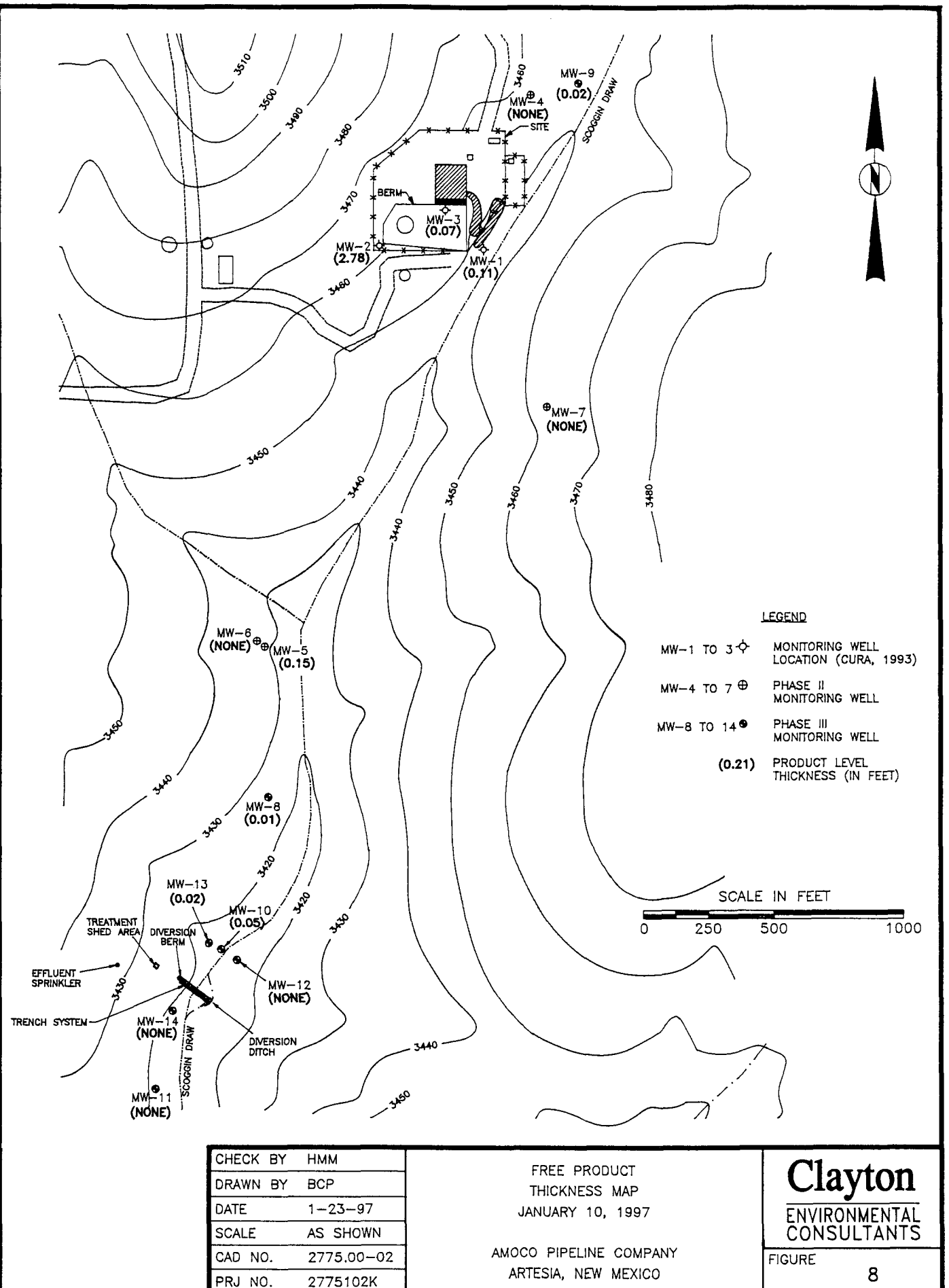
FREE PRODUCT
THICKNESS MAP
SEPTEMBER 30, 1996

AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

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FIGURE

7



CHECK BY	HMM
DRAWN BY	BCP
DATE	1-23-97
SCALE	AS SHOWN
CAD NO.	2775.00-02
PRJ NO.	2775102K

FREE PRODUCT
THICKNESS MAP
JANUARY 10, 1997

AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

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FIGURE

8

TABLES

- Table 1: Monthly BETX Results for the Influent and Effluent of the Air Stripper
- Table 2: Quarterly BETX Results for Monitoring Wells with No Free Product
- Table 3: Monitoring Well Water / Product Levels

Amoco Pipeline Company
Artesia, New Mexico

INFLUENT							
Sample Date:	8/2/96	10/15/96	11/10/96	01/10/97	01/10/97		
Benzene	1,200	2,400	2,400	810	2,200		
Ethylbenzene	210	290	270	100	220		
Toluene	160	<50	26	<50	<50		
Xylene	810	960	950	300	750		
EFFLUENT							
Sample Date:	8/2/96	10/15/96	11/10/96	01/10/97	01/10/97		
Benzene	9.3	<1	520	1.9	2.0		
Ethylbenzene	1.6	<1	62	<1	<1		
Toluene	<1.0	<1	6.2	<1	<1		
Xylene	7.9	<1	220	1.5	1.6		

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

1. All results are in $\mu\text{g/L}$.
2. Permit effluent limits are benzene (10 $\mu\text{g/L}$), ethylbenzene (750 $\mu\text{g/L}$), xylene (620 $\mu\text{g/L}$), and toluene (750 $\mu\text{g/L}$).

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	11/26/95	04/17/96	07/05/96	09/30/96	01/10/97
Benzene	<1	<1	<1	54.4	9.8	4.7	6.3	5.0	<1	<1
Ethylbenzene	<1	<1	<1	2.5	<1	1.3	<1.0	<1	<1	<1
Toluene	<1	<1	<1	<1	<1	2.0	1.1	<1	<1	<1
Xylene	<1	<1	<1	6.7	<1	3.8	3.6	2.0	<1	<1
WELL 6										
Sample Date:	11/25/94	12/21/94	02/16/95	06/16/95	10/02/95	11/26/95	04/16/96	07/06/96	09/30/96	01/10/97
Benzene	FREE	FREE	2.2	FREE	3.1	5.8	<1	<1	<1	<1
Ethylbenzene	PRODUCT	PRODUCT	<1	PRODUCT	<1	6.1	<1	<1	2.0	<1
Toluene	PRESENT	PRESENT	<1	PRESENT	<1	<1.0	<1	<1	<1	<1
Xylene			<1		2.5	1.9	3.7	<1	<1	<1
WELL 7										
Sample Date:	11/25/94	12/22/94	02/16/95	06/16/95	10/02/95	11/26/95	04/17/96	07/06/96	09/30/96	01/10/97
Benzene	<1	1590	846	3100	880	3000	1900	1,800	170	160
Ethylbenzene	<1	39	20.9	58.7	17	51	130	160	<2	<1
Toluene	<1	<10	<10	3.6	<10	4.6	<20	<10	<2	<1
Xylene	<1	86.5	52.7	140	35	200	100	120	11	3.2
WELL 10										
Sample Date:	11/17/94	12/22/94	02/16/95	06/14/95	10/02/95	11/25/95	04/16/96	07/02/96	09/30/96	01/10/97
Benzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	62	N/A
Ethylbenzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.2	N/A
Toluene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<1	N/A
Xylene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.2	N/A
WELL 11										
Sample Date:	11/17/94	12/22/94	02/16/95	06/14/95	10/02/95	11/25/95	04/16/96	07/02/96	09/30/96	01/10/97
Benzene	<1	<1	<1	<1	<1	1.3	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	2.1	1.1	<1	<1	1.5
Toluene	<1	<1	<1	<1	<1	5.3	2.8	<1	<1	1.2
Xylene	<1	<1	<1	<1	<1	6.1	3.7	<1	<1	6
WELL 12										
Sample Date:	11/17/94	12/22/94	02/16/95	06/16/95	10/02/95	11/26/95	04/16/96	07/02/96	09/30/96	01/10/97
Benzene	75	5.6	<1	<1	<1	1.1	1.5	4.1	30	2.3
Ethylbenzene	1	<1	<1	<1	<1	<1.0	1.8	<1	<1	<1
Toluene	1.1	<1	<1	<1	<1	3.5	5.1	<1	<1	<1
Xylene	1	<1	<1	<1	<1	5.1	5.8	1.2	<1	<1
WELL 14										
Sample Date:	11/17/94	12/22/94	02/16/95	06/16/95	10/02/95	11/26/95	04/16/96	07/02/96	09/30/96	01/10/97
Benzene	<1	<1	<1	<1	<1	<1.0	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1	1.7	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	<1	3.6	1.7	<1	<1	<1
Xylene	<1	<1	<1	<1	<1	6.8	2.4	<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
	11/26/95	15.85	15.87	0.02 (1)
	04/16-17/96	14.32	14.33	0.01
	07/06/96	15.55	15.57	0.02
	09/30/96	11.70	11.75	0.05
	01/10/97	12.79	12.90	0.11
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
	11/26/95	21.23	26.17	4.94 (1)
	04/16-17/96	20.58	22.46	1.88
	07/06/96	21.86	25.18	3.32
	09/30/96	19.17	20.94	1.77
	01/10/97	20.20	22.98	2.78
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
	11/26/95	9.69	10.41	0.72 (1)
	04/16-17/96	9.58	9.63	0.05
	07/06/96	11.70	11.80	0.10
	09/30/96	8.71	8.75	0.04
	01/10/97	10.33	10.40	0.07
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
	11/26/95	NONE	22.61	NONE
	04/16-17/96	NONE	20.63	NONE
	07/06/96	NONE	26.44	NONE
	09/30/96	NONE	21.88	NONE
	01/10/97	NONE	25.24	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-5	11/17/94	16.22	24.19	7.97
	02/09/95	16.84	24.85	8.01 (1)
	06/16/95	19.44	21.14	1.70
	10/02/95	16.19	17.85	1.66
	11/26/95	17.58	19.31	1.73 (1)
	04/16-17/96	17.04	17.25	0.21
	07/06/96	16.20	16.36	0.16
	09/30/96	11.17	11.38	0.21
	01/10/97	13.45	13.60	0.15
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
	11/26/95	NONE	14.84	NONE
	04/16-17/96	NONE	13.80	NONE
	07/06/96	NONE	14.55	NONE
	09/30/96	NONE	9.62	NONE
	01/10/97	NONE	12.26	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
	11/26/95	NONE	33.2	NONE
	04/16-17/96	NONE	30.95	NONE
	07/06/96	NONE	33.36	NONE
	09/30/96	NONE	29.15	NONE
	01/10/97	NONE	30.72	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
	11/26/95	14.16	14.71	0.55 (1)
	04/16-17/96	13.66	13.70	0.04
	07/05/96	13.05	13.07	0.02 (1)
	09/30/96	8.04	8.07	0.03
	01/10/97	9.89	9.90	0.01

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-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
	11/26/95	SKIM	19.52	SKIM
	04/16-17/96	17.53	17.54	0.01
	07/06/96	21.20	21.23	0.03
	09/30/96	16.00	16.02	0.02
	01/10/97	17.55	17.57	0.02
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
	11/25/95	20.13	22.03	1.90 (1)
	04/16-17/96	20.26	20.88	0.62
	07/05/96	19.86	20.03	0.17 (1)
	09/30/96	NONE	15.62	NONE
	01/10/97	19.00	19.05	0.05
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
	11/25/95	NONE	19.94	NONE
	04/16-17/96	NONE	19.68	NONE
	07/06/96	NONE	19.75	NONE
	09/30/96	NONE	18.65	NONE
	01/10/97	NONE	19.92	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
	11/25/95	NONE	16.63	NONE
	04/16-17/96	NONE	16.55	NONE
	07/06/96	NONE	16.45	NONE
	09/30/96	NONE	13.81	NONE
	01/10/97	NONE	18.92	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-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
	11/25/95	21.53	21.58	0.05 (1)
	04/16-17/96	21.82	21.90	0.08
	07/05/96	21.00	21.05	0.05 (1)
	09/30/96	16.40	16.42	0.02
	01/10/97	19.17	19.19	0.02
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
	11/26/95	NONE	18.83	NONE
	04/16-17/96	NONE	18.55	NONE
	07/06/96	NONE	18.58	NONE
	09/30/96	NONE	17.63	NONE
	01/10/97	NONE	17.42	NONE

(1) Well bailed after level measurements taken.

APPENDIX A

LABORATORY RESULTS

- BETX Results For The Influent and Effluent Of The Air Stripper -- Samples Taken 11/10/96
- BETX Results For The Influent and Effluent Of The Air Stripper (Monthly and Quarterly Sampling) and MW-11 and MW-14 -- Samples Taken 1/10/97
- BETX and Heavy Metals and Cation/Anion Results For Monitoring Wells MW-4, MW-6, MW-7, and for MW-12, -- Samples Taken 1/15/97
- PAH Results For The Influent and Effluent To the Air Stripper -- Samples Taken 1/15/97
- PAH Results for Monitoring Wells MW-4, MW-6, MW-7, and MW-12 -- Samples Taken 1/10/97
- PAH Results For MW-11 -- Sample Taken 1/21/97
- Heavy Metals and Cation/Anion Results for the Influent and Effluent of the Air Stripper and MW-11 and MW-14 -- Samples Taken 1/10/97
- PAH Results For MW-14 -- Sample Taken 1/10/97



NATIONAL
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Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
Naperville, IL 60563

11/21/1996

NET Job Number: 96.10795

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 Company

Sample Number	Sample Description	Date Taken	Date Received
383547	Influent; Grab	11/10/1996	11/12/1996
383548	Effluent; Grab	11/10/1996	11/12/1996
383549	Trip Blank		11/12/1996

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



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ANALYTICAL REPORT

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

11/21/1996

Sample No. : 383547

NET Job No.: 96.10795

Sample Description: Influent; Grab
Amoco Pipeline Company

Date Taken: 11/10/1996
Time Taken: 09:31
IEPA Cert. No. 100221

Date Received: 11/12/1996
Time Received: 10:20
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	2,400	ug/L	11/21/1996	1.0	11j	1694	8240 (1)
Ethyl Benzene	270	ug/L	11/20/1996	1.0	11j	1693	8240 (1)
Toluene	26	ug/L	11/20/1996	1.0	11j	1693	8240 (1)
Xylenes, Total	950	ug/L	11/20/1996	1.0	11j	1693	8240 (1)
Surr: Toluene-d8	95.6	µ	11/20/1996	88-110	11j	1693	8240 (1)
Surr: Bromofluorobenzene	95.2	µ	11/20/1996	86-115	11j	1693	8240 (1)
Surr: 1,2-Dichloroethane-d4	108.2	µ	11/20/1996	76-114	11j	1693	8240 (1)

BETX analysis performed at a 10x dilution.



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ANALYTICAL REPORT

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

11/21/1996

Sample No. : 383548

NET Job No.: 96.10795

Sample Description: Effluent; Grab
Amoco Pipeline Company

Date Taken: 11/10/1996
Time Taken: 09:36
IEPA Cert. No. 100221

Date Received: 11/12/1996
Time Received: 10:20
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	520	ug/L	11/21/1996	1.0	11j	1694	8240 (1)
Ethyl Benzene	62	ug/L	11/21/1996	1.0	11j	1694	8240 (1)
Toluene	6.2	ug/L	11/21/1996	1.0	11j	1694	8240 (1)
Xylenes, Total	220	ug/L	11/21/1996	1.0	11j	1694	8240 (1)
Surr: Toluene-d8	100.6	%	11/21/1996	88-110	11j	1694	8240 (1)
Surr: Bromofluorobenzene	94.0	%	11/21/1996	86-115	11j	1694	8240 (1)
Surr: 1,2-Dichloroethane-d4	82.6	%	11/21/1996	76-114	11j	1694	8240 (1)



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ANALYTICAL REPORT

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

11/21/1996

Sample No. : 383549

NET Job No.: 96.10795

Sample Description: Trip Blank
Amoco Pipeline Company

Date Taken:
Time Taken:
IEPA Cert. No. 100221

Date Received: 11/12/1996
Time Received: 10:20
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	11/20/1996	1.0	11j	1693 8240	(1)
Ethyl Benzene	<1.0	ug/L	11/20/1996	1.0	11j	1693 8240	(1)
Toluene	<1.0	ug/L	11/20/1996	1.0	11j	1693 8240	(1)
Xylenes, Total	<1.0	ug/L	11/20/1996	1.0	11j	1693 8240	(1)
Surr: Toluene-d8	94.8	%	11/20/1996	88-110	11j	1693 8240	(1)
Surr: Bromofluorobenzene	95.0	%	11/20/1996	86-115	11j	1693 8240	(1)
Surr: 1,2-Dichloroethane-d4	108.6	%	11/20/1996	76-114	11j	1693 8240	(1)



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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

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

11/21/1996

NET Job Number: 96.10795

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
UST VOLATILES 8240 - AQUEOUS				
Benzene	1693	50.0	53.4	106.8
Ethyl Benzene	1693	50.0	59.0	118.0
Toluene	1693	50.0	57.3	114.6
Xylenes, Total	1693	150	178	118.7
UST VOLATILES 8240 - AQUEOUS				
Benzene	1694	50.0	50.5	101.0
Ethyl Benzene	1694	50.0	49.0	98.0
Toluene	1694	50.0	49.7	99.4
Xylenes, Total	1694	150	144	96.0

CCV - Continuing Calibration Verification



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QUALITY CONTROL REPORT

BLANK ANALYSIS

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

11/21/1996

NET Job Number: 96.10795

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
UST VOLATILES 8240 - AQUEOUS						8240 (1)
Benzene		1693	<1.0	ug/L	1.0	8240 (1)
Ethyl Benzene		1693	<1.0	ug/L	1.0	8240 (1)
Toluene		1693	<1.0	ug/L	1.0	8240 (1)
Xylenes, Total		1693	<1.0	ug/L	1.0	8240 (1)
Surr: 1,2-Dichloroethane-d4		1693	101.8	%	76-114	8240 (1)
Surr: Toluene-d8		1693	95.2	%	88-110	8240 (1)
Surr: Bromofluorobenzene		1693	94.2	%	86-115	8240 (1)
UST VOLATILES 8240 - AQUEOUS						8240 (1)
Benzene		1694	<1.0	ug/L	1.0	8240 (1)
Ethyl Benzene		1694	<1.0	ug/L	1.0	8240 (1)
Toluene		1694	<1.0	ug/L	1.0	8240 (1)
Xylenes, Total		1694	<1.0	ug/L	1.0	8240 (1)
Surr: 1,2-Dichloroethane-d4		1694	81.4	%	76-114	8240 (1)
Surr: Toluene-d8		1694	101.2	%	88-110	8240 (1)
Surr: Bromofluorobenzene		1694	96.2	%	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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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

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

11/21/1996

NET Job Number: 96.10795

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
UST VOLATILES 8240 - AQUEOUS					
Benzene		1693	20.0	19.5	97.5
Ethyl Benzene		1693	20.0	21.9	109.5
Toluene		1693	20.0	20.6	103.0
Xylenes, Total		1693	60.0	62.8	104.7
Surr: 1,2-Dichloroethane-d4		1693	50.0	50.0	100.0
Surr: Toluene-d8		1693	50.0	48.1	96.2
Surr: Bromofluorobenzene		1693	50.0	47.5	95.0
UST VOLATILES 8240 - AQUEOUS					
Benzene		1694	20.0	21.4	107.0
Ethyl Benzene		1694	20.0	21.5	107.5
Toluene		1694	20.0	21.1	105.5
Xylenes, Total		1694	60.0	61.5	102.5
Surr: 1,2-Dichloroethane-d4		1694	50.0	41.0	82.0
Surr: Toluene-d8		1694	50.0	50.0	100.0
Surr: Bromofluorobenzene		1694	50.0	47.6	95.2

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).
TCLP	: These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
Surr:	: These initials are the abbreviation for surrogate. Surrogates are compounds that are chemically similar to the compounds of interest. They are part of the method quality control requirements.
%	: Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
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
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CHAIN OF CUSTODY RECORD

COMPANY

Address: *Amoco Pipeline Co.*

ADDRESS

mi 60612 P.O. Box 7513 Chicago, IL 60680-7513

PHONE

FAX

PROJECT NAME/LOCATION

PROJECT NUMBER

PROJECT MANAGER

SAMPLED BY

John M. Bannister

(PRINT NAME)

SIGNATURE

(PRINT NAME)

SIGNATURE

MBF SERVICES

John M. Bannister

ANALYSES

and Type of Containers

MATRIX GRAB COMP HCl NaOH HNO₃ H₂SO₄ OTHER

DATE TIME

11/10/96 09:30 3 Vials Influent
11/10/96 09:30 3 Vials Effluent
2 Vials TRIP Blank

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

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: *8.5°C*
Bottles supplied by NET? YES/NO ☒

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

RELINQUISHED BY: *John M. Bannister*

DATE: *11/11/96*

RECEIVED BY: *John M. Bannister*

RELINQUISHED BY:

DATE

TIME

RECEIVED FOR NET BY:

METHOD OF SHIPMENT

FEDEX OVER NIGHT

REMARKS:

Please Send Copy To H. Mittlehauser # 2775

DATE

TIME

RECEIVED FOR NET BY:

11-12-96 10:20 Maria Perry



**NATIONAL
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(800) 807-2877

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

01/20/1997

NET Job Number: 97.00280

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
391302	Influent Qtrly Sampling	01/10/1997	01/14/1997
391303	Effluent Qtrly Sampling	01/10/1997	01/14/1997
391304	Influent Monthly	01/10/1997	01/14/1997
391305	Effluent Monthly	01/10/1997	01/14/1997
391306	MW-11	01/10/1997	01/14/1997
391307	MW-14	01/10/1997	01/14/1997
391308	Trip Blank	01/10/1997	01/14/1997

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



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ANALYTICAL REPORT

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

01/20/1997

Sample No. : 391302

NET Job No.: 97.00280

Sample Description: Influent Qtrly Sampling
Amoco Pipeline Co., Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 01/14/1997
Time Received: 10:47
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	810	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Ethyl Benzene	100	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Toluene	<50	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Xylenes, Total	300	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Surr: Toluene-d8	99.4	%	01/17/1997	88-110	11j	1783	8240 (1)
Surr: Bromofluorobenzene	108.8	%	01/17/1997	86-115	11j	1783	8240 (1)
Surr: 1,2-Dichloroethane-d4	99.2	%	01/17/1997	76-114	11j	1783	8240 (1)

VOA ANALYZED AT A 50X DILUTION.



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ANALYTICAL REPORT

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

01/20/1997

Sample No. : 391303

NET Job No.: 97.00280

Sample Description: Effluent Qtrly Sampling
Amoco Pipeline Co., Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:10
IEPA Cert. No. 100221

Date Received: 01/14/1997
Time Received: 10:47
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	1.9	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Ethyl Benzene	<1.0	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Toluene	<1.0	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Xylenes, Total	1.5	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Surr: Toluene-d8	95.4	%	01/17/1997	88-110	11j	1783	8240 (1)
Surr: Bromofluorobenzene	108.4	%	01/17/1997	86-115	11j	1783	8240 (1)
Surr: 1,2-Dichloroethane-d4	100.0	%	01/17/1997	76-114	11j	1783	8240 (1)



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ANALYTICAL REPORT

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

01/20/1997

Sample No. : 391304

NET Job No.: 97.00280

Sample Description: Influent Monthly
Amoco Pipeline Co., Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:20
IEPA Cert. No. 100221

Date Received: 01/14/1997
Time Received: 10:47
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	2,200	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Ethyl Benzene	220	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Toluene	<50	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Xylenes, Total	750	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Surr: Toluene-d8	98.0	†	01/17/1997	88-110	11j	1783	8240 (1)
Surr: Bromofluorobenzene	108.6	†	01/17/1997	86-115	11j	1783	8240 (1)
Surr: 1,2-Dichloroethane-d4	99.0	†	01/17/1997	76-114	11j	1783	8240 (1)

VOA ANALYZED AT 50X DILUTION.



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ANALYTICAL REPORT

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

01/20/1997

Sample No. : 391305

NET Job No.: 97.00280

Sample Description: Effluent Monthly
Amoco Pipeline Co., Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:22
IEPA Cert. No. 100221

Date Received: 01/14/1997
Time Received: 10:47
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	2.0	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Ethyl Benzene	<1.0	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Toluene	<1.0	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Xylenes, Total	1.6	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Surr: Toluene-d8	109.4	†	01/17/1997	88-110	11j	1783	8240 (1)
Surr: Bromofluorobenzene	98.0	†	01/17/1997	86-115	11j	1783	8240 (1)
Surr: 1,2-Dichloroethane-d4	98.2	†	01/17/1997	76-114	11j	1783	8240 (1)



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ANALYTICAL REPORT

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

01/20/1997

Sample No. : 391306

NET Job No.: 97.00280

Sample Description: MW-11
Amoco Pipeline Co., Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:45
IEPA Cert. No. 100221

Date Received: 01/14/1997
Time Received: 10:47
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	01/17/1997	1.0	11j	1783 8240	(1)
Ethyl Benzene	1.5	ug/L	01/17/1997	1.0	11j	1783 8240	(1)
Toluene	1.2	ug/L	01/17/1997	1.0	11j	1783 8240	(1)
Xylenes, Total	6.0	ug/L	01/17/1997	1.0	11j	1783 8240	(1)
Surr: Toluene-d8	100.2	%	01/17/1997	88-110	11j	1783 8240	(1)
Surr: Bromofluorobenzene	106.6	%	01/17/1997	86-115	11j	1783 8240	(1)
Surr: 1,2-Dichloroethane-d4	99.6	%	01/17/1997	76-114	11j	1783 8240	(1)



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ANALYTICAL REPORT

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

01/20/1997

Sample No. : 391307

NET Job No.: 97.00280

Sample Description: MW-14
Amoco Pipeline Co., Artesia Station

Date Taken: 01/10/1997
Time Taken: 16:45
IEPA Cert. No. 100221

Date Received: 01/14/1997
Time Received: 10:47
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	01/17/1997	1.0	11j	1783 8240	(1)
Ethyl Benzene	<1.0	ug/L	01/17/1997	1.0	11j	1783 8240	(1)
Toluene	<1.0	ug/L	01/17/1997	1.0	11j	1783 8240	(1)
Xylenes, Total	<1.0	ug/L	01/17/1997	1.0	11j	1783 8240	(1)
Surr: Toluene-d8	96.6	%	01/17/1997	88-110	11j	1783 8240	(1)
Surr: Bromofluorobenzene	108.2	%	01/17/1997	86-115	11j	1783 8240	(1)
Surr: 1,2-Dichloroethane-d4	98.8	%	01/17/1997	76-114	11j	1783 8240	(1)



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ANALYTICAL REPORT

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

01/20/1997

Sample No. : 391308

NET Job No.: 97.00280

Sample Description: Trip Blank
Amoco Pipeline Co., Artesia Station

Date Taken: 01/10/1997
Time Taken:
IEPA Cert. No. 100221

Date Received: 01/14/1997
Time Received: 10:47
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	01/17/1997	1.0	11j	1783	8240 (1)
Ethyl Benzene	<1.0	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Toluene	<1.0	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Xylenes, Total	<1.0	ug/L	01/17/1997	1.0	11j	1783	8240 (1)
Surr: Toluene-d8	105.6	%	01/17/1997	88-110	11j	1783	8240 (1)
Surr: Bromofluorobenzene	100.2	%	01/17/1997	86-115	11j	1783	8240 (1)
Surr: 1,2-Dichloroethane-d4	98.2	%	01/17/1997	76-114	11j	1783	8240 (1)



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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

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

01/20/1997

NET Job Number: 97.00280

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
UST VOLATILES 8240 - AQUEOUS				
Benzene	1783	50.0	58.0	116.0
Ethyl Benzene	1783	50.0	58.5	117.0
Toluene	1783	50.0	57.6	115.2
Xylenes, Total	1783	150	176	117.3

CCV - Continuing Calibration Verification



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QUALITY CONTROL REPORT

BLANK ANALYSIS

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

01/20/1997

NET Job Number: 97.00280

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
UST VOLATILES 8240 - AQUEOUS						8240 (1)
Benzene		1783	<1.0	ug/L	1.0	8240 (1)
Ethyl Benzene		1783	<1.0	ug/L	1.0	8240 (1)
Toluene		1783	<1.0	ug/L	1.0	8240 (1)
Xylenes, Total		1783	<1.0	ug/L	1.0	8240 (1)
Surr: 1,2-Dichloroethane-d4		1783	99.8	%	76-114	8240 (1)
Surr: Toluene-d8		1783	105.0	%	88-110	8240 (1)
Surr: Bromofluorobenzene		1783	103.0	%	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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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

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

01/20/1997

NET Job Number: 97.00280

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
UST VOLATILES 8240 - AQUEOUS					
Benzene		1783	20.0	22.6	113.0
Ethyl Benzene		1783	20.0	22.8	114.0
Toluene		1783	20.0	21.8	109.0
Xylenes, Total		1783	60.0	68.2	113.7
Surr: 1,2-Dichloroethane-d4		1783	50.0	51.0	102.0
Surr: Toluene-d8		1783	50.0	51.1	102.2
Surr: Bromofluorobenzene		1783	50.0	54.2	108.4



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QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

01/20/1997

NET Job Number: 97.00280

Analyte	Prep	Run	Matrix	Sample	Spike	Units	Percent	MSD	MSD		Percent	MS/MSD
	Batch	Batch	Spike						Spike	Amount	Recovery	
	Number	Number	Result	Result	Amount		Recovery	Result	Amount	Units		RPD
UST VOLATILES 8240 - AQUEOU												
Benzene		1783	22.3	<1.0	20.0	ug/L	111.5	22.4	20.0	ug/L	112.0	0.4
Ethyl Benzene		1783	22.6	1.5	20.0	ug/L	105.5	23.5	20.0	ug/L	110.0	4.2
Toluene		1783	22.6	1.2	20.0	ug/L	107.0	24.0	20.0	ug/L	114.0	6.3
Xylenes, Total		1783	69.5	6.0	60.0	ug/L	105.8	70.9	60.0	ug/L	108.2	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

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).
TCLP	: These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
Surrogate	: These initials are the abbreviation for surrogate. Surrogates are compounds that are chemically similar to the compounds of interest. They are part of the method quality control requirements.
%	: Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
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.

- (7) See "Methods for the Determination of Metals in Environmental Samples", Supplement I
EPA-600/R-94/111, May 1994.
- (8) See "Standard Methods for the Examination of Water and Wastewater", 18th Ed., APHA, 1992.



NATIONAL
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CHAIN OF CUSTODY RECORD

COMPANY Amoco Pipeline Co.
ADDRESS MC Pab 3000 Pab 9513 Chicago IL 60600-7513
PHONE 312-356-7251 FAX 312-836-3231
PROJECT NAME/LOCATION Amoco Pipeline Co. Artesia Station

PROJECT NUMBER MC Pab 3000
PROJECT MANAGER Mr. D. E. Egan

SAMPLED BY Clayton M. Egan
(PRINT NAME)

SIGNATURE [Signature]

DATE	TIME	SAMPLE DESCRIPTION	MATRIX	GRAB	COMP	HCl	NaOH	HNO ₃	H ₂ SO ₄	OTHER	# and Type of Containers	ANALYSES										COMMENTS
1/10/97	15:00	3 VOAS in front of plant	Gravel			X																
1/10/97	15:10	3 VOAS Effluent	Gravel			X																
1/10/97	15:20	2 VOAS in front of plant	Gravel			X																
1/10/97	15:22	2 VOAS Effluent	Gravel			X																
1/10/97	15:45	3 VOAS at MW-1	Gravel			X																
1/10/97	16:45	3 VOAS MW-14	Gravel			X																
1/10/97		2 VOAS Trip Blank				X																

CONDITION OF SAMPLE: BOTTLES INTACT? YES/NO YES FIELD FILTERED? YES/NO N/A COC SEALS PRESENT AND INTACT? YES/NO YES VOLATILES FREE OF HEADSPACE? YES/NO YES

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

RECEIVED BY: [Signature] DATE: 1/13/97 TIME: 15:10
METHOD OF SHIPMENT: Fedex
REMARKS: Please Send Copy of Report Promptly to H. Mitche/Amoco 2775



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

01/28/1997

NET Job Number: 97.00394

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 Artesia Station

Sample Number	Sample Description	Date Taken	Date Received
391746	Monitor Well #12; Grab	01/15/1997	01/16/1997
391747	Monitor Well #6; Grab	01/15/1997	01/16/1997
391748	Monitor Well #7; Grab	01/15/1997	01/16/1997
391749	Monitor Well #4; Grab	01/15/1997	01/16/1997

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



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ANALYTICAL REPORT

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

01/28/1997

Sample No. : 391746

NET Job No.: 97.00394

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

Date Taken: 01/15/1997
Time Taken: 12:00
IEPA Cert. No. 100221

Date Received: 01/16/1997
Time Received: 13:15
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Alkalinity, bicarb (CaCO ₃)	432	mg/L	01/21/1997	5	sdf	375	310.1(3)
Alkalinity, carbonate (CaCO ₃)	<5	mg/L	01/21/1997	5	sdf	375	310.1(3)
Chloride	480	mg/L	01/17/1997	5	tdw	536	325.3(3)
Fluoride	0.65	mg/L	01/17/1997	0.05	llb	393	340.2(3)
Hardness, Total	2,520	mg/L	01/21/1997	5	llb	213	130.2(3)
pH	7.10	units	01/21/1997	0.10	llb	1246	150.1(3)
Solids, Total Dissolved	4,050	mg/L	01/21/1997	25	llb	813	160.1(3)
Solids, Total Suspended	61	mg/L	01/21/1997	5	tdw	953	160.2(3)
Sulfate	1,701	mg/L	01/21/1997		jrt	286	375.4 (3)
Antimony, ICP	<0.50	mg/L	01/27/1997	0.50	jmt	1359 1950	6010 (1)
Arsenic, GFAA	0.0133	M+	01/27/1997	0.0050	jmt	716	7060 (1)
Beryllium, ICP	<0.0050	mg/L	01/27/1997	0.0050	jmt	1359 2033	6010 (1)
Cadmium, ICP	<0.010	mg/L	01/27/1997	0.010	jmt	1359 2056	6010 (1)
Calcium, AA	530	mg/L	01/27/1997	1.0	jmt	1359 331	7140 (1)
Chromium, ICP	<0.040	mg/L	01/27/1997	0.040	jmt	1359 2029	6010 (1)
Copper, ICP	<0.020	mg/L	01/27/1997	0.020	jmt	1359 2382	6010 (1)
Iron, ICP	2.59	mg/L	01/27/1997	0.050	jmt	1359 2980	6010 (1)
Lead, ICP	<0.080	mg/L	01/27/1997	0.080	jmt	1359 2247	6010 (1)
Magnesium, AA	150	mg/L	01/27/1997	1.0	jmt	1359 315	7450 (1)
Manganese, ICP	1.29	mg/L	01/27/1997	0.010	jmt	1359 1969	6010 (1)
Mercury, CVAA	<0.0002	mg/L	01/20/1997	0.0002	jmt	784 758	7470 (1)
Nickel, ICP	<0.050	mg/L	01/27/1997	0.050	jmt	1359 2120	6010 (1)
Potassium, AA	5.0	mg/L	01/27/1997	1.0	jmt	1359 323	7610 (1)
Selenium, GFAA	<0.0050	M+	01/24/1997	0.0050	jmt	844 456	7740 (1)
Silver, AA	<0.040	mg/L	01/21/1997	0.040	jmt	609 614	7760 (1)
Sodium, AA	370	mg/L	01/27/1997	1.0	jmt	1359 338	7770 (1)
Thallium, ICP	<0.20	mg/L	01/27/1997	0.20	jmt	1359 1998	6010 (1)
Zinc, ICP	<0.020	mg/L	01/27/1997	0.020	jmt	1359 2122	6010 (1)

M+ : Analyte quantified by MSA due to low spike recovery.



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ANALYTICAL REPORT

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

01/28/1997

Sample No. : 391746

NET Job No.: 97.00394

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

Date Taken: 01/15/1997
Time Taken: 12:00
IEPA Cert. No. 100221

Date Received: 01/16/1997
Time Received: 13:15
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	2.3	ug/L	01/25/1997	1.0	out	1798	8240 (1)
Ethyl Benzene	<1.0	ug/L	01/25/1997	1.0	out	1798	8240 (1)
Toluene	<1.0	ug/L	01/25/1997	1.0	out	1798	8240 (1)
Xylenes, Total	<1.0	ug/L	01/25/1997	1.0	out	1798	8240 (1)
Surr: Toluene-d8	97.0	†	01/25/1997	88-110	out	1798	8240 (1)
Surr: Bromofluorobenzene	90.0	†	01/25/1997	86-115	out	1798	8240 (1)
Surr: 1,2-Dichloroethane-d4	104.0	†	01/25/1997	76-114	out	1798	8240 (1)



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ANALYTICAL REPORT

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

01/28/1997

Sample No. : 391747

NET Job No.: 97.00394

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

Date Taken: 01/15/1997
Time Taken: 13:15
IEPA Cert. No. 100221

Date Received: 01/16/1997
Time Received: 13:15
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Alkalinity, bicarb (CaCO ₃)	250	mg/L	01/21/1997	5	sdf	375	310.1(3)
Alkalinity, carbonate (CaCO ₃)	<5	mg/L	01/21/1997	5	sdf	375	310.1(3)
Chloride	680	mg/L	01/17/1997	5	tdw	536	325.3(3)
Fluoride	3.58	mg/L	01/17/1997	0.05	llb	393	340.2(3)
Hardness, Total	2,360	mg/L	01/21/1997	5	llb	213	130.2(3)
pH	7.40	units	01/21/1997	0.10	llb	1246	150.1(3)
Solids, Total Dissolved	4,490	mg/L	01/21/1997	25	llb	813	160.1(3)
Solids, Total Suspended	122	mg/L	01/21/1997	5	tdw	953	160.2(3)
Sulfate	2,034	mg/L	01/21/1997		jrt	286	375.4 (3)
Antimony, ICP	<0.50	mg/L	01/27/1997	0.50	jmt	1359 1950	6010 (1)
Arsenic, GFAA	<0.0050	mg/L	01/24/1997	0.0050	jmt	844 716	7060 (1)
Beryllium, ICP	<0.0050	mg/L	01/27/1997	0.0050	jmt	1359 2033	6010 (1)
Cadmium, ICP	<0.010	mg/L	01/27/1997	0.010	jmt	1359 2056	6010 (1)
Calcium, AA	450	mg/L	01/27/1997	1.0	jmt	1359 331	7140 (1)
Chromium, ICP	<0.040	mg/L	01/27/1997	0.040	jmt	1359 2029	6010 (1)
Copper, ICP	<0.020	mg/L	01/27/1997	0.020	jmt	1359 2382	6010 (1)
Iron, ICP	4.88	mg/L	01/27/1997	0.050	jmt	1359 2980	6010 (1)
Lead, ICP	<0.080	mg/L	01/27/1997	0.080	jmt	1359 2247	6010 (1)
Magnesium, AA	140	mg/L	01/27/1997	1.0	jmt	1359 315	7450 (1)
Manganese, ICP	0.029	mg/L	01/27/1997	0.010	jmt	1359 1969	6010 (1)
Mercury, CVAA	<0.0002	mg/L	01/20/1997	0.0002	jmt	784 758	7470 (1)
Nickel, ICP	<0.050	mg/L	01/27/1997	0.050	jmt	1359 2120	6010 (1)
Potassium, AA	2.8	mg/L	01/27/1997	1.0	jmt	1359 323	7610 (1)
Selenium, GFAA	<0.0050	mg/L	01/24/1997	0.0050	jmt	844 456	7740 (1)
Silver, AA	<0.040	mg/L	01/21/1997	0.040	jmt	609 614	7760 (1)
Sodium, AA	510	mg/L	01/27/1997	1.0	jmt	1359 338	7770 (1)
Thallium, ICP	<0.20	mg/L	01/27/1997	0.20	jmt	1359 1998	6010 (1)
Zinc, ICP	<0.020	mg/L	01/27/1997	0.020	jmt	1359 2122	6010 (1)



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ANALYTICAL REPORT

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

01/28/1997

Sample No. : 391747

NET Job No.: 97.00394

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

Date Taken: 01/15/1997
Time Taken: 13:15
IEPA Cert. No. 100221

Date Received: 01/16/1997
Time Received: 13:15
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	01/25/1997	1.0	out	1798	8240 (1)
Ethyl Benzene	<1.0	ug/L	01/25/1997	1.0	out	1798	8240 (1)
Toluene	<1.0	ug/L	01/25/1997	1.0	out	1798	8240 (1)
Xylenes, Total	<1.0	ug/L	01/25/1997	1.0	out	1798	8240 (1)
Surr: Toluene-d8	98.0	%	01/25/1997	88-110	out	1798	8240 (1)
Surr: Bromofluorobenzene	90.0	%	01/25/1997	86-115	out	1798	8240 (1)
Surr: 1,2-Dichloroethane-d4	104.0	%	01/25/1997	76-114	out	1798	8240 (1)



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ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
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01/28/1997

Sample No. : 391748

NET Job No.: 97.00394

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

Date Taken: 01/15/1997
Time Taken: 14:45
IEPA Cert. No. 100221

Date Received: 01/16/1997
Time Received: 13:15
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Alkalinity, bicarb (CaCO ₃)	166	mg/L	01/21/1997	5	sdf	375	310.1(3)
Alkalinity, carbonate (CaCO ₃)	<5	mg/L	01/21/1997	5	sdf	375	310.1(3)
Chloride	810	mg/L	01/17/1997	5	tdw	536	325.3(3)
Fluoride	0.81	mg/L	01/17/1997	0.05	llb	393	340.2(3)
Hardness, Total	2,720	mg/L	01/21/1997	5	llb	213	130.2(3)
pH	7.32	units	01/21/1997	0.10	llb	1246	150.1(3)
Solids, Total Dissolved	4,980	mg/L	01/21/1997	25	llb	813	160.1(3)
Solids, Total Suspended	45	mg/L	01/21/1997	5	tdw	953	160.2(3)
Sulfate	1,881	mg/L	01/21/1997		jrt	286	375.4 (3)
Antimony, ICP	<0.50	mg/L	01/27/1997	0.50	jmt	1359 1950	6010 (1)
Arsenic, GFAA	<0.0050	mg/L	01/24/1997	0.0050	jmt	844 716	7060 (1)
Beryllium, ICP	<0.0050	mg/L	01/27/1997	0.0050	jmt	1359 2033	6010 (1)
Cadmium, ICP	<0.010	mg/L	01/27/1997	0.010	jmt	1359 2056	6010 (1)
Calcium, AA	610	mg/L	01/27/1997	1.0	jmt	1359 331	7140 (1)
Chromium, ICP	<0.040	mg/L	01/27/1997	0.040	jmt	1359 2029	6010 (1)
Copper, ICP	<0.020	mg/L	01/27/1997	0.020	jmt	1359 2382	6010 (1)
Iron, ICP	0.285	mg/L	01/27/1997	0.050	jmt	1359 2980	6010 (1)
Lead, ICP	<0.080	mg/L	01/27/1997	0.080	jmt	1359 2247	6010 (1)
Magnesium, AA	180	mg/L	01/27/1997	1.0	jmt	1359 315	7450 (1)
Manganese, ICP	0.049	mg/L	01/27/1997	0.010	jmt	1359 1969	6010 (1)
Mercury, CVAA	<0.0002	mg/L	01/20/1997	0.0002	jmt	784 758	7470 (1)
Nickel, ICP	<0.050	mg/L	01/27/1997	0.050	jmt	1359 2120	6010 (1)
Potassium, AA	8.9	mg/L	01/27/1997	1.0	jmt	1359 323	7610 (1)
Selenium, GFAA	<0.0050	mg/L	01/24/1997	0.0050	jmt	844 456	7740 (1)
Silver, AA	<0.040	mg/L	01/21/1997	0.040	jmt	609 614	7760 (1)
Sodium, AA	590	mg/L	01/27/1997	1.0	jmt	1359 338	7770 (1)
Thallium, ICP	<0.20	mg/L	01/27/1997	0.20	jmt	1359 1998	6010 (1)
Zinc, ICP	0.023	mg/L	01/27/1997	0.020	jmt	1359 2122	6010 (1)



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ANALYTICAL REPORT

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

01/28/1997

Sample No. : 391748

NET Job No.: 97.00394

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

Date Taken: 01/15/1997
Time Taken: 14:45
IEPA Cert. No. 100221

Date Received: 01/16/1997
Time Received: 13:15
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	160	ug/L	01/25/1997	1.0	out	1798	8240 (1)
Ethyl Benzene	<1.0	ug/L	01/25/1997	1.0	out	1798	8240 (1)
Toluene	<1.0	ug/L	01/25/1997	1.0	out	1798	8240 (1)
Xylenes, Total	3.2	ug/L	01/25/1997	1.0	out	1798	8240 (1)
Surr: Toluene-d8	98.0	%	01/25/1997	88-110	out	1798	8240 (1)
Surr: Bromofluorobenzene	90.0	%	01/25/1997	86-115	out	1798	8240 (1)
Surr: 1,2-Dichloroethane-d4	104.0	%	01/25/1997	76-114	out	1798	8240 (1)



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ANALYTICAL REPORT

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

01/28/1997

Sample No. : 391749

NET Job No.: 97.00394

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

Date Taken: 01/15/1997
Time Taken: 15:50
IEPA Cert. No. 100221

Date Received: 01/16/1997
Time Received: 13:15
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Alkalinity, bicarb (CaCO ₃)	202	mg/L	01/21/1997	5	sdf	375	310.1(3)
Alkalinity, carbonate (CaCO ₃)	<5	mg/L	01/21/1997	5	sdf	375	310.1(3)
Chloride	160	mg/L	01/17/1997	5	tdw	536	325.3(3)
Fluoride	0.76	mg/L	01/17/1997	0.05	llb	393	340.2(3)
Hardness, Total	1,990	mg/L	01/21/1997	5	llb	213	130.2(3)
pH	7.39	units	01/21/1997	0.10	llb	1246	150.1(3)
Solids, Total Dissolved	2,950	mg/L	01/21/1997	25	llb	813	160.1(3)
Solids, Total Suspended	26	mg/L	01/21/1997	5	tdw	953	160.2(3)
Sulfate	1,895	mg/L	01/21/1997		jrt	286	375.4 (3)
Antimony, ICP	<0.50	mg/L	01/27/1997	0.50	jmt	1359 1952	6010 (1)
Arsenic, GFAA	<0.0050	mg/L	01/24/1997	0.0050	jmt	844 716	7060 (1)
Beryllium, ICP	<0.0050	mg/L	01/27/1997	0.0050	jmt	1359 2035	6010 (1)
Cadmium, ICP	<0.010	mg/L	01/27/1997	0.010	jmt	1359 2056	6010 (1)
Calcium, AA	480	mg/L	01/27/1997	1.0	jmt	1359 331	7140 (1)
Chromium, ICP	<0.040	mg/L	01/27/1997	0.040	jmt	1359 2029	6010 (1)
Copper, ICP	<0.020	mg/L	01/27/1997	0.020	jmt	1359 2382	6010 (1)
Iron, ICP	0.092	mg/L	01/27/1997	0.050	jmt	1359 2980	6010 (1)
Lead, ICP	<0.080	mg/L	01/27/1997	0.080	jmt	1359 2247	6010 (1)
Magnesium, AA	93	mg/L	01/27/1997	1.0	jmt	1359 315	7450 (1)
Manganese, ICP	0.014	mg/L	01/27/1997	0.010	jmt	1359 1969	6010 (1)
Mercury, CVAA	<0.0002	mg/L	01/20/1997	0.0002	jmt	784 758	7470 (1)
Nickel, ICP	<0.050	mg/L	01/27/1997	0.050	jmt	1359 2120	6010 (1)
Potassium, AA	9.3	mg/L	01/27/1997	1.0	jmt	1359 323	7610 (1)
Selenium, GFAA	<0.0050	mg/L	01/24/1997	0.0050	jmt	844 456	7740 (1)
Silver, AA	<0.040	mg/L	01/21/1997	0.040	jmt	609 614	7760 (1)
Sodium, AA	140	mg/L	01/27/1997	1.0	jmt	1359 338	7770 (1)
Thallium, ICP	<0.20	mg/L	01/27/1997	0.20	jmt	1359 1998	6010 (1)
Zinc, ICP	0.023	mg/L	01/27/1997	0.020	jmt	1359 2122	6010 (1)



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ANALYTICAL REPORT

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

01/28/1997

Sample No. : 391749

NET Job No.: 97.00394

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

Date Taken: 01/15/1997
Time Taken: 15:50
IEPA Cert. No. 100221

Date Received: 01/16/1997
Time Received: 13:15
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	01/25/1997	1.0	out	1798 8240	(1)
Ethyl Benzene	<1.0	ug/L	01/25/1997	1.0	out	1798 8240	(1)
Toluene	<1.0	ug/L	01/25/1997	1.0	out	1798 8240	(1)
Xylenes, Total	<1.0	ug/L	01/25/1997	1.0	out	1798 8240	(1)
Surr: Toluene-d8	98.0	%	01/25/1997	88-110	out	1798 8240	(1)
Surr: Bromofluorobenzene	90.0	%	01/25/1997	86-115	out	1798 8240	(1)
Surr: 1,2-Dichloroethane-d4	103.0	%	01/25/1997	76-114	out	1798 8240	(1)



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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

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

01/28/1997

NET Job Number: 97.00394

Analyte	Run	CCV	Conc. Found	Percent Recovery
	Batch Number	True Conc.		
Alkalinity, bicarb (CaCO ₃)	375	100	96	96.0
Alkalinity, bicarb (CaCO ₃)	375	100	98	98.0
Alkalinity, carbonate (CaCO ₃)	375	100	96	96.0
Alkalinity, carbonate (CaCO ₃)	375	100	98	98.0
Fluoride	393	1.00	1.06	106.0
Hardness, Total	213	80	86	107.5
Solids, Total Dissolved	813	330	338	102.4
Sulfate	286	24	22.6	94.2
Antimony, ICP	1950	2.00	1.82	91.0
Arsenic, GFAA	716	0.0250	0.0254	101.6
Arsenic, GFAA	716	0.0250	0.0254	101.6
Beryllium, ICP	2033	1.00	0.900	90.0
Cadmium, ICP	2056	1.00	1.06	106.0
Calcium, AA	331	0.50	0.550	110.0
Chromium, ICP	2029	2.00	1.95	97.5
Copper, ICP	2382	1.00	0.913	91.3
Iron, ICP	2980	2.00	2.00	100.0
Lead, ICP	2247	2.00	2.06	103.0
Magnesium, AA	315	0.50	0.503	100.6
Mercury, CVAA	758	0.0025	0.0024	96.0
Nickel, ICP	2120	1.00	1.02	102.0
Potassium, AA	323	0.50	0.511	102.2
Selenium, GFAA	456	0.0500	0.0493	98.6
Silver, AA	614	0.500	0.495	99.0
Sodium, AA	338	0.50	0.525	105.0
Thallium, ICP	1998	2.00	1.80	90.0
Zinc, ICP	2122	2.00	2.00	100.0
UST VOLATILES 8240 - AQUEOUS				
Ethyl Benzene	1798	50.0	52.6	105.2
Toluene	1798	50.0	52.0	104.0

CCV - Continuing Calibration Verification



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QUALITY CONTROL REPORT

BLANK ANALYSIS

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

01/28/1997

NET Job Number: 97.00394

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
Alkalinity, bicarb (CaCO ₃)		375	<5	mg/L	5	310.1 (3)
Alkalinity, bicarb (CaCO ₃)		375	<5	mg/L	5	310.1 (3)
Alkalinity, carbonate (CaCO ₃)		375	<5	mg/L	5	310.1 (3)
Alkalinity, carbonate (CaCO ₃)		375	<5	mg/L	5	310.1 (3)
Chloride		536	<5	mg/L	5	325.3 (3)
Fluoride		393	<0.05	mg/L	0.05	340.2 (3)
Hardness, Total		213	<5	mg/L	5	130.2 (3)
Solids, Total Dissolved		813	<25	mg/L	25	160.1 (3)
Solids, Total Suspended		953	<5	mg/L	5	160.2 (3)
Sulfate		286	<5	mg/L		375.4 (3)
Antimony, ICP	1359	1950	<0.50	mg/L	0.50	6010 (1)
Antimony, ICP	1359	1950	<0.50	mg/L	0.50	6010 (1)
Arsenic, GFAA	844	716	<0.0050	mg/L	0.0050	7060 (1)
Beryllium, ICP	1359	2033	<0.0050	mg/L	0.0050	6010 (1)
Beryllium, ICP	1359	2033	<0.0050	mg/L	0.0050	6010 (1)
Cadmium, ICP	1359	2057	<0.010	mg/L	0.010	6010 (1)
Calcium, AA	1359	331	<1.0	mg/L	1.0	7140 (1)
Chromium, ICP	1359	2030	<0.040	mg/L	0.040	6010 (1)
Copper, ICP	1359	2382	<0.020	mg/L	0.020	6010 (1)
Iron, ICP	1359	2981	<0.050	mg/L	0.050	6010 (1)
Lead, ICP	1359	2248	<0.080	mg/L	0.080	6010 (1)
Magnesium, AA	1359	315	<1.0	mg/L	1.0	7450 (1)
Manganese, ICP	1359	1967	<0.010	mg/L	0.010	6010 (1)
Mercury, CVAA	784	758	<0.0002	mg/L	0.0002	7470 (1)
Mercury, CVAA	784	758	<0.0002	mg/L	0.0002	7470 (1)
Nickel, ICP	1359	2121	<0.050	mg/L	0.050	6010 (1)
Potassium, AA	1359	323	<1.0	mg/L	1.0	7610 (1)
Selenium, GFAA	844	456	<0.0050	mg/L	0.005	7740 (1)
Silver, AA	609	614	<0.040	mg/L	0.040	7760 (1)
Thallium, ICP	1359	1998	<0.20	mg/L	0.20	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.



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QUALITY CONTROL REPORT

BLANK ANALYSIS

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

01/28/1997

NET Job Number: 97.00394

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
Zinc, ICP	1359	2123	<0.020	mg/L	0.020	6010 (1)
UST VOLATILES 8240 - AQUEOUS						8240 (1)
Benzene		1798	<1.0	ug/L	1.0	8240 (1)
Ethyl Benzene		1798	<1.0	ug/L	1.0	8240 (1)
Toluene		1798	<1.0	ug/L	1.0	8240 (1)
Xylenes, Total		1798	<1.0	ug/L	1.0	8240 (1)
Surr: 1,2-Dichloroethane-d4		1798	100.0	%	76-114	8240 (1)
Surr: Toluene-d8		1798	98.0	%	88-110	8240 (1)
Surr: Bromofluorobenzene		1798	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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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

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

01/28/1997

NET Job Number: 97.00394

Analyte	Prep	Run	True Conc.	Conc. Found	LCS % Recovery
	Batch Number	Batch Number			
Chloride		536	100	100	100.0
Fluoride		393	10.0	10.5	105.0
Solids, Total Suspended		953	100.0	90	90.0
Antimony, ICP	1359	1950	1.00	0.90	90.0
Antimony, ICP	1359	1950	1.00	0.90	90.0
Arsenic, GFAA	844	716	0.0200	0.0186	93.0
Beryllium, ICP	1359	2033	0.500	0.486	97.2
Beryllium, ICP	1359	2033	0.500	0.486	97.2
Cadmium, ICP	1359	2057	0.500	0.474	94.8
Calcium, AA	1359	331	1.00	0.890	89.0
Chromium, ICP	1359	2030	1.00	0.983	98.3
Copper, ICP	1359	2382	0.500	0.478	95.6
Iron, ICP	1359	2981	1.00	1.04	104.0
Lead, ICP	1359	2248	1.00	0.946	94.6
Magnesium, AA	1359	315	0.50	0.539	107.8
Manganese, ICP	1359	1967	0.500	0.478	95.6
Mercury, CVAA	784	758	0.0025	0.0024	96.0
Mercury, CVAA	784	758	0.0025	0.0024	96.0
Nickel, ICP	1359	2121	0.500	0.484	96.8
Potassium, AA	1359	323	1.0	0.904	90.4
Selenium, GFAA	844	456	0.0200	0.0215	107.5
Silver, AA	609	614	1.00	1.03	103.0
Thallium, ICP	1359	1998	1.00	0.994	99.4
Zinc, ICP	1359	2123	1.00	0.956	95.6
UST VOLATILES 8240 - AQUEOUS					
Benzene		1798	20.0	24.1	120.5
Toluene		1798	20.0	50.0	250.0
Surr: 1,2-Dichloroethane-d4		1798	50.0	50.0	100.0
Surr: Toluene-d8		1798	50.0	49.0	98.0
Surr: Bromofluorobenzene		1798	50.0	47.8	95.6



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QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

01/28/1997

NET Job Number: 97.00394

Analyte	Prep	Run	Matrix	Sample	Spike	Units	Percent	MSD		Percent	MS/MSD
	Batch	Batch	Spike					MSD	Spike		
	Number	Number	Result	Result	Amount		Recovery	Result	Amount	Units	RPD
Alkalinity, bicarb (CaCO ₃)		375	218	116	100	mg/L	102.0	220	100	mg/L	1.9
Alkalinity, bicarb (CaCO ₃)		375	350	248	100	mg/L	102.0	350	100	mg/L	0.0
Alkalinity, carbonate (CaCO ₃)		375	218	116	100	mg/L	102.0	220	100	mg/L	1.9
Alkalinity, carbonate (CaCO ₃)		375	350	248	100	mg/L	102.0	350	100	mg/L	0.0
Chloride		536	1,430	930	500	mg/L	100.0	1,430	500	mg/L	0.0
Chloride		536	100	<5	100	mg/L	100.0	100	100	mg/L	0.0
Fluoride		393	0.76	0.60	0.20	mg/L	80.0	0.76	0.20	mg/L	0.0
Hardness, Total		213	2,220	1,990	200	mg/L	115.0	2,190	200	mg/L	14.0
Chromium, ICP	1359	2024	0.954	<0.040	1.00	mg/L	95.4	0.972	1.00	mg/L	1.9
Copper, ICP	1359	2376	0.468	<0.020	0.500	mg/L	93.6	0.482	0.500	mg/L	2.9
Iron, ICP	1359	2975	1.00	<0.050	1.0	mg/L	100.0	1.02	1.0	mg/L	2.0
Lead, ICP	1359	2242	0.913	<0.080	1.0	mg/L	91.3	0.962	1.0	mg/L	5.2
Manganese, ICP	1359	1961	2.30	1.81	0.50	mg/L	98.0	2.33	0.50	mg/L	5.8
Nickel, ICP	1359	2115	0.470	<0.050	0.50	mg/L	94.0	0.485	0.50	mg/L	3.1
Zinc, ICP	1359	2117	0.927	<0.020	1.00	mg/L	92.7	0.967	1.0	mg/L	4.2
UST VOLATILES 8240 - AQUEOU											
Benzene		1798	21.0	<1.0	20.0	ug/L	105.0	21.0	20.0	ug/L	0.0
Toluene		1798	20.0	<1.0	20.0	ug/L	100.0	20.0	20.0	ug/L	0.0

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

SPIKES

CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
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Mr. Hank Mittelhauser

01/28/1997

NET Job Number: 97.00394

Analyte	Prep Batch Number	Run Batch Number	Spiked Sample Result	Sample Result	Spike Added	Units	Percent Recovery
Mercury, CVAA		758	0.0048	<0.0004	0.0050	mg/L	96.0
Silver, AA	609	614	0.992	<0.040	1.0	mg/L	99.2

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

The values reported above are for post digestion/distillation spikes.

Advisory Control Limits for Spikes - Spike recovery should be 75 - 125%.



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QUALITY CONTROL REPORT

DUPLICATES

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

01/28/1997

NET Job Number: 97.00394

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	RPD
pH		1246	8.01	8.02	units	0.1
Solids, Total Dissolved		813	4,490	4,610	mg/L	2.6
Solids, Total Suspended		953	26	24	mg/L	8.0
Solids, Total Suspended		953	216	184	mg/L	16.0
Calcium, AA	1359	331	480	480	mg/L	0.0
Magnesium, AA	1359	315	93	93	mg/L	0.0
Mercury, CVAA	784	758	<0.0002	<0.0002	mg/L	
Potassium, AA	1359	323	9.3	9.5	mg/L	2.1
Silver, AA	609	614	<0.040	<0.040	mg/L	
Sodium, AA	1359	338	370	380	mg/L	2.7

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).
- TCLP : These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
- Surr: : These initials are the abbreviation for surrogate. Surrogates are compounds that are chemically similar to the compounds of interest. They are part of the method quality control requirements.
- % : Percent; To convert ppm to %, divide the result by 10,000.
To convert % to ppm, multiply the result by 10,000.
- 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.

- (7) See "Methods for the Determination of Metals in Environmental Samples", Supplement I
EPA-600/R-94/111, May 1994.
- (8) See "Standard Methods for the Examination of Water and Wastewater", 18th Ed., APHA, 1992.



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CHAIN OF CUSTODY RECORD

COMPANY Amoco Production Company
ADDRESS Amc P.O. Box 3062 P.O. Box 7513 Chicago, IL 60681-7513
PHONE 312-356-7251 FAX 312-856-3731
PROJECT NAME/LOCATION Amoco Refining Station
PROJECT NUMBER _____
PROJECT MANAGER D. Carney

REPORT TO: H. M. Helms
INVOICE TO: D. Carney
P.O. NO. _____
NET QUOTE NO. _____

SAMPLED BY MBF Services

(PRINT NAME) MBF Services

(PRINT NAME) _____

SIGNATURE _____

and Type of Containers

MATRIX

GRAB

COMP

HCl

NaOH

HNO₃

H₂SO₄

OTHER

ANALYSES

ICAP METALS

Mercury

Selenium

K, CL, Mg

BICARBONATE

CHLORIDE

Fluoride

Sulfate

705-
BTEX 8000

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

Analyze All Samples For
ICAP METALS, Mercury
Selenium, Sodium, Calcium
Magnesium, Potassium
Chloride, Bicarbonates,
Chlorides, Fluoride
Sulfate, Toxics
Dissolved Solids

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: _____
Bottles supplied by NET? (YES/NO)

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

RECEIVED BY: _____
DATE: 11/6/97 TIME: 11:00

RECEIVED FOR NET BY: _____
DATE: 1-16-97 TIME: 13:25

DATE: 1/15/97

METHOD OF SHIPMENT

REMARKS:

Phase Ship Copy of Report B500 To H. M. Helms #9725

RECEIVED BY:

RECEIVED FOR NET BY:

RECEIVED BY:

DATE

TIME

RECEIVED FOR NET BY:



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Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
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01/21/1997

NET Job Number: 97.00281

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 Artesia Station

Sample Number	Sample Description	Date Taken	Date Received
391309	Influent; Grab	01/10/1997	01/14/1997
391310	Effluent; Grab	01/10/1997	01/14/1997

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
Project Manager



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ANALYTICAL REPORT

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

01/21/1997

Sample No. : 391309

NET Job No.: 97.00281

Sample Description: Influent; Grab
Amoco Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 01/14/1997
Time Received: 09:47
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Prep, 8310 PNAS AQUEOUS	extracted		01/14/1997		dly	272	3520 (1)
PNA CMPDS - 8310 AQUEOUS							
Acenaphthene	<0.018	mg/L	01/20/1997	0.018	kdw	272 827	8310 (1)
Acenaphthylene	<0.010	mg/L	01/20/1997	0.010	kdw	272 827	8310 (1)
Anthracene	<0.0066	mg/L	01/20/1997	0.0066	kdw	272 827	8310 (1)
Benzo(a)anthracene	<0.00013	mg/L	01/20/1997	0.00013	kdw	272 827	8310 (1)
Benzo(b)fluoranthene	<0.00018	mg/L	01/20/1997	0.00018	kdw	272 827	8310 (1)
Benzo(k)fluoranthene	<0.00017	mg/L	01/20/1997	0.00017	kdw	272 827	8310 (1)
Benzo(a)pyrene	<0.00023	mg/L	01/20/1997	0.00023	kdw	272 827	8310 (1)
Benzo(ghi)perylene	<0.00076	mg/L	01/20/1997	0.00076	kdw	272 827	8310 (1)
Chrysene	<0.0015	mg/L	01/20/1997	0.0015	kdw	272 827	8310 (1)
Dibenzo(a,h)anthracene	<0.00030	mg/L	01/20/1997	0.00030	kdw	272 827	8310 (1)
Fluoranthene	<0.0021	mg/L	01/20/1997	0.0021	kdw	272 827	8310 (1)
Fluorene	<0.0021	mg/L	01/20/1997	0.0021	kdw	272 827	8310 (1)
Indeno(1,2,3-cd)pyrene	<0.00043	mg/L	01/20/1997	0.00043	kdw	272 827	8310 (1)
Naphthalene	0.027	mg/L	01/20/1997	0.010	kdw	272 827	8310 (1)
Phenanthrene	<0.0064	mg/L	01/20/1997	0.0064	kdw	272 827	8310 (1)
Pyrene	<0.0027	mg/L	01/20/1997	0.0027	kdw	272 827	8310 (1)
Surr: 2-Fluorobiphenyl	Masked	†	01/20/1997	37-122	kdw	272 827	8310 (1)



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ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
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01/21/1997

Sample No. : 391310

NET Job No.: 97.00281

Sample Description: Effluent; Grab
Amoco Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:10
IEPA Cert. No. 100221

Date Received: 01/14/1997
Time Received: 09:47
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Prep, 8310 PNAs AQUEOUS	extracted		01/14/1997		dly	272	3520 (1)
PNA CMPDS - 8310 AQUEOUS							
Acenaphthene	<0.018	mg/L	01/20/1997	0.018	kdw	272 827	8310 (1)
Acenaphthylene	<0.010	mg/L	01/20/1997	0.010	kdw	272 827	8310 (1)
Anthracene	<0.0066	mg/L	01/20/1997	0.0066	kdw	272 827	8310 (1)
Benzo(a)anthracene	<0.00013	mg/L	01/20/1997	0.00013	kdw	272 827	8310 (1)
Benzo(b)fluoranthene	<0.00018	mg/L	01/20/1997	0.00018	kdw	272 827	8310 (1)
Benzo(k)fluoranthene	<0.00017	mg/L	01/20/1997	0.00017	kdw	272 827	8310 (1)
Benzo(a)pyrene	<0.00023	mg/L	01/20/1997	0.00023	kdw	272 827	8310 (1)
Benzo(ghi)perylene	<0.00076	mg/L	01/20/1997	0.00076	kdw	272 827	8310 (1)
Chrysene	<0.0015	mg/L	01/20/1997	0.0015	kdw	272 827	8310 (1)
Dibenzo(a,h)anthracene	<0.00030	mg/L	01/20/1997	0.00030	kdw	272 827	8310 (1)
Fluoranthene	<0.0021	mg/L	01/20/1997	0.0021	kdw	272 827	8310 (1)
Fluorene	<0.0021	mg/L	01/20/1997	0.0021	kdw	272 827	8310 (1)
Indeno(1,2,3-cd)pyrene	<0.00043	mg/L	01/20/1997	0.00043	kdw	272 827	8310 (1)
Naphthalene	<0.010	mg/L	01/20/1997	0.010	kdw	272 827	8310 (1)
Phenanthrene	<0.0064	mg/L	01/20/1997	0.0064	kdw	272 827	8310 (1)
Pyrene	<0.0027	mg/L	01/20/1997	0.0027	kdw	272 827	8310 (1)
Surr: 2-Fluorobiphenyl	71.8	μ	01/20/1997	37-122	kdw	272 827	8310 (1)



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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

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

01/21/1997

NET Job Number: 97.00281

Analyte	Run	CCV	Conc.	Percent
	Batch Number	True Conc.		
PNA CMPDS - 8310 AQUEOUS				
Acenaphthene	827	1000	948	94.8
Acenaphthylene	827	1000	1061	106.1
Anthracene	827	1000	1085	108.5
Benzo(a)anthracene	827	1000	1078	107.8
Benzo(b)fluoranthene	827	1000	1066	106.6
Benzo(k)fluoranthene	827	1000	1019	101.9
Benzo(a)pyrene	827	1000	1045	104.5
Benzo(ghi)perylene	827	1000	972	97.2
Chrysene	827	1000	1065	106.5
Dibenzo(a,h)anthracene	827	1000	1017	101.7
Fluoranthene	827	1000	1039	103.9
Fluorene	827	1000	1008	100.8
Indeno(1,2,3-cd)pyrene	827	1000	988	98.8
Naphthalene	827	1000	954	95.4
Phenanthrene	827	1000	1011	101.1
Pyrene	827	1000	1003	100.3
Surr: 2-Fluorobiphenyl	827	1000	1067.04	106.7
PNA CMPDS - 8310 AQUEOUS				
Acenaphthene	827	1000	919	91.9
Acenaphthylene	827	1000	1075	107.5
Anthracene	827	1000	1080	108.0
Benzo(a)anthracene	827	1000	1084	108.4
Benzo(b)fluoranthene	827	1000	1004	100.4
Benzo(k)fluoranthene	827	1000	979	97.9
Benzo(a)pyrene	827	1000	998	99.8
Benzo(ghi)perylene	827	1000	982	98.2
Chrysene	827	1000	1067	106.7
Dibenzo(a,h)anthracene	827	1000	979	97.9
Fluoranthene	827	1000	1025	102.5
Fluorene	827	1000	1073	107.3
Indeno(1,2,3-cd)pyrene	827	1000	956	95.6
Naphthalene	827	1000	944	94.4
Phenanthrene	827	1000	1035	103.5

CCV - Continuing Calibration Verification



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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

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

01/21/1997

NET Job Number: 97.00281

Analyte	Run	CCV	Conc.	Percent
	Batch	True		
	Number	Conc.	Found	Recovery
Pyrene	827	1000	1026	102.6
Surr: 2-Fluorobiphenyl	827	1000	1057.64	105.8



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Rockford Division
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Rockford, IL 61109
Tel: (815) 874-2171
Fax: (815) 874-5622
(800) 807-2877

QUALITY CONTROL REPORT

BLANK ANALYSIS

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

01/21/1997

NET Job Number: 97.00281

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
PNA CMPDS - 8310 AQUEOUS						8310 (1)
Acenaphthene	272	825	<0.018	mg/L	0.018	8310 (1)
Acenaphthylene	272	825	<0.010	mg/L	0.010	8310 (1)
Anthracene	272	825	<0.0066	mg/L	0.0066	8310 (1)
Benzo(a)anthracene	272	825	<0.00013	mg/L	0.00013	8310 (1)
Benzo(b)fluoranthene	272	825	<0.00018	mg/L	0.00018	8310 (1)
Benzo(k)fluoranthene	272	825	<0.00017	mg/L	0.00017	8310 (1)
Benzo(a)pyrene	272	825	<0.00023	mg/L	0.00023	8310 (1)
Benzo(ghi)perylene	272	825	<0.00076	mg/L	0.00076	8310 (1)
Chrysene	272	825	<0.0015	mg/L	0.0015	8310 (1)
Dibenzo(a,h)anthracene	272	825	<0.00030	mg/L	0.00030	8310 (1)
Fluoranthene	272	825	<0.0021	mg/L	0.0021	8310 (1)
Fluorene	272	825	<0.0021	mg/L	0.0021	8310 (1)
Indeno(1,2,3-cd)pyrene	272	825	<0.00043	mg/L	0.00043	8310 (1)
Naphthalene	272	825	<0.010	mg/L	0.010	8310 (1)
Phenanthrene	272	825	<0.0064	mg/L	0.0064	8310 (1)
Pyrene	272	825	<0.0027	mg/L	0.0027	8310 (1)
Surr: 2-Fluorobiphenyl	272	825	86.7	µ	37-122	8310 (1)
PNA CMPDS - 8310 AQUEOUS						8310 (1)
Acenaphthene	272	827	<0.018	mg/L	0.018	8310 (1)
Acenaphthylene	272	827	<0.010	mg/L	0.010	8310 (1)
Anthracene	272	827	<0.0066	mg/L	0.0066	8310 (1)
Benzo(a)anthracene	272	827	<0.00013	mg/L	0.00013	8310 (1)
Benzo(b)fluoranthene	272	827	<0.00018	mg/L	0.00018	8310 (1)
Benzo(k)fluoranthene	272	827	<0.00017	mg/L	0.00017	8310 (1)
Benzo(a)pyrene	272	827	<0.00023	mg/L	0.00023	8310 (1)
Benzo(ghi)perylene	272	827	<0.00076	mg/L	0.00076	8310 (1)
Chrysene	272	827	<0.0015	mg/L	0.0015	8310 (1)
Dibenzo(a,h)anthracene	272	827	<0.00030	mg/L	0.00030	8310 (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

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

01/21/1997

NET Job Number: 97.00281

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
Fluoranthene	272	827	<0.0021	mg/L	0.0021	8310 (1)
Fluorene	272	827	<0.0021	mg/L	0.0021	8310 (1)
Indeno(1,2,3-cd)pyrene	272	827	<0.00043	mg/L	0.00043	8310 (1)
Naphthalene	272	827	<0.010	mg/L	0.010	8310 (1)
Phenanthrene	272	827	<0.0064	mg/L	0.0064	8310 (1)
Pyrene	272	827	<0.0027	mg/L	0.0027	8310 (1)
Surr: 2-Fluorobiphenyl	272	827	89.3	%	37-122	8310 (1)
PNA CMPDS - 8310 AQUEOUS						8310 (1)
Acenaphthene	272	826	<0.018	mg/L	0.018	8310 (1)
Acenaphthylene	272	826	<0.010	mg/L	0.010	8310 (1)
Anthracene	272	826	<0.0066	mg/L	0.0066	8310 (1)
Benzo(a)anthracene	272	826	<0.00013	mg/L	0.00013	8310 (1)
Benzo(b)fluoranthene	272	826	<0.00018	mg/L	0.00018	8310 (1)
Benzo(k)fluoranthene	272	826	<0.00017	mg/L	0.00017	8310 (1)
Benzo(a)pyrene	272	826	<0.00023	mg/L	0.00023	8310 (1)
Benzo(ghi)perylene	272	826	<0.00076	mg/L	0.00076	8310 (1)
Chrysene	272	826	<0.0015	mg/L	0.0015	8310 (1)
Dibenzo(a,h)anthracene	272	826	<0.00030	mg/L	0.00030	8310 (1)
Fluoranthene	272	826	<0.0021	mg/L	0.0021	8310 (1)
Fluorene	272	826	<0.0021	mg/L	0.0021	8310 (1)
Indeno(1,2,3-cd)pyrene	272	826	<0.00043	mg/L	0.00043	8310 (1)
Naphthalene	272	826	<0.010	mg/L	0.010	8310 (1)
Phenanthrene	272	826	<0.0064	mg/L	0.0064	8310 (1)
Pyrene	272	826	<0.0027	mg/L	0.0027	8310 (1)
Surr: 2-Fluorobiphenyl	272	826	82.2	%	37-122	8310 (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

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

01/21/1997

NET Job Number: 97.00281

Analyte	Prep	Run	True Conc.	Conc. Found	LCS
	Batch Number	Batch Number			% Recovery
PNA CMPDS - 8310 AQUEOUS					
Acenaphthene	272	826	1.000	0.915	91.5
Acenaphthylene	272	826	1.000	0.960	96.0
Anthracene	272	826	1.000	0.932	93.2
Benzo(a)anthracene	272	826	1.000	0.867	86.7
Benzo(b)fluoranthene	272	826	1.000	0.833	83.3
Benzo(k)fluoranthene	272	826	1.000	0.812	81.2
Benzo(a)pyrene	272	826	1.000	0.845	84.5
Benzo(ghi)perylene	272	826	1.000	0.813	81.3
Chrysene	272	826	1.000	0.873	87.3
Dibenzo(a,h)anthracene	272	826	1.000	0.772	77.2
Fluoranthene	272	826	1.000	0.970	97.0
Fluorene	272	826	1.000	0.843	84.3
Indeno(1,2,3-cd)pyrene	272	826	1.000	0.876	87.6
Naphthalene	272	826	1.000	0.823	82.3
Phenanthrene	272	826	1.000	0.878	87.8
Pyrene	272	826	1.000	0.910	91.0
Surr: 2-Fluorobiphenyl	272	826	2000	1693.25	84.7



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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

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

01/21/1997

NET Job Number: 97.00281

Analyte	Prep	Run	True Conc.	Conc. Found	LCS
	Batch Number	Batch Number			% Recovery
PNA CMPDS - 8310 AQUEOUS					
Acenaphthene	272	827	1.000	0.818	81.8
Acenaphthylene	272	827	1.000	0.932	93.2
Anthracene	272	827	1.000	0.911	91.1
Benzo(a)anthracene	272	827	1.000	0.930	93.0
Benzo(b)fluoranthene	272	827	1.000	0.888	88.8
Benzo(k)fluoranthene	272	827	1.000	0.900	90.0
Benzo(a)pyrene	272	827	1.000	0.858	85.8
Benzo(ghi)perylene	272	827	1.000	0.860	86.0
Chrysene	272	827	1.000	0.954	95.4
Dibenzo(a,h)anthracene	272	827	1.000	0.901	90.1
Fluoranthene	272	827	1.000	1.03	103.0
Fluorene	272	827	1.000	0.899	89.9
Indeno(1,2,3-cd)pyrene	272	827	1.000	0.923	92.3
Naphthalene	272	827	1.000	0.832	83.2
Phenanthrene	272	827	1.000	0.947	94.7
Pyrene	272	827	1.000	0.978	97.8
Surr: 2-Fluorobiphenyl	272	827	2000	1781.54	89.1

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).
TCLP	: These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
Surr:	: These initials are the abbreviation for surrogate. Surrogates are compounds that are chemically similar to the compounds of interest. They are part of the method quality control requirements.
%	: Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
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.

- (7) See "Methods for the Determination of Metals in Environmental Samples", Supplement I
EPA-600/R-94/111, May 1994.
- (8) See "Standard Methods for the Examination of Water and Wastewater", 18th Ed., APHA, 1992.



NATIONAL
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TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY: Amoco Pipeline Co.
ADDRESS: 400 N. 30th St. Chicago, IL 60640-7513
PHONE: 312-356-7251 FAX: 312-356-3731
PROJECT NAME/LOCATION: Amoco Pipeline Station

PROJECT NUMBER: _____
PROJECT MANAGER: D. Barry

SAMPLED BY: M. B. Service

(PRINT NAME) Michael M. Service

SIGNATURE: [Signature]

(PRINT NAME) _____

and Type of Containers

MATRIX GRAB COMP HCl HNO₃ H₂SO₄ OTHER

SAMPLE ID/DESCRIPTION

11/06/15:00 1 liter Influent Brown glass bottle
11/06/15:00 1 liter effluent Brown glass bottle

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

Per Hank Mittelhauser
method 8310 = OK.

CONDITION OF SAMPLE: BOTTLES INTACT: YES / NO ☒
FIELD FILTERED? YES / NON / A ☐

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

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

RELINQUISHED BY: [Signature] DATE: 11/13/15 TIME: 16:30

RECEIVED BY: _____

DATE: 11/14

TIME: 9:47

RECEIVED FOR NET BY: [Signature]

METHOD OF SHIPMENT: FEDEX

REMARKS: Please send copy of Report to H. Mittelhauser ASAP @ 2725

TEMPERATURE UPON RECEIPT: 7.2
Bottles supplied by NET? YES / NO ☒



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

01/27/1997

NET Job Number: 97.00388

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 Artesia Station

Sample Number	Sample Description	Date Taken	Date Received
391725	MW-12; Grab	01/15/1997	01/16/1997
391726	MW-6; Grab	01/15/1997	01/16/1997
391727	MW-7; Grab	01/15/1997	01/16/1997
391728	MW-4; Grab	01/15/1997	01/16/1997

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



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ANALYTICAL REPORT

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

01/27/1997

Sample No. : 391725

NET Job No.: 97.00388

Sample Description: MW-12; Grab
Amoco Artesia Station

Date Taken: 01/15/1997
Time Taken: 12:00
IEPA Cert. No. 100221

Date Received: 01/16/1997
Time Received: 13:10
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Prep, 8310 PNAS AQUEOUS	extracted		01/21/1997		dly	273	3520 (1)
PNA CMPS - 8310 AQUEOUS							
Acenaphthene	<0.018	mg/L	01/25/1997	0.018	kdw	273 830	8310 (1)
Acenaphthylene	<0.010	mg/L	01/25/1997	0.010	kdw	273 830	8310 (1)
Anthracene	<0.0066	mg/L	01/25/1997	0.0066	kdw	273 830	8310 (1)
Benzo(a)anthracene	<0.00013	mg/L	01/25/1997	0.00013	kdw	273 830	8310 (1)
Benzo(b)fluoranthene	<0.00018	mg/L	01/25/1997	0.00018	kdw	273 830	8310 (1)
Benzo(k)fluoranthene	<0.00017	mg/L	01/25/1997	0.00017	kdw	273 830	8310 (1)
Benzo(a)pyrene	<0.00023	mg/L	01/25/1997	0.00023	kdw	273 830	8310 (1)
Benzo(ghi)perylene	<0.00076	mg/L	01/25/1997	0.00076	kdw	273 830	8310 (1)
Chrysene	<0.0015	mg/L	01/25/1997	0.0015	kdw	273 830	8310 (1)
Dibenzo(a,h)anthracene	<0.00030	mg/L	01/25/1997	0.00030	kdw	273 830	8310 (1)
Fluoranthene	<0.0021	mg/L	01/25/1997	0.0021	kdw	273 830	8310 (1)
Fluorene	<0.0021	mg/L	01/25/1997	0.0021	kdw	273 830	8310 (1)
Indeno(1,2,3-cd)pyrene	<0.00043	mg/L	01/25/1997	0.00043	kdw	273 830	8310 (1)
Naphthalene	<0.010	mg/L	01/25/1997	0.010	kdw	273 830	8310 (1)
Phenanthrene	<0.0064	mg/L	01/25/1997	0.0064	kdw	273 830	8310 (1)
Pyrene	<0.0027	mg/L	01/25/1997	0.0027	kdw	273 830	8310 (1)
Surr: p-Terphenyl	67.8	μ	01/25/1997	37-122	kdw	273 830	8310 (1)



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ANALYTICAL REPORT

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

01/27/1997

Sample No. : 391726

NET Job No.: 97.00388

Sample Description: MW-6; Grab
Amoco Artesia Station

Date Taken: 01/15/1997
Time Taken: 13:15
IEPA Cert. No. 100221

Date Received: 01/16/1997
Time Received: 13:10
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Prep, 8310 PNAs AQUEOUS	extracted		01/21/1997		dly	273	3520 (1)
PNA CMPDS - 8310 AQUEOUS							
Acenaphthene	<0.018	mg/L	01/25/1997	0.018	kdw	273 830	8310 (1)
Acenaphthylene	<0.010	mg/L	01/25/1997	0.010	kdw	273 830	8310 (1)
Anthracene	<0.0066	mg/L	01/25/1997	0.0066	kdw	273 830	8310 (1)
Benzo(a)anthracene	<0.00013	mg/L	01/25/1997	0.00013	kdw	273 830	8310 (1)
Benzo(b)fluoranthene	<0.00018	mg/L	01/25/1997	0.00018	kdw	273 830	8310 (1)
Benzo(k)fluoranthene	<0.00017	mg/L	01/25/1997	0.00017	kdw	273 830	8310 (1)
Benzo(a)pyrene	<0.00023	mg/L	01/25/1997	0.00023	kdw	273 830	8310 (1)
Benzo(ghi)perylene	<0.00076	mg/L	01/25/1997	0.00076	kdw	273 830	8310 (1)
Chrysene	<0.0015	mg/L	01/25/1997	0.0015	kdw	273 830	8310 (1)
Dibenzo(a,h)anthracene	<0.00030	mg/L	01/25/1997	0.00030	kdw	273 830	8310 (1)
Fluoranthene	<0.0021	mg/L	01/25/1997	0.0021	kdw	273 830	8310 (1)
Fluorene	<0.0021	mg/L	01/25/1997	0.0021	kdw	273 830	8310 (1)
Indeno(1,2,3-cd)pyrene	<0.00043	mg/L	01/25/1997	0.00043	kdw	273 830	8310 (1)
Naphthalene	<0.010	mg/L	01/25/1997	0.010	kdw	273 830	8310 (1)
Phenanthrene	<0.0064	mg/L	01/25/1997	0.0064	kdw	273 830	8310 (1)
Pyrene	<0.0027	mg/L	01/25/1997	0.0027	kdw	273 830	8310 (1)
Surr: p-Terphenyl	79.1	%	01/25/1997	37-122	kdw	273 830	8310 (1)



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ANALYTICAL REPORT

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

01/27/1997

Sample No. : 391727

NET Job No.: 97.00388

Sample Description: MW-7; Grab
Amoco Artesia Station

Date Taken: 01/15/1997
Time Taken: 14:45
IEPA Cert. No. 100221

Date Received: 01/16/1997
Time Received: 13:10
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Prep, 8310 PNAS AQUEOUS	extracted		01/21/1997		dly	273	3520 (1)
PNA CMPDS - 8310 AQUEOUS							
Acenaphthene	<0.018	mg/L	01/25/1997	0.018	kdw	273 830	8310 (1)
Acenaphthylene	<0.010	mg/L	01/25/1997	0.010	kdw	273 830	8310 (1)
Anthracene	<0.0066	mg/L	01/25/1997	0.0066	kdw	273 830	8310 (1)
Benzo (a) anthracene	<0.00013	mg/L	01/25/1997	0.00013	kdw	273 830	8310 (1)
Benzo (b) fluoranthene	<0.00018	mg/L	01/25/1997	0.00018	kdw	273 830	8310 (1)
Benzo (k) fluoranthene	<0.00017	mg/L	01/25/1997	0.00017	kdw	273 830	8310 (1)
Benzo (a) pyrene	<0.00023	mg/L	01/25/1997	0.00023	kdw	273 830	8310 (1)
Benzo (ghi) perylene	<0.00076	mg/L	01/25/1997	0.00076	kdw	273 830	8310 (1)
Chrysene	<0.0015	mg/L	01/25/1997	0.0015	kdw	273 830	8310 (1)
Dibenzo (a,h) anthracene	<0.00030	mg/L	01/25/1997	0.00030	kdw	273 830	8310 (1)
Fluoranthene	<0.0021	mg/L	01/25/1997	0.0021	kdw	273 830	8310 (1)
Fluorene	<0.0021	mg/L	01/25/1997	0.0021	kdw	273 830	8310 (1)
Indeno (1,2,3-cd) pyrene	<0.00043	mg/L	01/25/1997	0.00043	kdw	273 830	8310 (1)
Naphthalene	<0.010	mg/L	01/25/1997	0.010	kdw	273 830	8310 (1)
Phenanthrene	<0.0064	mg/L	01/25/1997	0.0064	kdw	273 830	8310 (1)
Pyrene	<0.0027	mg/L	01/25/1997	0.0027	kdw	273 830	8310 (1)
Surr: p-Terphenyl	73.0	%	01/25/1997	37-122	kdw	273 830	8310 (1)



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ANALYTICAL REPORT

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

01/27/1997

Sample No. : 391728

NET Job No.: 97.00388

Sample Description: MW-4; Grab
Amoco Artesia Station

Date Taken: 01/15/1997
Time Taken: 15:50
IEPA Cert. No. 100221

Date Received: 01/16/1997
Time Received: 13:10
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Prep, 8310 PNAs AQUEOUS	extracted		01/21/1997		dly	273	3520 (1)
PNA CMPDS - 8310 AQUEOUS							
Acenaphthene	<0.018	mg/L	01/25/1997	0.018	kdw	273 830	8310 (1)
Acenaphthylene	<0.010	mg/L	01/25/1997	0.010	kdw	273 830	8310 (1)
Anthracene	<0.0066	mg/L	01/25/1997	0.0066	kdw	273 830	8310 (1)
Benzo(a)anthracene	<0.00013	mg/L	01/25/1997	0.00013	kdw	273 830	8310 (1)
Benzo(b)fluoranthene	<0.00018	mg/L	01/25/1997	0.00018	kdw	273 830	8310 (1)
Benzo(k)fluoranthene	<0.00017	mg/L	01/25/1997	0.00017	kdw	273 830	8310 (1)
Benzo(a)pyrene	<0.00023	mg/L	01/25/1997	0.00023	kdw	273 830	8310 (1)
Benzo(ghi)perylene	<0.00076	mg/L	01/25/1997	0.00076	kdw	273 830	8310 (1)
Chrysene	<0.0015	mg/L	01/25/1997	0.0015	kdw	273 830	8310 (1)
Dibenzo(a,h)anthracene	<0.00030	mg/L	01/25/1997	0.00030	kdw	273 830	8310 (1)
Fluoranthene	<0.0021	mg/L	01/25/1997	0.0021	kdw	273 830	8310 (1)
Fluorene	<0.0021	mg/L	01/25/1997	0.0021	kdw	273 830	8310 (1)
Indeno(1,2,3-cd)pyrene	<0.00043	mg/L	01/25/1997	0.00043	kdw	273 830	8310 (1)
Naphthalene	<0.010	mg/L	01/25/1997	0.010	kdw	273 830	8310 (1)
Phenanthrene	<0.0064	mg/L	01/25/1997	0.0064	kdw	273 830	8310 (1)
Pyrene	<0.0027	mg/L	01/25/1997	0.0027	kdw	273 830	8310 (1)
Surr: p-Terphenyl	76.4	%	01/25/1997	37-122	kdw	273 830	8310 (1)



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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

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

01/27/1997

NET Job Number: 97.00388

Analyte	Run	CCV	Conc. Found	Percent Recovery
	Batch Number	True Conc.		
PNA CMPDS - 8310 AQUEOUS				
Acenaphthene	830	1000	996.01	99.6
Acenaphthylene	830	1000	1122	112.2
Anthracene	830	1000	1057	105.7
Benzo(a)anthracene	830	1000	1086	108.6
Benzo(b)fluoranthene	830	1000	1023	102.3
Benzo(k)fluoranthene	830	1000	1024	102.4
Benzo(a)pyrene	830	1000	1063	106.3
Benzo(ghi)perylene	830	1000	1005	100.5
Chrysene	830	1000	1057	105.7
Dibenzo(a,h)anthracene	830	1000	1018	101.8
Fluoranthene	830	1000	1064	106.4
Fluorene	830	1000	1010	101.0
Indeno(1,2,3-cd)pyrene	830	1000	976.56	97.7
Naphthalene	830	1000	1130	113.0
Phenanthrene	830	1000	1001	100.1
Pyrene	830	1000	1024	102.4
Surr: p-Terphenyl	830	1000	1006	100.6
PNA CMPDS - 8310 AQUEOUS				
Acenaphthene	830	1000	990.6	99.1
Acenaphthylene	830	1000	1092	109.2
Anthracene	830	1000	1081	108.1
Benzo(a)anthracene	830	1000	1100	110.0
Benzo(b)fluoranthene	830	1000	1025	102.5
Benzo(k)fluoranthene	830	1000	1007	100.7
Benzo(a)pyrene	830	1000	989.66	99.0
Benzo(ghi)perylene	830	1000	994.9	99.5
Chrysene	830	1000	1071.4	107.1
Dibenzo(a,h)anthracene	830	1000	1049	104.9
Fluoranthene	830	1000	1033	103.3
Fluorene	830	1000	1031	103.1
Indeno(1,2,3-cd)pyrene	830	1000	960.98	96.1
Naphthalene	830	1000	1050	105.0
Phenanthrene	830	1000	1017	101.7

CCV - Continuing Calibration Verification



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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

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

01/27/1997

NET Job Number: 97.00388

Analyte	Run	CCV	Conc.	Percent
	Batch Number	True Conc.		
Pyrene	830	1000	1037	103.7
Surr: p-Terphenyl	830	1000	1000	100.0



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QUALITY CONTROL REPORT

BLANK ANALYSIS

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

01/27/1997

NET Job Number: 97.00388

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
PNA CMPDS - 8310 AQUEOUS						8310 (1)
Acenaphthene	273	820	<0.018	mg/L	0.018	8310 (1)
Acenaphthylene	273	820	<0.010	mg/L	0.010	8310 (1)
Anthracene	273	820	<0.0066	mg/L	0.0066	8310 (1)
Benzo(a)anthracene	273	820	<0.00013	mg/L	0.00013	8310 (1)
Benzo(b)fluoranthene	273	820	<0.00018	mg/L	0.00018	8310 (1)
Benzo(k)fluoranthene	273	820	<0.00017	mg/L	0.00017	8310 (1)
Benzo(a)pyrene	273	820	<0.00023	mg/L	0.00023	8310 (1)
Benzo(ghi)perylene	273	820	<0.00076	mg/L	0.00076	8310 (1)
Chrysene	273	820	<0.0015	mg/L	0.0015	8310 (1)
Dibenzo(a,h)anthracene	273	820	<0.00030	mg/L	0.00030	8310 (1)
Fluoranthene	273	820	<0.0021	mg/L	0.0021	8310 (1)
Fluorene	273	820	<0.0021	mg/L	0.0021	8310 (1)
Indeno(1,2,3-cd)pyrene	273	820	<0.00043	mg/L	0.00043	8310 (1)
Naphthalene	273	820	<0.010	mg/L	0.010	8310 (1)
Phenanthrene	273	820	<0.0064	mg/L	0.0064	8310 (1)
Pyrene	273	820	<0.0027	mg/L	0.0027	8310 (1)
Surr: p-Terphenyl	273	820	89.3	%	37-122	8310 (1)
PNA CMPDS - 8310 AQUEOUS						8310 (1)
Acenaphthene	273	829	<0.018	mg/L	0.018	8310 (1)
Acenaphthylene	273	829	<0.010	mg/L	0.010	8310 (1)
Anthracene	273	829	<0.0066	mg/L	0.0066	8310 (1)
Benzo(a)anthracene	273	829	<0.00013	mg/L	0.00013	8310 (1)
Benzo(b)fluoranthene	273	829	<0.00018	mg/L	0.00018	8310 (1)
Benzo(k)fluoranthene	273	829	<0.00017	mg/L	0.00017	8310 (1)
Benzo(a)pyrene	273	829	<0.00023	mg/L	0.00023	8310 (1)
Benzo(ghi)perylene	273	829	<0.00076	mg/L	0.00076	8310 (1)
Chrysene	273	829	<0.0015	mg/L	0.0015	8310 (1)
Dibenzo(a,h)anthracene	273	829	<0.00030	mg/L	0.00030	8310 (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

CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
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Mr. Hank Mittelhauser

01/27/1997

NET Job Number: 97.00388

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
Fluoranthene	273	829	<0.0021	mg/L	0.0021	8310 (1)
Fluorene	273	829	<0.0021	mg/L	0.0021	8310 (1)
Indeno(1,2,3-cd)pyrene	273	829	<0.00043	mg/L	0.00043	8310 (1)
Naphthalene	273	829	<0.010	mg/L	0.010	8310 (1)
Phenanthrene	273	829	<0.0064	mg/L	0.0064	8310 (1)
Pyrene	273	829	<0.0027	mg/L	0.0027	8310 (1)
Surr: p-Terphenyl	273	829	86.6	μ	37-122	8310 (1)
PNA CMPDS - 8310 AQUEOUS						8310 (1)
Acenaphthene	273	830	<0.018	mg/L	0.018	8310 (1)
Acenaphthylene	273	830	<0.010	mg/L	0.010	8310 (1)
Anthracene	273	830	<0.0066	mg/L	0.0066	8310 (1)
Benzo(a)anthracene	273	830	<0.00013	mg/L	0.00013	8310 (1)
Benzo(b)fluoranthene	273	830	<0.00018	mg/L	0.00018	8310 (1)
Benzo(k)fluoranthene	273	830	<0.00017	mg/L	0.00017	8310 (1)
Benzo(a)pyrene	273	830	<0.00023	mg/L	0.00023	8310 (1)
Benzo(ghi)perylene	273	830	<0.00076	mg/L	0.00076	8310 (1)
Chrysene	273	830	<0.0015	mg/L	0.0015	8310 (1)
Dibenzo(a,h)anthracene	273	830	<0.00030	mg/L	0.00030	8310 (1)
Fluoranthene	273	830	<0.0021	mg/L	0.0021	8310 (1)
Fluorene	273	830	<0.0021	mg/L	0.0021	8310 (1)
Indeno(1,2,3-cd)pyrene	273	830	<0.00043	mg/L	0.00043	8310 (1)
Naphthalene	273	830	<0.010	mg/L	0.010	8310 (1)
Phenanthrene	273	830	<0.0064	mg/L	0.0064	8310 (1)
Pyrene	273	830	<0.0027	mg/L	0.0027	8310 (1)
Surr: p-Terphenyl	273	830	79.4	μ	37-122	8310 (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

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

01/27/1997

NET Job Number: 97.00388

Analyte	Prep	Run	True Conc.	Conc. Found	LCS % Recovery
	Batch Number	Batch Number			
PNA CMPDS - 8310 AQUEOUS					
Acenaphthene	273	820	1.000	0.950	95.0
Acenaphthylene	273	820	1.000	0.877	87.7
Anthracene	273	820	1.000	1.005	100.5
Benzo(a)anthracene	273	820	1.000	1.158	115.8
Benzo(b)fluoranthene	273	820	1.000	0.955	95.5
Benzo(k)fluoranthene	273	820	1.000	0.901	90.1
Benzo(a)pyrene	273	820	1.000	1.145	114.5
Benzo(ghi)perylene	273	820	1.000	0.862	86.2
Chrysene	273	820	1.000	0.805	80.5
Dibenzo(a,h)anthracene	273	820	1.000	0.963	96.3
Fluoranthene	273	820	1.000	0.988	98.8
Fluorene	273	820	1.000	0.971	97.1
Indeno(1,2,3-cd)pyrene	273	820	1.000	1.090	109.0
Naphthalene	273	820	1.000	1.022	102.2
Phenanthrene	273	820	1.000	0.940	94.0
Pyrene	273	820	1.000	1.082	108.2
Surr: p-Terphenyl	273	820	2000	1900	95.0
PNA CMPDS - 8310 AQUEOUS					
Acenaphthene	273	829	1.000	0.84	84.0
Acenaphthylene	273	829	1.000	0.81	81.0
Anthracene	273	829	1.000	0.81	81.0
Benzo(a)anthracene	273	829	1.000	0.84	84.0
Benzo(b)fluoranthene	273	829	1.000	0.768	76.8
Benzo(k)fluoranthene	273	829	1.000	0.826	82.6
Benzo(a)pyrene	273	829	1.000	0.689	68.9
Benzo(ghi)perylene	273	829	1.000	0.773	77.3
Chrysene	273	829	1.000	0.848	84.8
Dibenzo(a,h)anthracene	273	829	1.000	0.824	82.4
Fluoranthene	273	829	1.000	0.833	83.3
Fluorene	273	829	1.000	0.790	79.0



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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

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

01/27/1997

NET Job Number: 97.00388

Analyte	Prep	Run	True Conc.	Conc. Found	LCS % Recovery
	Batch Number	Batch Number			
Indeno(1,2,3-cd)pyrene	273	829	1.000	0.802	80.2
Naphthalene	273	829	1.000	0.764	76.4
Phenanthrene	273	829	1.000	0.837	83.7
Pyrene	273	829	1.000	0.809	80.9
Surr: p-Terphenyl	273	829	2000	1698.13	84.9
PNA CMPDS - 8310 AQUEOUS					
Acenaphthene	273	830	1.000	0.787	78.7
Acenaphthylene	273	830	1.000	0.81	81.0
Anthracene	273	830	1.000	0.85	85.0
Benzo(a)anthracene	273	830	1.000	0.872	87.2
Benzo(b)fluoranthene	273	830	1.000	0.818	81.8
Benzo(k)fluoranthene	273	830	1.000	0.833	83.3
Benzo(a)pyrene	273	830	1.000	0.784	78.4
Benzo(ghi)perylene	273	830	1.000	0.809	80.9
Chrysene	273	830	1.000	0.858	85.8
Dibenzo(a,h)anthracene	273	830	1.000	0.828	82.8
Fluoranthene	273	830	1.000	0.874	87.4
Fluorene	273	830	1.000	0.799	79.9
Indeno(1,2,3-cd)pyrene	273	830	1.000	0.761	76.1
Naphthalene	273	830	1.000	0.775	77.5
Phenanthrene	273	830	1.000	0.808	80.8
Pyrene	273	830	1.000	0.853	85.3
Surr: p-Terphenyl	273	830	2000	1610.51	80.5



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QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

01/27/1997

NET Job Number: 97.00388

Analyte	Prep	Run	Matrix	Sample	Spike	Units	Percent	MSD		Percent	MS/MSD
	Batch	Batch	Spike					MSD	Spike		
	Number	Number	Result	Result	Amount		Recovery	Result	Amount	Recovery	RPD
PNA CMPDS - 8310 AQUEOUS											
Acenaphthene	273	820	1.154	<0.018	1.000	mg/L	115.4	1.540	1.000	154.0	28.7
Acenaphthylene	273	820	0.985	<0.010	1.000	mg/L	98.5	1.050	1.000	105.0	6.3
Anthracene	273	820	0.876	<0.0066	1.000	mg/L	87.6	0.922	1.000	92.2	5.1
Benzo(a)anthracene	273	820	0.754	<0.0001	1.000	mg/L	75.4	0.854	1.000	85.4	12.4
Benzo(b)fluoranthene	273	820	1.052	<0.0001	1.000	mg/L	105.2	0.988	1.000	98.8	6.2
Benzo(k)fluoranthene	273	820	0.966	<0.0001	1.000	mg/L	96.6	0.925	1.000	92.5	4.3
Benzo(a)pyrene	273	820	0.780	<0.0002	1.000	mg/L	78.0	0.810	1.000	81.0	3.8
Benzo(ghi)perylene	273	820	0.965	<0.0007	1.000	mg/L	96.5	0.901	1.000	90.1	6.9
Chrysene	273	820	1.040	<0.0015	1.000	mg/L	104.0	1.035	1.000	103.5	0.5
Dibenzo(a,h)anthracene	273	820	1.006	<0.0003	1.000	mg/L	100.6	0.985	1.000	98.5	2.0
Fluoranthene	273	820	1.087	<0.0021	1.000	mg/L	108.7	1.080	1.000	108.0	0.6
Fluorene	273	820	1.182	<0.0021	1.000	mg/L	118.2	1.099	1.000	109.9	7.3
Indeno(1,2,3-cd)pyrene	273	820	0.955	<0.0004	1.000	mg/L	95.5	0.978	1.000	97.8	2.4
Naphthalene	273	820	0.966	<0.010	1.000	mg/L	96.6	0.963	1.000	96.3	0.3
Phenanthrene	273	820	0.852	<0.0064	1.000	mg/L	85.2	0.893	1.000	89.3	4.7
Pyrene	273	820	1.098	<0.0027	1.000	mg/L	109.8	1.075	1.000	107.5	2.1

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

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).
TCLP	: These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
Surr:	: These initials are the abbreviation for surrogate. Surrogates are compounds that are chemically similar to the compounds of interest. They are part of the method quality control requirements.
%	: Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
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.

- (7) See "Methods for the Determination of Metals in Environmental Samples", Supplement I
EPA-600/R-94/111, May 1994.
- (8) See "Standard Methods for the Examination of Water and Wastewater", 18th Ed., APHA, 1992.



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

01/28/1997

NET Job Number: 97.00651

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 ARTESIA STATION

Sample Number	Sample Description	Date Taken	Date Received
392836	MW-11; Grab	01/21/1997	01/23/1997

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
Project Manager



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ANALYTICAL REPORT

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

01/28/1997

Sample No. : 392836

NET Job No.: 97.00651

Sample Description: MW-11; Grab
AMOCO ARTESIA STATION

Date Taken: 01/21/1997
Time Taken: 16:50
IEPA Cert. No. 100221

Date Received: 01/23/1997
Time Received: 10:15
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Prep, 8310 PNAS AQUEOUS	extracted		01/23/1997		dly	273	3520 (1)
PNA CMPDS - 8310 AQUEOUS							
Acenaphthene	<0.018	mg/L	01/27/1997	0.018	kdw	273 832	8310 (1)
Acenaphthylene	<0.010	mg/L	01/27/1997	0.010	kdw	273 832	8310 (1)
Anthracene	<0.0066	mg/L	01/27/1997	0.0066	kdw	273 832	8310 (1)
Benzo(a)anthracene	<0.00013	mg/L	01/27/1997	0.00013	kdw	273 832	8310 (1)
Benzo(b)fluoranthene	<0.00018	mg/L	01/27/1997	0.00018	kdw	273 832	8310 (1)
Benzo(k)fluoranthene	<0.00017	mg/L	01/27/1997	0.00017	kdw	273 832	8310 (1)
Benzo(a)pyrene	<0.00023	mg/L	01/27/1997	0.00023	kdw	273 832	8310 (1)
Benzo(ghi)perylene	<0.00076	mg/L	01/27/1997	0.00076	kdw	273 832	8310 (1)
Chrysene	<0.0015	mg/L	01/27/1997	0.0015	kdw	273 832	8310 (1)
Dibenzo(a,h)anthracene	<0.00030	mg/L	01/27/1997	0.00030	kdw	273 832	8310 (1)
Fluoranthene	<0.0021	mg/L	01/27/1997	0.0021	kdw	273 832	8310 (1)
Fluorene	<0.0021	mg/L	01/27/1997	0.0021	kdw	273 832	8310 (1)
Indeno(1,2,3-cd)pyrene	<0.00043	mg/L	01/27/1997	0.00043	kdw	273 832	8310 (1)
Naphthalene	<0.010	mg/L	01/27/1997	0.010	kdw	273 832	8310 (1)
Phenanthrene	<0.0064	mg/L	01/27/1997	0.0064	kdw	273 832	8310 (1)
Pyrene	<0.0027	mg/L	01/27/1997	0.0027	kdw	273 832	8310 (1)
Surr: p-Terphenyl	79.5	%	01/27/1997	37-122	kdw	273 832	8310 (1)



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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

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

01/28/1997

NET Job Number: 97.00651

Analyte	Run	CCV	Conc. Found	Percent Recovery
	Batch Number	True Conc.		
PNA CMPDS - 8310 AQUEOUS				
Acenaphthene	832	1000	916.09	91.6
Acenaphthylene	832	1000	1019	101.9
Anthracene	832	1000	1028	102.8
Benzo(a)anthracene	832	1000	981.05	98.1
Benzo(b)fluoranthene	832	1000	961.88	96.2
Benzo(k)fluoranthene	832	1000	984.86	98.5
Benzo(a)pyrene	832	1000	1004.25	100.4
Benzo(ghi)perylene	832	1000	947.9	94.8
Chrysene	832	1000	998.54	99.9
Dibenzo(a,h)anthracene	832	1000	987.9	98.8
Fluoranthene	832	1000	969.25	96.9
Fluorene	832	1000	957.22	95.7
Indeno(1,2,3-cd)pyrene	832	1000	968.09	96.8
Naphthalene	832	1000	1007.53	100.8
Phenanthrene	832	1000	979.86	98.0
Pyrene	832	1000	1008.96	100.9
Surr: p-Terphenyl	832	1000	951.02	95.1
PNA CMPDS - 8310 AQUEOUS				
Acenaphthene	832	1000	939.61	94.0
Acenaphthylene	832	1000	1010	101.0
Anthracene	832	1000	1068	106.8
Benzo(a)anthracene	832	1000	975.35	97.5
Benzo(b)fluoranthene	832	1000	942.49	94.2
Benzo(k)fluoranthene	832	1000	985.82	98.6
Benzo(a)pyrene	832	1000	990.62	99.1
Benzo(ghi)perylene	832	1000	966.53	96.7
Chrysene	832	1000	1012	101.2
Dibenzo(a,h)anthracene	832	1000	1001	100.1
Fluoranthene	832	1000	1001	100.1
Fluorene	832	1000	972.7	97.3
Indeno(1,2,3-cd)pyrene	832	1000	963.62	96.4
Naphthalene	832	1000	928.55	92.9
Phenanthrene	832	1000	988.72	98.9

CCV - Continuing Calibration Verification



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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

CLAYTON ENVIRONMENTAL
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Mr. Hank Mittelhauser

01/28/1997

NET Job Number: 97.00651

Analyte	Run	CCV	Conc.	Percent
	Batch Number	True Conc		
Pyrene	832	1000	1003	100.3
Surr: p-Terphenyl	832	1000	947.19	94.7



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QUALITY CONTROL REPORT

BLANK ANALYSIS

CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
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01/28/1997

NET Job Number: 97.00651

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
PNA CMPDS - 8310 AQUEOUS						8310 (1)
Acenaphthene	273	820	<0.018	mg/L	0.018	8310 (1)
Acenaphthylene	273	820	<0.010	mg/L	0.010	8310 (1)
Anthracene	273	820	<0.0066	mg/L	0.0066	8310 (1)
Benzo(a)anthracene	273	820	<0.00013	mg/L	0.00013	8310 (1)
Benzo(b)fluoranthene	273	820	<0.00018	mg/L	0.00018	8310 (1)
Benzo(k)fluoranthene	273	820	<0.00017	mg/L	0.00017	8310 (1)
Benzo(a)pyrene	273	820	<0.00023	mg/L	0.00023	8310 (1)
Benzo(ghi)perylene	273	820	<0.00076	mg/L	0.00076	8310 (1)
Chrysene	273	820	<0.0015	mg/L	0.0015	8310 (1)
Dibenzo(a,h)anthracene	273	820	<0.00030	mg/L	0.00030	8310 (1)
Fluoranthene	273	820	<0.0021	mg/L	0.0021	8310 (1)
Fluorene	273	820	<0.0021	mg/L	0.0021	8310 (1)
Indeno(1,2,3-cd)pyrene	273	820	<0.00043	mg/L	0.00043	8310 (1)
Naphthalene	273	820	<0.010	mg/L	0.010	8310 (1)
Phenanthrene	273	820	<0.0064	mg/L	0.0064	8310 (1)
Pyrene	273	820	<0.0027	mg/L	0.0027	8310 (1)
Surr: p-Terphenyl	273	820	89.3	%	37-122	8310 (1)
PNA CMPDS - 8310 AQUEOUS						8310 (1)
Acenaphthene	273	829	<0.018	mg/L	0.018	8310 (1)
Acenaphthylene	273	829	<0.010	mg/L	0.010	8310 (1)
Anthracene	273	829	<0.0066	mg/L	0.0066	8310 (1)
Benzo(a)anthracene	273	829	<0.00013	mg/L	0.00013	8310 (1)
Benzo(b)fluoranthene	273	829	<0.00018	mg/L	0.00018	8310 (1)
Benzo(k)fluoranthene	273	829	<0.00017	mg/L	0.00017	8310 (1)
Benzo(a)pyrene	273	829	<0.00023	mg/L	0.00023	8310 (1)
Benzo(ghi)perylene	273	829	<0.00076	mg/L	0.00076	8310 (1)
Chrysene	273	829	<0.0015	mg/L	0.0015	8310 (1)
Dibenzo(a,h)anthracene	273	829	<0.00030	mg/L	0.00030	8310 (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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BLANK ANALYSIS

CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
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Mr. Hank Mittelhauser

01/28/1997

NET Job Number: 97.00651

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
Fluoranthene	273	829	<0.0021	mg/L	0.0021	8310 (1)
Fluorene	273	829	<0.0021	mg/L	0.0021	8310 (1)
Indeno(1,2,3-cd)pyrene	273	829	<0.00043	mg/L	0.00043	8310 (1)
Naphthalene	273	829	<0.010	mg/L	0.010	8310 (1)
Phenanthrene	273	829	<0.0064	mg/L	0.0064	8310 (1)
Pyrene	273	829	<0.0027	mg/L	0.0027	8310 (1)
Surr: p-Terphenyl	273	829	86.6	μ	37-122	8310 (1)
PNA CMPDS - 8310 AQUEOUS						8310 (1)
Acenaphthene	273	830	<0.018	mg/L	0.018	8310 (1)
Acenaphthylene	273	830	<0.010	mg/L	0.010	8310 (1)
Anthracene	273	830	<0.0066	mg/L	0.0066	8310 (1)
Benzo(a)anthracene	273	830	<0.00013	mg/L	0.00013	8310 (1)
Benzo(b)fluoranthene	273	830	<0.00018	mg/L	0.00018	8310 (1)
Benzo(k)fluoranthene	273	830	<0.00017	mg/L	0.00017	8310 (1)
Benzo(a)pyrene	273	830	<0.00023	mg/L	0.00023	8310 (1)
Benzo(ghi)perylene	273	830	<0.00076	mg/L	0.00076	8310 (1)
Chrysene	273	830	<0.0015	mg/L	0.0015	8310 (1)
Dibenzo(a,h)anthracene	273	830	<0.00030	mg/L	0.00030	8310 (1)
Fluoranthene	273	830	<0.0021	mg/L	0.0021	8310 (1)
Fluorene	273	830	<0.0021	mg/L	0.0021	8310 (1)
Indeno(1,2,3-cd)pyrene	273	830	<0.00043	mg/L	0.00043	8310 (1)
Naphthalene	273	830	<0.010	mg/L	0.010	8310 (1)
Phenanthrene	273	830	<0.0064	mg/L	0.0064	8310 (1)
Pyrene	273	830	<0.0027	mg/L	0.0027	8310 (1)
Surr: p-Terphenyl	273	830	79.4	μ	37-122	8310 (1)
PNA CMPDS - 8310 AQUEOUS						8310 (1)
Acenaphthene	273	831	<0.018	mg/L	0.018	8310 (1)
Acenaphthylene	273	831	<0.010	mg/L	0.010	8310 (1)
Anthracene	273	831	<0.0066	mg/L	0.0066	8310 (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

CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
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Mr. Hank Mittelhauser

01/28/1997

NET Job Number: 97.00651

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
Benzo(a)anthracene	273	831	<0.00013	mg/L	0.00013	8310 (1)
Benzo(b)fluoranthene	273	831	<0.00018	mg/L	0.00018	8310 (1)
Benzo(k)fluoranthene	273	831	<0.00017	mg/L	0.00017	8310 (1)
Benzo(a)pyrene	273	831	<0.00023	mg/L	0.00023	8310 (1)
Benzo(ghi)perylene	273	831	<0.00076	mg/L	0.00076	8310 (1)
Chrysene	273	831	<0.0015	mg/L	0.0015	8310 (1)
Dibenzo(a,h)anthracene	273	831	<0.00030	mg/L	0.00030	8310 (1)
Fluoranthene	273	831	<0.0021	mg/L	0.0021	8310 (1)
Fluorene	273	831	<0.0021	mg/L	0.0021	8310 (1)
Indeno(1,2,3-cd)pyrene	273	831	<0.00043	mg/L	0.00043	8310 (1)
Naphthalene	273	831	<0.010	mg/L	0.010	8310 (1)
Phenanthrene	273	831	<0.0064	mg/L	0.0064	8310 (1)
Pyrene	273	831	<0.0027	mg/L	0.0027	8310 (1)
Surr: p-Terphenyl	273	831	77.6	%	37-122	8310 (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

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

01/28/1997

NET Job Number: 97.00651

Analyte	Prep	Run	True Conc.	Conc. Found	LCS % Recovery
	Batch Number	Batch Number			
PNA CMPDS - 8310 AQUEOUS					
Acenaphthene	273	820	1.000	0.950	95.0
Acenaphthylene	273	820	1.000	0.877	87.7
Anthracene	273	820	1.000	1.005	100.5
Benzo(a)anthracene	273	820	1.000	1.158	115.8
Benzo(b)fluoranthene	273	820	1.000	0.955	95.5
Benzo(k)fluoranthene	273	820	1.000	0.901	90.1
Benzo(a)pyrene	273	820	1.000	1.145	114.5
Benzo(ghi)perylene	273	820	1.000	0.862	86.2
Chrysene	273	820	1.000	0.805	80.5
Dibenzo(a,h)anthracene	273	820	1.000	0.963	96.3
Fluoranthene	273	820	1.000	0.988	98.8
Fluorene	273	820	1.000	0.971	97.1
Indeno(1,2,3-cd)pyrene	273	820	1.000	1.090	109.0
Naphthalene	273	820	1.000	1.022	102.2
Phenanthrene	273	820	1.000	0.940	94.0
Pyrene	273	820	1.000	1.082	108.2
Surr: p-Terphenyl	273	820	2000	1900	95.0
PNA CMPDS - 8310 AQUEOUS					
Acenaphthene	273	829	1.000	0.84	84.0
Acenaphthylene	273	829	1.000	0.81	81.0
Anthracene	273	829	1.000	0.81	81.0
Benzo(a)anthracene	273	829	1.000	0.84	84.0
Benzo(b)fluoranthene	273	829	1.000	0.768	76.8
Benzo(k)fluoranthene	273	829	1.000	0.826	82.6
Benzo(a)pyrene	273	829	1.000	0.689	68.9
Benzo(ghi)perylene	273	829	1.000	0.773	77.3
Chrysene	273	829	1.000	0.848	84.8
Dibenzo(a,h)anthracene	273	829	1.000	0.824	82.4
Fluoranthene	273	829	1.000	0.833	83.3
Fluorene	273	829	1.000	0.790	79.0



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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
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Mr. Hank Mittelhauser

01/28/1997

NET Job Number: 97.00651

Analyte	Prep	Run	True Conc.	Conc. Found	LCS % Recovery
	Batch Number	Batch Number			
Indeno(1,2,3-cd)pyrene	273	829	1.000	0.802	80.2
Naphthalene	273	829	1.000	0.764	76.4
Phenanthrene	273	829	1.000	0.837	83.7
Pyrene	273	829	1.000	0.809	80.9
Surr: p-Terphenyl	273	829	2000	1698.13	84.9
PNA CMPDS - 8310 AQUEOUS					
Acenaphthene	273	830	1.000	0.787	78.7
Acenaphthylene	273	830	1.000	0.81	81.0
Anthracene	273	830	1.000	0.85	85.0
Benzo(a)anthracene	273	830	1.000	0.872	87.2
Benzo(b)fluoranthene	273	830	1.000	0.818	81.8
Benzo(k)fluoranthene	273	830	1.000	0.833	83.3
Benzo(a)pyrene	273	830	1.000	0.784	78.4
Benzo(ghi)perylene	273	830	1.000	0.809	80.9
Chrysene	273	830	1.000	0.858	85.8
Dibenzo(a,h)anthracene	273	830	1.000	0.828	82.8
Fluoranthene	273	830	1.000	0.874	87.4
Fluorene	273	830	1.000	0.799	79.9
Indeno(1,2,3-cd)pyrene	273	830	1.000	0.761	76.1
Naphthalene	273	830	1.000	0.775	77.5
Phenanthrene	273	830	1.000	0.808	80.8
Pyrene	273	830	1.000	0.853	85.3
Surr: p-Terphenyl	273	830	2000	1610.51	80.5
PNA CMPDS - 8310 AQUEOUS					
Acenaphthene	273	831	1.000	0.822	82.2
Acenaphthylene	273	831	1.000	0.825	82.5
Anthracene	273	831	1.000	0.844	84.4
Benzo(a)anthracene	273	831	1.000	0.812	81.2
Benzo(b)fluoranthene	273	831	1.000	0.794	79.4
Benzo(k)fluoranthene	273	831	1.000	0.821	82.1
Benzo(a)pyrene	273	831	1.000	0.783	78.3



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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

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

01/28/1997

NET Job Number: 97.00651

Analyte	Prep	Run	True Conc.	Conc. Found	LCS % Recovery
	Batch Number	Batch Number			
Benzo(ghi)perylene	273	831	1.000	0.786	78.6
Chrysene	273	831	1.000	0.838	83.8
Dibenzo(a,h)anthracene	273	831	1.000	0.825	82.5
Fluoranthene	273	831	1.000	0.832	83.2
Fluorene	273	831	1.000	0.824	82.4
Indeno(1,2,3-cd)pyrene	273	831	1.000	0.781	78.1
Naphthalene	273	831	1.000	0.816	81.6
Phenanthrene	273	831	1.000	0.837	83.7
Pyrene	273	831	1.000	0.854	85.4
Surr: p-Terphenyl	273	831	2000	1680.66	84.0



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QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

01/28/1997

NET Job Number: 97.00651

Analyte	Prep	Run	Matrix	Sample	Spike	Units	Percent	MSD	MSD		Percent	MS/MSD
	Batch	Batch	Spike						Spike	Recovery		
	Number	Number	Result	Result	Amount		Recovery	Result	Amount	Units	Recovery	RPD
PNA CMPDS - 8310 AQUEOUS												
Acenaphthene	273	820	1.154	<0.018	1.000	mg/L	115.4	1.540	1.000	mg/L	154.0	28.7
Acenaphthylene	273	820	0.985	<0.010	1.000	mg/L	98.5	1.050	1.000	mg/L	105.0	6.3
Anthracene	273	820	0.876	<0.0066	1.000	mg/L	87.6	0.922	1.000	mg/L	92.2	5.1
Benzo(a)anthracene	273	820	0.754	<0.0001	1.000	mg/L	75.4	0.854	1.000	mg/L	85.4	12.4
Benzo(b)fluoranthene	273	820	1.052	<0.0001	1.000	mg/L	105.2	0.998	1.000	mg/L	99.8	6.2
Benzo(k)fluoranthene	273	820	0.966	<0.0001	1.000	mg/L	96.6	0.925	1.000	mg/L	92.5	4.3
Benzo(a)pyrene	273	820	0.780	<0.0002	1.000	mg/L	78.0	0.810	1.000	mg/L	81.0	3.8
Benzo(ghi)perylene	273	820	0.965	<0.0007	1.000	mg/L	96.5	0.901	1.000	mg/L	90.1	6.9
Chrysene	273	820	1.040	<0.0015	1.000	mg/L	104.0	1.035	1.000	mg/L	103.5	0.5
Dibenzo(a,h)anthracene	273	820	1.006	<0.0003	1.000	mg/L	100.6	0.985	1.000	mg/L	98.5	2.0
Fluoranthene	273	820	1.087	<0.0021	1.000	mg/L	108.7	1.080	1.000	mg/L	108.0	0.6
Fluorene	273	820	1.182	<0.0021	1.000	mg/L	118.2	1.099	1.000	mg/L	109.9	7.3
Indeno(1,2,3-cd)pyrene	273	820	0.955	<0.0004	1.000	mg/L	95.5	0.978	1.000	mg/L	97.8	2.4
Naphthalene	273	820	0.966	<0.010	1.000	mg/L	96.6	0.963	1.000	mg/L	96.3	0.3
Phenanthrene	273	820	0.852	<0.0064	1.000	mg/L	85.2	0.893	1.000	mg/L	89.3	4.7
Pyrene	273	820	1.098	<0.0027	1.000	mg/L	109.8	1.075	1.000	mg/L	107.5	2.1

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

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).
TCLP	: These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
Surx:	: These initials are the abbreviation for surrogate. Surrogates are compounds that are chemically similar to the compounds of interest. They are part of the method quality control requirements.
%	: Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
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.

- (7) See "Methods for the Determination of Metals in Environmental Samples", Supplement I
EPA-600/R-94/111, May 1994.
- (8) See "Standard Methods for the Examination of Water and Wastewater", 18th Ed., APHA, 1992.



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

01/24/1997

NET Job Number: 97.00308

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 Artesia Station

Sample Number	Sample Description	Date Taken	Date Received
391397	Influent	01/10/1997	01/15/1997
391398	MW-11; Grab	01/10/1997	01/15/1997
391399	MW-14; Grab	01/10/1997	01/15/1997
391400	Effluent	01/10/1997	01/15/1997

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



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ANALYTICAL REPORT

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

01/24/1997

Sample No. : 391397

NET Job No.: 97.00308

Sample Description: Influent
Amoco Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 01/15/1997
Time Received: 10:35
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Alkalinity, bicarb (CaCO ₃)	860	mg/L	01/21/1997	5	sdf	375	310.1 (3)
Alkalinity, carbonate (CaCO ₃)	<5	mg/L	01/21/1997	5	sdf	375	310.1 (3)
Chloride	870	mg/L	01/17/1997	5	tdw	536	325.3 (3)
Fluoride	0.60	mg/L	01/17/1997	0.05	llb	393	340.2 (3)
Hardness, Total	2,670	mg/L	01/21/1997	5	llb	213	130.2 (3)
pH	7.59	units	01/15/1997	0.10	llb	1246	150.1 (3)
Solids, Total Dissolved	4,490	mg/L	01/17/1997	25	llb	812	160.1 (3)
Solids, Total Suspended	26	mg/L	01/17/1997	5	tdw	953	160.2 (3)
Arsenic, GFAA	0.0122	mg/L	01/23/1997	0.0050	jmt	843 714	206.2 (3)
Calcium, AA	570	mg/L	01/23/1997	1.0	jmt	1358 330	215.1 (3)
Magnesium, AA	160	mg/L	01/23/1997	1.0	jmt	1358 314	242.1 (3)
Mercury, CVAA	<0.0002	mg/L	01/16/1997	0.0002	jmt	783 757	245.1 (3)
Potassium, AA	7.5	mg/L	01/23/1997	1.0	jmt	1358 322	258.1 (3)
Selenium, GFAA	<0.0050	M+ mg/L	01/22/1997	0.0050	jmt	843 454	270.2 (3)
Silver, AA	<0.040	mg/L	01/21/1997	0.040	jmt	609 614	272.1 (3)
Sodium, AA	280	mg/L	01/23/1997	1.0	jmt	1358 337	273.1 (3)
Antimony, ICP	<0.50	mg/L	01/24/1997	0.50	jmt	1358 1946	200.7 (3)
Beryllium, ICP	<0.0050	mg/L	01/24/1997	0.0050	jmt	1358 2030	200.7 (3)
Cadmium, ICP	<0.010	mg/L	01/24/1997	0.010	jmt	1358 2974	200.7 (3)
Chromium, ICP	<0.040	mg/L	01/24/1997	0.040	jmt	1358 2026	200.7 (3)
Copper, ICP	<0.020	mg/L	01/24/1997	0.020	jmt	1358 2378	200.7 (3)
Iron, ICP	0.168	mg/L	01/24/1997	0.050	jmt	1358 2978	200.7 (3)
Lead, ICP	<0.080	mg/L	01/24/1997	0.080	jmt	1358 2244	200.7 (3)
Manganese, ICP	0.438	mg/L	01/24/1997	0.010	jmt	1358 1964	200.7 (3)
Nickel, ICP	<0.050	mg/L	01/24/1997	0.050	jmt	1358 2117	200.7 (3)
Thallium, ICP	<0.20	mg/L	01/24/1997	0.20	jmt	1358 1994	200.7 (3)
Zinc, ICP	<0.020	mg/L	01/24/1997	0.020	jmt	1358 2120	200.7 (3)

M+ : Analyte quantified by MSA due to low spike recovery.



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ANALYTICAL REPORT

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

01/24/1997

Sample No. : 391397

NET Job No.: 97.00308

Sample Description: Influent
Amoco Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 01/15/1997
Time Received: 10:35
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Sulfate	1,809	mg/L	01/21/1997		jrt	286	375.4 (3)



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ANALYTICAL REPORT

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

01/24/1997

Sample No. : 391398

NET Job No.: 97.00308

Sample Description: MW-11; Grab
Amoco Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:45
IEPA Cert. No. 100221

Date Received: 01/15/1997
Time Received: 10:35
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Alkalinity, picarb (CaCO ₃)	106	mg/L	01/21/1997	5	sdf	375	310.1(3)
Alkalinity, carbonate (CaCO ₃)	<5	mg/L	01/21/1997	5	sdf	375	310.1(3)
Chloride	50	mg/L	01/17/1997	5	tdw	536	325.3(3)
Fluoride	0.88	mg/L	01/17/1997	0.05	llb	393	340.2(3)
Hardness, Total	2,170	mg/L	01/21/1997	5	llb	213	130.2(3)
pH	7.97	units	01/15/1997	0.10	llb	1246	150.1(3)
Solids, Total Dissolved	2,990	mg/L	01/17/1997	25	llb	812	160.1(3)
Solids, Total Suspended	25	mg/L	01/17/1997	5	tdw	953	160.2(3)
Antimony, ICP	<0.50	mg/L	01/24/1997	0.50	jmt	1358 1946	6010 (1)
Arsenic, GFAA	<0.0050	mg/L	01/23/1997	0.0050	jmt	843 715	7060 (1)
Beryllium, ICP	<0.0050	mg/L	01/24/1997	0.0050	jmt	1358 2030	6010 (1)
Cadmium, ICP	<0.010	mg/L	01/22/1997	0.010	jmt	1358 2047	6010 (1)
Calcium, AA	390	mg/L	01/23/1997	1.0	jmt	1358 330	7140 (1)
Chromium, ICP	<0.040	mg/L	01/22/1997	0.040	jmt	1358 2020	6010 (1)
Copper, ICP	<0.020	mg/L	01/22/1997	0.020	jmt	1358 2371	6010 (1)
Iron, ICP	0.139	mg/L	01/24/1997	0.050	jmt	1358 2978	6010 (1)
Lead, ICP	<0.080	mg/L	01/22/1997	0.080	jmt	1358 2238	6010 (1)
Magnesium, AA	120	mg/L	01/23/1997	1.0	jmt	1358 314	7450 (1)
Manganese, ICP	<0.010	mg/L	01/24/1997	0.010	jmt	1358 1964	6010 (1)
Mercury, CVAA	<0.0002	mg/L	01/16/1997	0.0002	jmt	759	7470 (1)
Nickel, ICP	<0.050	mg/L	01/22/1997	0.050	jmt	1358 2111	6010 (1)
Potassium, AA	3.9	mg/L	01/23/1997	1.0	jmt	1358 322	7610 (1)
Selenium, GFAA	<0.0050	mg/L	01/23/1997	0.0050	jmt	843 455	7740 (1)
Silver, AA	<0.040	mg/L	01/21/1997	0.040	jmt	609 614	7760 (1)
Sodium, AA	37	mg/L	01/23/1997	1.0	jmt	1358 337	7770 (1)
Thallium, ICP	<0.20	mg/L	01/24/1997	0.20	jmt	1358 1994	6010 (1)
Zinc, ICP	<0.020	mg/L	01/22/1997	0.020	jmt	1358 2113	6010 (1)



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ANALYTICAL REPORT

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

01/24/1997

Sample No. : 391398

NET Job No.: 97.00308

Sample Description: MW-11; Grab
Amoco Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:45
IEPA Cert. No. 100221

Date Received: 01/15/1997
Time Received: 10:35
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Sulfate	1,872	mg/L	01/21/1997		jrt	286	375.4 (3)



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ANALYTICAL REPORT

Mr. Hank Mittelhauser
CLAYTON ENVIRONMENTAL
1240 Iroquois Drive
Suite 206
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01/24/1997

Sample No. : 391399

NET Job No.: 97.00308

Sample Description: MW-14; Grab
Amoco Artesia Station

Date Taken: 01/10/1997
Time Taken: 16:45
IEPA Cert. No. 100221

Date Received: 01/15/1997
Time Received: 10:35
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Alkalinity, bicarb (CaCO ₃)	116	mg/L	01/21/1997	5	sdf	375	310.1 (3)
Alkalinity, carbonate (CaCO ₃)	<5	mg/L	01/21/1997	5	sdf	375	310.1 (3)
Chloride	30	mg/L	01/17/1997	5	tdw	536	325.3 (3)
Fluoride	0.83	mg/L	01/17/1997	0.05	llb	393	340.2 (3)
Hardness, Total	2,140	mg/L	01/21/1997	5	llb	213	130.2 (3)
pH	7.85	units	01/15/1997	0.10	llb	1246	150.1 (3)
Solids, Total Dissolved	2,950	mg/L	01/17/1997	25	llb	812	160.1 (3)
Solids, Total Suspended	92	mg/L	01/17/1997	5	tdw	953	160.2 (3)
Antimony, ICP	<0.50	mg/L	01/24/1997	0.50	jmt	1358 1946	6010 (1)
Arsenic, GFAA	<0.0050	mg/L	01/23/1997	0.0050	jmt	843 715	7060 (1)
Beryllium, ICP	<0.0050	mg/L	01/24/1997	0.0050	jmt	1358 2030	6010 (1)
Cadmium, ICP	<0.010	mg/L	01/24/1997	0.010	jmt	1358 2053	6010 (1)
Calcium, AA	390	mg/L	01/23/1997	1.0	jmt	1358 330	7140 (1)
Chromium, ICP	<0.040	mg/L	01/24/1997	0.040	jmt	1358 2026	6010 (1)
Copper, ICP	<0.020	mg/L	01/24/1997	0.020	jmt	1358 2378	6010 (1)
Iron, ICP	0.507	mg/L	01/24/1997	0.050	jmt	1358 2978	6010 (1)
Lead, ICP	<0.080	mg/L	01/24/1997	0.080	jmt	1358 2244	6010 (1)
Magnesium, AA	130	mg/L	01/23/1997	1.0	jmt	1358 314	7450 (1)
Manganese, ICP	<0.010	mg/L	01/24/1997	0.010	jmt	1358 1964	6010 (1)
Mercury, CVAA	<0.0002	mg/L	01/16/1997	0.0002	jmt	759	7470 (1)
Nickel, ICP	<0.050	mg/L	01/24/1997	0.050	jmt	1358 2117	6010 (1)
Potassium, AA	4.0	mg/L	01/23/1997	1.0	jmt	1358 322	7610 (1)
Selenium, GFAA	<0.0050	mg/L	01/23/1997	0.0050	jmt	843 455	7740 (1)
Silver, AA	<0.040	mg/L	01/21/1997	0.040	jmt	609 614	7760 (1)
Sodium, AA	44	mg/L	01/23/1997	1.0	jmt	1358 337	7770 (1)
Thallium, ICP	<0.20	mg/L	01/24/1997	0.20	jmt	1358 1994	6010 (1)
Zinc, ICP	<0.020	mg/L	01/24/1997	0.020	jmt	1358 2120	6010 (1)



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ANALYTICAL REPORT

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

01/24/1997

Sample No. : 391399

NET Job No.: 97.00308

Sample Description: MW-14; Grab
Amoco Artesia Station

Date Taken: 01/10/1997
Time Taken: 16:45
IEPA Cert. No. 100221

Date Received: 01/15/1997
Time Received: 10:35
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Sulfate	1,917	mg/L	01/21/1997		jrt	286	375.4 (3)



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ANALYTICAL REPORT

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

01/24/1997

Sample No. : 391400

NET Job No.: 97.00308

Sample Description: Effluent
Amoco Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:10
IEPA Cert. No. 100221

Date Received: 01/15/1997
Time Received: 10:35
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Alkalinity, bicarb (CaCO ₃)	590	mg/L	01/21/1997	5	sdf	375	310.1 (3)
Alkalinity, carbonate (CaCO ₃)	<5	mg/L	01/21/1997	5	sdf	375	310.1 (3)
Chloride	670	mg/L	01/17/1997	5	tdw	536	325.3 (3)
Fluoride	0.60	mg/L	01/17/1997	0.05	llb	393	340.2 (3)
Hardness, Total	2,600	mg/L	01/21/1997	5	llb	213	130.2 (3)
pH	8.01	units	01/15/1997	0.10	llb	1246	150.1 (3)
Solids, Total Dissolved	4,360	mg/L	01/17/1997	25	llb	812	160.1 (3)
Solids, Total Suspended	131	mg/L	01/17/1997	5	tdw	953	160.2 (3)
Arsenic, GFAA	0.0098	mg/L	01/23/1997	0.0050	jmt	843 715	206.2 (3)
Calcium, AA	500	mg/L	01/23/1997	1.0	jmt	1358 330	215.1 (3)
Magnesium, AA	160	mg/L	01/23/1997	1.0	jmt	1358 314	242.1 (3)
Mercury, CVAA	<0.0002	mg/L	01/20/1997	0.0002	jmt	784 758	245.1 (3)
Potassium, AA	7.6	mg/L	01/23/1997	1.0	jmt	1358 322	258.1 (3)
Selenium, GFAA	<0.0050	mg/L	01/23/1997	0.0050	jmt	843 455	270.2 (3)
Silver, AA	<0.040	mg/L	01/21/1997	0.040	jmt	609 614	272.1 (3)
Sodium, AA	270	mg/L	01/23/1997	1.0	jmt	1358 337	273.1 (3)
Antimony, ICP	<0.50	mg/L	01/24/1997	0.50	jmt	1358 1946	200.7 (3)
Beryllium, ICP	<0.0050	mg/L	01/24/1997	0.0050	jmt	1358 2030	200.7 (3)
Cadmium, ICP	<0.010	mg/L	01/24/1997	0.010	jmt	1358 2974	200.7 (3)
Chromium, ICP	<0.040	mg/L	01/24/1997	0.040	jmt	1358 2026	200.7 (3)
Copper, ICP	<0.020	mg/L	01/24/1997	0.020	jmt	1358 2378	200.7 (3)
Iron, ICP	0.268	mg/L	01/24/1997	0.050	jmt	1358 2978	200.7 (3)
Lead, ICP	<0.080	mg/L	01/24/1997	0.080	jmt	1358 2244	200.7 (3)
Manganese, ICP	0.453	mg/L	01/24/1997	0.010	jmt	1358 1964	200.7 (3)
Nickel, ICP	<0.050	mg/L	01/24/1997	0.050	jmt	1358 2117	200.7 (3)
Thallium, ICP	<0.20	mg/L	01/24/1997	0.20	jmt	1358 1994	200.7 (3)
Zinc, ICP	<0.020	mg/L	01/24/1997	0.020	jmt	1358 2120	200.7 (3)



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ANALYTICAL REPORT

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

01/24/1997

Sample No. : 391400

NET Job No.: 97.00308

Sample Description: Effluent
Amoco Artesia Station

Date Taken: 01/10/1997
Time Taken: 15:10
IEPA Cert. No. 100221

Date Received: 01/15/1997
Time Received: 10:35
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Sulfate	1,769	mg/L	01/21/1997		jrt	286	375.4 (3)



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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

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

01/24/1997

NET Job Number: 97.00308

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
Alkalinity, bicarb (CaCO ₃)	375	100	96	96.0
Alkalinity, bicarb (CaCO ₃)	375	100	98	98.0
Alkalinity, carbonate (CaCO ₃)	375	100	96	96.0
Alkalinity, carbonate (CaCO ₃)	375	100	98	98.0
Fluoride	393	1.00	1.06	106.0
Hardness, Total	213	80	86	107.5
Solids, Total Dissolved	812	330	355	107.6
Antimony, ICP	1946	2.00	1.97	98.5
Arsenic, GFAA	715	0.0250	0.0245	98.0
Arsenic, GFAA	714	0.0250	0.0267	106.8
Arsenic, GFAA	715	0.0250	0.0245	98.0
Beryllium, ICP	2030	1.00	0.954	95.4
Cadmium, ICP	2047	1.00	1.01	101.0
Cadmium, ICP	2053	1.00	1.01	101.0
Calcium, AA	330	0.50	0.542	108.4
Calcium, AA	330	0.50	0.542	108.4
Chromium, ICP	2020	2.00	1.96	98.0
Chromium, ICP	2026	2.00	2.08	104.0
Copper, ICP	2371	1.00	0.965	96.5
Copper, ICP	2378	1.00	1.00	100.0
Iron, ICP	2978	2.00	2.01	100.5
Lead, ICP	2238	2.00	2.02	101.0
Lead, ICP	2244	2.00	2.06	103.0
Magnesium, AA	314	0.500	0.517	103.4
Magnesium, AA	314	0.500	0.517	103.4
Manganese, ICP	1964	1.00	1.01	101.0
Mercury, CVAA	759	0.0025	0.0025	100.0
Mercury, CVAA	757	0.0025	0.0025	100.0
Mercury, CVAA	758	0.0025	0.0024	96.0
Nickel, ICP	2111	1.00	0.950	95.0
Nickel, ICP	2117	1.00	1.01	101.0
Potassium, AA	322	0.50	0.494	98.8
Potassium, AA	322	0.50	0.494	98.8
Selenium, GFAA	455	0.0500	0.0500	100.0

CCV - Continuing Calibration Verification



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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

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

01/24/1997

NET Job Number: 97.00308

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
Selenium, GFAA	454	0.0500	0.0502	100.4
Selenium, GFAA	455	0.0500	0.0500	100.0
Silver, AA	614	0.500	0.495	99.0
Silver, AA	614	0.500	0.495	99.0
Sodium, AA	337	0.50	0.507	101.4
Sodium, AA	337	0.50	0.507	101.4
Thallium, ICP	1994	2.00	2.15	107.5
Zinc, ICP	2113	2.00	1.98	99.0
Zinc, ICP	2120	2.00	2.03	101.5
Antimony, ICP	1946	2.00	1.97	98.5
Beryllium, ICP	2030	1.00	0.954	95.4
Chromium, ICP	2026	2.00	2.08	104.0
Copper, ICP	2378	1.00	1.00	100.0
Iron, ICP	2978	2.00	2.01	100.5
Lead, ICP	2244	2.00	2.06	103.0
Manganese, ICP	1964	1.00	1.01	101.0
Nickel, ICP	2117	1.00	1.01	101.0
Thallium, ICP	1994	2.00	2.15	107.5
Zinc, ICP	2120	2.00	2.03	101.5
Sulfate	286	24	22.6	94.2



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QUALITY CONTROL REPORT

BLANK ANALYSIS

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

01/24/1997

NET Job Number: 97.00308

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
Alkalinity, bicarb (CaCO ₃)		375	<5	mg/L	5	310.1 (3)
Alkalinity, bicarb (CaCO ₃)		375	<5	mg/L	5	310.1 (3)
Alkalinity, carbonate (CaCO ₃)		375	<5	mg/L	5	310.1 (3)
Alkalinity, carbonate (CaCO ₃)		375	<5	mg/L	5	310.1 (3)
Chloride		536	<5	mg/L	5	325.3 (3)
Fluoride		393	<0.05	mg/L	0.05	340.2 (3)
Hardness, Total		213	<5	mg/L	5	130.2 (3)
Solids, Total Dissolved		812	<25	mg/L	25	160.1 (3)
Solids, Total Suspended		953	<5	mg/L	5	160.2 (3)
Antimony, ICP	1358	1942	<0.50	mg/L	0.50	6010 (1)
Beryllium, ICP	1358	2025	<0.0050	mg/L	0.0050	6010 (1)
Cadmium, ICP	1358	2049	<0.010	mg/L	0.010	6010 (1)
Cadmium, ICP	1358	2049	<0.010	mg/L	0.010	6010 (1)
Calcium, AA	1358	330	<1.0	mg/L	1.0	7140 (1)
Calcium, AA	1358	330	<1.0	mg/L	1.0	215.1 (3)
Chromium, ICP	1358	2022	<0.040	mg/L	0.040	6010 (1)
Chromium, ICP	1358	2022	<0.040	mg/L	0.040	6010 (1)
Copper, ICP	1358	2374	<0.010	mg/L	0.020	6010 (1)
Copper, ICP	1358	2374	<0.010	mg/L	0.020	6010 (1)
Iron, ICP	1358	2973	<0.050	mg/L	0.050	6010 (1)
Lead, ICP	1358	2240	<0.080	mg/L	0.080	6010 (1)
Lead, ICP	1358	2240	<0.080	mg/L	0.080	6010 (1)
Magnesium, AA	1358	314	<1.0	mg/L	1.0	7450 (1)
Magnesium, AA	1358	314	<1.0	mg/L	1.0	242.1 (3)
Manganese, ICP	1358	1959	<0.010	mg/L	0.010	6010 (1)
Mercury, CVAA	783	757	<0.0002	mg/L	0.0002	245.1 (3)
Mercury, CVAA	783	757	<0.0002	mg/L	0.0002	245.1 (3)
Mercury, CVAA	784	758	<0.0002	mg/L	0.0002	245.1 (3)
Mercury, CVAA	784	758	<0.0002	mg/L	0.0002	245.1 (3)

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

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

01/24/1997

NET Job Number: 97.00308

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
Nickel, ICP	1358	2113	<0.050	mg/L	0.050	6010 (1)
Nickel, ICP	1358	2113	<0.050	mg/L	0.050	6010 (1)
Potassium, AA	1358	322	<1.0	mg/L	1.0	7610 (1)
Potassium, AA	1358	322	<1.0	mg/L	1.0	258.1 (3)
Selenium, GFAA	843	454	<0.0050	mg/L	0.005	7740 (1)
Selenium, GFAA	843	454	<0.0050	mg/L	0.005	270.2 (3)
Selenium, GFAA	843	454	<0.0050	mg/L	0.005	270.2 (3)
Silver, AA	609	614	<0.040	mg/L	0.040	7760 (1)
Silver, AA	609	614	<0.040	mg/L	0.040	272.1 (3)
Sodium, AA	1358	337	<1.0	mg/L	1.0	7770 (1)
Sodium, AA	1358	337	<1.0	mg/L	1.0	273.1 (3)
Thallium, ICP	1358	1990	<0.20	mg/L	0.20	6010 (1)
Zinc, ICP	1358	2115	<0.020	mg/L	0.020	6010 (1)
Zinc, ICP	1358	2115	<0.020	mg/L	0.020	6010 (1)
Antimony, ICP	1358	1942	<0.50	mg/L	0.50	200.7 (3)
Beryllium, ICP	1358	2025	<0.0050	mg/L	0.0050	200.7 (3)
Chromium, ICP	1358	2022	<0.040	mg/L	0.040	200.7 (3)
Copper, ICP	1358	2374	<0.010	mg/L	0.020	200.7 (3)
Iron, ICP	1358	2973	<0.050	mg/L	0.050	200.7 (3)
Lead, ICP	1358	2240	<0.080	mg/L	0.080	200.7 (3)
Manganese, ICP	1358	1959	<0.010	mg/L	0.010	200.7 (3)
Nickel, ICP	1358	2113	<0.050	mg/L	0.050	200.7 (3)
Thallium, ICP	1358	1990	<0.20	mg/L	0.20	200.7 (3)
Zinc, ICP	1358	2115	<0.020	mg/L	0.020	200.7 (3)
Sulfate		286	<5	mg/L		375.4 (3)

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

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

01/24/1997

NET Job Number: 97.00308

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
Chloride		536	100	100	100.0
Fluoride		393	10.0	10.5	105.0
Solids, Total Dissolved		812	220	219	99.5
Solids, Total Suspended		953	100.0	90	90.0
Cadmium, ICP	1358	2047	0.500	0.505	101.0
Cadmium, ICP	1358	2047	0.500	0.505	101.0
Calcium, AA	1358	330	1.00	0.990	99.0
Calcium, AA	1358	330	1.00	0.952	95.2
Chromium, ICP	1358	2020	1.00	1.03	103.0
Chromium, ICP	1358	2020	1.00	1.03	103.0
Copper, ICP	1358	2371	0.500	0.518	103.6
Copper, ICP	1358	2371	0.500	0.518	103.6
Lead, ICP	1358	2238	1.00	1.01	101.0
Lead, ICP	1358	2238	1.00	1.01	101.0
Magnesium, AA	1358	314	0.50	0.538	107.6
Magnesium, AA	1358	314	0.50	0.538	107.6
Mercury, CVAA	783	757	0.0025	0.0025	100.0
Mercury, CVAA	783	757	0.0025	0.0025	100.0
Mercury, CVAA	784	758	0.0025	0.0024	96.0
Mercury, CVAA	784	758	0.0025	0.0024	96.0
Nickel, ICP	1358	2111	0.500	0.515	103.0
Nickel, ICP	1358	2111	0.500	0.515	103.0
Potassium, AA	1358	322	1.0	0.889	88.9
Potassium, AA	1358	322	1.0	0.889	88.9
Selenium, GFAA	843	454	0.0200	0.0207	103.5
Selenium, GFAA	843	454	0.0200	0.0207	103.5
Selenium, GFAA	843	454	0.0200	0.0207	103.5
Silver, AA	609	614	1.00	1.03	103.0
Silver, AA	609	614	1.00	1.03	103.0
Sodium, AA	1358	337	2.4	2.4	100.0
Sodium, AA	1358	337	2.4	2.4	100.0



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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

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

01/24/1997

NET Job Number: 97.00308

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
Zinc, ICP	1358	2113	1.00	1.03	103.0
Zinc, ICP	1358	2113	1.00	1.03	103.0
Chromium, ICP	1358	2020	1.00	1.03	103.0
Copper, ICP	1358	2371	0.500	0.518	103.6
Lead, ICP	1358	2238	1.00	1.01	101.0
Nickel, ICP	1358	2111	0.500	0.515	103.0
Zinc, ICP	1358	2113	1.00	1.03	103.0



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QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

01/24/1997

NET Job Number: 97.00308

Analyte	Prep	Run	Matrix	Sample	Spike	Percent	MSD	MSD	Percent	MS/MSD
	Batch	Batch	Spike							
	Number	Number	Result	Result	Amount	Units	Recovery	Result	Spike	RPD
									Amount	
									Units	
									Recovery	
Alkalinity, bicarb (CaCO ₃)		375	218	116	100	mg/L	102.0	220	100	1.9
Alkalinity, bicarb (CaCO ₃)		375	350	248	100	mg/L	102.0	350	100	0.0
Alkalinity, carbonate (CaCO ₃)		375	218	116	100	mg/L	102.0	220	100	1.9
Alkalinity, carbonate (CaCO ₃)		375	350	248	100	mg/L	102.0	350	100	0.0
Chloride		536	1,430	930	500	mg/L	100.0	1,430	500	0.0
Chloride		536	100	<5	100	mg/L	100.0	100	100	0.0
Fluoride		393	0.76	0.60	0.20	mg/L	80.0	0.76	0.20	0.0
Hardness, Total		213	2,220	1,990	200	mg/L	115.0	2,190	200	14.0
Calcium, AA	1358	330	0.922	<1.0	1.00	mg/L	92.2	0.950	1.00	3.0
Calcium, AA	1358	330	0.922	<1.0	1.00	mg/L	92.2	0.950	1.00	3.0
Magnesium, AA	1358	314	0.991	<1.0	1.00	mg/L	99.1	0.984	1.00	0.7
Magnesium, AA	1358	314	0.991	<1.0	1.00	mg/L	99.1	0.984	1.00	0.7
Potassium, AA	1358	322	0.971	<1.0	1.00	mg/L	97.1	0.994	1.00	2.3
Potassium, AA	1358	322	0.971	<1.0	1.00	mg/L	97.1	0.994	1.00	2.3
Sodium, AA	1358	337	0.933	<1.0	1.0	mg/L	93.3	0.926	1.0	0.8
Sodium, AA	1358	337	0.933	<1.0	1.0	mg/L	93.3	0.926	1.0	0.8

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
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CHAIN OF CUSTODY

COMPANY Amoco Production Co.

ADDRESS MC POB 3402 POB 7513 Chgo IL 60681-2573

PHONE 312-356-7251 FAX 312-856-3731

PROJECT NAME/LOCATION Amoco Artesia Station

PROJECT NUMBER _____

PROJECT MANAGER D. Parry

SAMPLED BY Cheryl M. Pennington

(PRINT NAME)

(PRINT NAME)

(PRINT NAME)

(PRINT NAME)

(PRINT NAME)

(PRINT NAME)

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H. Mittlehausen
D. Ewing

REPORT TO:

INVOICE TO:

P.O. NO.

NET QUOTE NO.

ANALYSES

ICAP METALS

Mercury

Selenium

Magnesium

Potassium

Chloride

Bicarbonate

Sulfate

Other

Other

Other

Other

Other

Other

Other

Other

Other

Other

Other

Other

Other

Other

Other

Other

Other

Other

Other

Other

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Other

Other

Other

Other

Other

Other

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

ICAP Metals, Mercury

Selenium, Sodium, Calcium

magnesium, potassium

chloride, bicarbonates

carbonates, fluoride

sulfate, total dissolved solids

* Laboratory Rec'd Sample

Label Effluent taken

11/10/97 @ 15:10

TEMPERATURE UPON RECEIPT: 3.30C

Bottles supplied by NET? YES ☒ NO ☐

DATE 1/13/97

RECEIVED FOR NET BY:

DATE 11/15/97

TIME 10:25

REMARKS: Please Send Copy of Report ASAP To H. Mittlehausen @ 2025

METHOD OF SHIPMENT

FEDEX