

RANKING SCORE (TOTAL POINTS): 20

Date Remediation Started: 5/27/97 Date Completed: 10/20/98
6/4/97
Remediation Method: Excavation ☒ Approx. cubic yards 40
(Check all appropriate sections) Landfarmed ☒ Insitu Bioremediation ☐
Other ☐

Remediation Location: Onsite ☒ Offsite ☐
(ie. landfarmed onsite, name and location of offsite facility)

General Description Of Remedial Action: Contaminated soil was excavated and placed in an on-site landfarm. Bedrock was encountered a 4-6 feet below grade. Three sides of site were investigated for contamination travel, the fourth side^{the} couldn't be investigated because of equipment and lines.

Ground Water Encountered: No ☒ Yes ☐ Depth ☐

Final Pit:
Closure Sampling:
(if multiple samples, attach sample results and diagram of sample locations and depths)

Sample location mid-pit @ bedrock

Sample depth 4'

Sample date 5/27/97 Sample time 11:00

Sample Results

Benzene(ppm) 0.03

Total BTEX(ppm) 4.3

Field headspace(ppm) 243

TPH 24559

Ground Water Sample: Yes ☐ No ☒ (If yes, attach sample results)

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

DATE 8/10/00

SIGNATURE Donald L. Johnson

PRINTED NAME
AND TITLE

Donald L. Johnson
Operations Manager

$YOC \pm$
 $4/22/98$
 Cond-2-132m
 Cond-2-132m
 Cond-2-132m

last discharge last summer

$\Rightarrow$
 $\Rightarrow$
 $\Rightarrow$

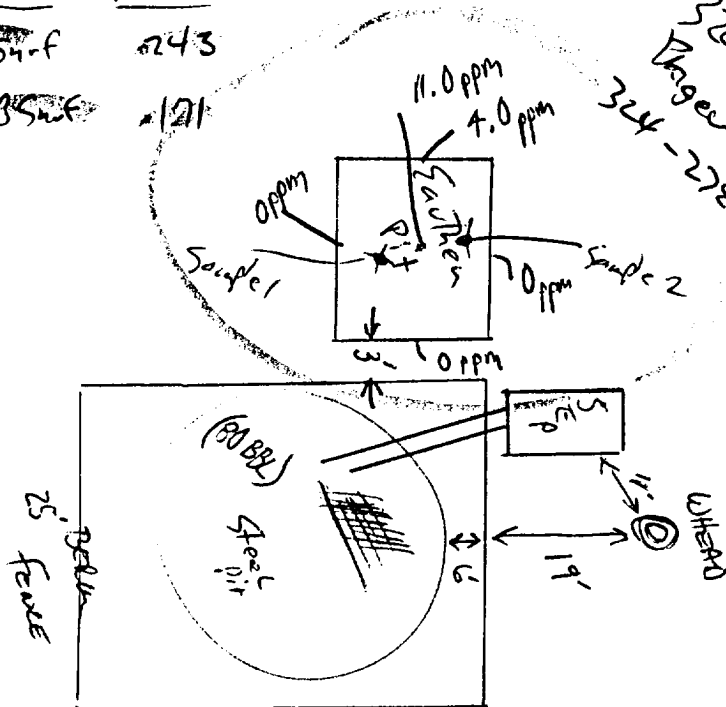
~~Water~~
~~Water~~
 Counter 4 854-f
 Counter 4 854-f

ppm (ppm)

243

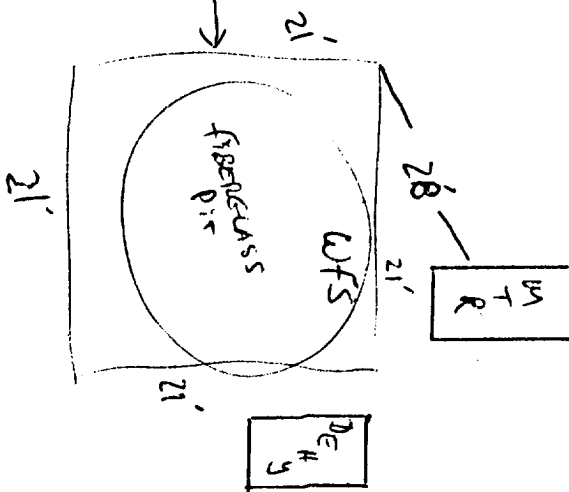
121

DO-0819
 320-2288
 324-2288



25' fence

25'
 54'
 21'



redwood
 4' below ground
 surface

C

CES Summary of KOCH Project for 5/27/97

Sample Number	Location	PID (ppm)	Remarks
Gardner 5			
1	mid-pit 4' below surface	243	hit bedrock on both sample locations
2	west-pit 4' below surface	171	
West bank bottom		0	
East bank bottom		0	
Northbank bottom		0	
South bank bottom		X 4	

Gardner 4A

1	mid-pit 4' below surface	1	hit bedrock on sample location
West bank bottom		0	
East bank bottom		0	
Northbank bottom		0	
South bank bottom		0	

Gardner 4

1	mid-pit 4' below surface	4	no bedrock hit-sample below limit at depth
West bank bottom		0	
East bank bottom		0	
Northbank bottom		0	
South bank bottom		0	

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn: **Shawn Adams**
Company: **Contract Environmental Services, Inc.**
Address: **P.O. Box 3376**
City, State: **Farmington, NM 87499**

Date: **3-Jun-97**
COC No.: **4315**
Sample No.: **14734**
Job No.: **2-1000**

Project Name: **Koch Exploration - Gardner 5**
Project Location: **GAR5-100; Mid Pit 4**
Sampled by: **DGM** Date: **27-May-97** Time: **11:00**
Analyzed by: **HR** Date: **30-May-97**
Sample Matrix: **Soil**

Laboratory Analysis

Parameter	Results as Received	Limit of Quantitation	Unit of Measure	Method
Total Petroleum Hydrocarbons, TPH	24559	25	mg/kg	EPA Method 418.1

ND - Not Detected at Limit of Quantitation

Quality Assurance Report

Laboratory Fortified Blank/Spike Soil

Laboratory Identification	Analyzed Value	Acceptable Range	Unit of Measure
Laboratory Fortified Blank Soil - QCBS2	< 25	< 25	mg/kg
Laboratory Fortified Spike Soil - QCSS1	828	828 - 1024	mg/kg

Duplication

Laboratory Identification	% RSD	Limit % RSD
14734-4315	2.5	15.0

Approved by: 
Date: **6/3/97**

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn: **Shawn Adams**
Company: **Contract Environmental Services, Inc.**
Address: **P.O. Box 3376**
City, State: **Farmington, NM 87499**

Date: **10-Jun-97**
COC No.: **4315**
Sample No.: **14734**
Job No.: **2-1000**

Project Name: **Koch Exploration - Gardner 5**
Project Location: **GARD5-100 Mid pit 4**
Sampled by: **DGM**
Analyzed by: **HR**
Sample Matrix: **Soil**

Date: **27-May-97** Time: **11:00**
Date: **5-Jun-97**

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	30	ug/kg	25	ug/kg
Toluene	163	ug/kg	25	ug/kg
Ethylbenzene	51	ug/kg	25	ug/kg
m,p-xylene	3437	ug/kg	25	ug/kg
o-xylene	641	ug/kg	25	ug/kg
TOTAL		4322	ug/kg	

ND - Not Detected at Limit of Quantitation

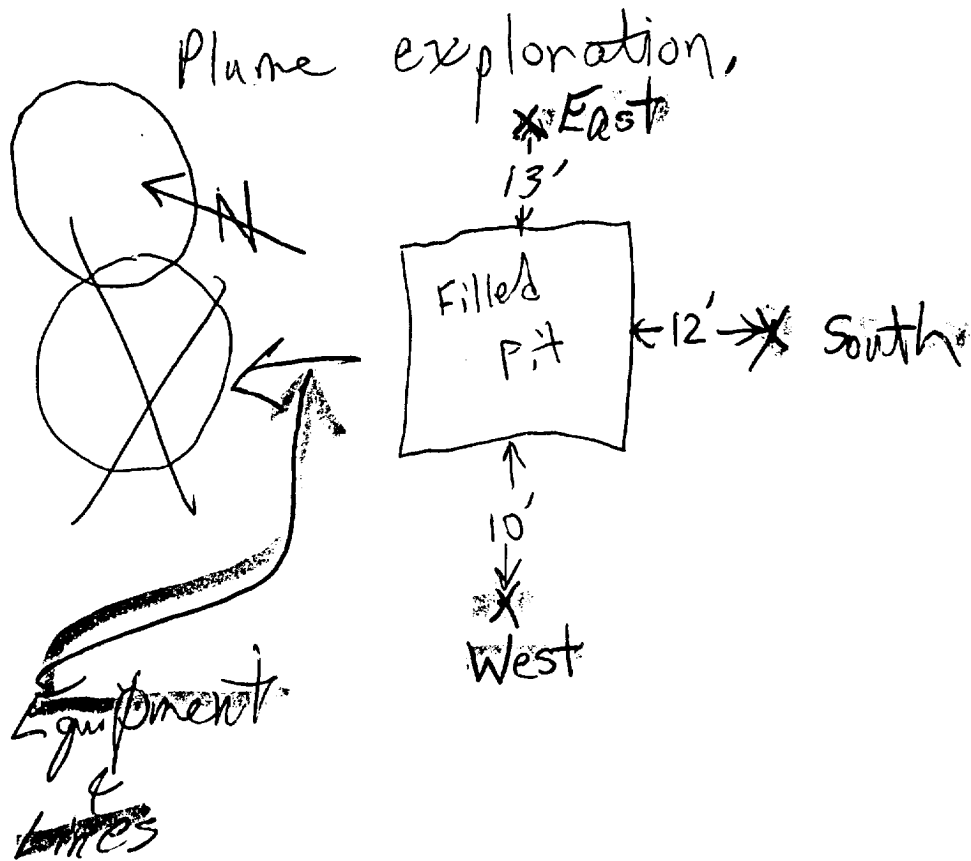
Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved by: 
Date: **6/10/97**

KUL H

6/11/77

Bandner 5



Canyon

Gardner 5- Plume Determination Pits**West Pit - a 3'x6' excavation apporox. 6' deep (hit bedrock)**

Sample Number	Location	PID	Remarks
		(ppm)	

1	mid-pit 6' below surface	7.0	
PID Readings			
in pit	mid-pit bottom	< 2.0	
in pit	West bank	< 2.0	
in pit	East bank	< 2.0	
in pit	North bank	< 2.0	
in pit	South bank	< 2.0	

South Pit - a 3'x6' excavation apporox. 6' deep (hit bedrock)

Sample Number	Location	PID	Remarks
		(ppm)	

2	mid-pit 6' below surface	8.0	
PID Readings			
in pit	mid-pit bottom	< 2.0	
in pit	West bank	< 2.0	
in pit	East bank	< 2.0	
in pit	North bank	< 2.0	
in pit	South bank	< 2.0	

East Pit - a 3'x6' excavation apporox. 3' deep (hit bedrock)

Sample Number	Location	PID	Remarks
		(ppm)	

3	mid-pit 3' below surface	5.0	
PID Readings			
in pit	mid-pit bottom	< 2.0	
in pit	West bank	< 2.0	
in pit	East bank	< 2.0	
in pit	North bank	< 2.0	
in pit	South bank	< 2.0	

A composite sample was made of all three pit bottoms and sent to the laboratory for analysis of**GC-E and HPLC. The lab number is Gard5-101**

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn: *Shawn Adams*
Company: *Contract Environmental Services, Inc.*
Address: *P.O. Box 3376*
City, State: *Farmington, NM 87499*

Date: *10-Jun-97*
COC No.: *6392*
Sample No.: *14821*
Job No.: *2-1000*

Project Name: *Koch Exploration - *Gardner 5 Exploratory Pit*
Project Location: *GARD5-101; (composite)*
Sampled by: *DGM* Date: *4-Jun-97* Time: *12:00*
Analyzed by: *HR* Date: *6-Jun-97*
Sample Matrix: *Soil*

Laboratory Analysis

Parameter	Results as Received	Limit of Quantitation	Unit of Measure	Method
<i>Total Petroleum Hydrocarbons, TPH</i>	<i>ND</i>	<i>25</i>	<i>mg/kg</i>	<i>EPA Method 418.1</i>

ND - Not Detected at Limit of Quantitation

Quality Assurance Report

Laboratory Fortified Blank/Spike Soil

Laboratory Identification	Analyzed Value	Acceptable Range	Unit of Measure
<i>Laboratory Fortified Blank Soil - QCBS2</i>	<i>< 25</i>	<i>< 25</i>	<i>mg/kg</i>
<i>Laboratory Fortified Spike Soil - QCSS1</i>	<i>870</i>	<i>828 - 1024</i>	<i>mg/kg</i>

Duplication

Laboratory Identification	% RSD	Limit % RSD
<i>14813-6391</i>	<i>< LOQ</i>	<i>15.0</i>

Approved by: *Jag*

Date: *6/10/97*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn: **Shawn Adams**
Company: **Contract Environmental Services, Inc.**
Address: **P.O. Box 3376**
City, State: **Farmington, NM 87499**

Date: **10-Jun-97**
COC No.: **6392**
Sample No.: **14821**
Job No.: **2-1000**

Project Name: **Koch Exploration - Gardner 5 Exploratory Pit**
Project Location: **GARD5-101; (composite)**
Sampled by: **DGM** Date: **4-Jun-97** Time: **12:00**
Analyzed by: **HR** Date: **4-Jun-97**
Sample Matrix: **Soil**

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	ND	ug/kg	1	ug/kg
Toluene	ND	ug/kg	1	ug/kg
Ethylbenzene	ND	ug/kg	1	ug/kg
m,p-Xylene	2	ug/kg	1	ug/kg
o-Xylene	ND	ug/kg	1	ug/kg
	TOTAL	2		ug/kg

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved by: 
Date: **6/10/97**

CHAIN OF CUSTODY RECORD

[illegible]

KOCH Exploration Company

Risk Analysis

Prepared by:

Contract Environmental Services, Inc.

Prepared for:

Oil Conservation Division - District III

Date: 8/4/97

Location: Gardner 5 -Drip Pit Unit-M, Sec26, T32N, R9W

Lease Number: NM-013642

Resources

Ground Water: 40 feet (cathodic protection data)

Closest Surface Water: No down gradient perennial bodies within 1000 feet
(visual inspection of the area)

Water Sources: No private, domestic water source is located within
1000 feet of this site.

Risk Management

Natural Barriers: A sandstone ledge was encountered at a depth of 4
feet. This ledge will restrict the migration of any
contaminates into the ground water.

Additional
Investigation: Three exploratory test pits were dug using a rubber
tired backhoe. All three test pits reached the
sandstone ledge. Field-testing and laboratory
analysis was conducted on these test pits. The
results of this analysis and testing are shown in
Table 1 on the following page.

Risk Analysis

Contract Environmental Services, Inc.
Post Office Box 3376
Farmington, New Mexico 87499

Additional
Investigation: (continued)

Table 1. Exploratory pit field and laboratory results summary.

Pit	Sample					
	Location	Depth	PID Results	Field Headspace Results	Laboratory Results	Remarks
		(feet)	(PPM)	(PPM)	(PPM)	
South	N Bank	6	< 2	8.0		
	S Bank	6	< 2			
	E Bank	6	< 2			
	W Bank	6	< 2			
	mid-pit	6	< 2			
West	N Bank	6	< 2	7.0		
	S Bank	6	< 2			
	E Bank	6	< 2			
	W Bank	6	< 2			
	mid-pit	6	< 2			
East	N Bank	3	< 2	5.0		
	S Bank	3	< 2			
	E Bank	3	< 2			
	W Bank	3	< 2			
	mid-pit	3	< 2			
Bottom Com- posite	mid-pit	various	N/A	N/A	TPH - ND BTEX - 0.002	Total BTEX

Risk

The following table and conclusions summarize the risk this contamination sources poses to the resources discussed.

Table 2. Total risk table.

RISK	CHOICE
Extremely Low	X
Low	
Moderate	
High	

The ground water at this site is at almost no danger of being impacted by contamination from this site. From the low laboratory and field-test results for the three test pits it is concluded that the **risk of ground water contamination is extremely low.**

Risk Analysis

Contract Environmental Services, Inc.
Post Office Box 3376
Farmington, New Mexico 87499

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 29-Oct-98

Client: Contract Environmental Services, Inc.
Work Order: 9810047
Lab ID: 9810047-05A **Matrix:** SOIL
Project: Koch Exploration

Client Sample Info: Gardner 5
Client Sample ID: GAR5-204; Soil Farm
Collection Date: 10/16/98 11:30:00 AM
COC Record: 6995

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL RANGE ORGANICS		SW8015				Analyst: HR
T/R Hydrocarbons: C10-C28	37	25		mg/Kg	1	10/26/98
GASOLINE RANGE ORGANICS		SW8015				Analyst: HR
T/R Hydrocarbons: C6-C10	ND	0.18		mg/Kg	1	10/19/98

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

1 of 1

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

