



Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1390 PHONE (503) 229-5696

February 9, 1990

Ray Halverson
Fleming Companies
P.O. Box 3800
Portland, OR 97208

Re: UST - Multnomah County
Fleming Companies

Dear Mr. Halverson:

We have completed our review of the information submitted concerning the cleanup of contaminated soils removed during underground storage tank work at your facility at 13015 S.E. pheasant Court in Portland. The final soil sampling results are all below 200 parts per million (ppm) compared to the standard of 500 ppm Total Petroleum Hydrocarbons for diesel fuels. Based on this information, soils remediation appears to have resolved concerns with the excavated soils. No further actions are required at this time.

Thank you for your cooperation in these concerns. Please contact me at 229-6142 with any questions.

Sincerely,

Loren G. Garner
Environmental Engineer
Northwest Region

cc: ECD, UST Cleanup Section
Brad Bennett
Aqua Terra Technologies
2950 Buskirk Avenue, Suite 120
Walnut Creek, CA 94596



Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1390 PHONE (503) 229-5696

July 26, 1989

Mr. Ray Halverson
Flemming Companies, Inc.
P.O. Box 3800
Portland, Oregon 97208

Re: UST-Clackamas County
Flemming Companies

Dear Mr. Halverson:

We have completed our review of Petroleum Equipment Maintenance Companies' reports, dated July 14, and July 20, 1989 regarding the underground storage tank decommissionings and contaminated soil removals that took place at your property located at 13015 SE Pheasant Court in Portland, Oregon. Since this information indicates that the decommissioning and cleanup has met our current regulations, no further action is required at this time.

This decision is a result of our evaluation and judgement based on the regulations and facts as we now understand them, including:

1. One 1000 gallon gasoline tank was decommissioned in place by filling with an inert slurry. Four other tanks (1-12,000 diesel, 1-10,000 gasoline, 1-550 gallon fuel oil, and 1-550 gallon waste oil) were decommissioned by removal.

2. An investigation of the soils next to the tank decommissioned in place detected a maximum of 8 parts per million (ppm) total petroleum hydrocarbons (TPH). Samples taken from under the fuel oil and waste oil tanks detected 22 ppm and 148 ppm TPH, respectively. Confirmation analyses of samples taken under the gasoline tank indicted a maximum of 42 ppm TPH. Confirmation analyses of samples taken under the diesel tank detected a maximum of 15 ppm TPH. These levels are consistent with the criteria of no remaining visible contamination or odor which was in place at the time of the cleanup.

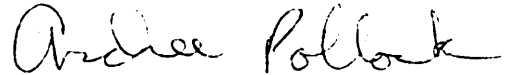
3. The ground water sample analysis did not detect the presence of TPH or benzene, toluene, ethyl benzene, or xylenes.

Information concerning the tank and contaminated soil removal should be maintained with the permanent facility records. We remind you that the current investigation applies only to the leaking underground storage tank systems and in no way transfers any liability to the State of Oregon. Although we agree that the current conditions at the site do not appear to pose an environmental threat, the responsibility for environmental evaluation, reporting, and cleanup rests with the landowners.

Ray Halverson
July 26, 1989
Page 2

If you have any question regarding this matter, please contact me at 229-6923.

Sincerely,

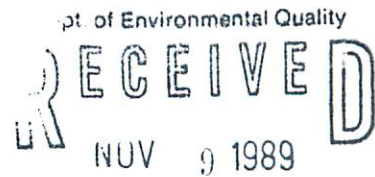


Andree Pollock
Leaking UST Specialist
Northwest Region

cc: Environmental Cleanup Division, IUST Section
Petroleum Equipment Maintenance Company
P.O. Box 11569
Portland, Oregon 97204
Attn: Bill Knutson



November 6, 1989



Mr. Loren Garner
Environmental Engineer
State of Oregon
Department of Environmental Quality
811 SW Sixth Avenue
Portland, Oregon 97204

NORTHWEST REGION

Subject: Final Report
Soil Bioremediation
Fleming Companies - Portland Division

Dear Mr. Garner:

The following report is presented in accordance with the soil bioremediation plan prepared by Aqua Terra Technologies Inc. (ATT) dated September 8, 1989 (Attachment A). The plan was previously submitted to the State of Oregon Department of Environmental Quality for review and approval.

Included herein is a historical summary, a description of activities associated with implementation of the soil bioremediation plan, a discussion of analytical results, and conclusions. The site is located at the intersection of Highway 205 and Milwaukee Expressway, Portland, Oregon.

Introduction

Approximately 140 cubic yards of soil was excavated and stockpiled during removal activities of several underground fuel storage tanks at the subject property. Soil samples collected during the excavation activities revealed that detectable concentrations of total petroleum hydrocarbons (TPH) are present in the stockpiled soil. Based upon verbal accounts from both the DEQ, and Fleming personnel, both of whom were present during the tank removal activities, the soil appears to have been impacted by a leaking underground diesel storage tank and/or appurtenant piping.

A Matrix Score was calculated in accordance with section 340-122-330 of the Oregon Administrative Record (OAR). The category assumptions used to calculate the Matrix Score were confirmed with the DEQ, and are outlined below:

Aqua Terra Technologies
Consulting Engineers
& Scientists

2950 Buskirk Avenue
Suite 120
Walnut Creek, CA
94596
415 934-4884

Mr. Loren Garner
Environmental Engineer
Department of Environmental Quality
November 6, 1989
Page 2

- 1) Depth to groundwater: < 25 feet
- 2) Mean annual precipitation: 20 to 40 inches
- 3) Native soil type: moderate permeability
- 4) Uppermost aquifer sensitivity: potable, not currently used for drinking
- 5) Potential receptors: near and many

The Matrix Score is the summation of the point score associated with each of the five above categories. The Matrix Score for the subject property is 34. This value is associated with the Level 2 numeric soil clean-up standards. Level 2 standards require that the soil be remediated to TPH as gasoline values of 80 mg/Kg, and TPH as diesel values of 500 mg/Kg.

Plan Implementation

Fleming Companies implemented the soil bioremediation plan in September 1989. Following the initial and secondary bacteria and nutrient applications, two composite soil samples were collected from each stockpile. Samples were collected by Fleming Companies personnel in accordance with the sampling protocol established in the September 8, 1989, ATT bioremediation Plan. A total of four composite soil samples were delivered to Pacific Environmental Laboratory for total petroleum hydrocarbon analysis. Results of the analysis did not reveal gasoline constituents above the analytical detection limit of 1 mg/Kg. Hydrocarbons with the characteristics of #2 diesel were detected at levels between 65 and 200 mg/Kg. A copy of the laboratory analytical report is provided in Attachment B. Copies of the chain of custody documentation and sample collection records are provided in Attachment C.

Conclusions

Analytical results obtained from the soil samples collected October 17, 1989, indicate that the soil has been adequately remediated. Of the four stockpiled soil samples collected and analyzed, none reported an analytical result above the OAR threshold value of 500 mg/Kg. Therefore, the discussion and data presented

ATT

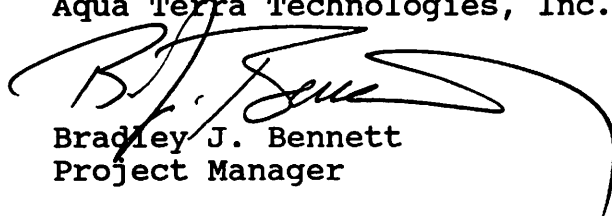
Mr. Loren Garner
Environmental Engineer
Department of Environmental Quality
November 6, 1989
Page 3

herein justify an unrestricted use of the soil by
Fleming Companies without further treatment.

Please contact me at your earliest convenience if you
have any questions regarding matters discussed herein.

Sincerely,

Aqua Terra Technologies, Inc.



Bradley J. Bennett
Project Manager

BJB/kmr
Attachments

cc: David Stegmann, Fleming Companies
Ray Halverson, Fleming Companies

ATTACHMENT A
Soil Bioremediation Plan

ATT

September 8, 1989

Mr. Ray Halverson
Maintenance Superintendent
Fleming Companies
Portland Division
P.O. Box 3800
Portland, Oregon 97208

Subject: Soil Bioremediation Plan
Fleming Companies
Portland Division

Dear Mr. Halverson:

In accordance with our August 31, 1989 meeting, Aqua Terra Technologies, Inc. (ATT) is pleased to provide you with a plan to bioremediate approximately 140 cubic yards of soil at the subject property. In attendance at the August 31 meeting were Mr. Ray Halverson of Fleming Companies, Mr. Loren Garner of The State of Oregon Department of Environmental Quality (DEQ), Mr. Ron Carruth of Year Round Lawn Care, and Mr. Bradley Bennett of ATT.

Aqua Terra Technologies
Consulting Engineers
& Scientists

2950 Buskirk Avenue
Suite 120
Walnut Creek, CA
94596
415 934-4884

Provided herein is a guideline to the implementation and maintenance tasks necessary for successful remediation of the stockpiled soil at the subject property. In addition, a list of project contacts is provided in Attachment A.

INTRODUCTION

The stockpiled soil was reportedly generated during excavation activities of several underground fuel storage tanks at the subject property. Soil samples collected during the excavation activities revealed that detectable concentrations of total petroleum hydrocarbons (TPH) are present in the stockpiled soil. Based upon verbal accounts from both the DEQ and Fleming personnel of the excavation activities, the major TPH constituent in the excavated soil appears to have originated from a diesel source.

A Matrix Score was calculated in accordance with section 340-122-330 of the Oregon Administrative Rules (OAR). The category assumptions used to calculate the Matrix Score were confirmed with Mr. Loren Garner of the DEQ, and are outlined below:

Mr. Ray Halverson
Fleming Companies
September 8, 1989
Page 2

- 1) Depth to groundwater - < 25 feet
- 2) Mean annual precipitation - 20 to 40 inches
- 3) Native soil type - moderate permeability
- 4) Uppermost aquifer sensitivity - potable, not currently used for drinking
- 5) Potential receptors - near and many

The Matrix Score is the summation of the point score associated with each of the above five categories. The Matrix Score for the subject property is 34. This value is associated with the Level 2 numeric soil clean-up standards. Level 2 standards require that the soil be remediated to TPH as gasoline levels of 80 mg/Kg, and TPH as diesel levels of 500 mg/Kg.

SITE PREPARATION

Prior to commencing with the treatment process, ATT recommends that large pieces of concrete, asphalt, and other foreign materials be removed from the stockpiled soil. This step is necessary to prevent possible damage to rototilling equipment. Following the removal of foreign materials, the stockpiled soil should be rototilled to smooth the soil surface. This will prevent nutrients, bacteria, and water from concentrating during the bioremediation process.

Upon completion of the above task, a water source at the location of the soil piles will be required. The water source will be used to irrigate the stockpiled soil during the bioremediation process. The moisture content of the soil should be maintained at a level between 25 and 75 percent throughout duration of the bioremediation project. A common residential lawn type sprinkler may be sufficient to accomplish the irrigation requirements. The sprinkler design should be tested to assure that uniform watering coverage of stockpiled soil is possible prior to the initial applications of nutrients and bacteria.

Mr. Ray Halverson
Fleming Companies
September 8, 1989
Page 3

PROJECT IMPLEMENTATION

Project Schedule

The following schedule has been prepared for the project:

September 11 - Initial nutrient application
September 13 - Initial bacteria application
October 2 - Second nutrient application
October 10 - Second bacteria application
October 17 - Sample collection
October 24 - Third bacteria application
November 7 - Sample collection
November 23 - Conformational sample collection

Application of nutrients and bacteria will be according to ATT specifications and will be performed by Year Round Lawn Care which is a professional commercial/residential fertilizing company. Chemical specifications and material safety data sheets (MSDS) for the nutrient mixture were furnished to Mr. Garner of DEQ by Mr. Ron Carruth of Year Round Lawn Care at the time of the August 31, 1989 meeting. An MSDS for the bacteria mixture is provided in Attachment B.

In order to optimize soil bioremediation progress, the stockpiled soil should be rototilled at least twice a week. As previously indicated, the moisture content of the stockpiled soil should be maintained at a level between 25 and 75 percent. Complete saturated and arid soil conditions should be avoided as these will cause a reduction in soil bioremediation progress.

Sample Collection and Analysis

Composite samples will be collected from the stockpiled soil to track the progress of the bioremediation project. Samples of the stockpiled soil will be collected approximately every two months until TPH

Mr. Ray Halverson
Fleming Companies
September 8, 1989
Page 4

levels have been sufficiently remediated. Depending on weath conditions, ATT anticipates that the levels of TPH in the stockpiled soil will be remediated to below target concentrations by the November 7, 1989 sampling event. ATT recommends the following sample collection and handling protocol:

The soil samples will be collected with a common garden trowel and composited in a plastic bucket. Both the trowel and the bucket should be washed prior to each use with a trisodiumphosphate (TSP) solution and triple rinsed with distilled water to remove any contaminants.

Once the two composite sampling locations have been selected, equal amounts of soil from each location shall be collected and placed in the plastic bucket. The soil should then be adequately mixed together, and placed in a precleaned 125 or 250 ml glass jar with teflon closures. The soil sample should be compacted within the glass jar to remove as much air space as possible.

Each sample container should be labeled with the date, individual sample identification, collector's initials, and analysis to be performed. Immediately following collection, the samples should be placed in an iced cooler for transport to the laboratory. Chain of custody and sample collection documentation should be completed at the time of sample collection. Examples of completed chain of custody and sample collection documents are provided in Attachment C.

Samples should be delivered to Pacific Environmental Laboratory within 24 hours of collection. Chain of custody documentation must accompany the samples at all times and be signed by each individual handling the samples. The laboratory should be instructed to return the original chain of custody document with the analytical report.

ATT recommends that two composite soil samples be collected from each soil pile and be analyzed for TPH as diesel and TPH as gasoline using a modified EPA method 8015. TPH as gasoline analysis will be discontinued

Mr. Ray Halverson
Fleming Companies
September 8, 1989
Page 5

following analytical results which fail to reveal detectable levels of these compounds above the DEQ clean up levels of 80 mg/Kg.

In response to requirements by the DEQ, a conformational sampling event utilizing EPA method 418.1 will be conducted. This sampling will be performed following results from the EPA method 8015 analysis which indicate that successful remediation has been obtained. One composite soil sample from each stockpile will be collected and analyzed by EPA 418.1 for TPH. EPA method 418.1 is required under section 340-122-350 of the OAR.

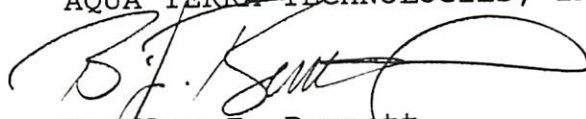
REPORT PREPARATION

Upon receiving analytical data from the laboratory, ATT will prepare a brief letter report summarizing the progress of the bioremediation project. The report will be prepared in a format suitable for submission to regulatory agencies. The report will include copies of all laboratory analytical data, chain of custody documentation, and sample collection records generated during sample collection activities.

Please do not hesitate to contact me if you have any questions regarding matters discussed herein.

Sincerely,

AQUA TERRA TECHNOLOGIES, INC.



Bradley J. Bennett
Project Manager

BJB/kmr
Attachments

cc: D. Stegmann, Fleming Companies
L. Garner, Department of Environmental Quality

ATTACHMENT A
Project Contacts

ATTACHMENT A

Mr. Loren Garner
Environmental Engineer
State of Oregon
Department of Environmental Quality
811 SW Sixth Avenue
Portland, Oregon 97204
(503) 229-6142

Mr. Ron Carruth
Manager
Year Round Lawn Care
7220 SW Bonita Avenue
Tigard, Oregon 97224
(503) 684-3690

Mr. Philip Nerenberg
Chemist
Pacific Environmental Laboratory
9405 SW Nimbus Avenue
Beaverton, Oregon 97005
(503) 644-0660

Mr. Bradley J. Bennett
Project Scientist
Aqua Terra Technologies, Inc.
2950 Buskirk Avenue, Suite 120
Walnut Creek, California 94596
(415) 934-4884 (Work)
(415) 635-1231 (Home)

R. Wane Schneiter, Ph.D., P.E.
Vice President
Aqua Terra Technologies, Inc.
2950 Buskirk Avenue, Suite 120
Walnut Creek, CA 94596
(414) 674-1599 (Home)
(415) 934-4884 (Work)

ATTACHMENT B

MSDS for Bacteria Cultures

Section V — Reactivity Data

Stability	Unstable	X	Conditions to Avoid Temperatures above 20°F: high humidity
	Stable		

Incompatibility (Materials to Avoid)

Germicides/strong acids/strong alkalies (to maintain efficiency)

Hazardous Decomposition or Byproducts

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI — Health Hazard Data

Route(s) of Entry:	Inhalation? Yes	Skin? Yes	Ingestion? Yes
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Health Hazards (Acute and Chronic)

May cause allergic skin or respiratory reaction

Carcinogenicity:	NTP? No	IARC Monographs? No	OSHA Regulated? No
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Signs and Symptoms of Exposure
skin rash possible

Medical Conditions
Generally Aggravated by Exposure

unknown

Emergency and First Aid Procedures
wash thoroughly after handling. Wash clothing before reuse. In case of eye contact

flush eyes for at least 15 minutes. Call a physician.

Section VII — Precautions for Safe Handling and Use**Steps to Be Taken in Case Material Is Released or Spilled**

Sweep up dry spills and dispose of in accordance with appropriate regulations.

Waste Disposal Method

Can be disposed of as any solid non-hazardous waste. Small quantities can be disposed of through the commode.

Precautions to Be Taken in Handling and Storing

Avoid direct contact with skin, eyes, and clothing. Avoid breathing dust. Store in a cool, dry place.

Other Precautions

None

Section VIII — Control Measures**Respiratory Protection (Specify Type)**

Avoid breathing dust. Respirator may be preferred.

Ventilation	Local Exhaust N/A	Special N/A
	Mechanical (General) N/A	Other N/A

Protective Gloves
Recommended

Eye Protection

Other Protective Clothing or Equipment
N/A

Work/Hygienic Practices

Wash thoroughly after use of product.

SAFETY INFORMATION REGARDING ADVANCED BIO CULTURES FORMULATIONS

Considerable forethought has been taken in formulating the Advanced Bio Cultures formulations. Organisms are preserved in a manner that allows for unrivaled consistency in these products that is setting the standards of the industry.

The bacteria incorporated into Advanced Bio Cultures formulations are harmless saprophytic soil bacteria. These use non-living organic matter as their food. Pathogenic bacteria, on the other hand, have the ability to attack living cells and in turn cause disease. It is as safe to work with Advanced Bio Cultures formulations as it is to work in one's own garden.

Advanced Bio Cultures formulations are manufactured under the direct supervision of a qualified microbiologist. All raw materials used in the manufacture of the formulations must meet stringent quality control standards. Complying with these standards assures that the product is free of pathogenic bacteria that are of a concern to those dealing directly with the public. Once the raw materials have been approved for use in manufacture, the formulations are produced in a controlled environment to prevent contamination from unwanted organisms. The final product must also comply with the quality control standards to assure that these same pathogens have not entered the product during the manufacturing process. Upon completion of production the manufacturing machinery is sterilized.

There may be applications (medical facilities, Federally inspected establishments, etc.) where certification of the formulation of being free of specific groups of accepted pathogens is required. It is possible to test individual lots for any of the following pathogens: Salmonella spp., beta-hemolytic Streptococcus, and Staphylococcus aureus. Certification is made by an independent certified laboratory. Any request for certification must be made at the time the order is placed with Solmar Corp.

As is the use of any product, common sense should prevail. Since some persons may be sensitive to related chemical compounds present, it is suggested that direct skin contact with the dry product be avoided (just as with garden fertilizers). Simple wash hands if there is contact. Handle as appropriate for any slightly dusty material.

The products are generally far more safe to use than alternative methods. Many of the mechanical cleaning devices can be quite dangerous. Strong caustic or acidic products are not only poisonous but can cause severe burns or even blindness. Many of the chlorinated solvents are well known to cause liver damage. Petroleum solvents represent serious fire hazards.

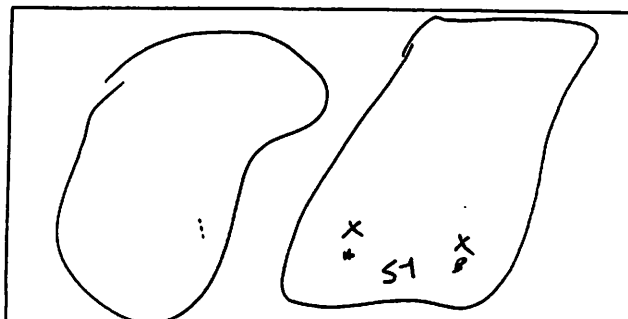
Overall the Advanced Bio Cultures formulations offer a unique, reliable means of dealing with wastewater problems without the associated dangers of alternative methods and without normally creating additional problems downstream of the treated area.

004-096

ATTACHMENT C

Examples of Sample Collection Documentation

ENVIRONMENTAL SAMPLE COLLECTION RECORD



Site Plan:

Date: _____ Time: 12:00 Job No: 9072

Sample ID: S-1 Location: Portland Division

Sampling Procedure: Collected equal amounts of soil from each location
into a clean plastic bucket. Mixed soil together and transferred to a
250ml glass jar with teflon closure.

Water Level: NA pH: NA

Depth to bottom of well: NA Salinity: NA

Well Purge Volume: NA Turbidity: NA

Purge Water Fate: NA Organic Vapor: NA

Sampling Equipment: Garden trowel, plastic bucket, 250ml precleaned glass
jar with teflon closure.

Equipment Cleaning Procedures: Scrubbed with TSP solution and rinsed
three times with distilled water, (trowel and bucket only).

Sampling Handling/Storage: Placed in an iced cooler immediately
following collection

Sample Collected By: _____

Signature: _____ Title: _____

CHAIN OF SAMPLE CUSTODY RECORD
 (original document, please return)

Page 1 of 1

Sampled By: _____

Date Sampled: ____/____/____

Signature: _____

Job Number: _____

Results To Be Sent To: Ray Halverson

Laboratory Name: Pacific Environmental

Results Needed By: Normal turnaround

Contact: Philip Nerenberg

Sampling Location: Stockpiled soil

Phone #: 644-0660

Sample Identification										Analysis/EPA Method No.						
Sample Collection			Number of Containers	Preserved	Containers					TPH diesel	TPH gas					Remarks
Sample ID	Time (24 hr)	Matrix														
S-1	12:00	soil	1	x						x						
S-2	12:05	soil	1	x						x	x					
S-3	12:15	soil	1	x						x						
S-4	12:30	soil	1	x						x	x					
	:															
	:															
	:															
	:															
	:															
	:															

Notes: Send a copy of the results to Mr. Bradley Bennett at ATT, 2950 Buskirk Ave., Ste. 120, Walnut Creek, CA 94596 and Mr. Ray Halverson at Fleming Companies, P.O. Box 3800 Portland, Oregon 97208

Relinquished By	Date	Time
Collector's Name		:
Carrier's Name		:
		:

Received By	Date	Time
Carrier's Name		:
Laboratory Contact's Name		:
		:

ATTACHMENT B

Laboratory Analytical Results



9405 S.W. Nimbus Ave. Beaverton, OR 97005 (503) 644-0660
FAX # (503) 644-2202

October 27, 1989

Aqua Terra Technologies
2950 Buskirk Avenue, Suite 120
Walnut Creek, CA 94596

Attn: Mr. Bradley Bennett

Re: PEL #89-1398

Enclosed is the lab report for your Fleming Company (Portland Division) project which was received in our lab on October 18, 1989.

I. Sample Description

Four Soil Samples

The samples were received under a chain of custody.

The samples were received in containers consistent with EPA protocol.

II. Quality Control

No project specific QC was requested. In-house QC data is available upon request.

III. Analytical Results

Test methods may include minor modifications of published methods such as detection limits or parameter lists. Solid and waste samples are reported on an "as received" basis.

Compounds not detected are listed under results as ND.

Sincerely,

Philip Nerenberg
Philip Nerenberg
President

Kim Chiusolo
Kim Chiusolo
Chemist

cc: Mr. Ray Halverson, Fleming Companies

PEL REPORT NUMBER: 89-1298
CLIENT: Aqua Terra Technologies
JOB REFERENCE: Fleming Company, Portland Division
DATE: October 27, 1989
ITEMS: Four Soil Samples

METHOD: Hydrocarbon I.D. by GC/FID
Results in mg/kg (ppm)

<u>Sample</u>	<u>Hydrocarbon</u>	<u>Carbon Range</u>	<u>Detection Limit</u>
#1	65*	C ₁₃ -C ₂₄	10
#2	170*	C ₁₃ -C ₂₄	10
#3	190*	C ₁₂ -C ₂₄	10
#4	200*	C ₁₂ -C ₂₄	10

*Some characteristics of #2 diesel.

METHOD: Gasoline per EPA 8015
Results in mg/kg (ppm)

<u>Sample</u>	<u>Gasoline</u>
#1	ND
#2	ND
#3	ND
#4	ND
Lab Blank	ND
Detection Limit	1

ATTACHMENT C

**Chain of Custody Documentation
Sample Collection Record**

CHAIN OF SAMPLE CUSTODY RECORD
 (original document, please return)

Page 2 of 2

Sampled By: _____

Date Sampled: 10 / 17 / 89

Signature: _____

Job Number: Fleming Company
Portland Div
Pacific

Results To Be Sent To: Ray Halverson

Laboratory Name: Environmental

Results Needed By: Normal Turnaround

Contact: Philip NERENBERG

Sampling Location: Stockpiled soil

Phone #: 644-0660

Sample Identification										Analysis/EPA Method No.									
Sample Collection			Number of Containers	Preserved	Containers						TPH Diesel	TPH Gas					Remarks		
Sample ID	Time (24 hr)	Matrix																	
# 1	09:45	soil	1		X						X	X							
# 2	09:45	soil	1		X						X	X							
# 3	09:45	soil	1		X						X	X							
# 4	09:45	soil	1		X						X	X							
	:																		
	:																		
	:																		
	:																		
	:																		
	:																		

ALL SAMPLES WILL BE
DISPOSED OF 30 DAYS
AFTER RECEIPT

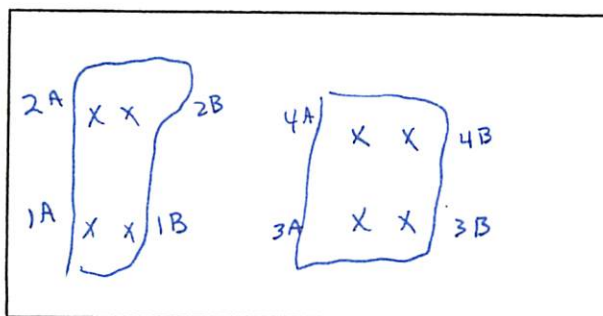
ALL SAMPLES WILL BE
 DISPOSED OF 30 DAYS
 AFTER RECEIPT

Notes: Send a copy of results to MR. Bradley Bennett at ATT,
2950 Buskirk Ave, Ste 120, Walnut Creek, Calif 94596 and
MR Ray Halverson at Fleming Companies, P.O. Box 3800 Portland, OREGON 97208

Relinquished By	Date	Time
<u>Ron Johnson</u>	<u>10-17-89</u>	<u>2:15</u>
<u>M SIMON</u>	<u>10-17-89</u>	<u>4:40</u>
		:

Received By	Date	Time
<u>Kim Chiusolo</u>	<u>10/18/89</u>	<u>09:00</u>
		:
		:

ENVIRONMENTAL SAMPLE COLLECTION RECORD



Site Plan:

 $1A + 1B = \#1 \text{ Sample}$ $2A + 2B = \#2 \text{ Sample}$ $3A + 3B = \#3 \text{ Sample}$ $4A + 4B = \#4 \text{ Sample}$ Date: 10-17-89 Time: 09:45 Job No: _____Sample ID: Sample #1 #3
#2 #4 Location: _____Sampling Procedure: Collected soil from 3 to 8
inches below surface at each location (A & B)
Composited soil in clean plastic bucket
and transferred to sample containers

Water Level: _____ pH: _____

Depth to bottom of well: _____ Salinity: _____

Well Purge Volume: _____ Turbidity: _____

Purge Water Fate: _____ Organic Vapor: _____

Sampling Equipment: Trowel, plastic BucketEquipment Cleaning Procedures: TSP wash - Distilled
water - Rinsed x 3Sampling Handling/Storage: Packed ON ICE for
transportSample Collected By: Ron JohnsonSignature: Ron Johnson Title: MechanicRay HelversonMaint. Superintendent

ATT

September 8, 1989

Mr. Ray Halverson
Maintenance Superintendent
Fleming Companies
Portland Division
P.O. Box 3800
Portland, Oregon 97208

Dept. of Environmental Quality

RECEIVED
SEP 13 1989

Subject: Soil Bioremediation Plan
Fleming Companies
Portland Division

NORTHWEST REGION

Dear Mr. Halverson:

In accordance with our August 31, 1989 meeting, Aqua Terra Technologies, Inc. (ATT) is pleased to provide you with a plan to bioremediate approximately 140 cubic yards of soil at the subject property. In attendance at the August 31 meeting were Mr. Ray Halverson of Fleming Companies, Mr. Loren Garner of The State of Oregon Department of Environmental Quality (DEQ), Mr. Ron Carruth of Year Round Lawn Care, and Mr. Bradley Bennett of ATT.

Aqua Terra Technologies
Consulting Engineers
& Scientists

2950 Buskirk Avenue
Suite 120
Walnut Creek, CA
94596
415 934-4884

Provided herein is a guideline to the implementation and maintenance tasks necessary for successful remediation of the stockpiled soil at the subject property. In addition, a list of project contacts is provided in Attachment A.

INTRODUCTION

The stockpiled soil was reportedly generated during excavation activities of several underground fuel storage tanks at the subject property. Soil samples collected during the excavation activities revealed that detectable concentrations of total petroleum hydrocarbons (TPH) are present in the stockpiled soil. Based upon verbal accounts from both the DEQ and Fleming personnel of the excavation activities, the major TPH constituent in the excavated soil appears to have originated from a diesel source.

A Matrix Score was calculated in accordance with section 340-122-330 of the Oregon Administrative Rules (OAR). The category assumptions used to calculate the Matrix Score were confirmed with Mr. Loren Garner of the DEQ, and are outlined below:

Mr. Ray Halverson
Fleming Companies
September 8, 1989
Page 2

- 1) Depth to groundwater - < 25 feet
- 2) Mean annual precipitation - 20 to 40 inches
- 3) Native soil type - moderate permeability
- 4) Uppermost aquifer sensitivity - potable, not currently used for drinking
- 5) Potential receptors - near and many

The Matrix Score is the summation of the point score associated with each of the above five categories. The Matrix Score for the subject property is 34. This value is associated with the Level 2 numeric soil clean-up standards. Level 2 standards require that the soil be remediated to TPH as gasoline levels of 80 mg/Kg, and TPH as diesel levels of 500 mg/Kg.

SITE PREPARATION

Prior to commencing with the treatment process, ATT recommends that large pieces of concrete, asphalt, and other foreign materials be removed from the stockpiled soil. This step is necessary to prevent possible damage to rototilling equipment. Following the removal of foreign materials, the stockpiled soil should be rototilled to smooth the soil surface. This will prevent nutrients, bacteria, and water from concentrating during the bioremediation process.

Upon completion of the above task, a water source at the location of the soil piles will be required. The water source will be used to irrigate the stockpiled soil during the bioremediation process. The moisture content of the soil should be maintained at a level between 25 and 75 percent throughout duration of the bioremediation project. A common residential lawn type sprinkler may be sufficient to accomplish the irrigation requirements. The sprinkler design should be tested to assure that uniform watering coverage of stockpiled soil is possible prior to the initial applications of nutrients and bacteria.

Mr. Ray Halverson
Fleming Companies
September 8, 1989
Page 3

PROJECT IMPLEMENTATION

Project Schedule

The following schedule has been prepared for the project:

September 11 - Initial nutrient application
September 13 - Initial bacteria application
October 2 - Second nutrient application
October 10 - Second bacteria application
October 17 - Sample collection
October 24 - Third bacteria application
November 7 - Sample collection
November 23 - Conformational sample collection

Application of nutrients and bacteria will be according to ATT specifications and will be performed by Year Round Lawn Care which is a professional commercial/residential fertilizing company. Chemical specifications and material safety data sheets (MSDS) for the nutrient mixture were furnished to Mr. Garner of DEQ by Mr. Ron Carruth of Year Round Lawn Care at the time of the August 31, 1989 meeting. An MSDS for the bacteria mixture is provided in Attachment B.

In order to optimize soil bioremediation progress, the stockpiled soil should be rototilled at least twice a week. As previously indicated, the moisture content of the stockpiled soil should be maintained at a level between 25 and 75 percent. Complete saturated and arid soil conditions should be avoided as these will cause a reduction in soil bioremediation progress.

Sample Collection and Analysis

Composite samples will be collected from the stockpiled soil to track the progress of the bioremediation project. Samples of the stockpiled soil will be collected approximately every two months until TPH

Mr. Ray Halverson
Fleming Companies
September 8, 1989
Page 4

levels have been sufficiently remediated. Depending on weath conditions, ATT anticipates that the levels of TPH in the stockpiled soil will be remediated to below target concentrations by the November 7, 1989 sampling event. ATT recommends the following sample collection and handling protocol:

The soil samples will be collected with a common garden trowel and composited in a plastic bucket. Both the trowel and the bucket should be washed prior to each use with a trisodiumphosphate (TSP) solution and triple rinsed with distilled water to remove any contaminants.

Once the two composite sampling locations have been selected, equal amounts of soil from each location shall be collected and placed in the plastic bucket. The soil should then be adequately mixed together, and placed in a precleaned 125 or 250 ml glass jar with teflon closures. The soil sample should be compacted within the glass jar to remove as much air space as possible.

Each sample container should be labeled with the date, individual sample identification, collector's initials, and analysis to be performed. Immediately following collection, the samples should be placed in an iced cooler for transport to the laboratory. Chain of custody and sample collection documentation should be completed at the time of sample collection. Examples of completed chain of custody and sample collection documents are provided in Attachment C.

Samples should be delivered to Pacific Environmental Laboratory within 24 hours of collection. Chain of custody documentation must accompany the samples at all times and be signed by each individual handling the samples. The laboratory should be instructed to return the original chain of custody document with the analytical report.

ATT recommends that two composite soil samples be collected from each soil pile and be analyzed for TPH as diesel and TPH as gasoline using a modified EPA method 8015. TPH as gasoline analysis will be discontinued

Mr. Ray Halverson
Fleming Companies
September 8, 1989
Page 5

following analytical results which fail to reveal detectable levels of these compounds above the DEQ clean up levels of 80 mg/Kg.

In response to requirements by the DEQ, a conformational sampling event utilizing EPA method 418.1 will be conducted. This sampling will be performed following results from the EPA method 8015 analysis which indicate that successful remediation has been obtained. One composite soil sample from each stockpile will be collected and analyzed by EPA 418.1 for TPH. EPA method 418.1 is required under section 340-122-350 of the OAR.

REPORT PREPARATION

Upon receiving analytical data from the laboratory, ATT will prepare a brief letter report summarizing the progress of the bioremediation project. The report will be prepared in a format suitable for submission to regulatory agencies. The report will include copies of all laboratory analytical data, chain of custody documentation, and sample collection records generated during sample collection activities.

Please do not hesitate to contact me if you have any questions regarding matters discussed herein.

Sincerely,

AQUA TERRA TECHNOLOGIES, INC.



Bradley J. Bennett
Project Manager

BJB/kmr
Attachments

cc: D. Stegmann, Fleming Companies
L. Garner, Department of Environmental Quality

ATTACHMENT A
Project Contacts

ATTACHMENT A

Mr. Loren Garner
Environmental Engineer
State of Oregon
Department of Environmental Quality
811 SW Sixth Avenue
Portland, Oregon 97204
(503) 229-6142

Mr. Ron Carruth
Manager
Year Round Lawn Care
7220 SW Bonita Avenue
Tigard, Oregon 97224
(503) 684-3690

Mr. Philip Nerenberg
Chemist
Pacific Environmental Laboratory
9405 SW Nimbus Avenue
Beaverton, Oregon 97005
(503) 644-0660

Mr. Bradley J. Bennett
Project Scientist
Aqua Terra Technologies, Inc.
2950 Buskirk Avenue, Suite 120
Walnut Creek, California 94596
(415) 934-4884 (Work)
(415) 635-1231 (Home)

R. Wane Schneiter, Ph.D., P.E.
Vice President
Aqua Terra Technologies, Inc.
2950 Buskirk Avenue, Suite 120
Walnut Creek, CA 94596
(414) 674-1599 (Home)
(415) 934-4884 (Work)

ATTACHMENT B

MSDS for Bacteria Cultures

May be used to comply with
OSHA's Hazard Communication Standard
29 CFR 1910.1200. Standard must be
consulted for specific requirements.

Occupational Safety and Health Administration
(Non-Mandatory)

Form Approved
OMB No. 1218-0072



Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Signature of Preparer (optional)

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Enzymes related to harmless saprophytes				

Free flowing powder and granules; particles vary from white to tan

Flash Point (Method Used) N/A	Flammable Limits N/A	LEL N/A	UEL N/A
Extinguishing Media N/A			
Special Fire Fighting Procedures None			
Unusual Fire and Explosion Hazards None			

OSHA 174, Sept. 1985

Section V — Reactivity Data

Stability	Unstable	X	Conditions to Avoid Temperatures above 20°F: high humidity
	Stable		

Incompatibility (Materials to Avoid)

Germicides/strong acids/strong alkalies (to maintain efficiency)

Hazardous Decomposition or Byproducts

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI — Health Hazard Data

Route(s) of Entry:	Inhalation? Yes	Skin? Yes	Ingestion? Yes
--------------------	--------------------	--------------	-------------------

Health Hazards (Acute and Chronic)

May cause allergic skin or respiratory reaction

Carcinogenicity:	NTP? No	IARC Monographs? No	OSHA Regulated? No
------------------	------------	------------------------	-----------------------

Signs and Symptoms of Exposure
skin rash possibleMedical Conditions
Generally Aggravated by Exposure

unknown

Emergency and First Aid Procedures

Wash thoroughly after handling. Wash clothing before reuse. In case of eye contact

flush eyes for at least 15 minutes. Call a physician.

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material Is Released or Spilled

Sweep up dry spills and dispose of in accordance with appropriate regulations.

Waste Disposal Method

Can be disposed of as any solid non-hazardous waste. Small quantities can be disposed of through the commode.

Precautions to Be Taken in Handling and Storing

Avoid direct contact with skin, eyes, and clothing. Avoid breathing dust. Store in a cool, dry place.

Other Precautions
None**Section VIII — Control Measures**

Respiratory Protection (Specify Type)

Avoid breathing dust. Respirator may be preferred.

Ventilation	Local Exhaust N/A	Special N/A
	Mechanical (General) N/A	Other N/A

Protective Gloves
Recommended

Eye Protection

Other Protective Clothing or Equipment
N/A

Work/Hygienic Practices

Wash thoroughly after use of product.

SAFETY INFORMATION REGARDING ADVANCED BIO CULTURES FORMULATIONS

Considerable forethought has been taken in formulating the Advanced Bio Cultures formulations. Organisms are preserved in a manner that allows for unrivaled consistency in these products that is setting the standards of the industry.

The bacteria incorporated into Advanced Bio Cultures formulations are harmless saprophytic soil bacteria. These use non-living organic matter as their food. Pathogenic bacteria, on the other hand, have the ability to attack living cells and in turn cause disease. It is as safe to work with Advanced Bio Cultures formulations as it is to work in one's own garden.

Advanced Bio Cultures formulations are manufactured under the direct supervision of a qualified microbiologist. All raw materials used in the manufacture of the formulations must meet stringent quality control standards. Complying with these standards assures that the product is free of pathogenic bacteria that are of a concern to those dealing directly with the public. Once the raw materials have been approved for use in manufacture, the formulations are produced in a controlled environment to prevent contamination from unwanted organisms. The final product must also comply with the quality control standards to assure that these same pathogens have not entered the product during the manufacturing process. Upon completion of production the manufacturing machinery is sterilized.

There may be applications (medical facilities, Federally inspected establishments, etc.) where certification of the formulation of being free of specific groups of accepted pathogens is required. It is possible to test individual lots for any of the following pathogens: Salmonella spp., beta-hemolytic Streptococcus, and Staphylococcus aureus. Certification is made by an independent certified laboratory. Any request for certification must be made at the time the order is placed with Solmar Corp.

As is the use of any product, common sense should prevail. Since some persons may be sensitive to related chemical compounds present, it is suggested that direct skin contact with the dry product be avoided (just as with garden fertilizers). Simple wash hands if there is contact. Handle as appropriate for any slightly dusty material.

The products are generally far more safe to use than alternative methods. Many of the mechanical cleaning devices can be quite dangerous. Strong caustic or acidic products are not only poisonous but can cause severe burns or even blindness. Many of the chlorinated solvents are well known to cause liver damage. Petroleum solvents represent serious fire hazards.

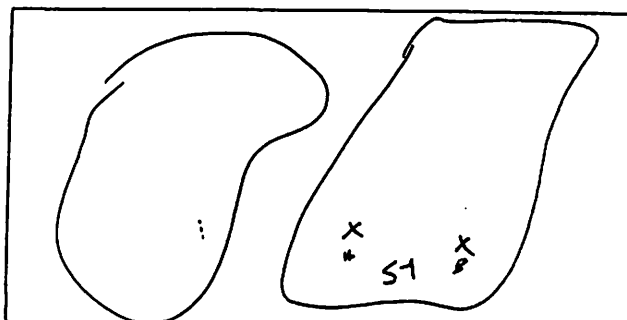
Overall the Advanced Bio Cultures formulations offer a unique, reliable means of dealing with wastewater problems without the associated dangers of alternative methods and without normally creating additional problems downstream of the treated area.

004-096

ATTACHMENT C

Examples of Sample Collection Documentation

ENVIRONMENTAL SAMPLE COLLECTION RECORD



Site Plan:

Date: _____ Time: 12:00 Job No: 9072

Sample ID: S-1 Location: Portland Division

Sampling Procedure: Collected equal amounts of soil from each location
into a clean plastic bucket. Mixed soil together and transferred to a
250ml glass jar with teflon closure.

Water Level: NA pH: NA

Depth to bottom of well: NA Salinity: NA

Well Purge Volume: NA Turbidity: NA

Purge Water Fate: NA Organic Vapor: NA

Sampling Equipment: Garden trowel, plastic bucket, 250ml precleaned glass
jar with teflon closure.

Equipment Cleaning Procedures: Scrubbed with TSP solution and rinsed
three times with distilled water, (trowel and bucket only).

Sampling Handling/Storage: Placed in an iced cooler immediately
following collection

Sample Collected By: _____

Signature: _____ Title: _____

CHAIN OF SAMPLE CUSTODY RECORD
(original document, please return)

Page 1 of 1

Sampled By: _____

Date Sampled: _____ / _____ / _____

Signature: _____

Job Number: _____

Results To Be Sent To: Ray HalversonLaboratory Name: Pacific EnvironmentalResults Needed By: Normal turnaroundContact: Philip NerenbergSampling Location: Stockpiled soilPhone #: 644-0660

Sample Identification										Analysis/EPA Method No.						
Sample Collection			Number of Containers	Preserved	Containers					TPH diesel	TPH gas					Remarks
Sample ID	Time (24 hr)	Matrix														
S-1	12:00	soil	1	x						x						
S-2	12:05	soil	1	x						x	x					
S-3	12:15	soil	1	x						x						
S-4	12:30	soil	1	x						x	x					
	:															
	:															
	:															
	:															
	:															
	:															
	:															

Notes: Send a copy of the results to Mr. Bradley Bennett at ATT, 2950 Buskirk Ave., Ste. 120, Walnut Creek, CA 94596 and Mr. Ray Halverson at Fleming Companies, P.O. Box 3800 Portland, Oregon 97208

Relinquished By	Date	Time
Collector's Name		:
Carrier's Name		:
		:

Received By	Date	Time
Carrier's Name		:
Laboratory Contact's Name		:
		:



Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1390 PHONE (503) 229-5696

July 20, 1989

Mr. Ray Halverson
Fleming Companies, Inc.
P.O. Box 3800
Portland, Oregon 97208

Re: UST-Clackamas County
Fleming Companies
NOTICE OF NONCOMPLIANCE

Dear Mr. Halverson:

We are in the process of updating our leaking underground storage tank files and noticed that we have not recieved any reports from you regarding cleanup actions taken at your facility located at 13015 SE Pheasant Court in Portland, Oregon.

We have enclosed our brochere "Simple Cleanups For Leaking Underground Storage Tanks" which outlines our requirements for cleanup and reporting under the existing rules. OAR 340-122-225 (2) requires that a summary report of the initial abatement steps taken be submitted within 20 days of the release. We have not recieved any reports concerning the site, which was reported to us on May 23, 1989. Please submit to us a report detailing the cleanup actions taken to date within 20 days of the reciept of this letter.

If the site cleanup has been completed, this information will help us close our files.

If you have any questions regarding this matter or would like copies of our cleanup rules for leaking petroleum UST systems, please feel free to call Loren Garner at (503) 229-6142 or Andree Pollock at (503) 229-6923.

Sincerely,

Andree Pollock
Northwest Region
Leaking UST Program

cc: Environmental Cleanup Division, LUST section



PETROLEUM EQUIPMENT MAINTENANCE CO.

P.O. BOX 11569 • 2310 NE COLUMBIA BLVD.
PORTLAND, OREGON 97211-0566
(503) 288-7541

Dept. of Environmental Quality



RECEIVED
JUL 25 1989

July 14, 1989

NORTHWEST REGION

DEQ
811 S.W. 6th Avenue
Portland, OR 97204

ATTN: Mr. Loren Garner

Dear Loren:

Enclosed you will find two final reports for investigations documented by PEMCO at Fleming Foods located at S.E. Milwaukie Expressway at Pheasant Court in Milwaukie, Oregon.

The first report documents results of soil sampling conducted as part of a site assessment to allow for the abandonment in place of a 1,000 gallon gasoline tank. Subsequent to receiving laboratory results, the tank was slurry filled in place on June 20, 1989.

The second report documents the results of a soils investigation stemming from soil contamination encountered during the routine removal of four underground storage tanks.

Upon review of the second report, if you feel this site no longer poses an environmental threat and no further work is required, a letter to that effect would be greatly appreciated.

Sincerely,

PETROLEUM EQUIPMENT MAINTENANCE COMPANY

Bill Knutson

Bill Knutson
Environmental Division

Enclosure

BK:yc



PETROLEUM EQUIPMENT MAINTENANCE CO.

P.O. BOX 11569 • 2310 NE COLUMBIA BLVD.
PORTLAND, OREGON 97211-0566
(503) 288-7541



July 14, 1989

FLEMING FOODS
P.O. Box 3800
Milwaukie, OR 97222

ATTN: Mr. Ray Halverson

Dear Mr. Halverson:

This letter presents results of a soils investigation documented by Petroleum Equipment Maintenance Company (PEMCO) on May 18, 1989, at Fleming Foods located at S.E. Milwaukie Expressway at Pheasant Court in Milwaukie, Oregon. PEMCO's scope of work included conducting a site assessment for a 1,000 gallon gasoline tank to be abandoned in place.

PROCEDURE

On May 18, 1989, PEMCO drilled three borings and collected a total of four soil samples in the vicinity of a 1,000 gallon gasoline tank located in a loading dock (see sketch 1). Sample #1 was collected from boring B-1 at the total depth explored of 4 ft. to 4½ ft. Samples #2 and #3 were collected from boring B-2 at depths of 4 ft. to 4½ ft. and 9 ft. to 9½ ft. respectively. Sample #4 was taken from boring B-3 at the total depth explored of 9 ft. to 9½ ft. The soil samples were obtained by advancing a split spoon sampler into undisturbed soil beyond the tip of the lead auger of a Gidding drill rig. Soil samples were placed in clean glass containers, packed for minimal head space and placed on ice for transport to the laboratory accompanied by chain of custody documentation. The samples were analyzed for TPH and BTX&E.

FINDINGS

Subsurface Conditions: Soils encountered consisted of silty clay in Samples #1, #2, and #3 and silty sand in Sample #4. Moderate odor was detected in Samples #2 and #3 while Samples #1 and #4 had no signs of odor. Water was encountered at 9 ft. in borings B-2 and B-3.

Laboratory Results: Samples #1 thru #4 were analyzed for total petroleum hydrocarbons (TPH) and benzene, toluene, ethyl benzene and xylene (BTX&E). Samples #3 and #4 showed TPH levels of 8 parts per million (ppm) and 6 ppm respectively. A complete certified analytical report summarizing analytical methods and results for the soils samples is attached to this letter.

FLEMING FOODS
Page 2

If you have any questions or comments, please do not hesitate to give us a call.

Sincerely,

PETROLEUM EQUIPMENT MAINTENANCE COMPANY

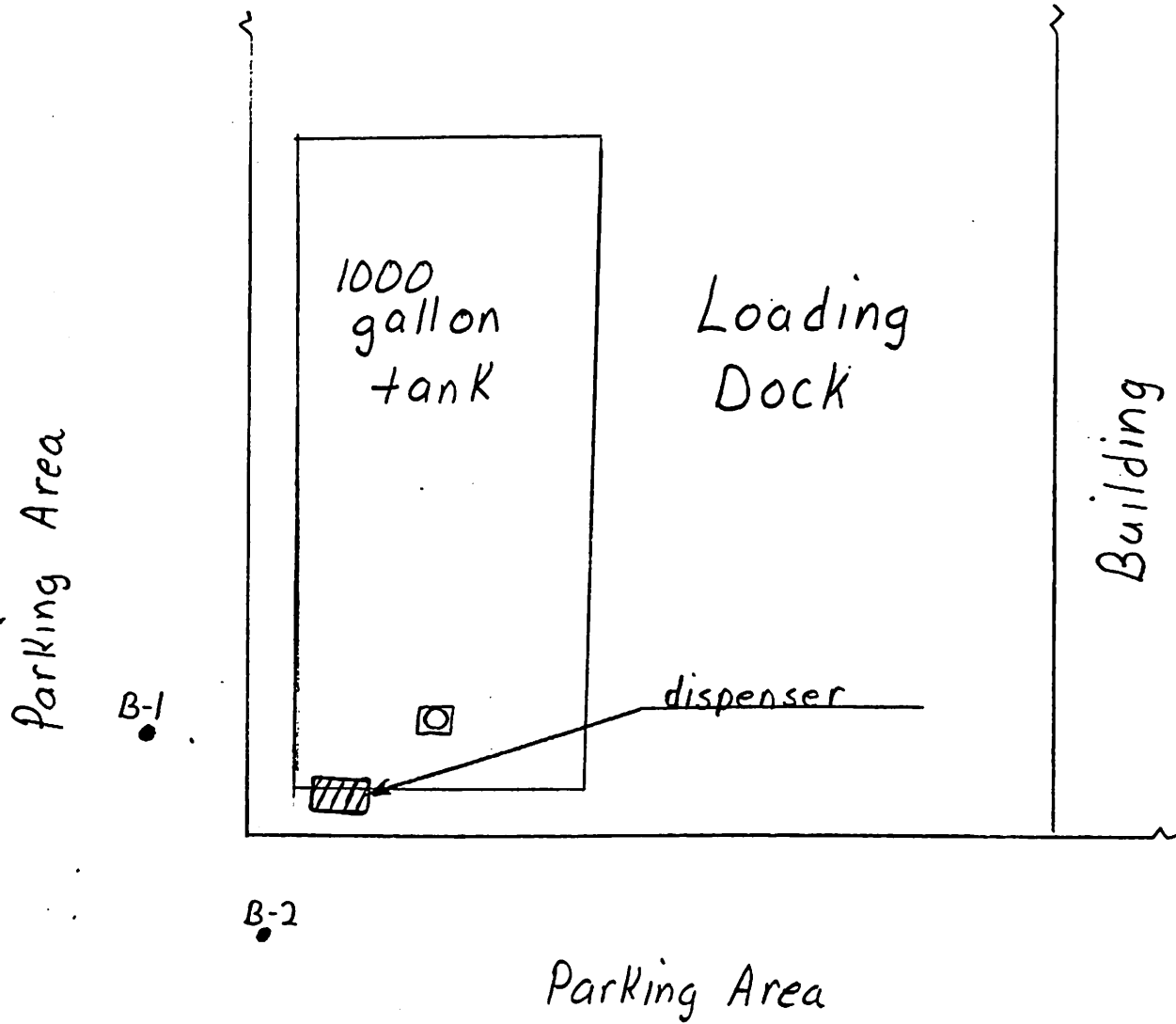
Bill Knutson

Bill Knutson
Environmental Division

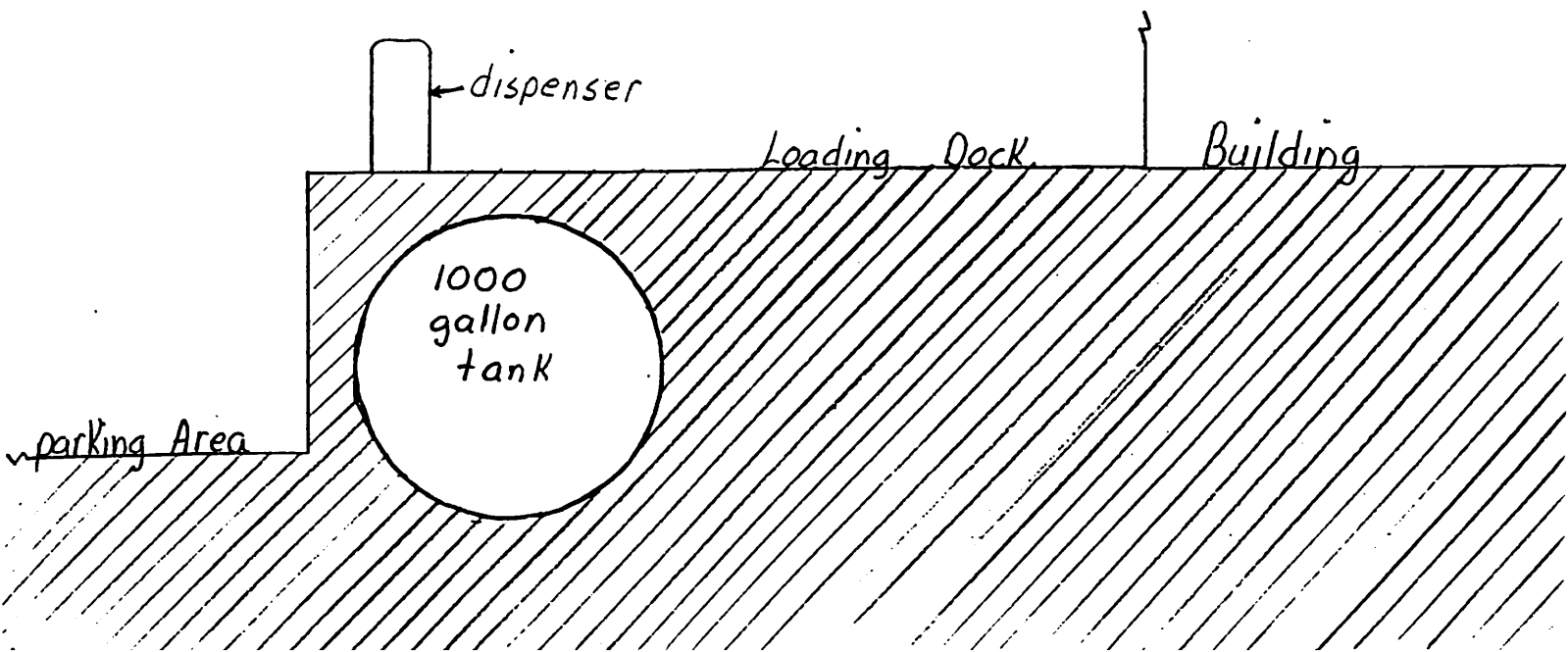
Enclosures

BK:yc

Site Sketch

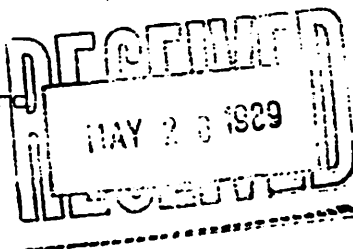


B-3





PACIFIC
ANALYTICAL
LABORATORY



9405 S.W. Nimbus Ave. Beaverton, OR 97005 (503) 644-0660

May 24, 1989

PEMCO
P.O. Box 11569
Portland, OR 97211

Attn: Tim Veley

PAL REPORT NUMBER: 89-0445
P.O./JOB NUMBER: 2104 Fleming Foods
DATE SUBMITTED: 5/18/89
ITEMS: Four Soil Samples

ANALYSIS

METHODS: BTEX per Modified EPA 3810 (GC/MS)
TPH per EPA 418.1
Results in mg/kg (ppm)

	#1	#2	#3	#4	Lab Blank	Detection Limit
Benzene	ND	ND	0.2	ND	ND	0.1
Toluene	ND	ND	0.3	ND	ND	0.1
Ethyl Benzene	ND	ND	ND	ND	ND	0.1
Xylene	ND	ND	0.8	ND	ND	0.1
Gasoline	ND	ND	4	ND	ND	1
TPH	ND	ND	8	6	ND	5

ND = Not Detected

Respectfully,

Philip Nerenberg
Philip Nerenberg
Chemist

Reviewed by: *SMO*



PETROLEUM EQUIPMENT MAINTENANCE CO.

P.O. BOX 11569 • 2310 NE COLUMBIA BLVD.
PORTLAND, OREGON 97211-0566
(503) 288-7541



July 20, 1989

FLEMING COMPANIES, INC.
P.O. Box 3800
Portland, OR 97208

ATTN: Mr. Ray Halverson
Maintenance Superintendent

Dear Mr. Halverson:

This letter presents the results of a soils investigation and subsequent clean up documented by Petroleum Equipment Maintenance Company (PEMCO) at Fleming Foods located at S.E. Milwaukie Expressway at Pheasant Court in Portland, Oregon. The scope of work included the collection of soil and water samples to determine the extent of contamination and the removal of contaminated soils for aeration.

BACKGROUND

On May 22nd and 23rd, 1989, PEMCO removed (1) 12,000 gallon diesel, (1) 10,000 gallon gasoline, (1) 550 gallon fuel oil, and (1) 550 gallon waste oil underground storage tanks. Upon removal of the tanks, a soil sample was collected from beneath each tank and analyzed for total petroleum hydrocarbons (TPH) and/or benzene, toluene, xylene, and ethyl benzene (BTX&E). (See sketch #1.) Because of visual contamination beneath the 10,000 gallon gasoline and the 12,000 gallon diesel tanks, an additional 1 - 2 feet was excavated and a sample taken at the 13 ft. depth beneath the diesel and gasoline tanks.

The samples taken below the 550 gallon fuel oil and waste oil tanks were taken at the 7 ft. level and contained 22 parts per million (ppm) and 140 ppm TPH respectively. The samples taken below the 12,000 gallon diesel tank contained 11,000 ppm TPH at 12 ft. and 620 ppm at 13 ft. The samples collected below the 10,000 gallon gasoline tank contained 3,100 ppm TPH at 12 ft. and 42 ppm at 13 ft. DEQ was contacted at this time.

PROCEDURES

All contaminated soil removed from the excavation is being aerated at another location approximately $\frac{1}{4}$ mile away on Fleming Foods' property. This process was reviewed and approved by Loren Garner of DEQ. On June 5, 1989, a water sample was collected from the excavation and analyzed for TPH and BTX&E. The sample contained non detected levels of TPH and BTX&E.

On June 6th, 1989, PEMCO met on site with Michael Hernandez of DEQ to discuss the environmental concerns of the project. Mr. Hernandez requested soil samples be taken from the north, east and west sidewalls at a depth of 10 ft. and analyzed for TPH. A sample could not be taken from the south sidewall due to temporary shoring in place. An additional 40 cubic yards of soil was excavated from the southeast corner of the excavation on June 16, and a soil sample collected at 14 ft. for analysis. This is the area that contained 620 ppm TPH at 13 ft.

Upon removal of contaminated soil to acceptable levels, a new 20,000 gallon double wall fiberglass tank was installed just south of the old tank excavation. The old excavation was then backfilled and compacted to grade. A total of 438 cubic yards of soil was excavated and is aerating on site.

All water and soil samples that were collected were placed in clean glass containers, packed for minimal head space and placed on ice for transport to the laboratory accompanied by chain of custody documentation.

FINDINGS

Subsurface Conditions: Native soil encountered during excavation consisted of very tight clay. Water was encountered at approximately 7 ft. Subsequent to dewatering of the excavation, recharge occurred very slowly.

Laboratory Results: Samples taken on June 6, 1989 contained non-detected levels of TPH on the east and west sidewalls and 41 ppm TPH on the north sidewall. The water sample taken on June 5, 1989 contained non-detected levels of TPH and BTX&E. The sample taken from the 14 ft. depth beneath the 12,000 gallon diesel tank contained 15 ppm TPH. Analytical methods and results for all samples are summarized on the attached certified analytical reports.

If you have any further questions regarding the above information, please do not hesitate to give me a call.

Sincerely,

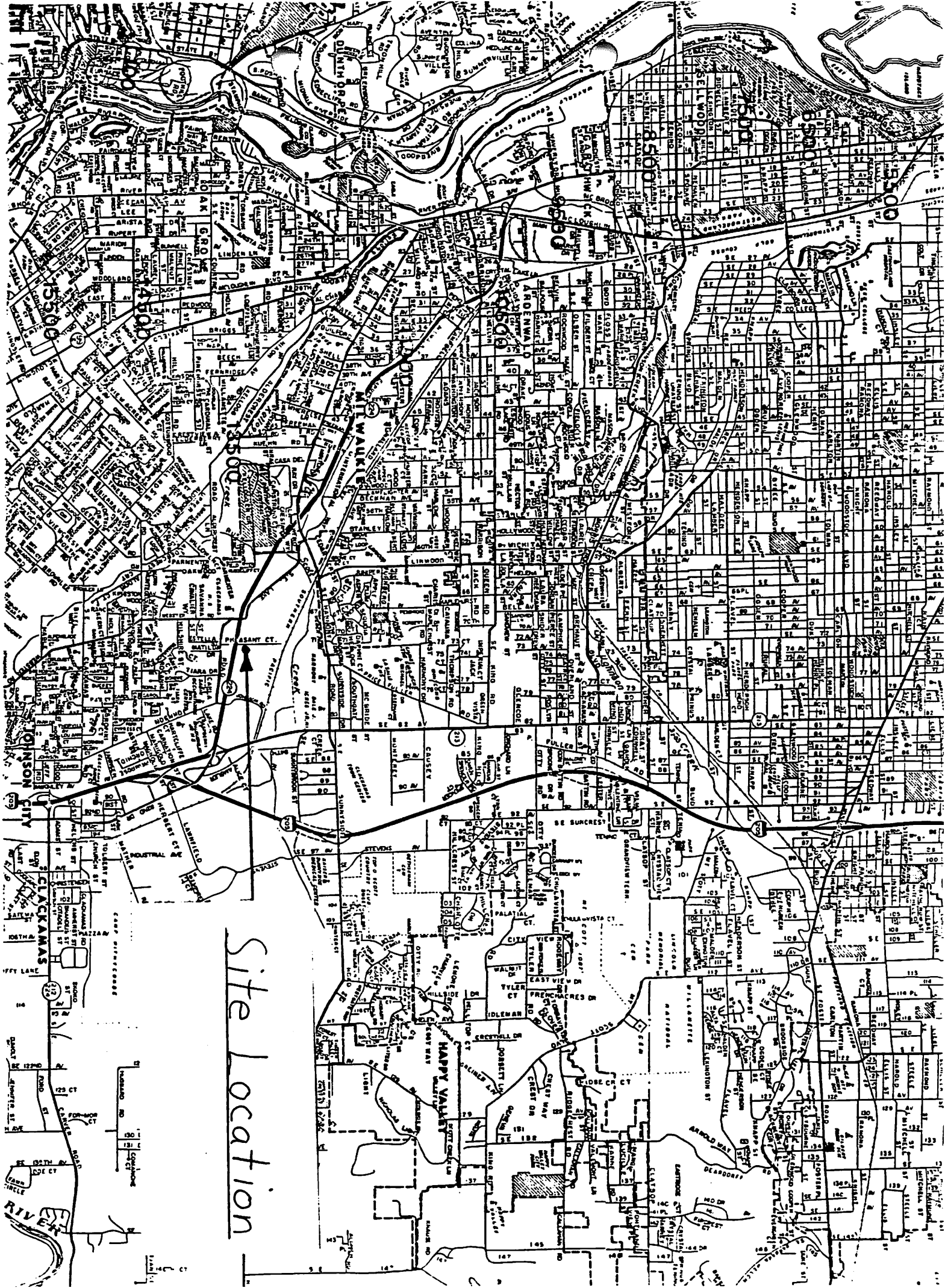
PETROLEUM EQUIPMENT MAINTENANCE COMPANY

Bill Knutson

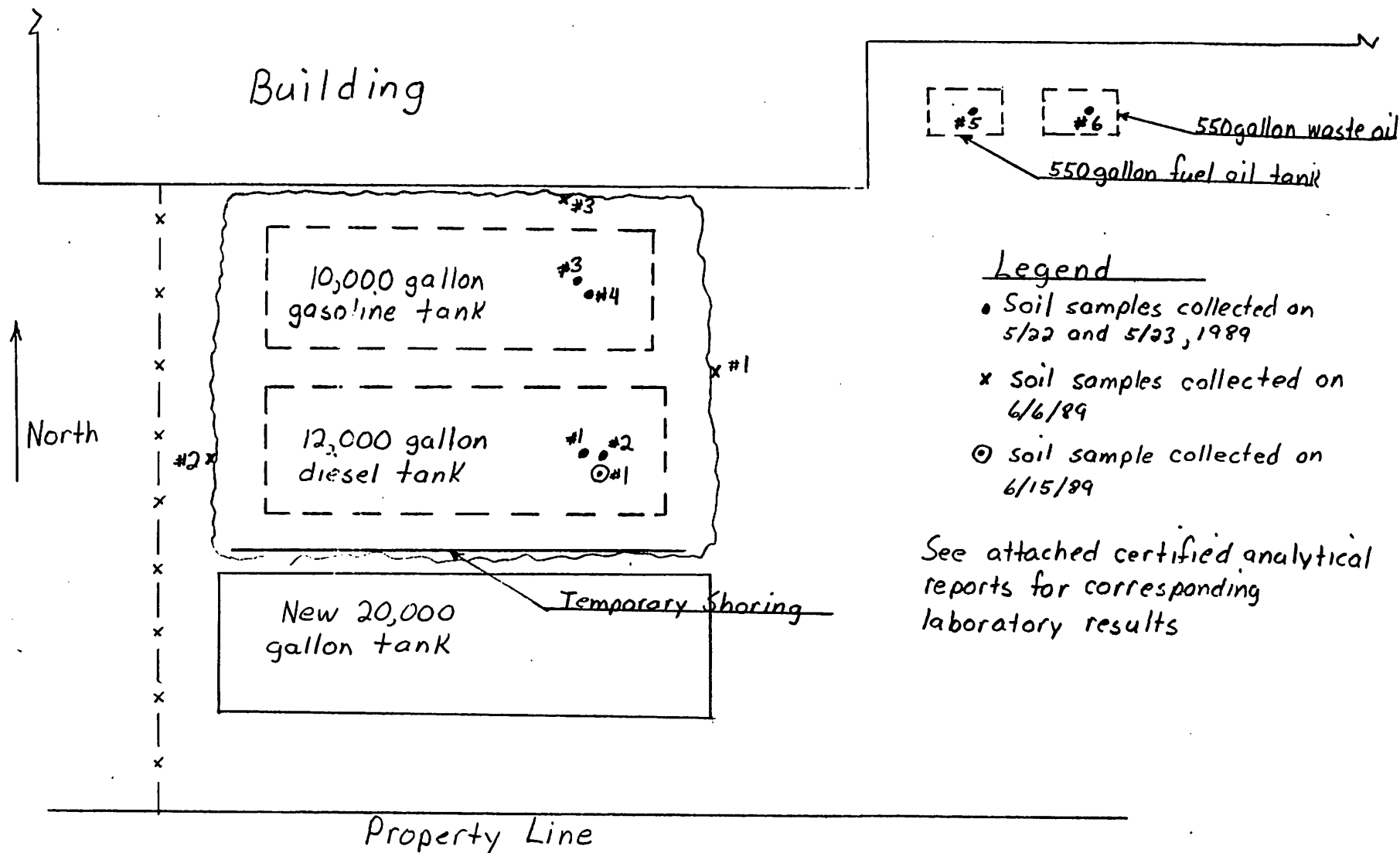
Bill Knutson
Environmental Division

Enclosures

BK:yc



Site 1 location



Legend

- Soil samples collected on 5/22 and 5/23, 1989
- x Soil samples collected on 6/6/89
- ⊙ soil sample collected on 6/15/89

See attached certified analytical reports for corresponding laboratory results

Fleming Foods
S.E. Milwaukie Expressway
at Pheasant Court
Portland OR

SKETCH 1

#2104



PACIFIC
ANALYTICAL
LABORATORY Inc.

9405 S.W. Nimbus Ave. Beaverton, OR 97005 (503) 644-0660

May 30, 1989

PEMCO
P.O. Box 11569
Portland, OR 97211

Attn: Tim Veley

PAL REPORT NUMBER: 89-0484
PROJECT NUMBER: 2104 - Fleming Foods
DATE SUBMITTED: 5/23/89
ITEMS: Two Soil Samples

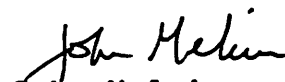
ANALYSIS

METHODS: BTEX per Modified EPA 3810 (GC/MS)
TPH per EPA 418.1 (IR)
All values are in mg/kg (ppm)

	#1	#2	Lab Blank	Detection Limit
Benzene	ND	ND	ND	0.1
Toluene	ND	0.27	ND	0.1
Ethyl Benzene	ND	0.36	ND	0.1
Xylene	0.31	1.4	ND	0.1
Volatile Petroleum Hydrocarbons	36	70	ND	1.0
TPH	620	11,000	ND	5

ND = None Detected

Respectfully,


John Melvin
Chemist


Howard Holmes
Chemist



9405 S.W. Nimbus Ave. Beaverton, OR 97005 (503) 644-0660

May 30, 1989

PEMCO
P.O. Box 11589
Portland, OR 97211

Attn: Tim Veley

PAL REPORT NUMBER: 89-0474
PROJECT NUMBER: 2104 Fleming Foods
DATE SUBMITTED: 5/24/89
ITEMS: Four Soil Samples (#3, #4, #5, #6)

ANALYSIS

METHODS: BTEX per Modified EPA 3810 (GC/MS)
TPH per EPA 418.1 (IR)
All values in mg/kg (ppm)

	<u>#3</u>	<u>#4</u>	<u>#5</u>	<u>#6</u>	<u>Lab</u> <u>Blank</u>	<u>Detection</u> <u>Limit</u>
Benzene	ND	ND	--	--	ND	0.1
Toluene	0.28	ND	--	--	ND	0.1
Xylene	0.64	ND	--	--	ND	0.1
Ethyl Benzene	0.10	ND	--	--	ND	0.1
Volatile Petroleum						
Hydrocarbons	2.0	ND	--	--	ND	1.0
TPH	3100	42	22	140	ND	5

ND = None Detected

Respectfully,


Howard Holmes
Chemist


John Melvin
Chemist



PACIFIC
ANALYTICAL
LABORATORY Inc.

9405 S.W. Nimbus Ave. Beaverton, OR 97005 (503) 644-0680

June 8, 1989

PEMCO
P.O. Box 11569
Portland, OR 97211

Attn: Tim Veley

PAL REPORT NUMBER: 89-0519
PROJECT NUMBER: 2104 Fleming Foods
DATE SUBMITTED: 6/05/89
ITEM: One Water Sample

ANALYSIS

METHOD: EPA 602
Results in ug/L (ppb)

	#1	Lab Blank	Detection Limit
Benzene	ND	ND	5
Toluene	ND	ND	5
Ethyl Benzene	ND	ND	5
Xylene	ND	ND	5

METHOD: EPA 416.1
Results in mg/L (ppm)

	#1	Lab Blank	Detection Limit
TPH	ND	ND	1

ND = Not Detected

Respectfully,

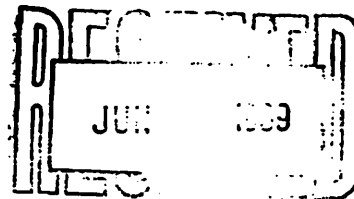
Philip Nerenberg
Philip Nerenberg
Chemist

Reviewed by: *[Signature]*



9405 S.W. Nimbus Ave. Beaverton, OR 97005 (503) 644-0660

June 7, 1989



PEMCO
P.O. Box 11589
Portland, OR 97211

Attn: Tim Veley

PAL REPORT NUMBER: 89-0522
PROJECT NUMBER: 2104 Fleming Foods
DATE SUBMITTED: 6/06/89
ITEMS: Three Soil Samples

ANALYSIS

METHOD: EPA 418.1 (IR)

Results in mg/kg (ppm)

	<u>#1</u>	<u>#2</u>	<u>#3</u>	<u>Lab Blank</u>	<u>Detection Limit</u>
TPH	ND	ND	41	ND	5

ND = None Detected

Respectfully,


Howard Holmes
Chemist

Reviewed by: 



PACIFIC
ANALYTICAL
LABORATORY Inc.

8405 S.W. Nimbus Ave. Beaverton, OR 97005 (503) 844-0660

June 21, 1989

PEMCO
P.O. Box 11569
Portland, OR 97211

Attn: Tim Veley

PAL REPORT NUMBER: 89-0571A
P.O./JOB NUMBER: 2104
DATE SUBMITTED: 6/16/89
ITEMS: One Soil Sample

ANALYSIS

METHOD: EPA 418.1
Results reported as mg/kg (ppm)

<u>Sample</u>	<u>TPH</u>
Soil Sample	15
Lab Blank	ND
Detection Limit	5

ND = Not Detected

Respectfully,

Linnet O'Hanlon

Linnet O'Hanlon
Chemist

Reviewed by: *ABH*

FILE: _____

Department of Environmental Quality

UST Cleanup SECTION

Phone Memo

Date: 6/7/89 Time: 8:45 AM
Call From/To: Bill Knudsen
Title: Eng. Tech
Company: DEMCO
Location: 2310 N.E. Columbia
Phone No.: 288-7541
RE: Fleming Foods site

cc: _____

Summary of Call:

After discussing the situation w/ Ed Woods (NWR) I called Knudsen to inform him that if he felt confident that no contamination remained in the existing ^{excavation} he could backfill it (at his and the owner's risk) in order to begin excavating the area immediately south of the existing excavation. I told him to pump out the water in the excavation which showed an oil sheen before backfilling. I also told him to collect soil & water samples in the new excavation area in order to determine if any contamination were there. I reiterated that it was the owner's responsibility to identify and remediate any contamination which resulted from operating these storage tanks.

FILE: _____

Department of Environmental Quality

UST Cleanup SECTION

Phone Memo

Date: 6/6/89 Time: 4:50pm
Call From/To: Bill Knudsen
Title: Eng. Tech.
Company: PEMCO
Location: 2319 NE Columbia
Phone No.: 288-7541
RE: Fleming Foods site

cc: _____

Summary of Call:

Knudsen called to give me the results of water samples taken from gas which had accumulated in the tank excavation: BTEX ≤ 5 ppb TPH ≤ 1 ppm. I told Knudsen I'd give the data to Ed Woods (NWR) and discuss how we should proceed. I told him I'd call 6/7/89 and tell him our position on backfilling the excavation.

MATERIAL SAFETY DATA SHEET

Although the information herein is believed to be true and accurate, we EXPRESSLY DISCLAIM any liability whatsoever for its use and such information is made WITHOUT WARRANTY, EXPRESS OR IMPLIED, OF ANY KIND WHATSOEVER

SECTION I		
MANUFACTURER'S NAME SIMCAL CHEMICAL COMPANY		EMERGENCY TELEPHONE NO. CHEMTREC (800) 424-9300 MANUFACTURER (209) 866-5681
ADDRESS (Number, Street, City, State and Zip Code) 12688 South Colorado Avenue, Helm, California 93627		
CHEMICAL NAME AND SYNONYMS LIQUID AMMONIUM POLYPHOSPHATE	TRADE NAME AND SYNONYMS LIQUID AMMONIUM PHOSPHATE 10-34-0	
CHEMICAL FAMILY MINERAL SALT SOLUTION	CHEMICAL FORMULA $\text{NH}_4\text{H}_2\text{PO}_4$	
HAZARD CLASS NON-HAZARDOUS	IDENTIFICATION NO. NONE	PLACARD/LABEL REQUIRED NONE

SECTION II — HAZARDOUS INGREDIENTS

TYPICAL ANALYSIS (Wt %)

NITROGEN	10.0
PHOSPHORUS PENTOXIDE (P_2O_5)	34.0
POLYPHOSPHATE CONTENT OF P_2O_5	50.0 - 65.0
MAGNESIUM OXIDE (MgO)	0.37
ALUMINUM OXIDE (Al_2O_3)	1.27

SECTION III — PHYSICAL DATA

BOILING POINT (°F.)	NA	SPECIFIC GRAVITY ($\text{H}_2\text{O} = 1$)	1.42 @ 68°F.
VAPOR PRESSURE (mm Hg)	None	PERCENT VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR = 1)	NA	EVAPORATION RATE (_____ = 1)	NA
SOLUBILITY IN WATER	Complete		
APPEARANCE AND ODOR	Dark green liquid		

SECTION IV — FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	Non-flammable	FLAMMABLE LIMITS	
EXTINGUISHING MEDIA	Use suitable agent for surrounding fire.	LeI	UeI
SPECIAL FIRE FIGHTING PROCEDURES	Self-contained breathing apparatus for fire fighters		
UNUSUAL FIRE AND EXPLOSION HAZARDS	Toxic gases will form upon heating to decomposing temperature.		

SECTION V — HEALTH HAZARD DATA

LD LIMIT VALUE

None established.

PTS OF OVEREXPOSURE

Irritating to eyes and skin.

EMERGENCY AND FIRST AID PROCEDURES

Flush eyes and skin with water for 15 minutes or until irritation subsides.

SECTION VI — REACTIVITY DATA

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

X

INCOMPATIBILITY (Materials to avoid)

Copper, brass and their alloys

HAZARDOUS DECOMPOSITION PRODUCTS

Ammonia gas, phosphorus oxides

HAZARDOUS
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

X

SECTION VII — SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Contain to prevent entry into sewer or water course.

WASTE DISPOSAL METHOD

Place in suitable containers for recycle or disposal.

Comply with local disposal regulations.

SECTION VIII — SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

VENTILATION

LOCAL EXHAUST

SPECIAL

Open

MECHANICAL (General)

other

PROTECTIVE GLOVES

Chemical resistant

EYE PROTECTION

Chemical goggles

OTHER PROTECTIVE EQUIPMENT

SECTION IX — SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

May be stored in regular mild steel or stainless steel tanks.

Aluminum tanks not recommended for prolonged storing.

OTHER PRECAUTIONS

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME O. M. SCOTT & SONS COMPANY		EMERGENCY TELEPHONE NO. 513/644-0011
ADDRESS (Number, Street, City, State, and ZIP Code) Marysville, OH 43041		
CHEMICAL NAME AND SYNONYMS Nitrogen	TRADE NAME AND SYNONYMS Milled Nitrogen Fertilizer	
CHEMICAL FAMILY Fertilizer	FORMULA 41-0-0	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS			FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H ₂ O=1)	
VAPOR PRESSURE (mm Hg.)		PERCENT, VOLATILE BY VOLUME (%)	
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ = 1)	
SOLUBILITY IN WATER			
APPEARANCE AND ODOR	Granular → milled		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	FLAMMABLE LIMITS	LeI	UeI
EXTINGUISHING MEDIA Dry Chemical			
SPECIAL FIRE FIGHTING PROCEDURES Use self-contained air supply.			
UNUSUAL FIRE AND EXPLOSION HAZARDS None			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

EFFECTS OF OVEREXPOSURE

Possible eye and skin irritation on contact. Possible nausea, diarrhea, or vomiting if large amounts ingested.

EMERGENCY AND FIRST AID PROCEDURES

If ingested in large quantities, induce emesis or gastric lavage. Treat symptomatically. If in eyes, flush with water for 15 minutes. If irritation persists, get medical attention.

SECTION VI - REACTIVITY DATA

STABILITY

UNSTABLE

CONDITIONS TO AVOID

STABLE

X

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS
POLYMERIZATION

MAY OCCUR

CONDITIONS TO AVOID

WILL NOT OCCUR

X

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Sweep up spills. Avoid contact with skin, eyes, or clothing.

WASTE DISPOSAL METHOD

Remove to approved landfill.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)

VENTILATION

LOCAL EXHAUST

MECHANICAL (General)

SPECIAL

OTHER

PROTECTIVE GLOVES

OTHER PROTECTIVE EQUIPMENT

EYE PROTECTION

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Avoid bag breakage.

OTHER PRECAUTIONS

Keep out of lakes, streams, or ponds.

RECEIVED

APR 12 1989

89-96
072689

sent
NWR
4/12

**NOTICE OF UNDERGROUND STORAGE TANK
PERMANENT DECOMMISSIONING**

NORTHWEST REGION

Facility

Name Fleming Companies
Address S.E. Milwaukie Expressway
at Pheasant Court, Milwaukie,
Oregon
Phone 654-9551
Facility ID Number CF

Tank Owner

Name Same
Address _____
Phone _____

Permanent Decommissioning Performed By:

Petroleum Equipment
Company Maintenance Co. Phone 288-7541
Scheduled Date for Permanent Decommissioning Week of 5/8/89
Method to be used: Removal XX In-Place _____ Fill Material _____

Tanks to be Decommissioned

Tank ID#	Tank Age	Tank Size	Last Product Stored
	16-20 yrs	1,000 gal.	Gasoline
	20-25 yrs	12,000 gal.	Diesel
	20-25 yrs	10,000 gal.	Gasoline
	20-25 yrs	500 gal.	Waste Oil
	20-25 yrs	300 gal.	Waste Oil

NOTE: The (1) 1,000 gal tank is located in the dock area and will be slur filled. Balance of tanks to be removed

Are the decommissioned tanks to be replaced by new underground storage tanks? Yes ☒ No ☐
If yes, please submit a new permit application containing information on the new tanks.

Where and how will the old tanks be disposed?

Scrap Name Schnitzer Steel Location Portland, Oregon
Landfill Name _____ Location _____
Stored Name _____ Location _____
Other Comment _____

Signature Judy Palermo Date April 7, 1989
PEMCO - ENVIRONMENTAL DIVISION

Return Completed Form To:

Department of Environmental Quality
UST Program - Decommissioning Notice
811 SW Sixth Ave.
Portland, Oregon 97204

RECEIVED
APR 10 1989

For Information: (503) 229-5559 or Toll Free in Oregon 1-800-452-4011

Environmental Cleanup Division

* L U S T F O R M *

- - - - - INCIDENT INFORMATION - - - - -

LUST Incident Nbr: _____ LUST Log Nbr: 03-89-096 UST Facility ID: 7190
 Date Received: 5/22/89 Received By: L.G. Garner Emergency Resp Taken: Y N
 Tank Identification: Tank Owner: Flemming Company
 Street: 13015 NE Pheasant Court
 City: Hittawaire Pdx Zip: 97208
 County: Clark Phone: _____

Incident Comments: _____

- - - - - CONTACT & MAIL TYPES - - - - -

Reported By: Judy Palermo LUST Contact: _____ Responsible Party: Roy Halverson
 Name: _____ Name: _____ Company: Flemming Co.
 Company: PEMCO Company: _____ Street: P.O. Box 3800
 Street: 2310 NE Columbia Street: _____ City: Portland Zip: 97208
 City: Portland Zip: 97211 City: _____ Zip: _____
 State: OR Phone: 288-7541 State: _____ Phone: _____ State: OR Phone: 654-9551

- - - - - SITE ASSESSMENT - - - - -

LUST Incident Nbr: (XXXXXXXXXXXXX)
 Date Investigated: 5/23/89 Investigated By: L.G.
 Release Exists: (Y) N Confirmation Method: A)Staff B)Lab:DEQ (C)Lab:RP D)Lab:Other E)RP F)Other
 (Circle) (Circle)
 Cleanup Necessary: (Y) N Regulated Tank: (Y) N Exposure Assessment: Y N
 (Circle) (Circle)
 Off-Site Migration: Y (N) ? Estimated Gallons Released: _____ Priority: _____
 (Circle)
 Discovery Date: 5/22/89
 How Discovered: A)Routine Monitoring B)Inventory Control (C)Decommissioning D)Site Assessment
 (Circle) E)Complaint F)Tank Test G)Other
 Material Released: A)Unleaded Gasoline B)Leaded Gasoline C)Misc. Gasoline
 (Circle) (D)Diesel E)Fuel Oil F)Waste Oil
 G)Lubricant H)Solvent I)Bunker Fuel
 J)Other Pet. Dist. K)Chemical L)Unknown
 Source of Release: A)Tank Leak B)Pipe Leak (C)Overfill D)Surface Spill
 (Circle) E)Pump/Valve Leak F)Other G)Unknown
 Impacts: Soil (Y) N % ?
 (Circle) Groundwater Y (N) N % ?
 Surface Water Y (N) N % ?
 Drinking Water Y (N) N % ?
 Facility (Vapor) Y (N) N % ?
 Facility (Free Product) Y (N) N % ?

Site Assessment Comments: _____

- - - - - SITE MANAGEMENT - - - - -

LUST Incident Nbr: (XXXXXXXXXXXXX)
 Date Released Stopped: 22 May 89
 Cleanup Activity: Start Date: 22 May Under Control Date: 22 May
 End Date: 16 June Contractor Name: PEMCO
 Cleanup Guideline: Matrix C.A.P. Cleanup Lead: (RP) RP SLW/TF SLW/OTF
 (Circle) (Circle)
 Free Product Disposal: _____ Soil Disposal: _____
 Est. Gallons: N/A Est. Cu/Yds: 438
 Resp. Party: _____ Resp. Party: PEMCO
 Disposal Location: _____ Disposal Location: On-site Aeration
 Removal Date: _____ Removal Date: _____
 Enforcement Action: Y (N) N
 (Circle)
 Cost Recovery Initiated: Y (N) N Source of Cost Recovery: Pct. R.P.: _____
 (Circle) Pct. SLW/TF: _____
 Pct. SLW/OTF: _____
 Estimations: Cost of Cleanup: _____ Staff Time On Project: _____

Site Management Comments: _____