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REPORTS

DATE:
JAN 1996

Remediation System Operations 1995 Fourth Quarterly Report and 1996 First Annual Report

Amoco Pipeline Station
Artesia, New Mexico

Prepared for:
AMOCO CORPORATION
One Mid America Plaza
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Oakbrook Terrace, Illinois 60181

Prepared by:
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Project 64661.00 (2775)

January 30, 1996

Clayton Mittelhauser

Clayton
ENVIRONMENTAL
CONSULTANTS

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(continued)

APPENDICES

1.0 INTRODUCTION

This report summarizes the results of the remediation system operations for the period of October 1995 through December 1995. The report serves as both the fourth quarterly report for 1995 and the first annual report. The only difference between a quarterly report and the annual report is the inclusion of additional analyses (PAHs, Heavy Metals, Cations/Anions) in the annual report for samples obtained from wells with no free product and from the influent and effluent of the air stripper.

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

- Approximately 101 gallons of product have been recovered.
- No free product has been observed in the downgradient wells.
- The air stripper has operated at greater than 99% efficiency.

Installation of a prefilter and sequestering agent during the first half of April 1995 reduced the maintenance requirements of the system; however, fouling of the air stripper unit and discharge pump with calcium carbonate continued to create operational difficulties during the fourth quarter, as it had during most of 1995. The air stripper system discharge pump failed because a pump shaft seal failed, resulting in a burned out pump motor. The buildup of calcium carbonate caused a leakage that resulted in the pump seal failure. In addition, the air stripper became fouled with calcium carbonate and the flow accumulator was inoperable. Both these problems are also attributed to the high calcium carbonate and Total Dissolved Solids (TDS) levels in the groundwater.

In an effort to further reduce maintenance requirements and system shutdowns due to mechanical failure, an alternative sequestering agent system has been evaluated. The system design has been based on recent water quality analysis (Sample Date 10/03/95)

performed specifically for this purpose. The selected system utilizes BETZ GCP-9305 Multi Functional Deposit Control Agent. Refer to Appendix A for sequestering agent specifications, feed rate calculations, equipment specifications, and groundwater quality analysis results.

The system will consist of the BETZ GCP-9305 contained in a 55-gallon drum, a 50-gallon polyethylene dilution tank, and an explosion-proof chemical feed pump placed inside of the remediation building. Due to the low feed rates, a 10% solution of the sequestering agent will be prepared in the dilution tank prior to injection in the system. This will allow for better control of solution injection rates and concentrations. The dilute solution will be injected at an initial feedrate of approximately 2.5 gallons per day. Feedrates will be adjusted as required to obtain optimal system performance based on the site-specific conditions. The chemical feed pump will be run off of the pump controller running the recovery pumps in the interception trench. Sequestering agent will only be introduced into the system when the recovery pumps are operating so that consistent feed rates can be maintained. Injection of the sequestering agent will take place in the process piping located between the recovery pump and the oil/water separator. The piping design and retention times associated with the oil/water separator should allow for sufficient mixing and dispersion of the sequestering agent in the recovered groundwater. Maintenance and adjustments to the sequestering agent injection system will be performed during the routine maintenance inspections conducted biweekly.

2.0 LABORATORY RESULTS

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

BETX results for the influent to the air stripper and the effluent from the air stripper are presented in Table 1. All figures and tables are presented at the end of the text before the appendices.

The monthly samples for the influent and effluent of the air stripper were taken on November 25 and 26, 1995. These are the same dates as the annual samples that were taken from all wells not containing free product. The monthly samples also serve as the annual samples. It was discovered, after the sampling and analyses, that the air stripper was experiencing severe fouling problems at the date of sampling. New samples were obtained on January 16, 1996 after the air stripper had been cleaned and the discharge pump had been fixed. The results from this sampling event are shown in Table 1. The analytical results are presented in Appendix B. As stated in the introduction, a new system will be installed in February 1996 that it is anticipated will solve the continuing operational problems with the air stripper, the flow accumulator, and the discharge pump.

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

Benzene	99.9%
Ethylbenzene	99.8%
Toluene	99.8%
Xylene	99.8%

NOTE TO DOUG: TABLE 1 AND THE ABOVE SUMMARY WILL BE MODIFIED AFTER THE BETX RESULTS ARE RECEIVED NEXT WEEK.

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 B for the samples taken on November 25 and 26, 1996. The quarterly BETX results for monitoring wells with no free product are the same as the annual results for BETX in wells with no free product.

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

2.3 ANNUAL RESULTS

The results for the annual analyses are presented in Appendix B. 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

The water quality results, such as alkalinity, TDS, and sulfate, are comparable to the results from samples obtained in December 1994. The results indicate, as expected from the other results, no significant change in the water quality in the area.

3.0 PRODUCT THICKNESS

Product thickness measurements were taken in the monitoring wells during the November sampling event. Table 3 contains product thickness information. The free product thickness map is shown in Figure 4. The product thickness maps from October 2, June 16, and February 9, 1995 are shown in Figures 3, 2, and 1. Most monitoring wells are showing a modest downward trend in product thickness levels. One exception is monitoring well MW-2 which is showing a marked increase in product level thickness. A bail down/recovery test was performed in January, 1996 on MW-2 and the other wells. All wells will be gauged during the first quarter of 1996 and an analysis of the results will be presented in the 1996 First Quarterly Report.

4.0 FLUIDS PUMPED

Scale buildup in the flowmeter vane due to excessively high alkalinity and TDS values of the groundwater continues to create operational problems. As discussed in Section 1.0, a new system is being installed in February 1996 which it is anticipated will solve these operational problems with the flowmeter, as well as the air stripper and discharge pump.

Free product recovery by the separation and treatment system is estimated at 0 gallons for the fourth quarter. The amount recovered is based on product level measurements taken in the product recovery tank. Apparently there was little or no movement of the product during the fourth quarter, as evidenced by no recovery from the trench, no product past the trench, and modest changes of free product thickness in the monitoring wells during the fourth quarter.

5.0 SOIL REMEDIATION

The soils were disked monthly from August through December. Samples were obtained on October 12, 1995 and December 29, 1995 in three separate locations. All samples were taken approximately half way through the depth of the disked area. The results are contained in Appendix C. The results of all sampling and analyses to date are presented below (all results are expressed in mg/kg).

Designation	TPH (As Gas) (Modified Method 8015)			
	4/27/95	7/28/95	10/12/95	12/29/95
SS #1	< 100	< 100	< 10	< 100
SS #2	< 100	< 10	< 10	< 100
SS #3	< 100	< 10	< 10	< 100
Average	< 100	< 100	< 10	< 100

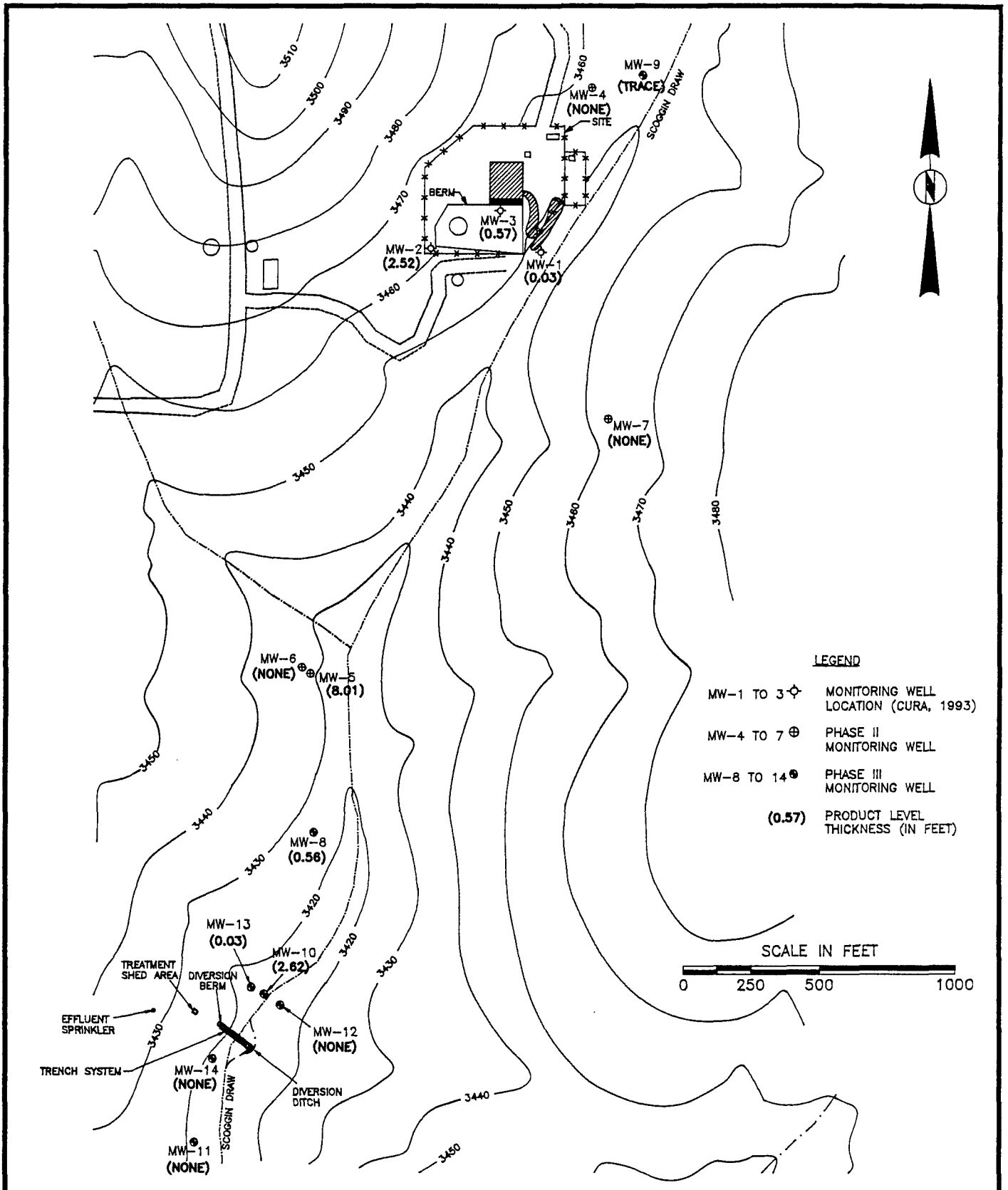
Designation	TPH (As Diesel) (Modified Method 8015)			
	4/27/95	7/28/95	10/12/95	12/29/95
SS #1	3,410	3,410	< 100	5,700
SS #2	6,200	< 10	< 100	3,700
SS #3	7,940	< 10	< 100	3,200
Average	5,847	1,149	< 100	4,200

Designation	TPH (As Oil) (Modified Method 8015)			
	4/27/95	7/28/95	10/12/95	12/29/95
SS #1	29,600	80,200	5,410	21,000
SS #2	58,800	6,460	8,400	21,000
SS #3	44,900	15,700	4,930	17,000
Average	44,433	34,130	6,247	19,666

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

The cleanup objective has been met for TPH as gas and diesel, but not as oil. The average TPH value as oil, however, has decreased from 44,333 (samples taken May 3, 1995) to 19,666 (samples taken December 29, 1995). The cause of the increase in TPH values between October 22, 1995 and December 29, 1995 is not known. It is likely that the results from 12/29/95 are more reflective of the rate of biological activity since they show a reduction more consistent with the reduction between 4/27/95 and 7/28/95.

FIGURES



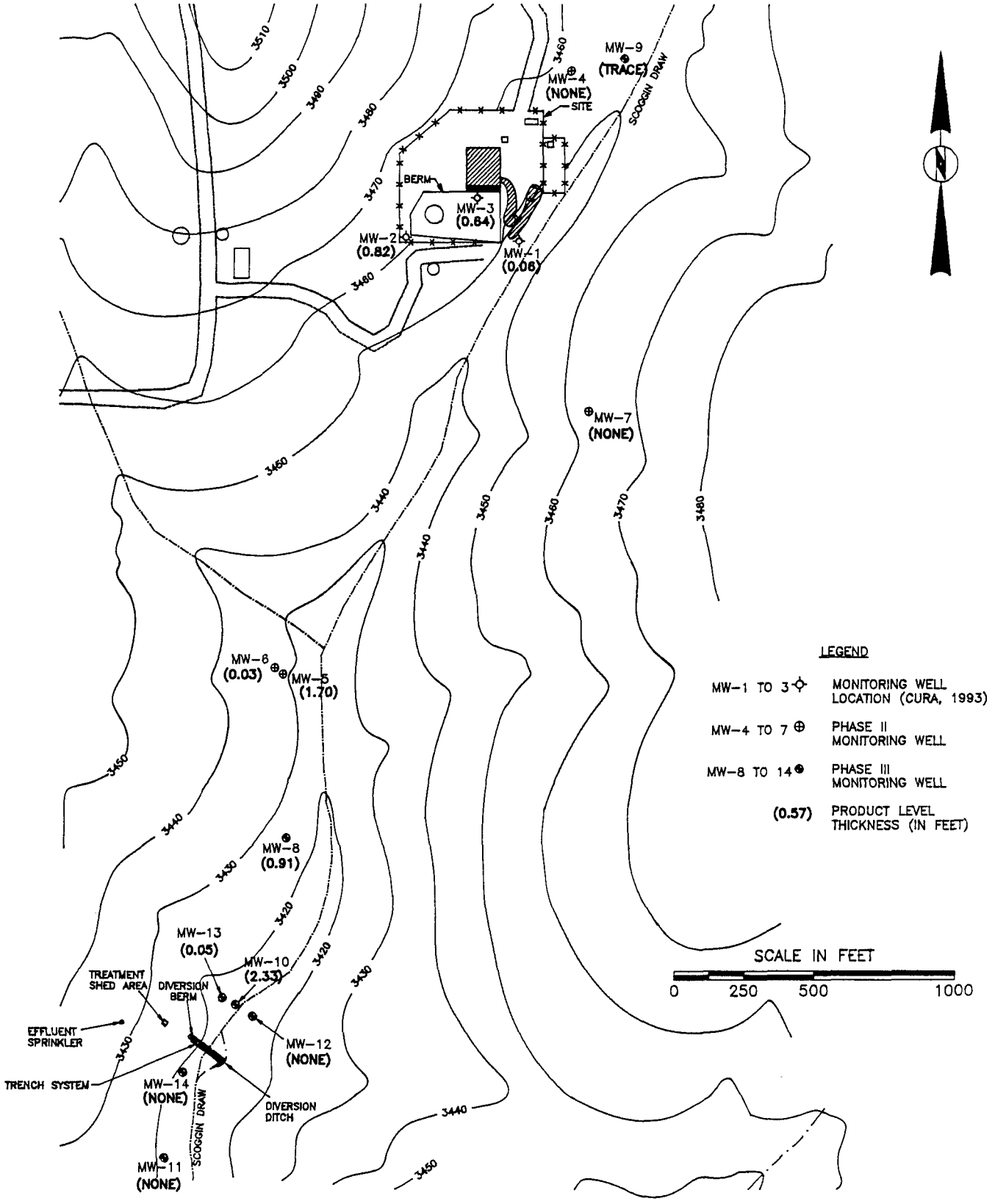
CHECK BY	HMM
DRAWN BY	BCP
DATE	5-3-95
SCALE	AS SHOWN
CAD NO.	2775.00-02
PRJ NO.	2775102C

FREE PRODUCT
THICKNESS MAP
FEBRUARY 9, 1995

AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

Clayton
ENVIRONMENTAL CONSULTANTS

FIGURE 1



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

FREE PRODUCT
THICKNESS MAP
JUNE 16, 1995

AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

Clayton
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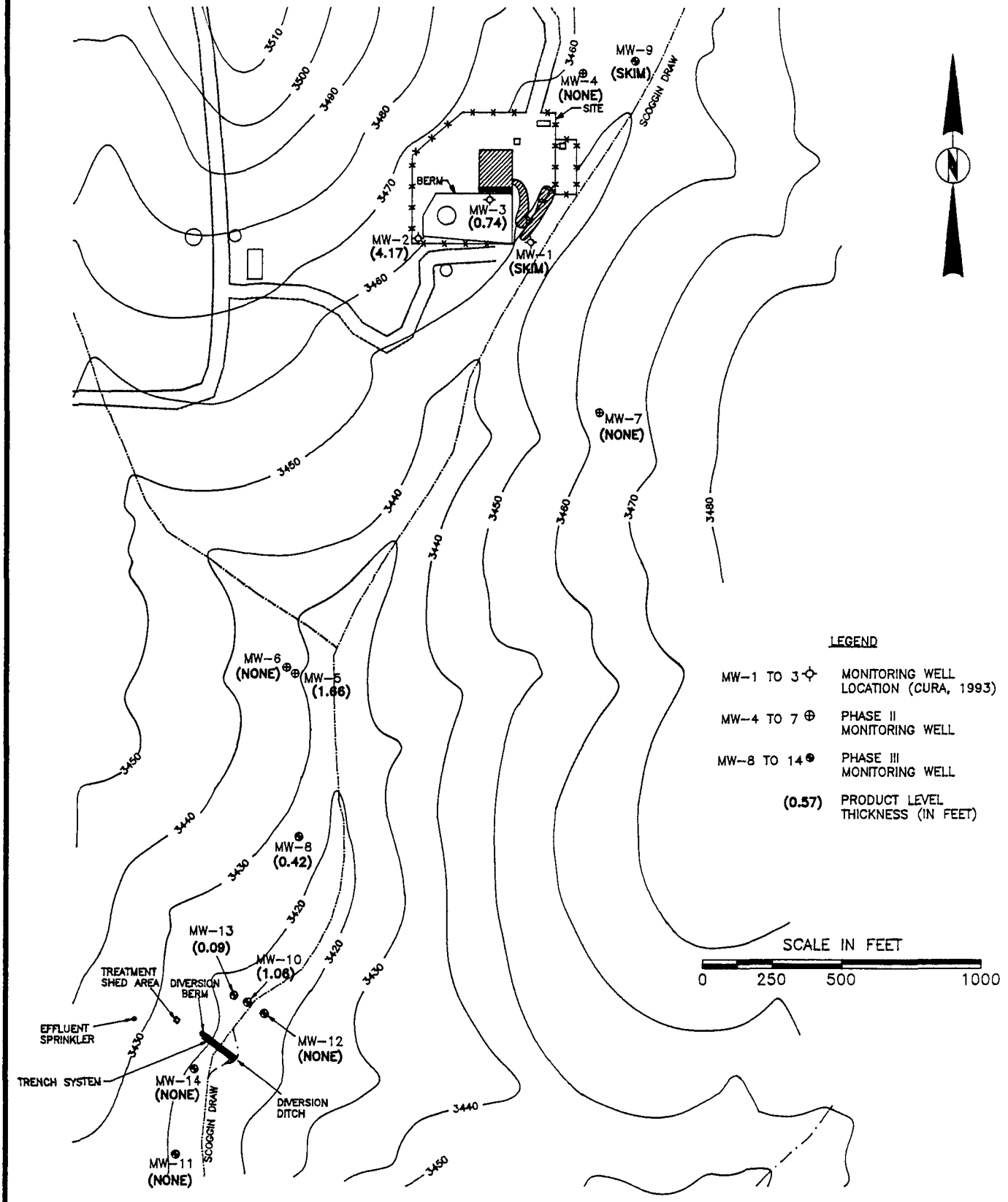
FIGURE 2



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

FREE PRODUCT
THICKNESS MAP
OCTOBER 2, 1995

AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

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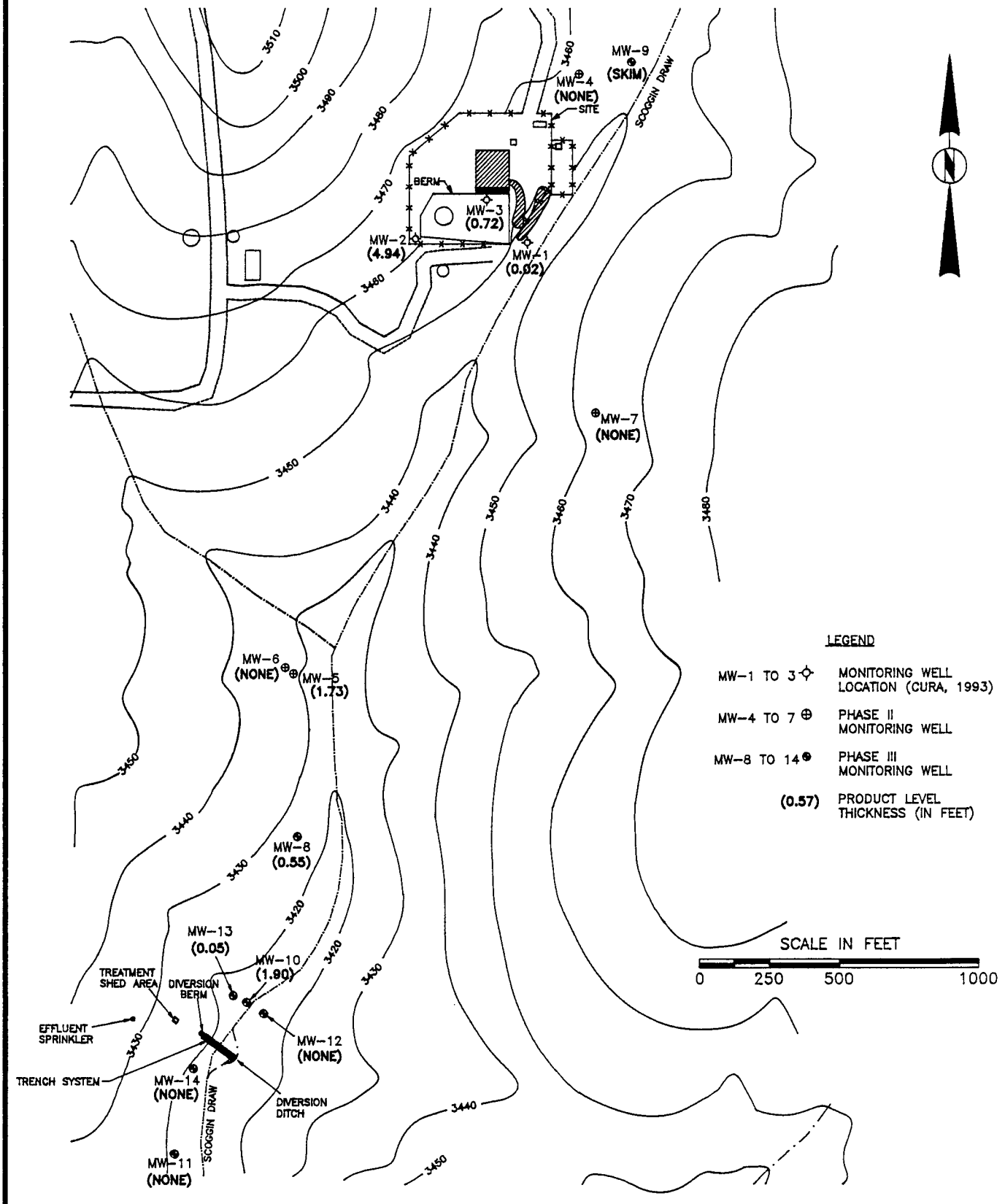
FIGURE
3



CHECK BY	HMM
DRAWN BY	BCP
DATE	1-12-96
SCALE	AS SHOWN
CAD NO.	2775.00-02
PRJ NO.	2775102G

FREE PRODUCT
THICKNESS MAP
NOVEMBER 25-26, 1995

AMOCO PIPELINE COMPANY
ARTESIA, NEW MEXICO

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FIGURE
4

TABLES

TABLE 1

Monthly BETX Results for the Influent and Effluent of the Air Stripper

Amoco Pipeline Company
Artesia, New Mexico

INFLUENT								
Sample Date:	11/25/94	12/21/94	02/28/95	04/12/95	07/12/95	10/12/95	11/04/95	01/16/96
Benzene	2,970	3,070	3,060	3,300	2,700	1,900	2,100	2,000
Ethylbenzene	364	338	442	476	380	250	340	210
Toluene	808	1,220	1,350	1,130	420	190	81	29
Xylene	1,770	2,130	2,750	2,500	1,900	1,100	1,800	840
EFFLUENT								
Sample Date:	11/25/94	12/21/94	02/28/95	04/12/95	07/12/95	10/12/95	11/04/95	01/16/96
Benzene	1.8	6.6	3.3	3.6	4.6	<1.0	3.5	<1.0
Ethylbenzene	<1.0	<1.0	1.4	2.8	1.5	<1.0	<1.0	<1.0
Toluene	<1.0	5.1	2.2	2.8	1.1	<1.0	<1.0	<1.0
Xylene	<1.0	5.7	6.6	14.5	6.5	<1.0	3.0	<1.0

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

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

TABLE 2

Quarterly BETX Results for Monitoring Wells With No Free Product

Amoco Pipeline Company
Artesia, New Mexico

WELL 4						
Sample Date:	11/25/94	12/22/94	02/16/95	06/16/95	10/02/95	11/26/95
Benzene	<1	<1	<1	54.4	9.8	4.7
Ethylbenzene	<1	<1	<1	2.5	<1	1.3
Toluene	<1	<1	<1	<1	<1	2.0
Xylene	<1	<1	<1	6.7	<1	3.8
WELL 6						
Sample Date:	11/25/94	12/21/94	02/16/95	06/16/95	10/02/95	11/26/95
Benzene	FREE	FREE	2.2	FREE	3.1	5.8
Ethylbenzene	PRODUCT	PRODUCT	<1	PRODUCT	<1	6.1
Toluene	PRESENT	PRESENT	<1	PRESENT	<1	<1.0
Xylene			<1		2.5	19
WELL 7						
Sample Date:	11/25/94	12/22/94	02/16/95	06/16/95	10/02/95	11/26/95
Benzene	<1	1590	846	3100	880	3000
Ethylbenzene	<1	39	20.9	58.7	17	51
Toluene	<1	<10	<10	3.6	<10	4.6
Xylene	<1	86.5	52.7	140	35	200
WELL 11						
Sample Date:	11/17/94	12/22/94	02/16/95	06/14/95	10/02/95	11/25/95
Benzene	<1	<1	<1	<1	<1	1.3
Ethylbenzene	<1	<1	<1	<1	<1	2.1
Toluene	<1	<1	<1	<1	<1	5.3
Xylene	<1	<1	<1	<1	<1	6.1
WELL 12						
Sample Date:	11/17/94	12/22/94	02/16/95	06/16/95	10/02/95	11/26/95
Benzene	75	5.6	<1	<1	<1	1.1
Ethylbenzene	1	<1	<1	<1	<1	<1.0
Toluene	1.1	<1	<1	<1	<1	3.5
Xylene	1	<1	<1	<1	<1	5.1
WELL 14						
Sample Date:	11/17/94	12/22/94	02/16/95	06/16/95	10/02/95	11/26/95
Benzene	<1	<1	<1	<1	<1	<1.0
Ethylbenzene	<1	<1	<1	<1	<1	1.7
Toluene	<1	<1	<1	<1	<1	3.6
Xylene	<1	<1	<1	<1	<1	6.8

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
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
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
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
MW-5	11/17/94	16.22	24.19	7.97
	02/09/95	16.84	24.85	8.01
	06/16/95	19.44	21.14	1.70
	10/02/95	16.19	17.85	1.66
	11/26/95	17.58	19.31	1.73
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
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

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-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
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
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
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
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
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
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

APPENDIX A

SEQUESTERING AGENT SPECIFICATIONS AND ANCILLARY EQUIPMENT

Mr. Kurt Lindstrom
Clayton Environmental Consultants
Suite 206
1240 Iroquois Drive
Naperville, Ill 60563

January 3, 1996

Subject: Artesia Ground Water Remediation Project

Kurt:

The attached revision of our original recommendation incorporates an Explosion Proof Pump and heavy duty Dilution Tank and Stand for Chemical feed. This is to meet the job-site requirements.

Per our telecon, the water analysis you supplied suggests this water source is likely to have a high potential to form calcium sulfate and calcium carbonate scale. It is anticipated on-site conditions are probably even more severe than the water analysis suggests, because the actual on-site pH may be higher than the pH value measured at the lab.

Betz GCP-9305 is a Multi-Functional Deposit Control Agent formulated for use in Gas Cleaning and Industrial Process Water Systems. The product includes a blend of specialty phosphonates for controlling calcium scales (especially calcium carbonate and calcium sulfate), as well as a low molecular weight polymer to control deposition of suspended solids.

The target feedrate of GCP-9305 for this application is 20 ppm. Based upon a flow of water to the stripper of ~10 GPM, actual daily consumption will be low, approximately one quart/day. Although GCP-9305 can be fed directly from the 55 gallon drum shipping container, using a dilution tank is probably most practical for feeding volumes this small. This would allow you to pump the dilute chemical to the system with an inexpensive chemical metering pump. If possible, you may want to wire the chemical metering pump such that the pump is on when water is being pumped to the stripper.

I hope the attached is helpful, Kurt. If you have any questions, or Betz can be of further assistance, please let me know.

Best Regards,

Phil Balsamo
Corporate Account Manager
Betz Water Management Group

Description and Considerations

System Description:

1-10 gpm ground water remediation stripper with severe scale formation being experienced in the tray fill. Clean out presently required every two weeks. Water analysis per the attached.

Chemical Recommendation:

20 ppm GCP-9305, based upon water flow to the stripper.

10 GPM water flow X 1440 minutes/day X 8.34 lbs/gallon water = 0.12 Million lbs water/day

0.12 Million lbs water X 20 ppm GCP-9305 = 2.4 lbs/day GCP-9305 recommended

GCP-9305 Product Density: 11.05 lbs/gallon
2.4 lbs/day GCP-9305 = 0.22 gallons/day = ~1 quart/day

Per the attached MSDS, Betz GCP-9305 is an acidic material, and appropriate care should be taken in handling and developing the method of feed.

Feed Recommendation:

Prepare a 10% solution of GCP-9305 in a plastic 50 gallon dilution tank, by adding 5 gallons GCP-9305 and diluting with 45 gallons water. Utilize LMI tank Poly#26350E or equivalent.

Pump dilute solution, prior to stripper at a point of good mixing, at a rate of ~2.5 gallons/day for a flow of 10 GPM water to the stripper. Using LMI Pump model #A151-95S, (24 Gallon/Day @ 110 psi), a Pump Speed of 30%, and speed of 35% should be appropriate, although some field adjustment will be required.

Program Costs:

GCP-9305: 2.4 lbs/day @ $4.53/lb = $10.87/day

Service Costs: Betz can provide on-site technical service for start-up assistance and application monitoring at this site. Due to the remote location and small chemical requirements associated with this application, a $250 Fee is requested per Service Call.

Suggested Initial Order

Item #	Quantity	Description	
1	1	Betz GCP-9305, 55 gallon Drum 595 lbs/55 gallon drum $4.53/lb FOB Shipping Point	$2,695.35
2	1	Explosion Proof Pump Neptune 490-S-N5-EX1	2,029.00
3	1	Tank, Neptune 50PT, 50 Gal Piped w/ST-PVC,&SV-PVC	643.00
4	1	(If Needed) Betz Part # 407192 Drum Pump, Model 516 DP, Hand Pump	35.00
5	1	(If needed) Start-Up Service Call Betz Engineer ~2-4 hours on-site	250.00
			$5,652.35

All prices are FOB Shipping Point.

Orders should can be called in, or sent directly to the local Betz Sales Office covering Artesia, New Mexico. The local District Sales Office information is:

Betz Water Management Group
2744 Dunlven Circle
Amarillo, Texas 79109
Phone: 806-355-6571
Fax: 806-355-5214

BETZ

Neptune Polyethylene Tanks

Polyethylene Tanks

The polyethylene tank includes a hinged cover, a PVC Y-type stainer, and a 1/2-in. PVC suction valve as standard. The tank is also provided with nylon reinforced PVC suction piping. The pump platform is an integral part of the tank legs.

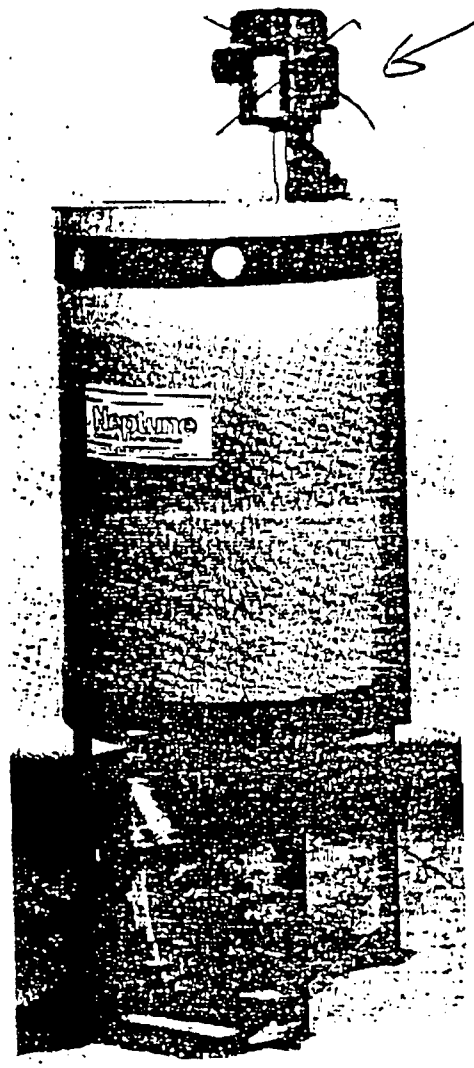
Available options stocked are: 1/2-in. PVC ball valves for drain; 316 SS relief valve piped into tank return with nylon reinforced PVC tubing for safety.

Sized to be convenient for most applications, these tanks are available in 50-gal, 100-gal, and 260-gal capacities.

Options include:

Factory-mounted-and-piped pumps, 316 SS relief valve, and 1/2-in. PVC drain valve.

Omit



Explosion Proof Neptune Pump 12 GPD MAX Set at ~20%

Equipment Facts

EF12-02 9308

BETZ
Water Management Group

Betz Water Management Group
Windy City Office
123 East Ogden Avenue, Suite 102B
Hinsdale, IL 60521-3564
708-654-2630
Fax: 708-654-2635

Mr. Kurt Lindstrom
Clayton Environmental Consultants
Suite 206
1240 Iroquois Drive
Naperville, Ill 60563

November 27,1995

Subject: Artesia Ground Water Remediation Project

Kurt:

The attached information summarizes recommendations for minimizing the scale and deposits which are presently forming in the Stripper at subject location.

Per our telecon, the water analysis you supplied suggests this water source is likely to have a high potential to form calcium sulfate and calcium carbonate scale. It is anticipated on-site conditions are probably even more severe than the water analysis suggests, because the actual on-site pH may be higher than the pH value measured at the lab.

Betz GCP-9305 is a Multi-Functional Deposit Control Agent formulated for use in Gas Cleaning and Industrial Process Water Systems. The product includes a blend of specialty phosphonates for controlling calcium scales (especially calcium carbonate and calcium sulfate), as well as a low molecular weight polymer to control deposition of suspended solids.

The target feedrate of GCP-9305 for this application is 20 ppm. Based upon a flow of water to the stripper of ~10 GPM, actual daily consumption will be low, approximately one quart/day. Although GCP-9305 can be fed directly from the 55 gallon drum shipping container, using a dilution tank is probably most practical for feeding volumes this small. This would allow you to pump the dilute chemical to the system with an inexpensive chemical metering pump. If possible, you may want to wire the chemical metering pump such that the pump is on when water is being pumped to the stripper.

I hope the attached is helpful, Kurt. If you have any questions, or Betz can be of further assistance, please let me know.

Best Regards,

Phil Balsamo
Corporate Account Manager
Betz Water Management Group

Description and Considerations

System Description:

1-10 gpm ground water remediation stripper with severe scale formation being experienced in the tray fill. Clean out presently required every two weeks. Water analysis per the attached.

Chemical Recommendation:

20 ppm GCP-9305, based upon water flow to the stripper.

10 GPM water flow X 1440 minutes/day X 8.34 lbs/gallon water = 0.12 Million lbs water/day

0.12 Million lbs water X 20 ppm GCP-9305 = 2.4 lbs/day GCP-9305 recommended

GCP-9305 Product Density: 11.05 lbs/gallon
2.4 lbs/day GCP-9305 = 0.22 gallons/day = ~1 quart/day

Per the attached MSDS, Betz GCP-9305 is an acidic material, and appropriate care should be taken in handling and developing the method of feed.

Feed Recommendation:

Prepare a 10% solution of GCP-9305 in a plastic 50 gallon dilution tank, by adding 5 gallons GCP-9305 and diluting with 45 gallons water. Utilize LMI tank Poly#26350E or equivalent.

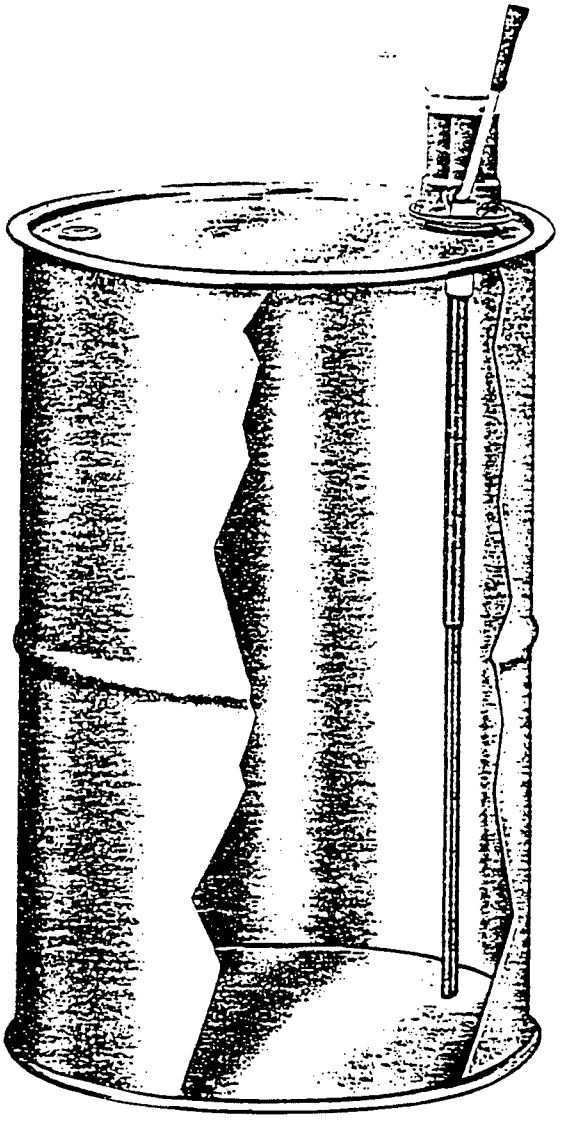
Pump dilute solution, prior to stripper at a point of good mixing, at a rate of ~2.5 gallons/day for a flow of 10 GPM water to the stripper. Using LMI Pump model #A151-95S, (24 Gallon/Day @ 110 psi), a Pump Speed of 30%, and speed of 35% should be appropriate, although some field adjustment will be required.

Program Costs:

GCP-9305: 2.4 lbs/day @ $4.53/lb = $10.87/day

Service Costs: Betz can provide on-site technical service for start-up assistance and application monitoring at this site. Due to the remote location and small chemical requirements associated with this application, a $250 Fee is requested per Service Call.

HAND DRUM PUMP
MODEL 516 DP



DESCRIPTION

1. Constructed of highest quality polypropylene which permits use with wide variety of materials and prevents rusting and corrosion.
2. Will handle materials of high viscosity.
3. Threaded to fit standard 2-inch drum opening.
4. Lever operated, piston lift; dispenses 10 ounces per stroke or 13 strokes per gallon . . . able to pump 6 gallons per minute.
5. Telescoping extension tube makes pump adaptable to all 15, 30 and 55-gallon drums.
6. Unique design of cylinder head allows 360° spigot orientation.
7. Self venting. No other air vent opening needed.
8. Extra heavy construction and quality material provide long service life.
9. Compact and lightweight.
10. Completely assembled except for extension tubing.
11. Lock nut provided to hold pump firmly in drum.

BETZ MATERIAL
SAFETY DATA SHEET

EFFECTIVE DATE: 08-SEP-1995
PRINTED DATE: 08-SEP-1995

1) CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : BETZ GCP-9305

REAGENT CODE#
PRODUCT APPLICATION AREA: DEPOSIT CONTROL PRODUCT.

COMPANY ADDRESS:
Betz Laboratories, Inc.
4636 Somerton Road, Trevose, Pa. 19053
Information phone number: (215) - 355-3300

EMERGENCY TELEPHONE (HEALTH/ACCIDENT): (800)-877-1940 (USA)

2) COMPOSITION / INFORMATION ON INGREDIENTS

Information for specific product ingredients as required by the OSHA HAZARD COMMUNICATIONS STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

CAS#	CHEMICAL NAME
7647-01-0	HYDROCHLORIC ACID Corrosive
37971-36-1	2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID Irritant (eyes)

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

3) HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

CAUTION

May cause slight irritation to the skin. May cause moderate irritation to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard: Corrosive to steel
Emergency Response Guide #60
Odor: Mild; Appearance: Amber, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: Dry chemical, carbon dioxide, foam or water.

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:
Primary route of exposure; May cause slight irritation to the skin.

ACUTE EYE EFFECTS:
May cause moderate irritation to the eyes.

ACUTE RESPIRATORY EFFECTS:
Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:
May cause slight gastrointestinal irritation.

TARGET ORGANS:
No evidence of potential chronic effects.

MEDICAL CONDITIONS AGGRAVATED:
Not known.

SYMPTOMS OF EXPOSURE:
May cause redness or itching of skin.

4) FIRST AID MEASURES

SKIN CONTACT:
Remove contaminated clothing. Wash exposed area with a large quantity of soap solution or water for 15 minutes.

EYE CONTACT:
Immediately flush eyes with water for 15 minutes. Immediately contact a physician for additional treatment.

INHALATION:
Remove victim from contaminated area to fresh air. Apply appropriate first aid treatment as necessary.

INGESTION:
Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 3-4 glasses milk or water.

5) FIRE FIGHTING MEASURES

FIRE FIGHTING INSTRUCTIONS:
Fire fighters should wear positive pressure self-contained breathing appartus (full face-piece type).

EXTINGUISHING MEDIA:
Dry chemical, carbon dioxide, foam or water.

HAZARDOUS DECOMPOSITION PRODUCTS:
Thermal decomposition (destructive fires) yields elemental oxides.

FLASH POINT:
> 200F P-M(CC)

MISCELLANEOUS:
Corrosive to steel
UN1760;Emergency Response Guide #60

6) ACCIDENTAL RELEASE MEASURES

PROTECTION AND SPILL CONTAINMENT:
Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:
Water contaminated with this product may be sent to a sanitary sewer treatment facility in accordance with any local agreement, a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7) HANDLING AND STORAGE

HANDLING:
Acidic. Do not mix with alkaline material.

STORAGE:
Keep containers closed when not in use. Reasonable and safe chemical storage.

8) EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS

CHEMICAL NAME

HYDROCHLORIC ACID
PEL (OSHA): 5 PPM
TLV (ACGIH): 5 PPM(CEILING)

2-PHOSPHONOBUTANE-1,2,4-TRICARBOXYLIC ACID
PEL (OSHA): NOT DETERMINED
TLV (ACGIH): NOT DETERMINED

ENGINEERING CONTROLS:
Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:
Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:
A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. Use air-purifying respirators within use limitations associated with the equipment or else use supplied air-respirators. If air-purifying respirator use is appropriate, use respirator with acid gas cartridges & dust/mist prefilters.

SKIN PROTECTION:
Neoprene gloves. Wash off after each use. Replace as necessary.

EYE PROTECTION:
Splash proof chemical goggles.

9) PHYSICAL AND CHEMICAL PROPERTIES

Specific Grav. (70F)	1.325	Vapor Pressure (mmHG)	= 18.0
Freeze Point (F)	< -30.00	Vapor Density (air=1)	< 1.00
Viscosity (cps 70F)	82	% Solubility (water)	100.0

Odor	Mild
Appearance	Amber
Physical State	Liquid
Flash Point (F)	> 200 P-M(CC)
pH As Is (approx.)	< 1.0
Evaporation Rate (Ether=1)	< 1.00

NA = not applicable ND = not determined

10) STABILITY AND REACTIVITY

STABILITY:
Stable
HAZARDOUS POLYMERIZATION:
Will not occur.
INCOMPATIBILITIES:
May react with strong oxidizers.
DECOMPOSITION PRODUCTS:
Thermal decomposition (destructive fires) yields elemental oxides.
BETZ INTERNAL PUMPOUT/CLEANOUT CATEGORIES:
"B"

11) TOXICOLOGICAL INFORMATION

Oral LD50 RAT: >2,000 mg/kg
NOTE - Estimated value
Dermal LD50 RABBIT: >2,000 mg/kg
NOTE - Estimated value

12) ECOLOGICAL INFORMATION

AQUATIC TOXICOLOGY
No Data Available.

BIODEGRADATION

COD (mg/gm): 405 Calculated
TOC (mg/gm): 119 Calculated
BOD-5 (mg/gm): 6 Calculated
BOD-28 (mg/gm): 18 Calculated

13) DISPOSAL CONSIDERATIONS

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
D002=Corrosive(pH, steel).

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14) TRANSPORT INFORMATION

DOT HAZARD: Corrosive to steel
UN / NA NUMBER: UN1760
DOT EMERGENCY RESPONSE GUIDE #: 60

15) REGULATORY INFORMATION

TSCA:
All components of this product are listed in the TSCA inventory.
CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):
4,185 gallons due to HYDROCHLORIC ACID;
SARA SECTION 312 HAZARD CLASS:
Immediate(acute)
SARA SECTION 302 CHEMICALS:
No regulated constituent present at OSHA thresholds
SARA SECTION 313 CHEMICALS:

CAS#	CHEMICAL NAME	RANGE
7647-01-0	HYDROCHLORIC ACID	11.0-15.0%

CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65) CHEMICALS PRESENT:

No regulated constituent present at OSHA thresholds

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16) OTHER INFORMATION

NFPA/HMIS		CODE TRANSLATION
Health	1	Slight Hazard
Fire	1	Slight Hazard
Reactivity	0	Minimal Hazard
Special	ACID	pH below 2.1
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES

MSDS status: 22-AUG-95 REVISED FORMAT

NATIONAL ENVIRONMENTAL TESTING, INC.

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

ANALYTICAL REPORT

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

10/03/1995

Sample No. : 323499

NET Job No.: 95.07540

Sample Description: Ground Water; Grab
Artesia Pumping Facility 10195

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

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

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Alkalinity, bicarb (CaCO3)	~~1,220~~ 1,620	mg/L	09/29/1995	5	sdf		304	310.1(3)
Alkalinity, carbonate (CaCO3)	<5	mg/L	09/29/1995	5	sdf		304	310.1(3)
Chloride	1,030	mg/L	09/29/1995	1	tdw		435	325.3(3)
Hardness, Total Ca/Mg	2,780	mg/L	09/29/1995	5	jjs		159	130.2(3)
pH	6.86	units	09/27/1995	0.10	kaf		1019	150.1(3)
Solids, Total Dissolved	4,670	mg/L	09/28/1995	25	aut		458	160.1(3)
Solids, Total Suspended	12	mg/L	09/28/1995	5	sdf		780	160.2(3)
Sulfate as SO_4	1,620	mg/L	09/27/1995	10	kaf		382	375.4(3)
Calcium, AA as Ca	740 → 650	mg/L	10/03/1995	1.0	jmc	890	252	7140 (1)
Iron, ICP	0.100	mg/L	10/02/1995	0.030	jmc	890	2283	6010 (1)
Magnesium, AA as Mg 4.17	120 → 68	mg/L	10/03/1995	1.0	jmc	890	223	7450 (1)
Manganese, ICP	0.497	mg/L	10/02/1995	0.010	jmc	890	1274	6010 (1)

APPENDIX B

LABORATORY RESULTS

- BETX Results for the Influent and Effluent of the Air Stripper -- Samples Taken November 4, 1995.
- BETX, PAHs, Heavy Metals, and Cation/Anion Results for Monitoring Wells MW-4, MW-6, MW-7, MW-11, MW-12, and MW-14 -- Samples Taken November 25 and 26, 1995.
- BETX, PAHs, Heavy Metal, and Cation/Anions Results for the Influent and Effluent of the Air Stripper -- Samples Taken January 16, 1996.

NATIONAL ENVIRONMENTAL TESTING, INC.

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

11/10/1995

NET Job Number: 95.08795

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
328720	2 Influent; Grab	11/04/1995	11/06/1995
328721	2 Effluent; Grab	11/04/1995	11/06/1995
328722	2 Trip Blanks; Grab	11/04/1995	11/06/1995

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

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

Approved by:
Mary Pearson

Mary Pearson
Project Manager

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

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

ANALYTICAL REPORT

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

11/10/1995

Sample No. : 328720

NET Job No.: 95.08795

Sample Description: 2 Influent; Grab
Amoco Pipeline Co. Artesia Station

Date Taken: 11/04/1995
Time Taken: 10:35
IEPA Cert. No. 100221

Date Received: 11/06/1995
Time Received: 12:10
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	2,100	ug/L	11/09/1995	1.0	llj	1239	8240 (1)
Ethyl Benzene	340	ug/L	11/09/1995	1.0	llj	1239	8240 (1)
Toluene	81	ug/L	11/09/1995	1.0	llj	1239	8240 (1)
Xylenes, Total	1,800	ug/L	11/09/1995	1.0	llj	1239	8240 (1)
Surr: Toluene-d8	95.2	%	11/09/1995	88-110	llj	1239	8240 (1)
Surr: Bromofluorobenzene	107.2	%	11/09/1995	86-115	llj	1239	8240 (1)
Surr: 1,2-Dichloroethane-d4	93.4	%	11/09/1995	76-114	llj	1239	8240 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

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

11/10/1995

Sample No. : 328721

NET Job No.: 95.08795

Sample Description: 2 Effluent; Grab
Amoco Pipeline Co. Artesia Station

Date Taken: 11/04/1995
Time Taken: 10:40
IEPA Cert. No. 100221

Date Received: 11/06/1995
Time Received: 12:10
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
UST VOLATILES 8240 - AQUEOUS							
Benzene	3.5	ug/L	11/09/1995	1.0	llj	1239	8240 (1)
Ethyl Benzene	<1.0	ug/L	11/09/1995	1.0	llj	1239	8240 (1)
Toluene	<1.0	ug/L	11/09/1995	1.0	llj	1239	8240 (1)
Xylenes, Total	3.0	ug/L	11/09/1995	1.0	llj	1239	8240 (1)
Surr: Toluene-d8	94.4	%	11/09/1995	88-110	llj	1239	8240 (1)
Surr: Bromofluorobenzene	98.0	%	11/09/1995	86-115	llj	1239	8240 (1)
Surr: 1,2-Dichloroethane-d4	110.0	%	11/09/1995	76-114	llj	1239	8240 (1)

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ANALYTICAL REPORT

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

11/10/1995

Sample No. : 328722

NET Job No.: 95.08795

Sample Description: 2 Trip Blanks; Grab
Amoco Pipeline Co. Artesia Station

Date Taken: 11/04/1995
Time Taken:
IEPA Cert. No. 100221

Date Received: 11/06/1995
Time Received: 12:10
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	11/09/1995	1.0	llj	1238	8240 (1)
Ethyl Benzene	<1.0	ug/L	11/09/1995	1.0	llj	1238	8240 (1)
Toluene	<1.0	ug/L	11/09/1995	1.0	llj	1238	8240 (1)
Xylenes, Total	<1.0	ug/L	11/09/1995	1.0	llj	1238	8240 (1)
Surr: Toluene-d8	94.2	%	11/09/1995	88-110	llj	1238	8240 (1)
Surr: Bromofluorobenzene	95.6	%	11/09/1995	86-115	llj	1238	8240 (1)
Surr: 1,2-Dichloroethane-d4	105.0	%	11/09/1995	76-114	llj	1238	8240 (1)

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Bartlett Division
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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

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

11/10/1995

NET Job Number: 95.08795

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
UST VOLATILES 8240 - AQUEOUS				
Benzene	1238	50.0	45.4	90.8
Ethyl Benzene	1238	50.0	48.1	96.2
Toluene	1238	50.0	47.5	95.0
Xylenes, Total	1238	150	146	97.3
Surr: 1,2-Dichloroethane-d4	1238	50	45.8	91.6
Surr: Toluene-d8	1238	50	46.0	92.0
Surr: Bromofluorobenzene	1238	50	54.1	108.2
UST VOLATILES 8240 - AQUEOUS				
Benzene	1239	50.0	48.4	96.8
Ethyl Benzene	1239	50.0	50.5	101.0
Toluene	1239	50.0	50.9	101.8
Xylenes, Total	1239	150	154	102.7
Surr: 1,2-Dichloroethane-d4	1239	50	46.9	93.8
Surr: Toluene-d8	1239	50	46.0	92.0
Surr: Bromofluorobenzene	1239	50	53.9	107.8

CCV - Continuing Calibration Verification

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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QUALITY CONTROL REPORT

BLANK ANALYSIS

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

11/10/1995

NET Job Number: 95.08795

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
UST VOLATILES 8240 - AQUEOUS						8240 (1)
Benzene		1238	<1.0	ug/L	1.0	8240 (1)
Ethyl Benzene		1238	<1.0	ug/L	1.0	8240 (1)
Toluene		1238	<1.0	ug/L	1.0	8240 (1)
Xylenes, Total		1238	<1.0	ug/L	1.0	8240 (1)
Surr: 1,2-Dichloroethane-d4		1238	84.0	%	76-114	8240 (1)
Surr: Toluene-d8		1238	92.4	%	88-110	8240 (1)
Surr: Bromofluorobenzene		1238	106.8	%	86-115	8240 (1)
UST VOLATILES 8240 - AQUEOUS						8240 (1)
Benzene		1239	<1.0	ug/L	1.0	8240 (1)
Ethyl Benzene		1239	<1.0	ug/L	1.0	8240 (1)
Toluene		1239	<1.0	ug/L	1.0	8240 (1)
Xylenes, Total		1239	<1.0	ug/L	1.0	8240 (1)
Surr: 1,2-Dichloroethane-d4		1239	90.4	%	76-114	8240 (1)
Surr: Toluene-d8		1239	94.8	%	88-110	8240 (1)
Surr: Bromofluorobenzene		1239	108.4	%	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

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

11/10/1995

NET Job Number: 95.08795

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
UST VOLATILES 8240 - AQUEOUS					
Benzene		1238	20.0	18.4	92.0
Ethyl Benzene		1238	20.0	20.8	104.0
Toluene		1238	20.0	20.1	100.5
Xylenes, Total		1238	60.0	60.7	101.2
Surr: 1,2-Dichloroethane-d4		1238	50.0	45.6	91.2
Surr: Toluene-d8		1238	50.0	46.5	93.0
Surr: Bromofluorobenzene		1238	50.0	53.2	106.4
UST VOLATILES 8240 - AQUEOUS					
Benzene		1239	20.0	19.5	97.5
Ethyl Benzene		1239	20.0	23.2	116.0
Toluene		1239	20.0	21.7	108.5
Xylenes, Total		1239	60.0	67.0	111.7
Surr: 1,2-Dichloroethane-d4		1239	50.0	46.2	92.4
Surr: Toluene-d8		1239	50.0	47.5	95.0
Surr: Bromofluorobenzene		1239	50.0	54.4	108.8

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Fax: (708) 289-5445

QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

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

11/10/1995

NET Job Number: 95.08795

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD
UST VOLATILES 8240 - AQUEOU												
Benzene		1239	51.4	32	20.0	ug/L	97.0	50.4	20.0	ug/L	92.0	5.3
Ethyl Benzene		1239	24.2	<1.0	20.0	ug/L	121.0	22.6	20.0	ug/L	113.0	6.8
Toluene		1239	21.7	<1.0	20.0	ug/L	108.5	21.4	20.0	ug/L	107.0	1.4
Xylenes, Total		1239	66.8	<1.0	60.0	ug/L	111.3	65.6	60.0	ug/L	109.3	1.8

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

OCEAN GROUP

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

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

Method References

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

(2) ASTM "American Society for Testing Materials

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

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

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

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

NET ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

H. Mittelhauser

COMPANY Amoco Pipeline Co.
ADDRESS MC. P0630L2 PO B 7513 Chicago, IL 60680-2513
PHONE 312-856-7251 FAX 312-856-3731
PROJECT NAME/LOCATION Amoco Pipeline Co - Artesia Station
PROJECT NUMBER Artesia Pumping Station Facility 10195
PROJECT MANAGER Mr. Douglas Earney.

ATTN: MORIA HOLLAND

REPORT TO:
INVOICE TO:
P.O. NO.
NET QUOTE NO.

MOF Services

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

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	# and Type of Containers: HCl	NaOH	HNO_3	H_2SO_4	OTHER	ANALYSES: BTEX 8020
11/4/95	10:35 AM	2 Influent	H_2O	X		X					X
11/4/95	10:41 AM	2 Effluent	H_2O	X		X					X
11/4/95		2 TRIP BLANKS	H_2O	X		X					X

To assist us in selecting the proper method

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

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

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

COMMENTS

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO
FIELD FILTERED? YES / NO
COC SEALS PRESENT AND INTACT? YES / NO N/A
VOLATILES FREE OF HEADSPACE? YES / NO
TEMPERATURE UPON RECEIPT: 5.2°C
Bottles supplied by NET? YES / NO

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

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED FOR NET BY:
[signature]	11/4/95	1:00 PM			11/6/95	12:10	B. Camp

METHOD OF SHIPMENT: FEDEX

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

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

NATIONAL ENVIRONMENTAL TESTING, INC.

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

ANALYTICAL REPORT

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

12/11/1995

Sample No. : 331268

NET Job No.: 95.09406

Sample Description: Monitor Well #4
Amoco Pipeline Co, Artesia Station

Date Taken: 11/26/1995
Time Taken: 12:50
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Alkalinity, bicarb (CaCO3)	500		mg/L	12/04/1995	5	sdf		313	310.1(3)
Alkalinity, carbonate (CaCO3)	<5		mg/L	12/04/1995	5	sdf		313	310.1(3)
Chloride	470		mg/L	12/06/1995	5	tdw		454	325.3(3)
Fluoride	0.72		mg/L	11/28/1995	0.05	mas		318	340.2(3)
Hardness, Total	2,700		mg/L	12/06/1995	5	jjc		166	Calculation
pH	6.81		units	11/28/1995	0.10	jjc		1044	150.1(3)
Solids, Total Dissolved	4,250	*	mg/L	12/04/1995	25	sdf		686	160.1(3)
Solids, Total Suspended	28		mg/L	11/29/1995	5	sdf		803	160.2(3)
Sulfate	2,070		mg/L	12/05/1995	10	kaf		396	375.4(3)
Antimony, ICP	<2.50		mg/L	12/07/1995	2.50	jmt	959	1386	6010 (1)
Arsenic, GFAA	<0.0050		mg/L	12/05/1995	0.0050	jmt	605	539	7060 (1)
Beryllium, ICP	<0.01		mg/L	12/07/1995	0.01	jmt	959	1468	6010 (1)
Cadmium, ICP	<0.05		mg/L	12/07/1995	0.05	jmt	959	1472	6010 (1)
Calcium, AA	720		mg/L	12/06/1995	1.0	jmt	959	246	7140 (1)
Chromium, ICP	<0.20		mg/L	12/07/1995	0.20	jmt	959	1461	6010 (1)
Copper, ICP	<0.10		mg/L	12/07/1995	0.10	jmt	959	1780	6010 (1)
Iron, ICP	<0.25		mg/L	12/07/1995	0.25	jmt	959	2416	6010 (1)
Lead, GFAA	<0.0050		mg/L	12/06/1995	0.0050	jmt	605	1265	7421 (1)
Magnesium, AA	220		mg/L	12/06/1995	1.0	jmt	959	238	7450 (1)
Manganese, ICP	0.14		mg/L	12/07/1995	0.05	jmt	959	1407	6010 (1)
Mercury, CVAA	<0.0002		mg/L	12/01/1995	0.0002	jmt	616	586	7471 (1)
Nickel, ICP	<0.250		mg/L	12/07/1995	0.250	jmt	959	1559	6010 (1)
Potassium, AA	12.8		mg/L	12/06/1995	1.0	jmt	959	240	7610 (1)
Selenium, GFAA	<0.0050		mg/L	12/06/1995	0.0050	jmt	605	289	7740 (1)
Silver, AA	<0.040		mg/L	12/01/1995	0.040	amj	414	436	7760 (1)
Sodium, AA	400		mg/L	12/06/1995	1.0	jmt	959	252	7770 (1)

* Total Dissolved Solids analysis was performed one day past the hold time due to analytical balance calibration problems.

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ANALYTICAL REPORT

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MITTELHAUSER CORPORATION
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12/11/1995

Sample No. : 331268

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Amoco Pipeline Co, Artesia Station

Date Taken: 11/26/1995
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IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Thallium, ICP	<1.0	mg/L	12/07/1995	1.0	jmt	959	1438	6010 (1)
Zinc, ICP	<0.10	mg/L	12/07/1995	0.10	jmt	959	1558	6010 (1)
UST VOLATILES 8240 - AQUEOUS								
Benzene	4.7	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Ethyl Benzene	1.3	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Toluene	2.0	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Xylenes, Total	3.8	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Surr: Toluene-d8	90.0	%	12/05/1995	88-110	jap		1269	8240 (1)
Surr: Bromofluorobenzene	86.0	%	12/05/1995	86-115	jap		1269	8240 (1)
Surr: 1,2-Dichloroethane-d4	90.0	%	12/05/1995	76-114	jap		1269	8240 (1)
Prep, 8310 PNAs AQUEOUS	extracted		11/29/1995		jlf	216		8310 (1)
PNA CMPDS - 8310 AQUEOUS								
Acenaphthene	<0.018	mg/L	12/06/1995	0.018	jpd	216	614	8310 (1)
Acenaphthylene	<0.010	mg/L	12/06/1995	0.010	jpd	216	614	8310 (1)
Anthracene	<0.0066	mg/L	12/06/1995	0.0066	jpd	216	614	8310 (1)
Benzo(a)anthracene	<0.00013	mg/L	12/06/1995	0.00013	jpd	216	614	8310 (1)
Benzo(b)fluoranthene	<0.00018	mg/L	12/06/1995	0.00018	jpd	216	614	8310 (1)
Benzo(k)fluoranthene	<0.00017	mg/L	12/06/1995	0.00017	jpd	216	614	8310 (1)
Benzo(a)pyrene	<0.00023	mg/L	12/06/1995	0.00023	jpd	216	614	8310 (1)
Benzo(ghi)perylene	<0.00076	mg/L	12/06/1995	0.00076	jpd	216	614	8310 (1)
Chrysene	<0.0015	mg/L	12/06/1995	0.0015	jpd	216	614	8310 (1)
Dibenzo(a,h)anthracene	<0.00030	mg/L	12/06/1995	0.00030	jpd	216	614	8310 (1)
Fluoranthene	<0.0021	mg/L	12/06/1995	0.0021	jpd	216	614	8310 (1)
Fluorene	<0.0021	mg/L	12/06/1995	0.0021	jpd	216	614	8310 (1)

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Date Received: 11/28/1995
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WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Indeno(1,2,3-cd)pyrene	<0.00043	mg/L	12/06/1995	0.00043	jpd	216	614	8310 (1)
Naphthalene	<0.010	mg/L	12/06/1995	0.010	jpd	216	614	8310 (1)
Phenanthrene	<0.0064	mg/L	12/06/1995	0.0064	jpd	216	614	8310 (1)
Pyrene	<0.0027	mg/L	12/06/1995	0.0027	jpd	216	614	8310 (1)
Surr: 2-Fluorobiphenyl	96.3	%	12/06/1995	37-122	jpd	216	614	8310 (1)

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ANALYTICAL REPORT

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

12/11/1995

Sample No. : 331269

NET Job No.: 95.09406

Sample Description: Monitor Well #6
Amoco Pipeline Co, Artesia Station

Date Taken: 11/26/1995
Time Taken: 08:20
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Alkalinity, bicarb (CaCO3)	470		mg/L	12/04/1995	5	sdf		313	310.1(3)
Alkalinity, carbonate (CaCO3)	<5		mg/L	12/04/1995	5	sdf		313	310.1(3)
Chloride	920		mg/L	12/06/1995	5	tdw		454	325.3(3)
Fluoride	1.38		mg/L	11/28/1995	0.05	mas		318	340.2(3)
Hardness, Total	2,950		mg/L	12/06/1995	5	jjc		166	Calculation
pH	6.86		units	11/28/1995	0.10	jjc		1044	150.1(3)
Solids, Total Dissolved	4,860	*	mg/L	12/04/1995	25	sdf		686	160.1(3)
Solids, Total Suspended	93		mg/L	11/29/1995	5	sdf		803	160.2(3)
Sulfate	1,900		mg/L	12/05/1995	10	kaf		396	375.4(3)
Antimony, ICP	<2.50		mg/L	12/07/1995	2.50	jmt	959	1386	6010 (1)
Arsenic, GFAA	<0.0050		mg/L	12/05/1995	0.0050	jmt	605	539	7060 (1)
Beryllium, ICP	<0.01		mg/L	12/07/1995	0.01	jmt	959	1468	6010 (1)
Cadmium, ICP	<0.05		mg/L	12/07/1995	0.05	jmt	959	1472	6010 (1)
Calcium, AA	820		mg/L	12/06/1995	1.0	jmt	959	246	7140 (1)
Chromium, ICP	<0.20		mg/L	12/07/1995	0.20	jmt	959	1461	6010 (1)
Copper, ICP	<0.10		mg/L	12/07/1995	0.10	jmt	959	1780	6010 (1)
Iron, ICP	21.3		mg/L	12/07/1995	0.25	jmt	959	2416	6010 (1)
Lead, GFAA	<0.0050		mg/L	12/06/1995	0.0050	jmt	605	1265	7421 (1)
Magnesium, AA	220		mg/L	12/06/1995	1.0	jmt	959	238	7450 (1)
Manganese, ICP	0.190		mg/L	12/07/1995	0.05	jmt	959	1407	6010 (1)
Mercury, CVAA	<0.0002		mg/L	12/01/1995	0.0002	jmt	616	586	7471 (1)
Nickel, ICP	<0.250		mg/L	12/07/1995	0.250	jmt	959	1559	6010 (1)
Potassium, AA	9.01		mg/L	12/06/1995	1.0	jmt	959	240	7610 (1)
Selenium, GFAA	<0.0050		mg/L	12/06/1995	0.0050	jmt	605	289	7740 (1)
Silver, AA	<0.040		mg/L	12/01/1995	0.040	amj	414	436	7760 (1)
Sodium, AA	520		mg/L	12/06/1995	1.0	jmt	959	252	7770 (1)

* Total Dissolved Solids analysis was performed one day past the hold time due to analytical balance calibration problems.

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NET Job No.: 95.09406

Sample Description: Monitor Well #6
Amoco Pipeline Co, Artesia Station

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WDNR Cert. No. 999447130

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Thallium, ICP	<1.0	mg/L	12/07/1995	1.0	jmt	959	1438	6010 (1)
Zinc, ICP	<0.10	mg/L	12/07/1995	0.10	jmt	959	1558	6010 (1)
UST VOLATILES 8240 - AQUEOUS								
Benzene	5.8	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Ethyl Benzene	6.1	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Toluene	<1.0	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Xylenes, Total	19	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Surr: Toluene-d8	90.0	%	12/05/1995	88-110	jap		1269	8240 (1)
Surr: Bromofluorobenzene	88.0	%	12/05/1995	86-115	jap		1269	8240 (1)
Surr: 1,2-Dichloroethane-d4	88.0	%	12/05/1995	76-114	jap		1269	8240 (1)
Prep, 8310 PNAs AQUEOUS	extracted		11/29/1995		jlf	216		8310 (1)
PNA CMPDS - 8310 AQUEOUS								
Acenaphthene	<0.018	mg/L	12/06/1995	0.018	jpd	216	614	8310 (1)
Acenaphthylene	<0.010	mg/L	12/06/1995	0.010	jpd	216	614	8310 (1)
Anthracene	<0.0066	mg/L	12/06/1995	0.0066	jpd	216	614	8310 (1)
Benzo(a)anthracene	<0.00013	mg/L	12/06/1995	0.00013	jpd	216	614	8310 (1)
Benzo(b)fluoranthene	<0.00018	mg/L	12/06/1995	0.00018	jpd	216	614	8310 (1)
Benzo(k)fluoranthene	<0.00017	mg/L	12/06/1995	0.00017	jpd	216	614	8310 (1)
Benzo(a)pyrene	<0.00023	mg/L	12/06/1995	0.00023	jpd	216	614	8310 (1)
Benzo(ghi)perylene	<0.00076	mg/L	12/06/1995	0.00076	jpd	216	614	8310 (1)
Chrysene	<0.0015	mg/L	12/06/1995	0.0015	jpd	216	614	8310 (1)
Dibenzo(a,h)anthracene	<0.00030	mg/L	12/06/1995	0.00030	jpd	216	614	8310 (1)
Fluoranthene	<0.0021	mg/L	12/06/1995	0.0021	jpd	216	614	8310 (1)
Fluorene	<0.0021	mg/L	12/06/1995	0.0021	jpd	216	614	8310 (1)

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12/11/1995

Sample No. : 331269

NET Job No.: 95.09406

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Amoco Pipeline Co, Artesia Station

Date Taken: 11/26/1995
Time Taken: 08:20
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Indeno(1,2,3-cd)pyrene	<0.00043	mg/L	12/06/1995	0.00043	jpd	216	614	8310 (1)
Naphthalene	<0.010	mg/L	12/06/1995	0.010	jpd	216	614	8310 (1)
Phenanthrene	<0.0064	mg/L	12/06/1995	0.0064	jpd	216	614	8310 (1)
Pyrene	<0.0027	mg/L	12/06/1995	0.0027	jpd	216	614	8310 (1)
Surr: 2-Fluorobiphenyl	87.1	%	12/06/1995	37-122	jpd	216	614	8310 (1)

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ANALYTICAL REPORT

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

12/11/1995
Sample No. : 331270
NET Job No.: 95.09406

Sample Description: Monitor Well #7
Amoco Pipeline Co, Artesia Station

Date Taken: 11/26/1995
Time Taken: 09:40
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Alkalinity, bicarb (CaCO3)	840		mg/L	12/04/1995	5	sdf		313	310.1(3)
Alkalinity, carbonate (CaCO3)	<5		mg/L	12/04/1995	5	sdf		313	310.1(3)
Chloride	1,500		mg/L	12/06/1995	5	tdw		454	325.3(3)
Fluoride	0.81		mg/L	11/28/1995	0.05	mas		318	340.2(3)
Hardness, Total	3,780		mg/L	12/06/1995	5	jjc		166	Calculation
pH	6.67		units	11/28/1995	0.10	jjc		1044	150.1(3)
Solids, Total Dissolved	5,300	*	mg/L	12/04/1995	25	sdf		686	160.1(3)
Solids, Total Suspended	167		mg/L	11/29/1995	5	sdf		803	160.2(3)
Sulfate	1,950		mg/L	12/05/1995	10	kaf		396	375.4(3)
Antimony, ICP	<2.50		mg/L	12/07/1995	2.50	jmt	959	1386	6010 (1)
Arsenic, GFAA	<0.0050		mg/L	12/05/1995	0.0050	jmt	605	539	7060 (1)
Beryllium, ICP	<0.01		mg/L	12/07/1995	0.01	jmt	959	1468	6010 (1)
Cadmium, ICP	<0.05		mg/L	12/07/1995	0.05	jmt	959	1472	6010 (1)
Calcium, AA	1,100		mg/L	12/06/1995	1.0	jmt	959	246	7140 (1)
Chromium, ICP	<0.20		mg/L	12/07/1995	0.20	jmt	959	1461	6010 (1)
Copper, ICP	<0.10		mg/L	12/07/1995	0.10	jmt	959	1780	6010 (1)
Iron, ICP	0.390		mg/L	12/07/1995	0.25	jmt	959	2416	6010 (1)
Lead, GFAA	<0.0050		mg/L	12/06/1995	0.0050	jmt	605	1265	7421 (1)
Magnesium, AA	250		mg/L	12/06/1995	1.0	jmt	959	238	7450 (1)
Manganese, ICP	0.055		mg/L	12/07/1995	0.05	jmt	959	1407	6010 (1)
Mercury, CVAA	<0.0002		mg/L	12/01/1995	0.0002	jmt	616	586	7471 (1)
Nickel, ICP	<0.250		mg/L	12/07/1995	0.250	jmt	959	1559	6010 (1)
Potassium, AA	11.4		mg/L	12/06/1995	1.0	jmt	959	240	7610 (1)
Selenium, GFAA	<0.0050		mg/L	12/06/1995	0.0050	jmt	605	289	7740 (1)
Silver, AA	<0.040		mg/L	12/01/1995	0.040	amj	414	436	7760 (1)
Sodium, AA	620		mg/L	12/06/1995	1.0	jmt	959	252	7770 (1)

* Total Dissolved Solids analysis was performed one day past the hold time due to analytical balance calibration problems.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

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

12/11/1995

Sample No. : 331270

NET Job No.: 95.09406

Sample Description: Monitor Well #7
Amoco Pipeline Co, Artesia Station

Date Taken: 11/26/1995
Time Taken: 09:40
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Thallium, ICP	<1.0	mg/L	12/07/1995	1.0	jmt	959	1438	6010 (1)
Zinc, ICP	<0.10	mg/L	12/07/1995	0.10	jmt	959	1558	6010 (1)
UST VOLATILES 8240 - AQUEOUS								
Benzene	3,000	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Ethyl Benzene	51	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Toluene	4.6	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Xylenes, Total	200	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Surr: Toluene-d8	88.0	%	12/05/1995	88-110	jap		1269	8240 (1)
Surr: Bromofluorobenzene	88.0	%	12/05/1995	86-115	jap		1269	8240 (1)
Surr: 1,2-Dichloroethane-d4	104.0	%	12/05/1995	76-114	jap		1269	8240 (1)
Prep, 8310 PNAs AQUEOUS	extracted		11/29/1995		jlf	216		8310 (1)
PNA CMPDS - 8310 AQUEOUS								
Acenaphthene	<0.018	mg/L	12/06/1995	0.018	jpd	216	614	8310 (1)
Acenaphthylene	<0.010	mg/L	12/06/1995	0.010	jpd	216	614	8310 (1)
Anthracene	<0.0066	mg/L	12/06/1995	0.0066	jpd	216	614	8310 (1)
Benzo(a)anthracene	<0.00013	mg/L	12/06/1995	0.00013	jpd	216	614	8310 (1)
Benzo(b)fluoranthene	<0.00018	mg/L	12/06/1995	0.00018	jpd	216	614	8310 (1)
Benzo(k)fluoranthene	<0.00017	mg/L	12/06/1995	0.00017	jpd	216	614	8310 (1)
Benzo(a)pyrene	<0.00023	mg/L	12/06/1995	0.00023	jpd	216	614	8310 (1)
Benzo(ghi)perylene	<0.00076	mg/L	12/06/1995	0.00076	jpd	216	614	8310 (1)
Chrysene	<0.0015	mg/L	12/06/1995	0.0015	jpd	216	614	8310 (1)
Dibenzo(a,h)anthracene	<0.00030	mg/L	12/06/1995	0.00030	jpd	216	614	8310 (1)
Fluoranthene	<0.0021	mg/L	12/06/1995	0.0021	jpd	216	614	8310 (1)
Fluorene	<0.0021	mg/L	12/06/1995	0.0021	jpd	216	614	8310 (1)

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ANALYTICAL REPORT

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

12/11/1995

Sample No. : 331270

NET Job No.: 95.09406

Sample Description: Monitor Well #7
Amoco Pipeline Co, Artesia Station

Date Taken: 11/26/1995
Time Taken: 09:40
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Indeno(1,2,3-cd)pyrene	<0.00043	mg/L	12/06/1995	0.00043	jpd	216	614	8310 (1)
Naphthalene	0.020	mg/L	12/06/1995	0.010	jpd	216	614	8310 (1)
Phenanthrene	<0.0064	mg/L	12/06/1995	0.0064	jpd	216	614	8310 (1)
Pyrene	<0.0027	mg/L	12/06/1995	0.0027	jpd	216	614	8310 (1)
Surr: 2-Fluorobiphenyl	Masked	%	12/06/1995	37-122	jpd	216	614	8310 (1)

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ANALYTICAL REPORT

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

12/11/1995

Sample No. : 331271

NET Job No.: 95.09406

Sample Description: Monitor Well #11
Amoco Pipeline Co, Artesia Station

Date Taken: 11/25/1995
Time Taken: 11:35
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Alkalinity, bicarb (CaCO3)	110		mg/L	12/04/1995	5	sdf	313		310.1(3)
Alkalinity, carbonate (CaCO3)	<5		mg/L	12/04/1995	5	sdf	313		310.1(3)
Chloride	44		mg/L	12/06/1995	5	tdw	454		325.3(3)
Fluoride	0.88		mg/L	11/28/1995	0.05	mas	318		340.2(3)
Hardness, Total	2,300		mg/L	12/06/1995	5	jjc	166		Calculation
pH	7.48		units	11/28/1995	0.10	jjc	1044		150.1(3)
Solids, Total Dissolved	3,010	*	mg/L	12/04/1995	25	sdf	686		160.1(3)
Solids, Total Suspended	46		mg/L	11/29/1995	5	sdf	803		160.2(3)
Sulfate	1,970		mg/L	12/05/1995	10	kaf	396		375.4(3)
Antimony, ICP	<2.50		mg/L	12/07/1995	2.50	jmt	959	1386	6010 (1)
Arsenic, GFAA	<0.0050		mg/L	12/05/1995	0.0050	jmt	605	539	7060 (1)
Beryllium, ICP	<0.01		mg/L	12/07/1995	0.01	jmt	959	1468	6010 (1)
Cadmium, ICP	<0.05		mg/L	12/07/1995	0.05	jmt	959	1472	6010 (1)
Calcium, AA	640		mg/L	12/06/1995	1.0	jmt	959	246	7140 (1)
Chromium, ICP	<0.20		mg/L	12/07/1995	0.20	jmt	959	1461	6010 (1)
Copper, ICP	<0.10		mg/L	12/07/1995	0.10	jmt	959	1780	6010 (1)
Iron, ICP	0.265		mg/L	12/07/1995	0.25	jmt	959	2416	6010 (1)
Lead, GFAA	<0.0050		mg/L	12/06/1995	0.0050	jmt	605	1265	7421 (1)
Magnesium, AA	170		mg/L	12/06/1995	1.0	jmt	959	238	7450 (1)
Manganese, ICP	<0.05		mg/L	12/07/1995	0.05	jmt	959	1407	6010 (1)
Mercury, CVAA	<0.0002		mg/L	12/01/1995	0.0002	jmt	616	586	7471 (1)
Nickel, ICP	<0.25		mg/L	12/07/1995	0.250	jmt	959	1559	6010 (1)
Potassium, AA	5.41		mg/L	12/06/1995	1.0	jmt	959	240	7610 (1)
Selenium, GFAA	<0.0050		mg/L	12/06/1995	0.0050	jmt	605	289	7740 (1)
Silver, AA	<0.040		mg/L	12/01/1995	0.040	amj	414	436	7760 (1)
Sodium, AA	48		mg/L	12/06/1995	1.0	jmt	959	252	7770 (1)

* Total Dissolved Solids analysis was performed one day past the hold time due to analytical balance calibration problems.

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ANALYTICAL REPORT

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

12/11/1995

Sample No. : 331271

NET Job No.: 95.09406

Sample Description: Monitor Well #11
Amoco Pipeline Co, Artesia Station

Date Taken: 11/25/1995
Time Taken: 11:35
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Thallium, ICP	<1.0	mg/L	12/07/1995	1.0	jmt	959	1438	6010 (1)
Zinc, ICP	<0.10	mg/L	12/07/1995	0.10	jmt	959	1558	6010 (1)
UST VOLATILES 8240 - AQUEOUS								
Benzene	1.3	ug/L	12/04/1995	1.0	llj		1266	8240 (1)
Ethyl Benzene	2.1	ug/L	12/04/1995	1.0	llj		1266	8240 (1)
Toluene	5.3	ug/L	12/04/1995	1.0	llj		1266	8240 (1)
Xylenes, Total	6.1	ug/L	12/04/1995	1.0	llj		1266	8240 (1)
Surr: Toluene-d8	90.0	%	12/04/1995	88-110	llj		1266	8240 (1)
Surr: Bromofluorobenzene	90.0	%	12/04/1995	86-115	llj		1266	8240 (1)
Surr: 1,2-Dichloroethane-d4	92.0	%	12/04/1995	76-114	llj		1266	8240 (1)
Prep, 8310 PNAs AQUEOUS	extracted		11/29/1995		jlf	216		8310 (1)
PNA CMPDS - 8310 AQUEOUS								
Acenaphthene	<0.018	mg/L	12/06/1995	0.018	jpd	216	614	8310 (1)
Acenaphthylene	<0.010	mg/L	12/06/1995	0.010	jpd	216	614	8310 (1)
Anthracene	<0.0066	mg/L	12/06/1995	0.0066	jpd	216	614	8310 (1)
Benzo(a)anthracene	<0.00013	mg/L	12/06/1995	0.00013	jpd	216	614	8310 (1)
Benzo(b)fluoranthene	<0.00018	mg/L	12/06/1995	0.00018	jpd	216	614	8310 (1)
Benzo(k)fluoranthene	<0.00017	mg/L	12/06/1995	0.00017	jpd	216	614	8310 (1)
Benzo(a)pyrene	<0.00023	mg/L	12/06/1995	0.00023	jpd	216	614	8310 (1)
Benzo(ghi)perylene	<0.00076	mg/L	12/06/1995	0.00076	jpd	216	614	8310 (1)
Chrysene	<0.0015	mg/L	12/06/1995	0.0015	jpd	216	614	8310 (1)
Dibenzo(a,h)anthracene	<0.00030	mg/L	12/06/1995	0.00030	jpd	216	614	8310 (1)
Fluoranthene	<0.0021	mg/L	12/06/1995	0.0021	jpd	216	614	8310 (1)
Fluorene	<0.0021	mg/L	12/06/1995	0.0021	jpd	216	614	8310 (1)

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ANALYTICAL REPORT

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

12/11/1995

Sample No. : 331271

NET Job No.: 95.09406

Sample Description: Monitor Well #11
Amoco Pipeline Co, Artesia Station

Date Taken: 11/25/1995
Time Taken: 11:35
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Indeno(1,2,3-cd)pyrene	<0.00043	mg/L	12/06/1995	0.00043	jpd	216	614	8310 (1)
Naphthalene	<0.010	mg/L	12/06/1995	0.010	jpd	216	614	8310 (1)
Phenanthrene	<0.0064	mg/L	12/06/1995	0.0064	jpd	216	614	8310 (1)
Pyrene	<0.0027	mg/L	12/06/1995	0.0027	jpd	216	614	8310 (1)
Surr: 2-Fluorobiphenyl	87.7	%	12/06/1995	37-122	jpd	216	614	8310 (1)

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ANALYTICAL REPORT

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

12/11/1995

Sample No. : 331272

NET Job No.: 95.09406

Sample Description: Monitor Well #12
Amoco Pipeline Co, Artesia Station

Date Taken: 11/25/1995
Time Taken: 13:40
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Alkalinity, bicarb (CaCO3)	580		mg/L	12/04/1995	5	sdf	313		310.1(3)
Alkalinity, carbonate (CaCO3)	<5		mg/L	12/04/1995	5	sdf	313		310.1(3)
Chloride	750		mg/L	12/06/1995	5	tdw	454		325.3(3)
Fluoride	0.71		mg/L	11/28/1995	0.05	mas	318		340.2(3)
Hardness, Total	3,000		mg/L	12/06/1995	5	jjc	166		Calculation
pH	7.05		units	11/28/1995	0.10	jjc	1044		150.1(3)
Solids, Total Dissolved	4,610	*	mg/L	12/04/1995	25	sdf	686		160.1(3)
Solids, Total Suspended	68		mg/L	11/29/1995	5	sdf	803		160.2(3)
Sulfate	2,030		mg/L	12/05/1995	10	kaf	396		375.4(3)
Antimony, ICP	<2.50		mg/L	12/07/1995	2.50	jmt	959	1386	6010 (1)
Arsenic, GFAA	0.0348		mg/L	12/05/1995	0.0050	jmt	605	539	7060 (1)
Beryllium, ICP	<0.01		mg/L	12/07/1995	0.01	jmt	959	1468	6010 (1)
Cadmium, ICP	<0.05		mg/L	12/07/1995	0.05	jmt	959	1472	6010 (1)
Calcium, AA	830		mg/L	12/06/1995	1.0	jmt	959	246	7140 (1)
Chromium, ICP	<0.20		mg/L	12/07/1995	0.20	jmt	959	1461	6010 (1)
Copper, ICP	<0.10		mg/L	12/07/1995	0.10	jmt	959	1780	6010 (1)
Iron, ICP	0.850		mg/L	12/07/1995	0.25	jmt	959	2416	6010 (1)
Lead, GFAA	<0.0050		mg/L	12/06/1995	0.0050	jmt	605	1265	7421 (1)
Magnesium, AA	220		mg/L	12/06/1995	1.0	jmt	959	238	7450 (1)
Manganese, ICP	1.34		mg/L	12/07/1995	0.05	jmt	959	1407	6010 (1)
Mercury, CVAA	<0.0002		mg/L	12/01/1995	0.0002	jmt	616	586	7471 (1)
Nickel, ICP	<0.25		mg/L	12/07/1995	0.250	jmt	959	1559	6010 (1)
Potassium, AA	7.48		mg/L	12/06/1995	1.0	jmt	959	240	7610 (1)
Selenium, GFAA	<0.0050		mg/L	12/06/1995	0.0050	jmt	605	289	7740 (1)
Silver, AA	<0.040		mg/L	12/01/1995	0.040	amj	414	436	7760 (1)
Sodium, AA	440		mg/L	12/06/1995	1.0	jmt	959	252	7770 (1)

* Total Dissolved Solids analysis was performed one day past the hold time due to analytical balance calibration problems.

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ANALYTICAL REPORT

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

12/11/1995

Sample No. : 331272

NET Job No.: 95.09406

Sample Description: Monitor Well #12
Amoco Pipeline Co, Artesia Station

Date Taken: 11/25/1995
Time Taken: 13:40
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Thallium, ICP	<1.0	mg/L	12/07/1995	1.0	jmt	959	1438	6010 (1)
Zinc, ICP	<0.10	mg/L	12/07/1995	0.10	jmt	959	1558	6010 (1)
UST VOLATILES 8240 - AQUEOUS								
Benzene	1.1	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Ethyl Benzene	<1.0	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Toluene	3.5	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Xylenes, Total	5.1	ug/L	12/05/1995	1.0	jap		1269	8240 (1)
Surr: Toluene-d8	90.0	%	12/05/1995	88-110	jap		1269	8240 (1)
Surr: Bromofluorobenzene	90.0	%	12/05/1995	86-115	jap		1269	8240 (1)
Surr: 1,2-Dichloroethane-d4	94.0	%	12/05/1995	76-114	jap		1269	8240 (1)
Prep, 8310 PNAs AQUEOUS	extracted		11/29/1995		jlf	216		8310 (1)
PNA CMPDS - 8310 AQUEOUS								
Acenaphthene	<0.018	mg/L	12/06/1995	0.018	jpd	216	614	8310 (1)
Acenaphthylene	<0.010	mg/L	12/06/1995	0.010	jpd	216	614	8310 (1)
Anthracene	<0.0066	mg/L	12/06/1995	0.0066	jpd	216	614	8310 (1)
Benzo(a)anthracene	<0.00013	mg/L	12/06/1995	0.00013	jpd	216	614	8310 (1)
Benzo(b)fluoranthene	<0.00018	mg/L	12/06/1995	0.00018	jpd	216	614	8310 (1)
Benzo(k)fluoranthene	<0.00017	mg/L	12/06/1995	0.00017	jpd	216	614	8310 (1)
Benzo(a)pyrene	<0.00023	mg/L	12/06/1995	0.00023	jpd	216	614	8310 (1)
Benzo(ghi)perylene	<0.00076	mg/L	12/06/1995	0.00076	jpd	216	614	8310 (1)
Chrysene	<0.0015	mg/L	12/06/1995	0.0015	jpd	216	614	8310 (1)
Dibenzo(a,h)anthracene	<0.00030	mg/L	12/06/1995	0.00030	jpd	216	614	8310 (1)
Fluoranthene	<0.0021	mg/L	12/06/1995	0.0021	jpd	216	614	8310 (1)
Fluorene	<0.0021	mg/L	12/06/1995	0.0021	jpd	216	614	8310 (1)

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ANALYTICAL REPORT

Mr. Hank Mittelhauser
MITTELHAUSER CORPORATION
1240 Iroquois Drive
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12/11/1995

Sample No. : 331272

NET Job No.: 95.09406

Sample Description: Monitor Well #12
Amoco Pipeline Co, Artesia Station

Date Taken: 11/25/1995
Time Taken: 13:40
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Date Received: 11/28/1995
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Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Indeno(1,2,3-cd)pyrene	<0.00043	mg/L	12/06/1995	0.00043	jpd	216	614	8310 (1)
Naphthalene	<0.010	mg/L	12/06/1995	0.010	jpd	216	614	8310 (1)
Phenanthrene	<0.0064	mg/L	12/06/1995	0.0064	jpd	216	614	8310 (1)
Pyrene	<0.0027	mg/L	12/06/1995	0.0027	jpd	216	614	8310 (1)
Surr: 2-Fluorobiphenyl	78.2	%	12/06/1995	37-122	jpd	216	614	8310 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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ANALYTICAL REPORT

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

12/11/1995

Sample No. : 331273

NET Job No.: 95.09406

Sample Description: Monitor Well #14
Amoco Pipeline Co, Artesia Station

Date Taken: 11/25/1995
Time Taken: 12:40
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Alkalinity, bicarb (CaCO3)	560		mg/L	12/04/1995	5	sdf		313	310.1(3)
Alkalinity, carbonate (CaCO3)	<5		mg/L	12/04/1995	5	sdf		313	310.1(3)
Chloride	44		mg/L	12/06/1995	5	tdw		454	325.3(3)
Fluoride	0.80		mg/L	11/28/1995	0.05	mas		318	340.2(3)
Hardness, Total	2,400		mg/L	12/06/1995	5	jjc		166	Calculation
pH	7.41		units	11/28/1995	0.10	jjc		1044	150.1(3)
Solids, Total Dissolved	2,990	*	mg/L	12/04/1995	25	sdf		686	160.1(3)
Solids, Total Suspended	158		mg/L	11/29/1995	5	sdf		803	160.2(3)
Sulfate	1,900		mg/L	12/05/1995	10	kaf		396	375.4(3)
Antimony, ICP	<2.50		mg/L	12/07/1995	2.50	jmt	959	1386	6010 (1)
Arsenic, GFAA	<0.0050		mg/L	12/05/1995	0.0050	jmt	605	539	7060 (1)
Beryllium, ICP	<0.01		mg/L	12/07/1995	0.01	jmt	959	1468	6010 (1)
Cadmium, ICP	<0.05		mg/L	12/07/1995	0.05	jmt	959	1472	6010 (1)
Calcium, AA	660		mg/L	12/06/1995	1.0	jmt	959	246	7140 (1)
Chromium, ICP	<0.20		mg/L	12/07/1995	0.20	jmt	959	1461	6010 (1)
Copper, ICP	<0.10		mg/L	12/07/1995	0.10	jmt	959	1780	6010 (1)
Iron, ICP	3.31		mg/L	12/07/1995	0.25	jmt	959	2416	6010 (1)
Lead, GFAA	<0.0050		mg/L	12/06/1995	0.0050	jmt	605	1265	7421 (1)
Magnesium, AA	180		mg/L	12/06/1995	1.0	jmt	959	238	7450 (1)
Manganese, ICP	0.075		mg/L	12/07/1995	0.05	jmt	959	1407	6010 (1)
Mercury, CVAA	<0.0002		mg/L	12/01/1995	0.0002	jmt	616	586	7471 (1)
Nickel, ICP	<0.25		mg/L	12/07/1995	0.250	jmt	959	1559	6010 (1)
Potassium, AA	5.80		mg/L	12/06/1995	1.0	jmt	959	240	7610 (1)
Selenium, GFAA	<0.0050		mg/L	12/06/1995	0.0050	jmt	605	289	7740 (1)
Silver, AA	<0.040		mg/L	12/01/1995	0.040	amj	414	436	7760 (1)
Sodium, AA	53		mg/L	12/06/1995	1.0	jmt	959	252	7770 (1)

* Total Dissolved Solids analysis was performed one day past the hold time due to analytical balance calibration problems.

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

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

12/11/1995

Sample No. : 331273

NET Job No.: 95.09406

Sample Description: Monitor Well #14
Amoco Pipeline Co, Artesia Station

Date Taken: 11/25/1995
Time Taken: 12:40
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Thallium, ICP	<1.0	mg/L	12/07/1995	1.0	jmt	959	1438	6010 (1)
Zinc, ICP	<0.10	mg/L	12/07/1995	0.10	jmt	959	1558	6010 (1)
UST VOLATILES 8240 - AQUEOUS								
Benzene	<1.0	ug/L	12/04/1995	1.0	llj		1266	8240 (1)
Ethyl Benzene	1.7	ug/L	12/04/1995	1.0	llj		1266	8240 (1)
Toluene	3.6	ug/L	12/04/1995	1.0	llj		1266	8240 (1)
Xylenes, Total	6.8	ug/L	12/04/1995	1.0	llj		1266	8240 (1)
Surr: Toluene-d8	88.0	%	12/04/1995	88-110	llj		1266	8240 (1)
Surr: Bromofluorobenzene	86.0	%	12/04/1995	86-115	llj		1266	8240 (1)
Surr: 1,2-Dichloroethane-d4	90.0	%	12/04/1995	76-114	llj		1266	8240 (1)
Prep, 8310 PNAs AQUEOUS	extracted		11/29/1995		jlf	216		8310 (1)
PNA CMPDS - 8310 AQUEOUS								
Acenaphthene	<0.018	mg/L	12/06/1995	0.018	jpd	216	614	8310 (1)
Acenaphthylene	<0.010	mg/L	12/06/1995	0.010	jpd	216	614	8310 (1)
Anthracene	<0.0066	mg/L	12/06/1995	0.0066	jpd	216	614	8310 (1)
Benzo(a)anthracene	0.000687	mg/L	12/06/1995	0.00013	jpd	216	614	8310 (1)
Benzo(b)fluoranthene	0.00063	mg/L	12/06/1995	0.00018	jpd	216	614	8310 (1)
Benzo(k)fluoranthene	0.00062	mg/L	12/06/1995	0.00017	jpd	216	614	8310 (1)
Benzo(a)pyrene	0.00058	mg/L	12/06/1995	0.00023	jpd	216	614	8310 (1)
Benzo(ghi)perylene	0.00063	mg/L	12/06/1995	0.00076	jpd	216	614	8310 (1)
Chrysene	<0.0015	mg/L	12/06/1995	0.0015	jpd	216	614	8310 (1)
Dibenzo(a,h)anthracene	0.00060	mg/L	12/06/1995	0.00030	jpd	216	614	8310 (1)
Fluoranthene	<0.0021	mg/L	12/06/1995	0.0021	jpd	216	614	8310 (1)
Fluorene	<0.0021	mg/L	12/06/1995	0.0021	jpd	216	614	8310 (1)

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ANALYTICAL REPORT

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

12/11/1995

Sample No. : 331273

NET Job No.: 95.09406

Sample Description: Monitor Well #14
Amoco Pipeline Co, Artesia Station

Date Taken: 11/25/1995
Time Taken: 12:40
IEPA Cert. No. 100221

Date Received: 11/28/1995
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Indeno(1,2,3-cd)pyrene	0.00065	mg/L	12/06/1995	0.00043	jpd	216	614	8310 (1)
Naphthalene	<0.010	mg/L	12/06/1995	0.010	jpd	216	614	8310 (1)
Phenanthrene	<0.0064	mg/L	12/06/1995	0.0064	jpd	216	614	8310 (1)
Pyrene	<0.0027	mg/L	12/06/1995	0.0027	jpd	216	614	8310 (1)
Surr: 2-Fluorobiphenyl	Masked	%	12/06/1995	37-122	jpd	216	614	8310 (1)

NET NATIONAL ENVIRONMENTAL TESTING, INC.

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

01/29/1996

NET Job Number: 96.00283

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 Fac.

Sample Number	Sample Description	Date Taken	Date Received
336847	Influent; Grab	01/15/1996	01/16/1996
336848	Effluent; Grab	01/15/1996	01/16/1996

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

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

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

01/29/1996

Sample No. : 336847

NET Job No.: 96.00283

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

Date Taken: 01/15/1996
Time Taken: 14:10
IEPA Cert. No. 100221

Date Received: 01/16/1996
Time Received:
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Alkalinity, bicarb (CaCO3)	925		mg/L	01/23/1996	5	mas		319	310.1(3)
Alkalinity, carbonate (CaCO3)	<5		mg/L	01/23/1996	5	mas		319	310.1(3)
Chloride	1,300		mg/L	01/19/1996	5	tdw		468	325.3(3)
Fluoride	0.59		mg/L	01/17/1996	0.05	mas		324	340.2(3)
Hardness, Total	2,900		mg/L	01/18/1996	5	kaf		170	130.2(3)
pH	6.82		units	01/16/1996	0.10	kaf		1070	150.1(3)
Solids, Total Dissolved	4,770		mg/L	01/17/1996	25	sdf		698	160.1(3)
Solids, Total Suspended	15		mg/L	01/17/1996	5	sdf		818	160.2(3)
Sulfate	1,860		mg/L	01/17/1996	10	kaf		403	375.4(3)
Arsenic, GFAA	0.009	S	mg/L	01/26/1996	0.005	jmt	631	560	206.2 (3)
Calcium, AA	710		mg/L	01/24/1996	1.0	jmt		255	215.1 (3)
Mercury, CVAA	<0.0002		mg/L	01/23/1996	0.0002	jmt	635	603	245.1 (3)
Selenium, GFAA	<0.005	S	mg/L	01/26/1996	0.005	jmt	631	305	270.2 (3)
Silver, AA	<0.040		mg/L	01/22/1996	0.040	jmt	437	457	272.1 (3)
Antimony, ICP	<0.50		mg/L	01/23/1996	0.50	amj	1005	1457	200.7 (3)
Beryllium, ICP	<0.0050		mg/L	01/23/1996	0.0050	amj	1005	1541	200.7 (3)
Cadmium, ICP	<0.010		mg/L	01/23/1996	0.010	amj	1005	2486	200.7 (3)
Chromium, ICP	<0.040		mg/L	01/23/1996	0.040	amj	1005	1533	200.7 (3)
Copper, ICP	0.101		mg/L	01/24/1996	0.020	amj	1005	1859	200.7 (3)
Iron, ICP	2.32		mg/L	01/23/1996	0.050	amj	1005	2487	200.7 (3)
Lead, ICP	<0.080		mg/L	01/23/1996	0.080	amj	1005	1755	200.7 (3)
Manganese, ICP	0.517		mg/L	01/24/1996	0.010	amj	1005	1478	200.7 (3)
Nickel, ICP	<0.050		mg/L	01/23/1996	0.050	amj	1005	1630	200.7 (3)
Thallium, ICP	<0.20		mg/L	01/24/1996	0.20	amj	1005	1509	200.7 (3)
Zinc, ICP	0.147		mg/L	01/24/1996	0.020	amj	1005	1630	200.7 (3)

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

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

01/29/1996

Sample No. : 336847

NET Job No.: 96.00283

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

Date Taken: 01/15/1996
Time Taken: 14:10
IEPA Cert. No. 100221

Date Received: 01/16/1996
Time Received:
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
UST VOLATILES 8240 - AQUEOUS								
Benzene	2,000	ug/L	01/19/1996	1.0	llj		1329	8240 (1)
Ethyl Benzene	210	ug/L	01/19/1996	1.0	llj		1329	8240 (1)
Toluene	29	ug/L	01/19/1996	1.0	llj		1329	8240 (1)
Xylenes, Total	840	ug/L	01/19/1996	1.0	llj		1329	8240 (1)
Surr: Toluene-d8	100.0	%	01/19/1996	88-110	llj		1329	8240 (1)
Surr: Bromofluorobenzene	102.0	%	01/19/1996	86-115	llj		1329	8240 (1)
Surr: 1,2-Dichloroethane-d4	90.0	%	01/19/1996	76-114	llj		1329	8240 (1)
Prep, 8310 PNAs AQUEOUS	extracted		01/18/1996		keh	225		8310 (1)
PNA CMPDS - 8310 AQUEOUS								
Acenaphthene	<0.018	mg/L	01/22/1996	0.018	jmt	225	644	8310 (1)
Acenaphthylene	<0.010	mg/L	01/22/1996	0.010	jmt	225	644	8310 (1)
Anthracene	<0.0066	mg/L	01/22/1996	0.0066	jmt	225	644	8310 (1)
Benzo(a)anthracene	<0.00102	mg/L	01/22/1996	0.00013	jmt	225	644	8310 (1)
Benzo(b)fluoranthene	<0.00102	mg/L	01/22/1996	0.00018	jmt	225	644	8310 (1)
Benzo(k)fluoranthene	<0.00102	mg/L	01/22/1996	0.00017	jmt	225	644	8310 (1)
Benzo(a)pyrene	<0.00102	mg/L	01/22/1996	0.00023	jmt	225	644	8310 (1)
Benzo(ghi)perylene	<0.00102	mg/L	01/22/1996	0.00076	jmt	225	644	8310 (1)
Chrysene	<0.0015	mg/L	01/22/1996	0.0015	jmt	225	644	8310 (1)
Dibenzo(a,h)anthracene	<0.00102	mg/L	01/22/1996	0.00030	jmt	225	644	8310 (1)
Fluoranthene	<0.0021	mg/L	01/22/1996	0.0021	jmt	225	644	8310 (1)
Fluorene	<0.0021	mg/L	01/22/1996	0.0021	jmt	225	644	8310 (1)
Indeno(1,2,3-cd)pyrene	<0.00102	mg/L	01/22/1996	0.00043	jmt	225	644	8310 (1)
Naphthalene	<0.010	mg/L	01/22/1996	0.010	jmt	225	644	8310 (1)
Phenanthrene	<0.0064	mg/L	01/22/1996	0.0064	jmt	225	644	8310 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

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

01/29/1996

Sample No. : 336847

NET Job No.: 96.00283

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

Date Taken: 01/15/1996
Time Taken: 14:10
IEPA Cert. No. 100221

Date Received: 01/16/1996
Time Received:
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Pyrene	<0.0027	mg/L	01/22/1996	0.0027	jmt	225	644	8310 (1)
Surr: 2-Fluorobiphenyl	Masked	%	01/22/1996	37-122	jmt	225	644	8310 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

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

01/29/1996

Sample No. : 336848

NET Job No.: 96.00283

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

Date Taken: 01/15/1996
Time Taken: 14:20
IEPA Cert. No. 100221

Date Received: 01/16/1996
Time Received:
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Alkalinity, bicarb (CaCO3)	468		mg/L	01/23/1996	5	mas		319	310.1(3)
Alkalinity, carbonate (CaCO3)	<5		mg/L	01/23/1996	5	mas		319	310.1(3)
Chloride	1,000		mg/L	01/19/1996	5	tdw		468	325.3(3)
Fluoride	0.43		mg/L	01/17/1996	0.05	mas		324	340.2(3)
Hardness, Total	2,500		mg/L	01/18/1996	5	kaf		170	130.2(3)
pH	7.47		units	01/16/1996	0.10	kaf		1070	150.1(3)
Solids, Total Dissolved	4,840		mg/L	01/17/1996	25	sdf		698	160.1(3)
Solids, Total Suspended	35		mg/L	01/17/1996	5	sdf		818	160.2(3)
Sulfate	2,000		mg/L	01/17/1996	10	kaf		403	375.4(3)
Arsenic, GFAA	0.008	S	mg/L	01/26/1996	0.005	jmt	631	560	206.2 (3)
Calcium, AA	1,000		mg/L	01/24/1996	1.0	jmt		255	215.1 (3)
Mercury, CVAA	<0.0002		mg/L	01/23/1996	0.0002	jmt	635	603	245.1 (3)
Selenium, GFAA	<0.005	S	mg/L	01/26/1996	0.005	jmt	631	305	270.2 (3)
Silver, AA	<0.040		mg/L	01/22/1996	0.040	jmt	437	457	272.1 (3)
Antimony, ICP	<0.50		mg/L	01/23/1996	0.50	amj	1005	1457	200.7 (3)
Beryllium, ICP	<0.0050		mg/L	01/23/1996	0.0050	amj	1005	1541	200.7 (3)
Cadmium, ICP	<0.010		mg/L	01/23/1996	0.010	amj	1005	2486	200.7 (3)
Chromium, ICP	<0.040		mg/L	01/23/1996	0.040	amj	1005	1533	200.7 (3)
Copper, ICP	0.175		mg/L	01/24/1996	0.020	amj	1005	1859	200.7 (3)
Iron, ICP	1.97		mg/L	01/23/1996	0.050	amj	1005	2487	200.7 (3)
Lead, ICP	<0.080		mg/L	01/23/1996	0.080	amj	1005	1755	200.7 (3)
Manganese, ICP	1.42		mg/L	01/24/1996	0.010	amj	1005	1478	200.7 (3)
Nickel, ICP	<0.050		mg/L	01/23/1996	0.050	amj	1005	1630	200.7 (3)
Thallium, ICP	<0.20		mg/L	01/24/1996	0.20	amj	1005	1509	200.7 (3)
Zinc, ICP	0.317		mg/L	01/24/1996	0.020	amj	1005	1630	200.7 (3)

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Mr. Hank Mittelhauser
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1240 Iroquois Drive
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01/29/1996

Sample No. : 336848

NET Job No.: 96.00283

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

Date Taken: 01/15/1996
Time Taken: 14:20
IEPA Cert. No. 100221

Date Received: 01/16/1996
Time Received:
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
UST VOLATILES 8240 - AQUEOUS								
Benzene	<1.0	ug/L	01/19/1996	1.0	llj		1329	8240 (1)
Ethyl Benzene	<1.0	ug/L	01/19/1996	1.0	llj		1329	8240 (1)
Toluene	<1.0	ug/L	01/19/1996	1.0	llj		1329	8240 (1)
Xylenes, Total	<1.0	ug/L	01/19/1996	1.0	llj		1329	8240 (1)
Surr: Toluene-d8	98.0	%	01/19/1996	88-110	llj		1329	8240 (1)
Surr: Bromofluorobenzene	100.0	%	01/19/1996	86-115	llj		1329	8240 (1)
Surr: 1,2-Dichloroethane-d4	90.0	%	01/19/1996	76-114	llj		1329	8240 (1)
Prep, 8310 PNAs AQUEOUS	extracted		01/18/1996		keh	225		8310 (1)
PNA CMPDS - 8310 AQUEOUS								
Acenaphthene	<0.018	mg/L	01/22/1996	0.018	jmt	225	644	8310 (1)
Acenaphthylene	<0.010	mg/L	01/22/1996	0.010	jmt	225	644	8310 (1)
Anthracene	<0.0066	mg/L	01/22/1996	0.0066	jmt	225	644	8310 (1)
Benzo(a)anthracene	<0.00013	mg/L	01/22/1996	0.00013	jmt	225	644	8310 (1)
Benzo(b)fluoranthene	<0.00018	mg/L	01/22/1996	0.00018	jmt	225	644	8310 (1)
Benzo(k)fluoranthene	<0.00017	mg/L	01/22/1996	0.00017	jmt	225	644	8310 (1)
Benzo(a)pyrene	<0.00023	mg/L	01/22/1996	0.00023	jmt	225	644	8310 (1)
Benzo(ghi)perylene	<0.00076	mg/L	01/22/1996	0.00076	jmt	225	644	8310 (1)
Chrysene	<0.0015	mg/L	01/22/1996	0.0015	jmt	225	644	8310 (1)
Dibenzo(a,h)anthracene	<0.00030	mg/L	01/22/1996	0.00030	jmt	225	644	8310 (1)
Fluoranthene	<0.0021	mg/L	01/22/1996	0.0021	jmt	225	644	8310 (1)
Fluorene	<0.0021	mg/L	01/22/1996	0.0021	jmt	225	644	8310 (1)
Indeno(1,2,3-cd)pyrene	<0.00043	mg/L	01/22/1996	0.00043	jmt	225	644	8310 (1)
Naphthalene	<0.010	mg/L	01/22/1996	0.010	jmt	225	644	8310 (1)
Phenanthrene	<0.0064	mg/L	01/22/1996	0.0064	jmt	225	644	8310 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

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

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

01/29/1996

Sample No. : 336848

NET Job No.: 96.00283

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

Date Taken: 01/15/1996
Time Taken: 14:20
IEPA Cert. No. 100221

Date Received: 01/16/1996
Time Received:
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
Pyrene	<0.0027	mg/L	01/22/1996	0.0027	jmt	225	644	8310 (1)
Surr: 2-Fluorobiphenyl	76.1	%	01/22/1996	37-122	jmt	225	644	8310 (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).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dW)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

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

(2) ASTM "American Society for Testing Materials

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

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

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

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

APPENDIX C

LABORATORY RESULTS

- TPH Results for the Soils Remediation Area -- Samples Taken October 12, 1995.
- TPH Results for the Soils Remediation Area -- Samples Taken December 29, 1995.

NATIONAL ENVIRONMENTAL TESTING, INC.

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

10/24/1995

NET Job Number: 95.08102

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: 2775.00-02, Amoco Pipeline Co., Artesia

Sample Number	Sample Description	Date Taken	Date Received
325986	SS #1	10/12/1995	10/13/1995
325987	SS #2	10/12/1995	10/13/1995
325988	SS #3	10/12/1995	10/13/1995

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

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

Approved by:

Mary Pearson

Mary Pearson
Project Manager

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

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

ANALYTICAL REPORT

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

10/24/1995

Sample No. : 325986

NET Job No.: 95.08102

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

Date Taken: 10/12/1995
Time Taken: 08:30
IEPA Cert. No. 100221

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

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	83.0	%	10/23/1995	0.1	tdw	1364	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		10/16/1995		kdw	123	8015M (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

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

10/24/1995

Sample No. : 325986

NET Job No.: 95.08102

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

Date Taken: 10/12/1995
Time Taken: 08:30
IEPA Cert. No. 100221

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

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
TPH MODIFIED 8015									
TPH as Gas	<10		mg/Kg	10/19/1995	10	seh	123	211	8015M (1)
TPH as Diesel	<100	D	mg/Kg	10/24/1995	10	seh	123	212	8015M (1)
TPH as Oil	5,410	DX	mg/Kg	10/24/1995	10	seh	123	212	8015M (1)

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

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ANALYTICAL REPORT

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

10/24/1995

Sample No. : 325987

NET Job No.: 95.08102

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

Date Taken: 10/12/1995
Time Taken: 08:30
IEPA Cert. No. 100221

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

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	85.4	%	10/20/1995	0.1	tdw	1361	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		10/16/1995		kdw	123	8015M (1)

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ANALYTICAL REPORT

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

10/24/1995

Sample No. : 325987

NET Job No.: 95.08102

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

Date Taken: 10/12/1995
Time Taken: 08:30
IEPA Cert. No. 100221

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

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
TPH MODIFIED 8015									
TPH as Gas	<10		mg/Kg	10/19/1995	10	seh	123	211	8015M (1)
TPH as Diesel	<100	D	mg/Kg	10/24/1995	10	seh	123	212	8015M (1)
TPH as Oil	8,400	DX	mg/Kg	10/24/1995	10	seh	123	212	8015M (1)

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

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ANALYTICAL REPORT

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

10/24/1995

Sample No. : 325988

NET Job No.: 95.08102

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

Date Taken: 10/12/1995
Time Taken: 08:30
IEPA Cert. No. 100221

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

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	86.8	%	10/20/1995	0.1	tdw	1361	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		10/16/1995		kdw	123	8015M (1)

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ANALYTICAL REPORT

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

10/24/1995

Sample No. : 325988

NET Job No.: 95.08102

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

Date Taken: 10/12/1995
Time Taken: 08:30
IEPA Cert. No. 100221

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

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
TPH MODIFIED 8015									
TPH as Gas	<10		mg/Kg	10/19/1995	10	seh	123	211	8015M (1)
TPH as Diesel	<100	D	mg/Kg	10/24/1995	10	seh	123	212	8015M (1)
TPH as Oil	4,930	DX	mg/Kg	10/24/1995	10	seh	123	212	8015M (1)

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

NET NATIONAL ENVIRONMENTAL TESTING, INC.®

CHAIN OF CUSTODY RECORD

COMPANY M. Mitchouser Corp
ADDRESS 1240 Iroquois Dr. # 206
PHONE (708) 369-0201 FAX (708) 369-1279
PROJECT NAME/LOCATION Amoco Pipeline @ Artesia
PROJECT NUMBER 2775.00-02
PROJECT MANAGER Herb M. Mitchouser

REPORT TO: H. M. Mitchouser
INVOICE TO: H M. Mitchouser
P.O. NO.
NET QUOTE NO. Mar A

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

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	# and Type of Containers: HCl	NaOH	HNO_3	H_2SO_4	OTHER	ANALYSES: TPH Method 8015 (EPA)
10-12-95	8:30	SS #1		X							X
10-12-95	8:30	SS #2		X							X
10-12-95	9:30	SS #3		X							X

To assist us in selecting the proper method

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

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

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

COMMENTS

Please Designate EPA Method 8015 in Report

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

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

TEMPERATURE UPON RECEIPT: 24.0°C Bottles supplied by NET? (YES) / NO ice packs worm room temp.

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

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED FOR NET BY:
Chet Armstrong	10-12-95	9:30am					B. Camp

METHOD OF SHIPMENT: Fed Ex

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

NATIONAL ENVIRONMENTAL TESTING, INC.

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Bartlett, IL 60103
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Fax: (708) 289-5445

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

01/10/1996

NET Job Number: 95.10268

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

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

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

Sample Number	Sample Description	Date Taken	Date Received
335443	SS #1; Grab	12/29/1995	01/03/1996
335444	SS #2; Grab	12/29/1995	01/03/1996
335445	SS #3; Grab	12/29/1995	01/03/1996

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

NATIONAL ENVIRONMENTAL TESTING, INC.

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

ANALYTICAL REPORT

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

01/10/1996

Sample No. : 335443

NET Job No.: 95.10268

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

Date Taken: 12/29/1995
Time Taken: 08:45
IEPA Cert. No. 100221

Date Received: 01/03/1996
Time Received: 11:25
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	88.4	%	01/05/1996	0.1	tdw	1416	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		01/05/1996		keh	134	8015M (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

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

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

01/10/1996

Sample No. : 335443

NET Job No.: 95.10268

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

Date Taken: 12/29/1995
Time Taken: 08:45
IEPA Cert. No. 100221

Date Received: 01/03/1996
Time Received: 11:25
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
TPH MODIFIED 8015								
TPH as Gas	<100	mg/Kg	01/08/1996	10	tls	134	230	8015M (1)
TPH as Diesel	5,700	mg/Kg	01/08/1996	10	tls	134	230	8015M (1)
TPH as Oil	21,000	mg/Kg	01/08/1996	10	tls	134	230	8015M (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

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

01/10/1996

Sample No. : 335444

NET Job No.: 95.10268

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

Date Taken: 12/29/1995
Time Taken: 08:45
IEPA Cert. No. 100221

Date Received: 01/03/1996
Time Received: 11:25
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	84.3	%	01/05/1996	0.1	tdw	1416	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		01/05/1996		keh	134	8015M (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

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

01/10/1996

Sample No. : 335444

NET Job No.: 95.10268

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

Date Taken: 12/29/1995
Time Taken: 08:45
IEPA Cert. No. 100221

Date Received: 01/03/1996
Time Received: 11:25
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
TPH MODIFIED 8015								
TPH as Gas	<100	mg/Kg	01/08/1996	10	tls	134	230	8015M (1)
TPH as Diesel	3,700	mg/Kg	01/08/1996	10	tls	134	230	8015M (1)
TPH as Oil	21,000	mg/Kg	01/08/1996	10	tls	134	230	8015M (1)

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ANALYTICAL REPORT

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

01/10/1996

Sample No. : 335445

NET Job No.: 95.10268

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

Date Taken: 12/29/1995
Time Taken: 08:45
IEPA Cert. No. 100221

Date Received: 01/03/1996
Time Received: 11:25
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	90.1	%	01/05/1996	0.1	tdw	1416	2540 (4)
Prep, TPH 8015M - NONAQUEOUS	extracted		01/05/1996		kch	134	8015M (1)

NET NATIONAL ENVIRONMENTAL TESTING, INC.

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

ANALYTICAL REPORT

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

01/10/1996

Sample No. : 335445

NET Job No.: 95.10268

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

Date Taken: 12/29/1995
Time Taken: 08:45
IEPA Cert. No. 100221

Date Received: 01/03/1996
Time Received: 11:25
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run		Analytical Method
TPH MODIFIED 8015								
TPH as Gas	<100	mg/Kg	01/08/1996	10	tls	134	230	8015M (1)
TPH as Diesel	3,200	mg/Kg	01/08/1996	10	tls	134	230	8015M (1)
TPH as Oil	17,000	mg/Kg	01/08/1996	10	tls	134	230	8015M (1)

OCEAN GROUP

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850 W. Bartlett Rd.
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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

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

01/10/1996

NET Job Number: 95.10268

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
TPH MODIFIED 8015				
TPH as Gas	230	300	306	102.0
TPH as Diesel	230	300	305	101.7
TPH as Oil	230	500	535	107.0

CCV - Continuing Calibration Verification

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
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QUALITY CONTROL REPORT

BLANK ANALYSIS

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

01/10/1996

NET Job Number: 95.10268

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
TPH MODIFIED 8015						8015M (1)
TPH as Gas	134	230	<10	mg/Kg	10	8015M (1)
TPH as Diesel	134	230	<10	mg/Kg	10	8015M (1)
TPH as Oil	134	230	<10	mg/Kg	10	8015M (1)

Advisory Control Limits for Blanks:

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

NATIONAL ENVIRONMENTAL TESTING, INC.

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

QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

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

01/10/1996

NET Job Number: 95.10268

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
TPH MODIFIED 8015					
TPH as Gas	134	230	50	58	116.0
TPH as Diesel	134	230	50	57	114.0
TPH as Oil	134	230	50	43	86.0

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QUALITY CONTROL REPORT

DUPLICATES

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

01/10/1996

NET Job Number: 95.10268

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	RPD
Solids, Total		1416	55.3	59.2	%	6.8
Solids, Total		1416	84.3	85.5	%	1.4

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

RPD - Relative Percent Difference

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

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

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

Method References

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

(2) ASTM "American Society for Testing Materials

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

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

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

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

NET NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY Clayton Mittlehauser Corp.
ADDRESS 1240 Iroquois Dr. #206
PHONE (708) 369-0201 FAX (708) 369-1279
PROJECT NAME/LOCATION Amoco Pipeline Co. Artesian
PROJECT NUMBER 2775.00-02
PROJECT MANAGER Hank Mittlehauser

REPORT TO: H. Mittlehauser
INVOICE TO: H. Mittlehauser
P.O. NO.
NET QUOTE NO. Mal RA

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

DATE	TIME	SAMPLE ID/DESCRIPTION	MATRIX	GRAB	COMP	# and Type of Containers: HCl	NaOH	HNO_3	H_2SO_4	OTHER	ANALYSES: TPH Method 8015 (EPA)
12-29	8:46A	SS #1		X							X
12-29	8:46A	SS #2		X							X
12-29	8:46A	SS #3		X							X

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

COMMENTS
Please Designate EPA Method 8015 In Report

CONDITION OF SAMPLE: BOTTLES INTACT? YES / NO N/A
FIELD FILTERED? YES / NO N/A
COC SEALS PRESENT AND INTACT? YES / NO N/A
VOLATILES FREE OF HEADSPACE? YES / NO
TEMPERATURE UPON RECEIPT: 8.5°
Bottles supplied by NET? YES / NO

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

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	RELINQUISHED BY:	DATE	TIME	RECEIVED FOR NET BY:
Chet Armstrong	1-2-96	9:30			1-3-96	11:25	Karen Valdez

METHOD OF SHIPMENT: Fed Exp.
REMARKS: Questions to H.M. Mittlehauser @ (708) 369-0201

01/10/96 17:54 ☎708 289 5445 NET BARTLETT DIV 014/014