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REPORTS

DATE:

1/29/1997

KOCH

KOCH OPERATIONS GROUP

ENVIRONMENTAL SERVICES

January 29, 1997

Mr. Wayne Price
New Mexico Oil Conservation Division
P.O. Box 1980
Hobbs, New Mexico 88241-1980

RE: Crouch Station Remediation Proposal

Dear Mr. Price:

Enclosed is a copy of the proposed work plan for your review. As we discussed on the phone, I have added some items as requested by the NMOCD to the work plan. If you have any questions or comments, please call me at (316) 828-6960. I look forward to your response in the near future. Thank you for your time regarding this matter.

Sincerely,

Dana Kuchenbecker
Environmental Engineer
KOG Environmental Services

Enclosure

cc: Paul Holland, KPC, L.P.; Enclosure

P.O. Box 2256 ▪ Wichita, Kansas 67201 ▪ 316/828-8584 ▪ FAX 316/828-8000

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WORK PLAN
FOR
REMEDIAL INVESTIGATION OF CROUCH STATION
KOCH PIPELINE COMPANY, L.P.

I. INTRODUCTION

This work plan proposes strategies, procedures, and methods to be used in the investigation and/or remediation of Koch Pipeline Company L.P.'s Crouch Station located in Lea County, New Mexico.

II. REGULATORY JURISDICTION

Through discussions with the New Mexico Oil Conservation Division (NMOCD) it was understood that the NMOCD has jurisdiction over the oil and gas facilities, and contamination associated with them, in the state of New Mexico. However, the Water Quality Control Commission is part of a committee which reviews pollution abatement plans when groundwater is impacted, and ultimately has final jurisdiction.

III. SITE HISTORY

Crouch Station is located in Section 18, Township 18S, Range 36E, in Lea County, New Mexico. The property was first leased from the State of New Mexico in 1974 by Koch Industries, in which the property was approved for crude oil pumping and storage operations. In 1978, the lease was transferred from Koch Industries, Incorporated to Matador Pipelines, Incorporated. In 1990, the lease was transferred to Koch Gathering where it was operated for approximately six years. In 1996, the lease was transferred from Koch Gathering to Koch Pipeline Company, L.P. and is still operational today. Currently, there are 2-15,000 barrel storage tanks, 3 pumps, and 2 tool sheds on-site.

In October of 1996, a pipeline failure occurred on a 12 inch line, which resulted in a crude oil leak inside the containment walls. The NMOCD was notified and Mr. Wayne Price from the NMOCD was present during excavation and investigative activities conducted on October 25, 1996. On January 8, 1997, Dana Kuchenbecker with Koch Operations Group (KOG)-Environmental Services contacted Mr. Price and discussed the following proposed remediation options.

IV. GEOLOGY AND HYDROGEOLOGY

The soil in the area is described as stiff caliche to a depth of approximately 15 feet, sandy caliche to a depth of approximately 40 feet, and dry water sand until the aquifer is encountered at a depth of approximately 57 feet. (Safety and Environmental Solutions conducted a water well survey and revealed groundwater at approximately 57 feet in 1991.) The groundwater is part of the Ogalala Aquifer which is the main water supply of Southeastern New Mexico, and Southwestern Texas. The NMOCD has stated that the regional groundwater flow is in a southeasterly direction.

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V. SCOPE OF WORK FOR PROPOSED ACTIVITIES

It is the belief of KOG Environmental Services through the report written by Safety & Environmental Solutions, Inc. (SES) on prior investigative activities, and discussions with Koch Pipeline Company, L.P. field personnel present during response activities, that the subsurface contamination is limited to a small area with an approximate 20-foot diameter. The profile of the vertical extent of contamination revealed Total Petroleum Hydrocarbon (TPH) concentrations exceeding 1,000 ppm at depths from the surface to 15 feet below ground surface (bgs). It also revealed that concentrations significantly decreased but, were present at depths 25 feet to 40 feet in the range of 76-170 ppm. However, at the request of the NMOCD, Koch proposes to install a 2-inch monitor well downgradient, approximately 80-100 feet from the leak location. The well will be installed by a New Mexico licensed monitor well driller in accordance with appropriate State rules and regulations. The well casing will be approximately 2-inch diameter Schedule 40 PVC with a slotted screen. The screen size will be approximately 0.01 inches. At least ten feet of screen will be placed in the zone of anticipated water table fluctuation. In this case, groundwater is anticipated at approximately 57 feet. A sand or gravel filter pack will be constructed around and to the top of the well screen. The filter pack will be topped by approximately 1 to 2 feet of hydrated bentonite pellets. The remaining portion of the borehole will be filled to the groundsurface around the casing with a bentonite-cement grout.

Upon well completion, the wells will be fully developed. After the water level measurement is complete, the well will be purged three well volumes or until dry, using a disposable PVC hand bailer or pump.

As stated above, through discussions with the NMOCD, the regional groundwater flow is southeasterly. Thus, the well will be installed downgradient from the leak site (See attached site map for location). A groundwater sample will be collected and analyzed for TPH and BTEX (benzene, toluene, ethyl benzene, and xylene, respectively). The sample will be rushed for lab analysis to determine if groundwater has been impacted. Depending on the results, a decision will be made in the field to do one of the following:

1. **Groundwater has not been impacted:**

If groundwater has not been impacted, one single Soil Vapor Extraction well (SVE) will be installed in the leak area to a depth of 40 feet. In addition 2 to 5 air supply wells will be installed to increase air flow, thus increasing the stripping efficiency and biodegredation in the subsurface. In addition, the monitor well will be left in place to verify that the system is effective for future monitoring.

2. **Groundwater has been moderately impacted with dissolved phase hydrocarbons:**

If free product is absent but low concentrations of dissolved hydrocarbons are present, then the SVE well will be installed and the groundwater will be monitored by collecting samples and having them analyzed by a lab quarterly for a period of two years.

3. **Groundwater has been significantly impacted with hydrocarbons:**
If free product is present or high concentrations of TPH or BTEX are discovered, then the "proposed remedial mode" will be switched to a complete delineation mode. A second work plan would need to be drafted where a nesting of SVE's, air sparging, Risk Based Assessment/Remediation, or combination of the above would be evaluated and proposed to the NMOCD.

VI. DECONTAMINATION PROCEDURES

Prior to drilling, all down-hole equipment will be decontaminated. In addition, all sampling tools, measuring tapes, etc. will be washed in a soap solution and rinsed with water. Disposable bailers will also be used where possible. All decontamination water will be collected and stored in DOT-approved drums and will be analyzed prior to disposal.

VII. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

To avoid cross-contamination of samples, personnel will change gloves when sampling between borehole locations.

The laboratory QAQC program will include an equipment blank and a trip blank. (Note: the quantity of QA/QC samples will vary depending on the results of the groundwater testing.) However, approximately 10% of the total number of samples collected will be QA/QC blanks. The blanks will be analyzed for the same parameters as the samples. With the exception of trip blanks, all other blanks will be labeled so as to mask their identity as a QA/QC sample.

Sample duplicates will be performed for soil samples by splitting the core removed from a selected depth interval in a boring and labeling as two distinct samples, if possible.

Trip blanks will be sent by the laboratory with sample kits and will be returned unopened to the lab with the sample shipment.

VII. WASTE HANDLING

Due to the fact that the waste has been characterized previously, contaminated soil will be placed on plastic sheeting inside the berm until it can be properly disposed of at a permitted facility. All purged water from well development and decontamination procedures will be stored in a DOT approved 55-gallon drum until lab results are known.

CROUCH STATION
ANALYTICAL RESULTS
Sampled on 5/21-5/23, 1997

Sample	Depth	Matrix	Benzene	Toluene	Ethylbenzene	Xylene	TPH (DRO)	TPH (GRO)	Total TPH
			(ppb)	(ppb)	(ppb)	(ppb)	(ppm)	(ppm)	(ppm)
MW-1	N/A	Water	550	ND	ND	ND	1.1	1.2	2.3
MW-2	N/A	Water	98	ND	ND	ND	1.9	0.19	2.09
MW-3	N/A	Water	ND	ND	ND	ND	ND	ND	ND
SVE-1	5'	Soil	1,300	14,000	20,000	26,000	10,000	400	10,400
SVE-1	50'	Soil	ND	ND	ND	ND	ND	ND	ND
AI-1	5'	Soil	ND	510	1,800	1,600	1,100	31	1,131
AI-1	25'	Soil	1.8	2.9	12	6.8	92	ND	92
AI-1	30'	Soil	ND	ND	ND	ND	2.3	ND	2.3
AI-2	5'	Soil	30,000	180,000	130,000	180,000	14,000	2,500	16,500
AI-2	25'	Soil	ND	880	1,700	2,700	630	47	677
AI-2	30'	Soil	1.6	13	33	42	190	0.26	190.26
AI-3	5'	Soil	9,600	53,000	48,000	67,000	8,700	960	9,660
AI-3	25'	Soil	ND	ND	2.4	4.7	110	0.18	110.18
AI-3	30'	Soil	3	2.8	1.7	3.2	ND	ND	ND

Note: MW-3 was a trip blank for quality assurance, and quality control measures.
TPH = Total Petroleum Hydrocarbons
ppb = part per billion
ppm = parts per million