3R - 270

GENERAL CORRESPONDENCE

YEAR(S):
2000-1995

Environmental & Safety Department
P.O. Box 525
Sonora, TX
76950

Telephone 1 915 387-5355
Fax 1 915 387-3744

Louis Dreyfus Natural Gas

January 17, 2000

New Mexico Oil Conservation Division
Mr. Bill Olson
2400 Pacheco Street
Sante Fe, NM 85730

Re: Federal 6-32
Section 6, T26N, R07W, SW/NE
Rio Arriba County, New Mexico

Please consider the enclosed data for "Final Closure" of pit and monitor well at this location.

Data has been gathered on this location from work done by either Louis Dreyfus Natural Gas personnel or by Contract Environmental Services, Inc., working under directions of LDNG personnel. This data includes a sundry notice, pit remediation and closure report , site diagram, and enclosures 1, 2, and 3 discussed below.

Our initial sampling of the monitor well was within limits outlined by State of New Mexico and BLM guidelines (See Enclosure #1). We received a verbal approval to cease sampling of these wells at that time. LDNG proposes to grout the sample well to surface and abandon.

Excavation was not complete, however a report (See Enclosure #2) from Contract Environmental Services shows that excavation was completed as far as possible without disturbing permanent equipment. Verbal approval was received from OCD and BLM to hold excavation at this point.

Our attention was then directed to the soil farms for remediation. Soil samples taken in June of 1998 show one of these soil farms is within limits of guidelines (See Enclosure #3). The other soil farm was turned and fertilized and resampled on 6 Dec. 99. These test show this farm also within limits.

Soil from soil farms will be used to contour location in standards for surrounding area and revegitate to BLM standards for the Largo Canyon area.

Soil samples tested below required 100 ppm in Gasoline and Diesel Ranges for both soil farms.

Supporting data for all lab analysis are enclosed and are true and accurate to the best of knowledge. If further information is required, please contact me at (915)387-5355.

Thank you,

Tommy H. Arnwine
Environmental & Safety Director

cc: Gene Simer
OCD- Aztec-Denny Faust
BLM- Farmington- Bill Liese

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator
Louis Dreyfus Natural Gas

3. Address and Telephone No.
P.O. Box 370, Carlsbad, NM 88221

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec. 6, T26N, R07W, SW/NE

5. Lease Designation and Serial No.
20784

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

8. Well Name and No.
Federal 6-32

9. API Well No.
3003922963

10. Field and Pool, or Exploratory Area
GCNM

11. County or Parish, State
Rio Arriba, New Mexico

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION	
☐ Notice of Intent	☐ Abandonment	☐ Change of Plans
☐ Subsequent Report	☐ Recompletion	☐ New Construction
☐ Final Abandonment Notice	☐ Plugging Back	☐ Non-Routine Fracturing
	☐ Casing Repair	☐ Water Shut-Off
	☐ Altering Casing	☐ Conversion to Injection
	☒ Other Final Pit CLosure	☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

All Laboratory analysis for soil farms and ground water monitor well have proven within limits of guidelines. LDNG proposes the following leading to "final closure" of pit and monitor well:

1) Grout monitor well to top, cut off and abandon.
2) Contour soil farm to suit location drainage.
3) Reseed to BLM area requirements.

14. I hereby certify that the foregoing is true and correct

Signed _____ Title Environmental & Safety Director Date 1-17-2000

(This space for Federal or State office use)

Approved by _____ Title _____ Date _____
Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*See Instruction on Reverse Side

GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations, and reports of such operations when completed, as indicated, on Federal and Indian lands pursuant to applicable Federal law and regulations, and, if approved or accepted by any State, on all lands in such State, pursuant to applicable State law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office.

SPECIFIC INSTRUCTIONS

Item 4—If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 13—Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by local Federal and/or State offices. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones, or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to top of any left in the hole; method of closing top of well; and date well site conditioned for final inspection looking to approval of the abandonment.

NOTICE

The Privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et. seq., 351 et. seq., 25 U.S.C. et. seq.; 43 CFR 3160.

PRINCIPAL PURPOSE — The information is to be used to evaluate, when appropriate, approve applications, and report completion of secondary well operations, on a Federal or Indian lease.

ROUTINE USES:

(1) Evaluate the equipment and procedures used during the proposed or completed subsequent well operations.

(2) Request and grant approval to perform those actions covered by 43 CFR 3162.3-2(2).

(3) Analyze future applications to drill or modify operations in light of data obtained and methods used.

(4)(5) Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions.

EFFECT OF NOT PROVIDING INFORMATION — Filing of this notice and report and disclosure of the information is mandatory once an oil or gas well is drilled.

The Paperwork Reduction Act of 1980 (44 U.S.C. 3501, et. seq.) requires us to inform you that:

This information is being collected in order to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

This information will be used to report subsequent operations once work is completed and when requested, to obtain approval for subsequent operations not previously authorized.

Response to this request is mandatory for the specific types of activities specified in 43 CFR Part 3160.

BURDEN HOURS STATEMENT

Public reporting burden for this form is estimated to average 25 minutes per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management, (Alternate) Bureau Clearance Officer, (WO-771), 18 and C Streets, N.W., Washington, D.C. 20240, and the Office of Management and Budget, Paperwork Reduction Project (1004-0135), Washington, D.C. 20503.

*U.S. GPO: 1990-773-016/26019

Date Remediation Started: 10-4-95 **Date completed:** 12-6-99

Remediation Method: (Check all appropriate sections)
Excavation X Approx. cubic yards 388
Landfarmed X Insitu Bioremediation
Other

Remediation Location: (i.e. landfarmed onsite, name and location of offsite facility)
Onsite X Offsite

General Description of Remedial Action:

Placed excavated soil into two land farm areas. Turn soil and fertilize periodically and sample.

Ground Water Encountered: No X Yes Depth

Final Pit:
Closure Sampling: (if multiple samples, attach sample results and diagram of sample locations and depths)
Sample location
Sample depth
Sample date Sample time

Sample Results

Benzene (ppm)
Total BTEX (ppm)
Field headspace (ppm)
TPH

Ground Water Sample: Yes X 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 1-17-2000

SIGNATURE Tommy H. Arnwine

PRINTED NAME AND TITLE Tommy H. Arnwine Environmental & Safety Director

District I
P.O. Box 1980, Hobbs, NM
District II
P.O. Drawer DD,
District III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

SUBMIT 1 COPY TO APPROPRIATE DISTRICT OFFICE AND 1 COPY TO SANTE FE OFFICE

PIT REMEDIATION AND CLOSURE REPORT

Operator: Luis Dreyfus Natural Gas Telephone: (915)387-5355

Address: P.O. Box 525, Sonora, TX 76950

Facility Or: Well Name: Fed. 6-32

Location Unit or Qtr/Qtr Sec SW/SE Sec 6 T 26N R 07W County Rio Arriba

Pit Type: Separator Dehydrator Other

Land Type: BLM ,State ,Fee , Other

Pit Location: (Attach diagram)
Pit dimensions: length 35 , width 25 , depth 12

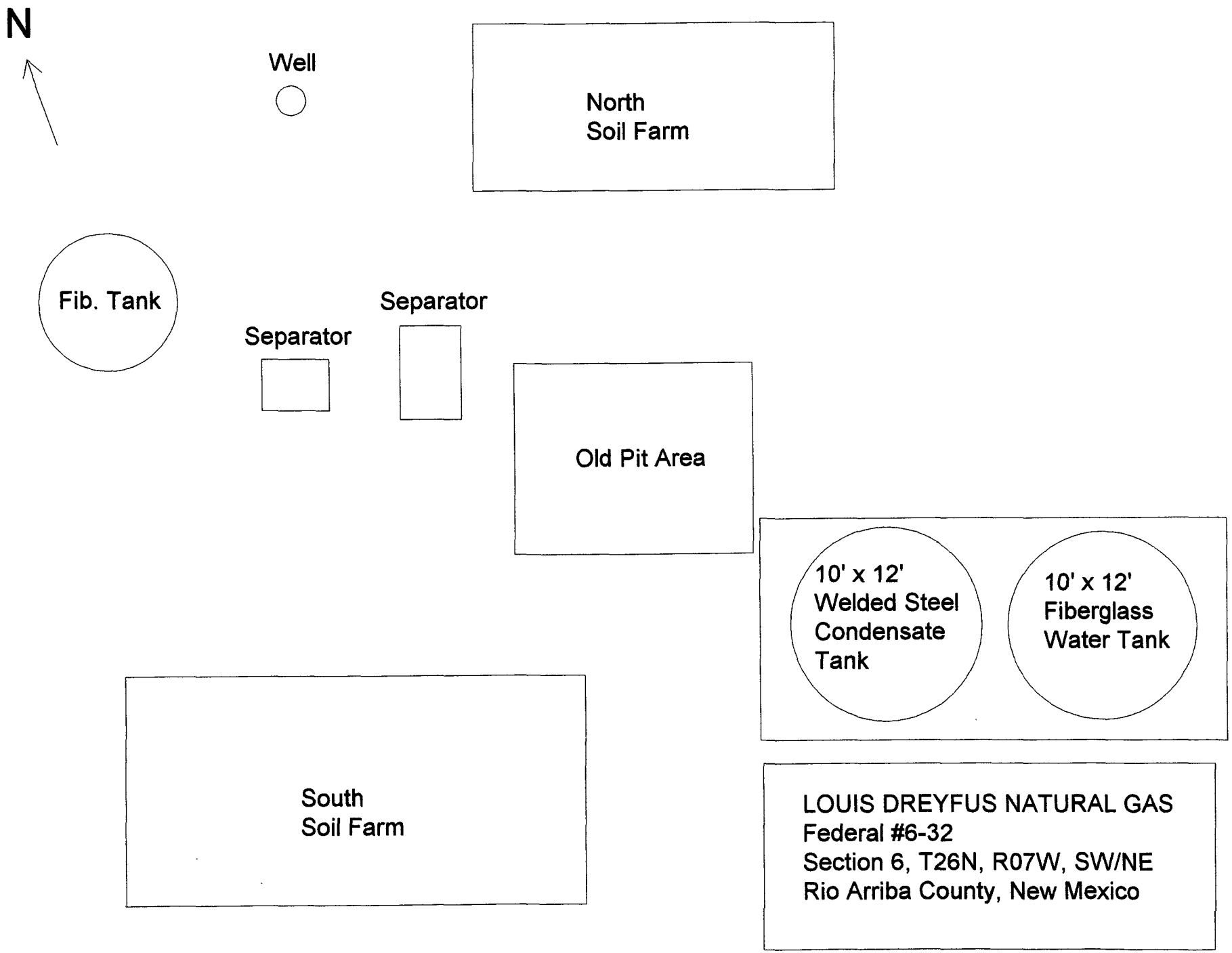
Reference: wellhead X , Other

Footage from reference: 100 ft.

Direction from reference: Degrees 150° East North of West South

Depth To Ground Water: (Vertical distance from contaminants to seasonal high water elevation of ground water)	Less than 50 feet 50 feet to 99 feet Greater than 100 feet	(20 points) (10 points) (0 points)	20
Wellhead Protection Area: (Less than 200 feet from a private domestic water source, or; less than 1000 feet from all other water sources	Yes No	(20 points) (0 points)	0
Distance To Surface Water: (Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)	Less than 200 feet 200 feet to 1000 feet Greater than 1000 feet	(20 points) (10 points) (0 points)	20

RANKING SCORE (TOTAL POINTS):


N
Well
North
Soil Farm
Fib. Tank
Separator
Separator
Old Pit Area
10' x 12'
Welded Steel
Condensate
Tank
10' x 12'
Fiberglass
Water Tank
South
Soil Farm
LOUIS DREYFUS NATURAL GAS
Federal #6-32
Section 6, T26N, R07W, SW/NE
Rio Arriba County, New Mexico

ENCLOSURE #1

MONITOR WELL DATA

FEDERAL 6-32

Contract Environmental Services, Inc.
Post Office Box 505
Kirtland, New Mexico 87417-0505
Phone (505) 325-1198

January 21, 1996

Louis Dreyfus Natural Gas Co.
Mr. Gene Simer
Post Office Box 370
Carlsbad, New Mexico 88221

RE: Federal #6-32 (Sec 06, T26N, R07W) Monitor Well

Dear Mr. Simer,

Contract Environmental Services, Inc. (CES) is pleased to present this letter report on the installation of a monitoring well for the Federal #6-32 well location. This report includes background information, scope of services, field test data, laboratory data, conclusions and recommendations.

Background Information

On October 4, 1995 CES began excavating contaminated soil from the separator pit on the above referenced well location. The excavation was recently completed with an approximate 150 cubic yards of contaminated soil removed. The soil removed was evenly distributed on the surface where it could be soil farmed until remediated. On October 19, 1995 CES issued a technical report presenting the findings of this investigation. On December 4, 1995 CES installed one monitor well in the anticipated downgradient direction from the excavation. The following day the monitor well was developed and sampled.

Scope Of Services

CES with the help of Phillip Environmental installed the monitor well to a depth of approximately 37 feet. The monitor well is located 8' from the northwest corner of the excavation (Please see attached Figure 1). The bottom 15' of the 4" PVC pipe was slotted (Please see attached Figure 2) and the top 22' was completed with unscreened PVC pipe. The bottom of the monitor well has a 4" screw-on plug that prevents sediments from entering the bottom of the well. All of the joints were composed of screw-together threads. Silica sand was backfilled 2' above the slotted interval. Above the sand a 2' bentonite plug was placed. The remainder of the open hole was grouted to within 2' of groundlevel. From this point to the surface, the PVC pipe was cemented in place. A riser was left on the monitoring well approximately 3' above ground level. T-posts and fluorescent flagging was placed on all sides of the monitor well to protect it before leaving.

The monitor well was developed until the muddy water cleared up prior to sampling. An estimated five volumes of water were removed before collection for laboratory analyses. Water samples were gathered to be analyzed for Benzene, Toluene, Ethylbenzene, Xylenes (BTEX); Metals; Cations / Anions; and Polyaromatic Hydrocarbons (PAH). All water was analyzed using EPA Test Methods.

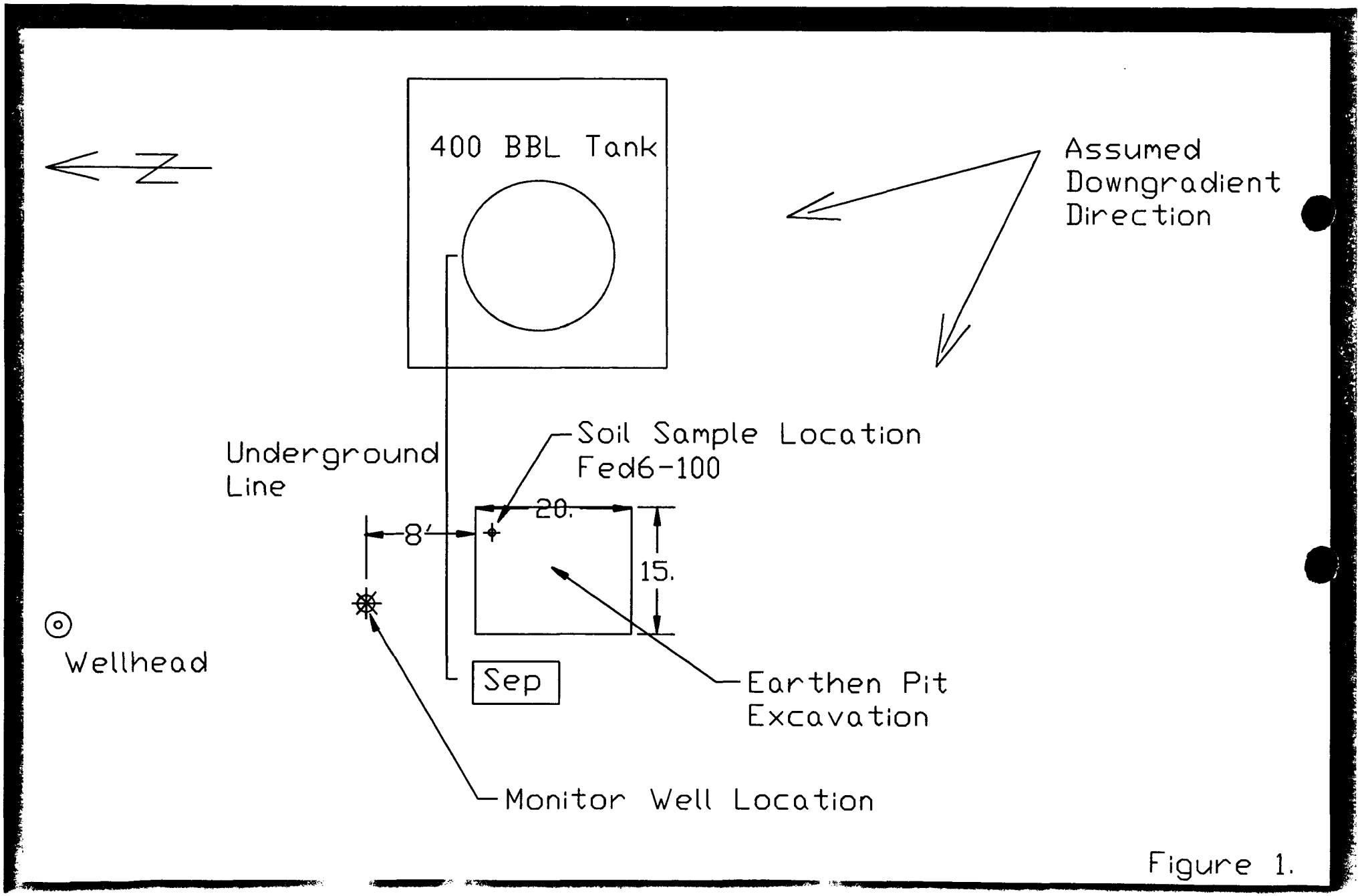
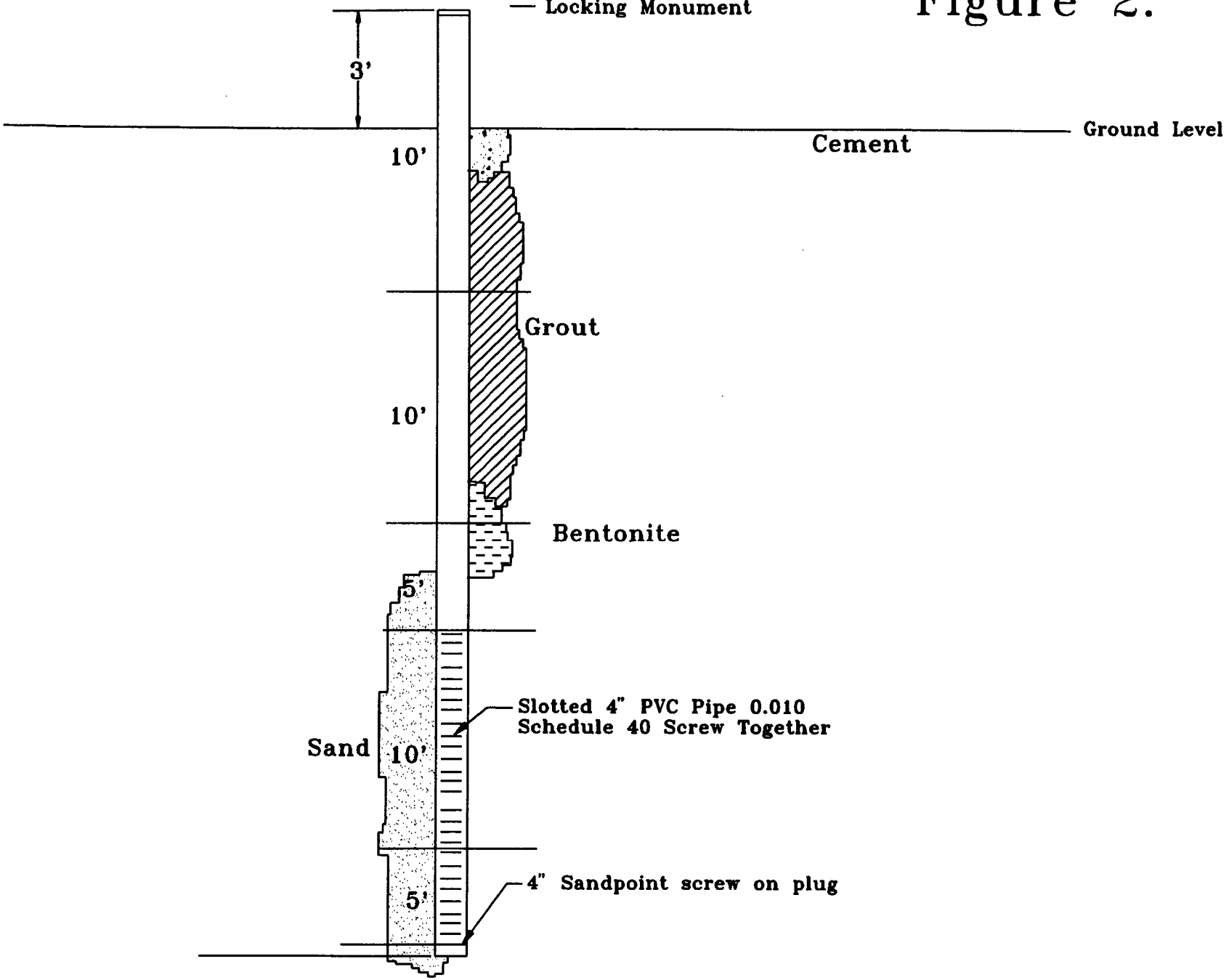

N
400 BBL Tank
Assumed
Downgradient
Direction
Underground
Line
Soil Sample Location
Fed6-100
20.
8'
15.
Wellhead
Sep
Earthen Pit
Excavation
Monitor Well Location

Figure 1.

Figure 2.


Locking Monument
3'
Ground Level
Cement
10'
Grout
10'
Bentonite
5'
Slotted 4" PVC Pipe 0.010
Schedule 40 Screw Together
Sand
10'
5'
4" Sandpoint screw on plug

During the drilling operations, soil samples were gathered approximately every 5' of depth. Samples were collected from split-spoon samplers driven 24" into the soil. The soil was placed in baggies and tested with the PID Meter for hydrocarbons. The depth to water from the top of the casing riser measured 20'-11 5/8". Considering the height of the riser, that makes the first measured depth to groundwater approximately 18'.

Field Test Data

Field data collected during the drilling process included soil samples tested with a Photo-Ionization Detector (PID) Meter. The field data gathered is presented in the following Table.

Table 1-1.

Sample No.	Depth	PID(PPM)
1	3.5-5.5'	7.8
2	8.5-10.5'	1.5
3	13.5-15.5'	8.0
4	18.5-20.5'	7.1

Water encountered next sampling interval

Laboratory Data

The laboratory data gathered is summarized in the following Table. Individual laboratory reports are attached for your viewing.

Table 1-2.

Sample No.	Description		(Units)	
Fed6-404	BTEX EPA Method 602.2	B	ND	PPB
		T	ND	PPB
		E	ND	PPB
		X	1.08	PPB
Fed6-405	Metals EPA Method 600/4	Arsenic	<0.005	PPM
		Barium	<0.25	PPM
		Cadmium	<0.002	PPM
		Chromium	<0.02	PPM
		Lead	<0.005	PPM
		Mercury	<0.001	PPM
		Selenium	<0.006	PPM
		Silver	<0.01	PPM
Fed6-406	Cation / Anion EPA Method 8310	Total Hardness	101	PPM
		Calcium	28.3	PPM
		Magnesium	7.36	PPM
		Potassium	<5.0	PPM
		Sodium	780	PPM
		Iron	0.05	PPM
		Total Alkalinity	497	PPM
		Bicarbonate	497	PPM

		Chloride	20.0	PPM
		Sulfate	1,360	PPM
	Cation / Anion Difference = 3.82			
Fed6-407	Polynuclear Aromatic Hydrocarbons	Acenaphthene	<2.13	PPB
		Acenaphthylene	<3.74	PPB
		Anthracene	<1.49	PPB
		Benzo(a)anthracene	<0.88	PPB
		Benzo(a)pyrene	<0.39	PPB
		Benzo(b)fluoranthene	<0.19	PPB
		Benzo(k)Fluoranthene	<0.34	PPB
		Benzo(ghi)perylene	<1.23	PPB
		Chrysene	<0.88	PPB
		Dibenzo(a,h)anthracene	<0.72	PPB
		Fluoranthene	<0.15	PPB
		Fluorene	<1.29	PPB
		Indeno(1,2,3-cd)pyrene	<1.05	PPB
		Naphthalene	<5.82	PPB
		Phenanthrene	<1.22	PPB
		Pyrene	<0.13	PPB

Conclusions

Water data for BTEX was below New Mexico Drinking Water Standards as outlined in NMED Drinking Water Regulations (Title 20, Chapter 7, Part 1). Large numbers were found in the following concentrations, Sodium, Alkalinity, Sulfate. These values are to be considered normal for water found in a wash bottom such as this.

Recommendations

As confirmed with NMOCD, CES recommends that a second interval of BTEX water analyses should be collected from the monitor well within 60 days. If the BTEX concentration is below groundwater standards as found in this first interval, the monitoring well should be grouted to the surface and abandoned. "No Further Action" would be applied for to NMOCD for groundwater remediation. The contaminated soil in the soil farm should be regularly tilled as the weather warms until it has been reduced to less than 100 PPM from a laboratory TPH analysis. The excavation could then be backfilled and a "Closure Package" prepared for distribution to NMOCD.

Contract Environmental Services, Inc. appreciates this opportunity to present this letter report on the Federal # 6-32 to Louis Dreyfus Natural Gas. If you have questions or require additional information, please don't hesitate to contact our offices at (505) 325-1198 or stop by at 4200 Hawkins Road, Farmington.

Sincerely,

Shawn A. Adams
Contract Environmental Services, Inc.

ANALYTICA
ENVIRONMENTAL LABORATORY

PURGEABLE AROMATICS

Contract Environmental Services, Inc.

Project ID:	Largo Wells	Report Date:	12/09/95
Sample ID:	404 - 407	Date Sampled:	12/05/95
Lab ID:	2066	Date Received:	12/05/95
Sample Matrix:	Water	Date Analyzed:	12/08/95
Preservative:	Cool		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	1.08	1.00
o-Xylene	ND	0.50

Total BTEX	**1.08**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	100	88 - 110%
Bromofluorobenzene	86	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:

Analyst

Review

ANALYTICA
ENVIRONMENTAL LABORATORY

Total Metals Analysis
Contract Environmental Services, Inc.

Project ID:	Largo Wells	Date Reported:	01/09/96
Sample ID:	404 - 407	Date Sampled:	12/05/95
Laboratory ID:	2066	Time Sampled:	NA
Sample Matrix:	Water	Date Received:	12/05/95

Parameter	Analytical Result (mg/L)	Units
Trace Metals		
Arsenic	< 0.005	mg/L
Barium	< 0.25	mg/L
Cadmium	< 0.002	mg/L
Chromium	< 0.02	mg/L
Lead	< 0.005	mg/L
Mercury	< 0.001	mg/L
Selenium	0.006	mg/L
Silver	< 0.01	mg/L

Reference: U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 1983.
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Comments:

Review

ANALYTICA
ENVIRONMENTAL LABORATORY

API Suite

Contract Environmental Services, Inc.

Project ID:	Largo Wells	Date Reported:	01/09/96
Sample ID:	404 - 407	Date Sampled:	12/05/95
Laboratory ID:	2066	Time Sampled:	NA
Sample Matrix:	Water	Date Received:	12/05/95

Parameter		Analytical Result	Units
General	Lab pH	7.8	s.u.
	Lab Conductivity @ 25° C	3,590	µmhos/cm
	Total Dissolved Solids @ 180°C	2,530	mg/L
	Total Dissolved Solids (Calc)	2,500	mg/L
	Specific Gravity	1.005	***
Anions	Total Alkalinity as $CaCO_3$	497	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	497	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	20.0	mg/L
	Sulfate	1,360	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	101	mg/L
	Calcium	28.3	mg/L
	Magnesium	7.36	mg/L
	Potassium	< 5.0	mg/L
	Sodium	780	mg/L
	Iron	0.05	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	3.82	+/- 5 %
	TDS (180):TDS (calculated)	1.0	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 1983.
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

ANALYTICA
ENVIRONMENTAL LABORATORY

Polyaromatic Hydrocarbons
EPA Method 8310

Contract Environmental Services, Inc.

Project ID:	Largo Wells	Report Date:	01/05/96
Sample ID:	404 - 407	Date Sampled:	12/05/95
Lab ID:	2066	Date Received:	12/05/95
Sample Matrix:	Water	Date Extracted:	12/11/95
Preservative:	Cool	Date Analyzed:	12/21/95
Condition:	Intact		

Target Analyte	Concentration (µg/L)
Acenaphthene	< 2.13
Acenaphthylene	< 3.74
Anthracene	< 1.49
Benzo(a)anthracene	< 0.88
Benzo(a)pyrene	< 0.39
Benzo(b)fluoranthene	< 0.19
Benzo(k)fluoranthene	< 0.34
Benzo(ghi)perylene	< 1.23
Chrysene	< 0.88
Dibenzo(a,h)anthracene	< 0.72
Fluoranthene	< 0.15
Fluorene	< 1.29
Indeno(1,2,3-cd)pyrene	< 1.05
Naphthalene	< 5.82
Phenanthrene	< 1.22
Pyrene	< 0.13

Reference: EPA Method 8310: Polynuclear Aromatic Hydrocarbons .

Review

ANALYTICA
ENVIRONMENTAL LABORATORY
807 S. CARLTON • FARMINGTON, NM 87401 • (505) 326-2395

CHAIN OF CUSTODY

Page _____ of _____

PROJECT MANAGER:
Analytica Lab I.D.:

Company: Cantract Env. Serv.
Address: PO Box 505
Kirtland NM
Phone: 325-1198
Fax:

Bill To: Louis Dreyfus Nat'l Gas
Company: PO Box
Address: Farmington NM 87499

Sample ID	Date	Time	Matrix	Lab ID
400-403	12-5-95		water	
404-407	"		"	
408-411	"		"	

ORGANIC ANALYSES														
Petroleum Hydrocarbons (418.1)	Gasoline / Diesel (mod. 8015)	Gasoline (GRO)	Aromatic HCs BTEX/MTBE (602 / 8020)	Chlorinated Hydrocarbons (8010)	SDWA Volatiles (502.1 / 503.1)	Chlorinated Pesticides / PCBs (608 / 8080)	Herbicides (615 / 8150)	Volatiles GC/MS (624 / 8240 / 8260)	Base / Neutral / Acid GC/MS (625 / 8270)	Polynuclear Aromatic Hydrocarbons (8100)	TCLP Extraction	Other (specify):
			X							X		
			X							X		
			X							X		

WATER ANALYSES								
Cation / Anion	Specific Cations (specify):	Specific Anions (specify):	BOD / Fecal / Total Coliform	Solids: TDS / TSS / SS	Nutrients: NH4+ / NO2- / NO3- / TKN	Oil and Grease	Other (specify):
X							
X							
X							

METALS			
Priority Pollutants	RCRA Metals (~~Total~~ Dissolved)	RCRA Metals TCLP (1311)	Other (specify):
	X		
	X		
	X		

COMMENTS

Project Information	Sample Receipt
Proj. #:	No. Containers:
Proj. Name: La-50 Wells	Custody Seals: Y / N / NA
P. O. No:	Received Intact:
Shipped Via:	Received Cold:

Required Turnaround Time (Prior Authorization Required for Rush)

Sampled By:	Relinquished By:	Relinquished By:
Signature: [signature] Date: 12-5-95	Signature: Date:	Signature: Date:
Company: Cantract Env. Serv. Time:	Company: Time:	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature: Date:	Signature: Date:	Signature: [signature] Date: 12/5
Company: Time:	Company: Time:	Company: Analytica Time: 4:30

Please Fill Out Thoroughly.

Shaded areas for lab use only.

White/Yellow: Analytica
Pink: Client

ENCLOSURE #2

PIT EXCAVATIION DATA

FEDERAL 6-32

Contract Environmental Services, Inc.
Post Office Box 505
Kirtland, New Mexico 87417-0505
Phone (505) 325-1198

October 19, 1995

New Mexico Oil Conservation Division
Mr. Bill Olson
2400 Pacheco Street
Santa Fe, New Mexico 85730

RE: Louis Dreyfus Natural Gas Corporation, Federal #6-32, Sec 6, T26N, R07W SW/NE, Rio Arriba County, New Mexico

Dear Mr. Olson,

Contract Environmental Services, Inc. (CES) is pleased to present this "Plan of Action" for the Federal # 6-32 well location on behalf of Louis Dreyfus Natural Gas Corporation (LDNG). This plan contains background information, current site assessment data, a site plan, conclusions and a "Plan of Action".

Background Information

On October 4, 1995 CES began excavating the soil immediately below the earthen pit. As soils were removed from the excavation, periodic samples were gathered to be analyzed using a Photo-Ionization Detector (PID) meter. Soils removed were transferred to another portion of the wellpad to establish a soil farm for continued remediation. These soils were spread on the wellpad some 6" to 12" in depth to allow for aeration and the release of volatile aromatic hydrocarbons.

Approximately 70 cubic yards of contaminated soil was removed from the pit area during the excavation process. At a depth of 17' a field PID soil sample indicated that the contaminated soil had not been removed. A confirmation laboratory soil sample was gathered to be processed for Total Petroleum Hydrocarbons (TPH) using EPA Method 418.1. This laboratory soil analysis confirmed that uncontaminated soil had not been reached. The remainder of the pit area was "Cleaned Out" to this same depth. It is anticipated that not all contamination was removed from the walls of the excavation. On the north side of the excavation a subsurface flow line prevents removing all contaminated material. On the east side a berm and fence around storage tanks prevents further excavation in that direction. The separator was located on the west side of the excavation. Underground lines and surface equipment prevented further excavation in at least three of the four directions. Leaving the excavation open for an extended period of time will enable the contaminate wall soil to remediate as well.

The following is field PID data collected during the removal process.

Center Of Earthen Pit

PID Field Data Collected

Depth	Sample No.	PID(PPM)	Location
4'	#1	2000+	Center of Pit
6'	#2	2000+	Center of Pit
10'	#3	2000+	Center of Pit
14'	#4	2000+	Center of Pit
17'	#5	2000+	Center of Pit

Laboratory Data Collected

Depth	Sample No.	PID(PPM)	Location
17'	FED6-100	3,050	Northeast Corner

Conclusions

Soil contamination continued beyond the digging ability of the equipment used. Remaining wall contamination will remediate while the excavation remains open during the soil farm remediation process. CES believes that LDNG has not removed the majority of the contaminated soil or sufficiently defined the vertical extent. CES ranks this site at 100 PPM cleanup score with a maximum benzene level of 10 PPM. The amount of impact to the groundwater is unknown at this point.

Plan of Action

Continue removing the contaminated soils from the excavation, move in a lateral direction testing the excavation walls as the digging proceeds. Remove the contamination in the excavation walls until the PID Meter indicates below 100 PPM. Remediate the soils contained in the soil farm to below 100 PPM laboratory TPH by EPA Method 418.1 or 8015 Modified for gas and diesel. Auger in a monitor well approximately 5' into the groundwater in a downgradient direction from the excavation. A water sample will be collected from this monitor well after the standard 3 volumes of water have been extracted. The water sample will be analyzed for Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) using EPA Method 8020. Return the remediated soils to the pit area as backfill and slightly dome the area to prevent water ponding. In addition, the soils will be checked for contamination approximately every 4' during the drilling process while installing the monitor well. A report on the finding will be presented to NMOCD for their records.

Contract Environmental Services, Inc. appreciates this opportunity to present this "Plan of Action" on behalf of Louis Dreyfus Natural Gas Corporation. If you have questions or require additional information, please don't hesitate to contact our offices at (505) 325-1198 or stop by at 4200 Hawkins Road, Farmington.

Sincerely,

Shawn A. Adams
Contract Environmental Services, Inc.

cc: Mr. Denny Foust, NMOCD Farmington
Mr. Bill Liese, BLM Farmington

4307

CHAIN OF CUSTODY RECORD

ON SITE TECHNOLOGIES, LTD.

Date: 9/27/96

Page 1 of 1

657 W. Maple • P. O. Box 2606 • Farmington NM 87499
LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchase Order No.:	Job No.		
SEND INVOICE TO: Name	SHAWN ADAMS	REPORT RESULTS TO: Name	Title
Company	CONTRACT ENVIRONMENTAL SERVICES, INC.	Company	
Address	PO Box 505	Mailing Address	
City, State, Zip	KIRTLAND NM 87417	City, State, Zip	
		Telephone No.	Telefax No.
Sampling Location:	E. Land 6-32 MKL-5		
Sampler:	SADAMS		

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	MATRIX	PRES.	Number of Containers	ANALYSIS REQUESTED									LAB ID
MKL5-200 MKL#5	9/26/96	2:02	Soil	Ice	1		X		X		X				
FED-6000 Final E 6-32	9/26/96	3:36	Soil	Ice	1		X		X		X				

Relinquished by:	Date/Time 9/27/96 2:28	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Authorized by: SAA Date 9/27

(Client Signature Must Accompany Request)

Rush 24 HR AS POSSIBLE | 24-48 Hours | 10 Working Days | Special Instructions:

White – On Site Yellow – LAB Pink – Sampler Goldenrod – Client

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

TOTAL PETROLEUM HYDROCARBONS

Attn:	*Shawn Adams*	*Date:*	27-Sep-96
Company:	*Contract Environmental Services, Inc.*	*COC No.:*	*4307*
Address:	*P.O. Box 505*	*Sample No.*	*12358*
City, State:	*Kirtland, NM 87417*	*Job No.*	*2-1000*

Project Name:	***Federal #6-32***				
Project Location:	***FED-600***				
Sampled by:	SA	Date:	26-Sep-96	Time:	15:30
Analyzed by:	HR	Date:	27-Sep-96		
Sample Matrix:	*Soil*				

Laboratory Analysis

Parameter	*Result*	*Detection Limit*	*Unit of Measure*	*Method*
Total Petroleum Hydrocarbons, TPH	1779	25	mg/kg	EPA Method 418.1

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	893	828 - 1024	mg/kg

Duplication

Laboratory Identification	*(% RSD)*	*Limit (% RSD)*
12357-4307	1.7	15.0

Approved by:

Date: 9/30/96

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

AROMATIC VOLATILE ORGANICS

Attn:	*Shawn Adams*	Date:	1-Oct-96
Company:	*Contract Environmental Services, Inc.*	*COC No.:*	*4307*
Address:	*P.O. Box 505*	*Sample No.*	*12358*
City, State:	*Kirtland, NM 87417*	*Job No.*	*2-1000*

Project Name:	***Federal #6-32***				
Project Location:	***FED-600***				
Sampled by:	SA	Date:	26-Sep-96	Time:	15:30
Analyzed by:	DC	Date:	30-Sep-96		
Sample Matrix:	*Soil*				

Laboratory Analysis

Parameter	*Result*	*Units of Measure*	*Detection Limit*	*Units of Measure*
Benzene	<0.2	ug/kg	0.2	ug/kg
Toluene	2.5	ug/kg	0.2	ug/kg
Ethylbenzene	1.5	ug/kg	0.2	ug/kg
m,p-Xylene	2.2	ug/kg	0.2	ug/kg
o-Xylene	0.6	ug/kg	0.2	ug/kg
TOTAL	6.8	ug/kg		

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

Approved by:
Date: 10/1/96

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

AROMATIC VOLATILE ORGANICS

Attn:	*Shawn Adams*	Date:	1-Oct-96
Company:	*Contract Environmental Services, Inc.*	*COC No.:*	*4307*
Address:	*P.O. Box 505*	*Sample No.*	*12358*
City, State:	*Kirtland, NM 87417*	*Job No.*	*2-1000*

Project Name:	***Federal #6-32***				
Project Location:	***FED-600***				
Sampled by:	SA	Date:	26-Sep-96	Time:	15:30
Analyzed by:	DC	Date:	30-Sep-96		
Sample Matrix:	*Soil*				

Laboratory Analysis

Parameter	*Result*	*Units of Measure*	*Detection Limit*	*Units of Measure*
Benzene	<0.2	ug/kg	0.2	ug/kg
Toluene	2.5	ug/kg	0.2	ug/kg
Ethylbenzene	1.5	ug/kg	0.2	ug/kg
m,p-Xylene	2.2	ug/kg	0.2	ug/kg
o-Xylene	0.6	ug/kg	0.2	ug/kg
TOTAL	6.8	ug/kg		

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

Approved by:
Date: 10/1/96

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 30-Sep-96

Internal QC No.: 0486-QC
Surrogate QC No.: 0488-QC
Reference Standard QC No.: 0417-QC

Method Blank

Analyte	*Result*	*Units of Measure*
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

Analyte	*Units of Measure*	*True Value*	*Analyzed Value*	*% Diff*	*Limit*
Benzene	ppb	20.0	19.9	1	15%
Toluene	ppb	20.0	19.6	2	15%
Ethylbenzene	ppb	20.0	19.7	1	15%
m,p-Xylene	ppb	40.0	37.9	5	15%
o-Xylene	ppb	20.0	18.7	7	15%

Matrix Spike

Analyte	*1- Percent Recovered*	*2 - Percent Recovered*	*Limit*	*%RSD*	*Limit*
Benzene	109	111	(39-150)	1	20%
Toluene	80	83	(46-148)	1	20%
Ethylbenzene	102	104	(32-160)	1	20%
m,p-Xylene	88	90	(35-145)	1	20%
o-Xylene	92	94	(35-145)	1	20%

Surrogate Recoveries

Laboratory Identification	*S1 Percent Recovered*	*S2 Percent Recovered*	*Laboratory Identification*	*S1 Percent Recovered*	*S2 Percent Recovered*
Limit Percent Recovery	(70-130)		*Limit Percent Recovery*	(70-130)	
S1: Flourobenzene			*S1: Flourobenzene*		
12357-4307	93				
12358-4307	93				

ENCLOSURE #3

SOIL FARM DATA

FEDERAL 6-32

CHAIN OF CUSTODY RECORD

5155

Date: 6/19/98

Page 1 of 1

ON SITE TECHNOLOGIES, LTD.
657 W. Maple • P. O. Box 2606 • Farmington NM 87499
LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchase Order No.: | Job No.

SEND INVOICE TO
Name: SHAWN ADAMS
Company: Contract Env. Services, Inc. | Dept.
Address: PO Box 3376
City, State, Zip: Farmington NM 87499

REPORT RESULTS TO
Name | Title
Company
Mailing Address: SAME
City, State, Zip
Telephone No. | Telefax No.

Sampling Location: FEDERAL 6-32
MKL-5
MKL-5A

Sampler: SADAMS

ANALYSIS REQUESTED

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	MATRIX	PRES.	Number of Containers	40z Glass	EPA 8015 M	PID (PPM)	LAB ID
F632-300 Soil Farm South	6/19/98	10:30	Soil	No	1	X	X	6.0	806081-01A
F632-301 Soil Farm North	"	10:35	"	"	1	X	X	2.0	-02A
MKL5-302 Soil Farm North	"	11:00	"	"	1	X	X	2.0	-03A
MKL5-303 Soil Farm South	"	11:05	"	"	1	X	X	2.0	-04A
MKL5A-304 Soil Farm Comp.	"	11:20	"	"	1	X	X	6.0	-05A

Relinquished by: Shawn Adams | Date/Time 6/19/98 1108 | Received by: Heidi Rossi | Date/Time 6/19/98 1108
Relinquished by: | Date/Time | Received by: | Date/Time
Relinquished by: | Date/Time | Received by: | Date/Time

Method of Shipment:

Authorized by: SAA Date 6/19
(Client Signature Must Accompany Request)

Rush: STA | 24-48 Hours | 10 Working Days | Special Instructions:

Distribution: White – On Site Yellow – LAB Pink – Sampler Goldenrod – Client

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: *30-Jun-98*

Client:	Contract Environmental Services, Inc.	**Client Sample Info:**	Federal 6-32
Work Order:	9806081	**Client Sample ID:**	F632-301 Soil Farm North
Lab ID:	9806081-02A **Matrix:** SOIL	**Collection Date:**	6/18/98 10:35:00 AM
Project:	Soil Farms	**COC Record:**	5155

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL RANGE ORGANICS		**SW8015**				Analyst: **HR**
T/R Hydrocarbons: C10-C28	140	25		mg/Kg	1	6/29/98
GASOLINE RANGE ORGANICS		**SW8015**				Analyst: **DC**
T/R Hydrocarbons: C6-C10	ND	0.18		mg/Kg	1	6/23/98

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

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- *TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT* -

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: *30-Jun-98*

Client:	Contract Environmental Services, Inc.	**Client Sample Info:**	Federal 6-32
Work Order:	9806081	**Client Sample ID:**	F632-300 Soil Farm South
Lab ID:	9806081-01A **Matrix:** SOIL	**Collection Date:**	6/18/98 10:30:00 AM
Project:	Soil Farms	**COC Record:**	5155

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL RANGE ORGANICS		**SW8015**				Analyst: **HR**
T/R Hydrocarbons: C10-C28	50	25		mg/Kg	1	6/27/98
GASOLINE RANGE ORGANICS		**SW8015**				Analyst: **DC**
T/R Hydrocarbons: C6-C10	ND	0.18		mg/Kg	1	6/23/98

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

P.O. BOX 2606 • FARMINGTON, NM 87499

On Site Technologies, LTD.

Date: *24-Sep-99*

CLIENT: Contract Environmental Services, Inc.
Work Order: 9806081
Project: Soil Farms

QC SUMMARY REPORT
Method Blank

Sample ID: **MB1** Batch ID: **GC-2_980626** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date: **6/26/98** Prep Date: **6/26/98**
Client ID: **9806081** Run ID: **GC-2_980626B** SeqNo: **3630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	ND	25									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *24-Sep-99*

CLIENT: Contract Environmental Services, Inc.
Work Order: 9806081
Project: Soil Farms

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **9806075-04AD** Batch ID: **GC-2_980626** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date: **6/27/98** Prep Date: **6/27/98**

Client ID: **9806081** Run ID: **GC-2_980626B** SeqNo: **3653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	1844	25	0	0	0.0%	0	0	1790	3.0%	15	

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *24-Sep-99*

CLIENT: Contract Environmental Services, Inc.
Work Order: 9806081
Project: Soil Farms

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **9806074-06AMS** Batch ID: **GC-2_980626** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date: **6/29/98** Prep Date: **6/29/98**

Client ID: **9806081** Run ID: **GC-2_980626B** SeqNo: **3654**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	527.2	25	502	0	105.0%	70	130				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *24-Sep-99*

CLIENT: Contract Environmental Services, Inc.
Work Order: 9806081
Project: Soil Farms

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS** Batch ID: **GC-2_980626** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date: **6/27/98** Prep Date: **6/26/98**

Client ID: **9806081** Run ID: **GC-2_980626B** SeqNo: **3632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	529.9	25	502	0	105.6%	70	130				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *24-Sep-99*

CLIENT: Contract Environmental Services, Inc.
Work Order: 9806081
Project: Soil Farms

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1 QC0602**	Batch ID: **GC-2_980626**	Test Code: **SW8015B**	Units: **mg/Kg**	Analysis Date: **6/26/98**	Prep Date:
Client ID: **9806081**	Run ID: **GC-2_980626B**			SeqNo: **3631**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	492.9	25	502	0	98.2%	85	115				

Sample ID: **CCV2 QC0602**	Batch ID: **GC-2_980626**	Test Code: **SW8015B**	Units: **mg/Kg**	Analysis Date: **6/27/98**	Prep Date:
Client ID: **9806081**	Run ID: **GC-2_980626B**			SeqNo: **3655**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	522.5	25	502	0	104.1%	85	115				

Sample ID: **CCV3 QC0602**	Batch ID: **GC-2_980626**	Test Code: **SW8015B**	Units: **mg/Kg**	Analysis Date: **6/27/98**	Prep Date:
Client ID: **9806081**	Run ID: **GC-2_980626B**			SeqNo: **3656**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	490	25	502	0	97.6%	85	115				

Sample ID: **CCV4 QC0602**	Batch ID: **GC-2_980626**	Test Code: **SW8015B**	Units: **mg/Kg**	Analysis Date: **6/29/98**	Prep Date:
Client ID: **9806081**	Run ID: **GC-2_980626B**			SeqNo: **3657**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	545.9	25	502	0	108.7%	85	115				

Sample ID: **CCV5 QC0602**	Batch ID: **GC-2_980626**	Test Code: **SW8015B**	Units: **mg/Kg**	Analysis Date: **6/29/98**	Prep Date:
Client ID: **9806081**	Run ID: **GC-2_980626B**			SeqNo: **3658**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	520.2	25	502	0	103.6%	85	115				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *24-Sep-99*

CLIENT: Contract Environmental Services, Inc.
Work Order: 9806081
Project: Soil Farms

QC SUMMARY REPORT

Method Blank

Sample ID: **MB1** Batch ID: **GC-1_980623** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date: **6/23/98** Prep Date:

Client ID: **9806081** Run ID: **GC-1_980623A** SeqNo: **3474**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	.026	0.18									J

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *24-Sep-99*

CLIENT: Contract Environmental Services, Inc.
Work Order: 9806081
Project: Soil Farms

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **9806087-02AMS**	Batch ID: **GC-1_980623**	Test Code: **SW8015B**	Units: **mg/Kg**	Analysis Date: **6/23/98**	Prep Date:
Client ID:	**9806081**	Run ID: **GC-1_980623A**		SeqNo: **3498**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.496	0.18	1.801	0	83.1%	52	123				

Sample ID: **9806087-02AMSD**	Batch ID: **GC-1_980623**	Test Code: **SW8015B**	Units: **mg/Kg**	Analysis Date: **6/23/98**	Prep Date:
Client ID:	**9806081**	Run ID: **GC-1_980623A**		SeqNo: **3499**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.395	0.18	1.801	0	77.5%	52	123	1.496	7.0%	14	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *24-Sep-99*

CLIENT: Contract Environmental Services, Inc.
Work Order: 9806081
Project: Soil Farms

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS** Batch ID: **GC-1_980623** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date: **6/23/98** Prep Date:

Client ID: **9806081** Run ID: **GC-1_980623A** SeqNo: **3476**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.851	0.18	1.801	0.03	101.1%	52	123				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *24-Sep-99*

CLIENT: Contract Environmental Services, Inc.
Work Order: 9806081
Project: Soil Farms

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1 QC0593** Batch ID: **GC-1_980623** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date: **6/23/98** Prep Date:
Client ID: **9806081** Run ID: **GC-1_980623A** SeqNo: **3475**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.835	0.18	1.801	0	101.9%	85	115				
Trifluorotoluene	.0769	0	0.08	0	96.1%	70	130				

Sample ID: **CCV2 QC0593** Batch ID: **GC-1_980623** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date: **6/23/98** Prep Date:
Client ID: **9806081** Run ID: **GC-1_980623A** SeqNo: **3489**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.686	0.18	1.801	0	93.6%	85	115				
Trifluorotoluene	.0777	0	0.08	0	97.1%	70	130				

Sample ID: **CCV3 QC0593** Batch ID: **GC-1_980623** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date: **6/23/98** Prep Date:
Client ID: **9806081** Run ID: **GC-1_980623A** SeqNo: **3497**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.525	0.18	1.801	0	84.7%	85	115				S
Trifluorotoluene	.0754	0	0.08	0	94.2%	70	130				

CONFIRMED w/ CCV4

Sample ID: **CCV4 QC0593** Batch ID: **GC-1_980623** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date: **6/23/98** Prep Date:
Client ID: **9806081** Run ID: **GC-1_980623A** SeqNo: **3500**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.806	0.18	1.801	0	100.3%	85	115				
Trifluorotoluene	.0756	0	0.08	0	94.5%	70	130				

9/24/99

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

10421

CHAIN OF CUSTODY RECORD

ON SITE TECHNOLOGIES, LTD.

612 E. Murray Dr. • P.O. Box 2606 • Farmington, NM 87499
LAB: (505) 325-5667 • FAX: (505) 327-1496

Date: _____

Page: _____ of _____

Purchase Order No.:	Project No.		
SEND INVOICE TO: Name		REPORT RESULTS TO: Name	Title
Company	Dept.	Company	
Address		Mailing Address	
City, State, Zip		City, State, Zip	
		Telephone No.	Telefax No.

PROJECT LOCATION:

SAMPLER'S SIGNATURE:

SAMPLE IDENTIFICATION	SAMPLE DATE	TIME	MATRIX	PRES.	Number of Containers	8015 MOD GRO/DRO	BTEX	LAB ID
MKL 5-A					1	X		
MKL 5-A					3	X		
Fed-C-32					1	X		
"					3	X		
"					3	X		
[illegible]					1	X		
[illegible]					2	X		
[illegible]					2	X		
MKL [illegible] R					1	X		

ANALYSIS REQUESTED

Relinquished by:	Date/Time	Received by: Heidi Rees	Date/Time 11/12/99 1405
Relinquished by:	Date/Time	Received by:	Date/Time
Relinquished by:	Date/Time	Received by:	Date/Time

Method of Shipment:

Rush | 24-48 Hours | 10 Working Days | By Date

Authorized by: _____ Date 11/12/99

(Client Signature Must Accompany Request)

Special Instructions / Remarks:
RUN BTEX ONLY IF 8015 MOD PASSES
11/12/99

Distribution: White - On Site Yellow - LAB Pink - Sampler Goldenrod - Client

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: *06-Dec-99*

Client:	Louis Dreyfus Natural Gas	**Client Sample Info:**	Landfarm
Work Order:	9911023	**Client Sample ID:**	Fed 6-32 Composite (#1/#2/#3)
Lab ID:	9911023-02A **Matrix:** SOIL	**Collection Date:**	11/12/99
Project:	Landfarms	**COC Record:**	10421-10422

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL RANGE ORGANICS		**SW8015B**				Analyst: **DM**
T/R Hydrocarbons: C10-C28	ND	25		mg/Kg	1	11/24/99
GASOLINE RANGE ORGANICS		**SW8015B**				Analyst: **DC**
T/R Hydrocarbons: C6-C10	ND	0.18		mg/Kg	1	11/16/99
GASOLINE RANGE ORGANICS		**SW8015B**				Analyst: **DM**
Benzene	ND	10		µg/Kg	1	11/16/99
Ethylbenzene	ND	10		µg/Kg	1	11/16/99
m,p-Xylene	ND	20		µg/Kg	1	11/16/99
o-Xylene	ND	20		µg/Kg	1	11/16/99
Toluene	ND	30		µg/Kg	1	11/16/99

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

P.O. BOX 2606 • FARMINGTON, NM 87499

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT
Method Blank

Sample ID: **MB1** Batch ID: **GC-2_991123** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/23/99** Prep Date: **11/16/99**

Client ID: **9911023** Run ID: **GC-2_991123A** SeqNo: **21551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	10.53	25									J

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT

Sample Duplicate

Sample ID: **9911023-01AD** Batch ID: **GC-2_991123** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/30/99** Prep Date: **11/30/99**

Client ID: **MKL 5-A Composi** **9911023** Run ID: **GC-2_991123A** SeqNo: **21573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	1121	25	0	0	0.0%	0	0	970.7	14.4%	24	

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **9911023-04AMS** Batch ID: **GC-2_991123** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/30/99** Prep Date: **11/30/99**

Client ID: **MKL 2-R #1** **9911023** Run ID: **GC-2_991123A** SeqNo: **21572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	449	25	501.9	0	89.5%	63	126				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS Soil** Batch ID: **GC-2_991123** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/23/99** Prep Date: **11/16/99**

Client ID: **9911023** Run ID: **GC-2_991123A** SeqNo: **21553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	529.3	25	501.9	10.53	103.4%	59	126				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1 DRO_99100** Batch ID: **GC-2_991123** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/23/99** Prep Date:
Client ID: **9911023** Run ID: **GC-2_991123A** SeqNo: **21552**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	435.6	25	501.9	0	86.8%	85	115				

Sample ID: **CCV2 DRO_99100** Batch ID: **GC-2_991123** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/23/99** Prep Date:
Client ID: **9911023** Run ID: **GC-2_991123A** SeqNo: **21574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	464.4	25	501.9	0	92.5%	85	115				

Sample ID: **CCV3 DRO_99100** Batch ID: **GC-2_991123** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/24/99** Prep Date:
Client ID: **9911023** Run ID: **GC-2_991123A** SeqNo: **21575**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	455.3	25	501.9	0	90.7%	85	115				

Sample ID: **CCV4 DRO_99100** Batch ID: **GC-2_991123** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/24/99** Prep Date:
Client ID: **9911023** Run ID: **GC-2_991123A** SeqNo: **21576**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	438.5	25	501.9	0	87.4%	85	115				

Sample ID: **CCV5 DRO_99100** Batch ID: **GC-2_991123** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/29/99** Prep Date:
Client ID: **9911023** Run ID: **GC-2_991123A** SeqNo: **21577**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	492.2	25	501.9	0	98.1%	85	115				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT
Continuing Calibration Verification Standard

Sample ID: **CCV6 DRO_99100** Batch ID: **GC-2_991123** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/29/99** Prep Date:
Client ID: **9911023** Run ID: **GC-2_991123A** SeqNo: **21578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	470.4	25	501.9	0	93.7%	85	115				

Sample ID: **CCV7 DRO_99100** Batch ID: **GC-2_991123** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/30/99** Prep Date:
Client ID: **9911023** Run ID: **GC-2_991123A** SeqNo: **21579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	526.6	25	501.9	0	104.9%	85	115				

Sample ID: **CCV8 DRO_99100** Batch ID: **GC-2_991123** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/30/99** Prep Date:
Client ID: **9911023** Run ID: **GC-2_991123A** SeqNo: **21580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C10-C28	528.5	25	501.9	0	105.3%	85	115				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT
Method Blank

Sample ID: **MBlank** Batch ID: **8015GRO_S-** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/16/99** Prep Date:

Client ID: **9911023** Run ID: **GC-1_991116A** SeqNo: **21331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	ND	0.18									

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **9911022-01AMS** Batch ID: **8015GRO_S-** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/16/99** Prep Date:
Client ID: **9911023** Run ID: **GC-1_991116A** SeqNo: **21343**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.537	0.18	1.802	0	85.3%	46	118				

Sample ID: **9911022-01AMSD** Batch ID: **8015GRO_S-** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/16/99** Prep Date:
Client ID: **9911023** Run ID: **GC-1_991116A** SeqNo: **21344**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.496	0.18	1.802	0	83.0%	46	118	1.537	2.7%	12	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS Soil** Batch ID: **8015GRO_S-** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/16/99** Prep Date:

Client ID: **9911023** Run ID: **GC-1_991116A** SeqNo: **21333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.647	0.18	1.802	0	91.4%	65.9	118				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1 GRO_99092** Batch ID: **8015GRO_S-** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/16/99** Prep Date:
Client ID: **9911023** Run ID: **GC-1_991116A** SeqNo: **21332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.718	0.18	1.812	0	94.8%	85	115				
Trifluorotoluene	.0769	0	0.08	0	96.1%	77	134				

Sample ID: **CCV2 GRO_99092** Batch ID: **8015GRO_S-** Test Code: **SW8015B** Units: **mg/Kg** Analysis Date **11/16/99** Prep Date:
Client ID: **9911023** Run ID: **GC-1_991116A** SeqNo: **21345**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
T/R Hydrocarbons: C6-C10	1.719	0.18	1.812	0	94.9%	85	115				
Trifluorotoluene	.0756	0	0.08	0	94.5%	77	134				

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT
Method Blank

Sample ID: **MBlank** Batch ID: **GRO_S-12/2/** Test Code: **SW8015B** Units: **µg/Kg** Analysis Date **11/16/99** Prep Date:

Client ID: **9911023** Run ID: **GC-1_991116B** SeqNo: **21625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	ND	10									
Ethylbenzene	ND	10									
m,p-Xylene	ND	20									
o-Xylene	ND	20									
Toluene	ND	30									

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT

Sample Matrix Spike

Sample ID: **9911022-01AMS** Batch ID: **GRO_S-12/2/** Test Code: **SW8015B** Units: **µg/Kg** Analysis Date **11/16/99** Prep Date:
Client ID: **9911023** Run ID: **GC-1_991116B** SeqNo: **21635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	88.77	10	100	0	88.8%	80	120				
Ethylbenzene	93.14	10	100	0	93.1%	80	120				
m,p-Xylene	187.4	20	200	0	93.7%	80	120				
o-Xylene	188.6	20	200	0	94.3%	80	120				
Toluene	276.5	30	300	0	92.2%	80	120				

Sample ID: **9911022-01AMSD** Batch ID: **GRO_S-12/2/** Test Code: **SW8015B** Units: **µg/Kg** Analysis Date **11/16/99** Prep Date:
Client ID: **9911023** Run ID: **GC-1_991116B** SeqNo: **21636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	87.3	10	100	0	87.3%	80	120	88.77	1.7%	20	
Ethylbenzene	91.27	10	100	0	91.3%	80	120	93.14	2.0%	20	
m,p-Xylene	184	20	200	0	92.0%	80	120	187.4	1.9%	20	
o-Xylene	186.3	20	200	0	93.1%	80	120	188.6	1.2%	20	
Toluene	271.7	30	300	0	90.6%	80	120	276.5	1.8%	20	

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT

Laboratory Control Spike - generic

Sample ID: **LCS Soil** Batch ID: **GRO_S-12/2/** Test Code: **SW8015B** Units: **µg/Kg** Analysis Date **11/16/99** Prep Date:

Client ID: **9911023** Run ID: **GC-1_991116B** SeqNo: **21627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	93.68	10	100	0	93.7%	80	120				
Ethylbenzene	98.82	10	100	0	98.8%	80	120				
m,p-Xylene	201	20	200	0	100.5%	80	120				
o-Xylene	198.6	20	200	0	99.3%	80	120				
Toluene	292.8	30	300	0	97.6%	80	120				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

On Site Technologies, LTD.

Date: *06-Dec-99*

CLIENT: Louis Dreyfus Natural Gas
Work Order: 9911023
Project: Landfarms

QC SUMMARY REPORT

Continuing Calibration Verification Standard

Sample ID: **CCV1 GRO_99092** Batch ID: **GRO_S-12/2/** Test Code: **SW8015B** Units: **µg/Kg** Analysis Date **11/16/99** Prep Date:

Client ID: **9911023** Run ID: **GC-1_991116B** SeqNo: **21626**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	96.51	10	100	0	96.5%	85	115				
Ethylbenzene	101.4	10	100	0	101.4%	85	115				
m,p-Xylene	203.7	20	200	0	101.9%	85	115				
o-Xylene	204.1	20	200	0	102.1%	85	115				
Toluene	300.5	30	300	0	100.2%	85	115				
Trifluorotoluene	76.95	0	80	0	96.2%	70	130				

Sample ID: **CCV2 GRO_99092** Batch ID: **GRO_S-12/2/** Test Code: **SW8015B** Units: **µg/Kg** Analysis Date **11/16/99** Prep Date:

Client ID: **9911023** Run ID: **GC-1_991116B** SeqNo: **21637**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	97.33	10	100	0	97.3%	85	115				
Ethylbenzene	101.5	10	100	0	101.5%	85	115				
m,p-Xylene	203.5	20	200	0	101.8%	85	115				
o-Xylene	205.2	20	200	0	102.6%	85	115				
Toluene	302.8	30	300	0	100.9%	85	115				
Trifluorotoluene	75.61	0	80	0	94.5%	70	130				

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

Contract Environmental Services, Inc.
Post Office Box 505
Kirtland, New Mexico 87417-0505
Phone (505) 325-1198

January 21, 1996

Louis Dreyfus Natural Gas Co.
Mr. Gene Simer
Post Office Box 370
Carlsbad, New Mexico 88221

RE: Federal #6-32 (Sec 06, T26N, R07W) Monitor Well

Dear Mr. Simer,

Contract Environmental Services, Inc. (CES) is pleased to present this letter report on the installation of a monitoring well for the Federal #6-32 well location. This report includes background information, scope of services, field test data, laboratory data, conclusions and recommendations.

Background Information

On October 4, 1995 CES began excavating contaminated soil from the separator pit on the above referenced well location. The excavation was recently completed with an approximate 150 cubic yards of contaminated soil removed. The soil removed was evenly distributed on the surface where it could be soil farmed until remediated. On October 19, 1995 CES issued a technical report presenting the findings of this investigation. On December 4, 1995 CES installed one monitor well in the anticipated downgradient direction from the excavation. The following day the monitor well was developed and sampled.

Scope Of Services

CES with the help of Phillip Environmental installed the monitor well to a depth of approximately 37 feet. The monitor well is located 8' from the northwest corner of the excavation (Please see attached Figure 1). The bottom 15' of the 4" PVC pipe was slotted (Please see attached Figure 2) and the top 22' was completed with unscreened PVC pipe. The bottom of the monitor well has a 4" screw-on plug that prevents sediments from entering the bottom of the well. All of the joints were composed of screw-together threads. Silica sand was backfilled 2' above the slotted interval. Above the sand a 2' bentonite plug was placed. The remainder of the open hole was grouted to within 2' of groundlevel. From this point to the surface, the PVC pipe was cemented in place. A riser was left on the monitoring well approximately 3' above ground level. T-posts and fluorescent flagging was placed on all sides of the monitor well to protect it before leaving.

The monitor well was developed until the muddy water cleared up prior to sampling. An estimated five volumes of water were removed before collection for laboratory analyses. Water samples were gathered to be analyzed for Benzene, Toluene, Ethylbenzene, Xylenes (BTEX); Metals; Cations / Anions; and Polyaromatic Hydrocarbons (PAH). All water was analyzed using EPA Test Methods.

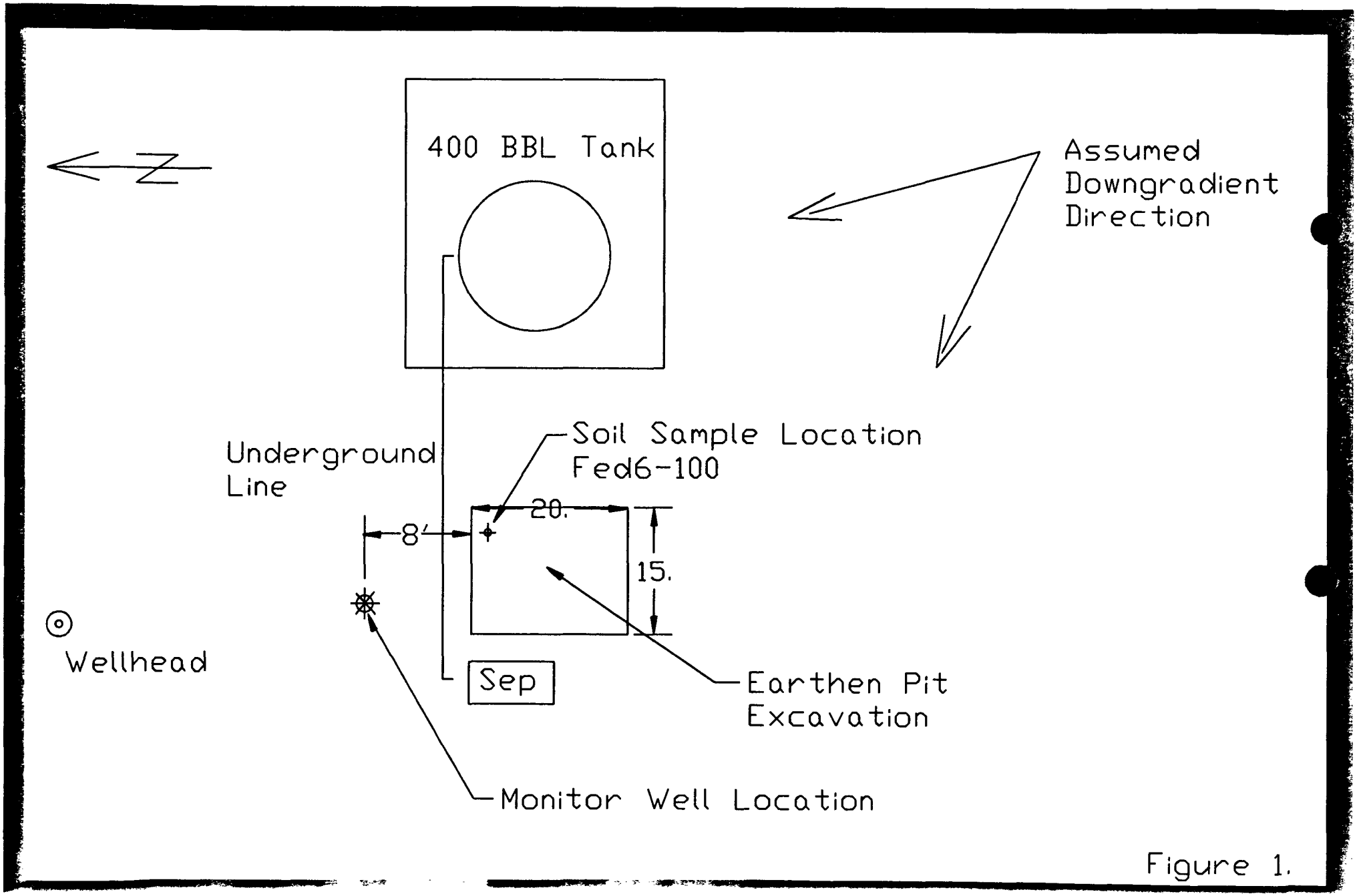
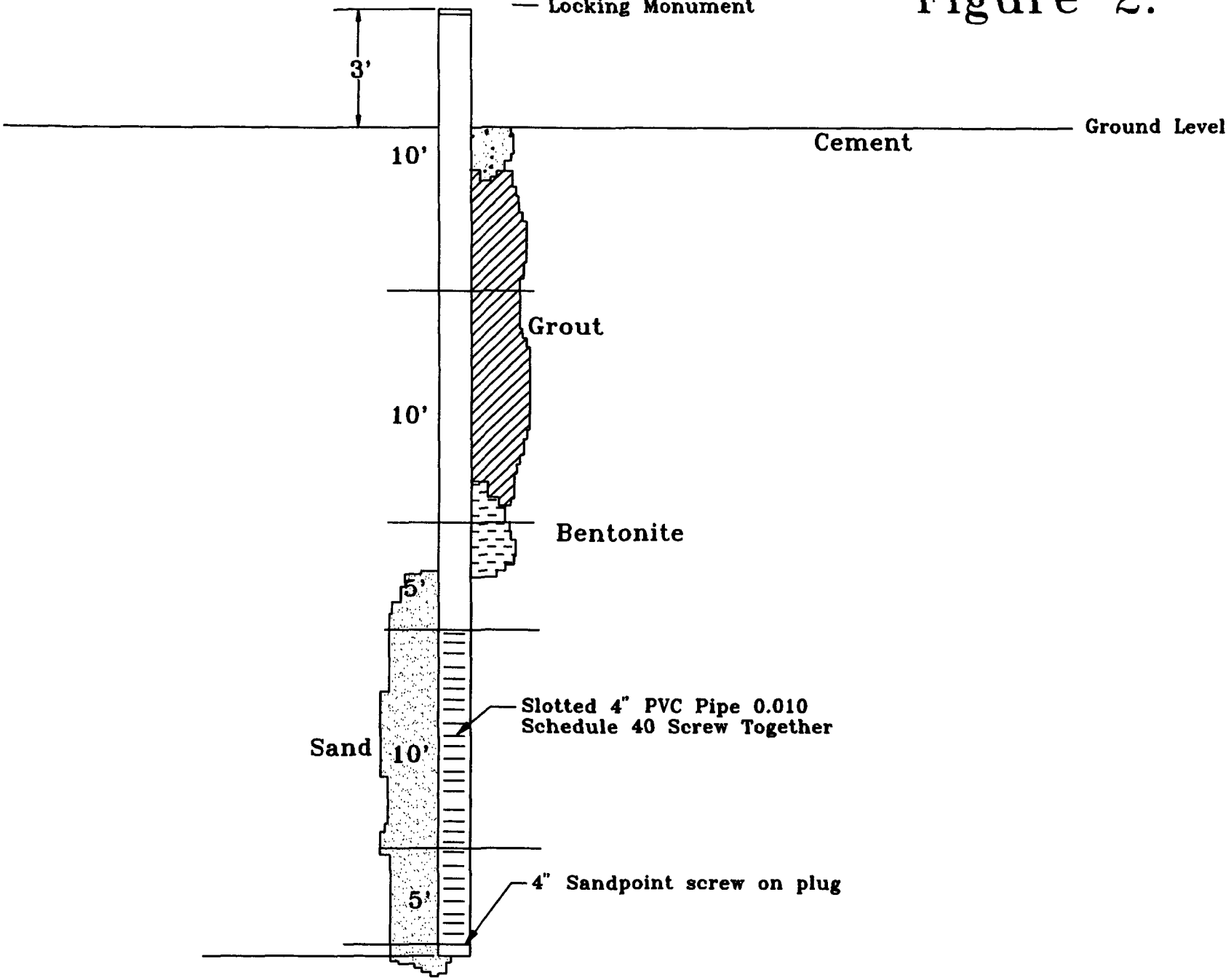

400 BBL Tank
Assumed
Downgradient
Direction
Underground
Line
Soil Sample Location
Fed6-100
20.
8'
15.
Wellhead
Sep
Earthen Pit
Excavation
Monitor Well Location

Figure 1.

Figure 2.


Locking Monument
3'
Ground Level
Cement
10'
Grout
10'
Bentonite
5'
Slotted 4" PVC Pipe 0.010
Schedule 40 Screw Together
Sand
10'
5'
4" Sandpoint screw on plug

During the drilling operations, soil samples were gathered approximately every 5' of depth. Samples were collected from split-spoon samplers driven 24" into the soil. The soil was placed in baggies and tested with the PID Meter for hydrocarbons. The depth to water from the top of the casing riser measured 20'-11 5/8". Considering the height of the riser, that makes the first measured depth to groundwater approximately 18'.

Field Test Data

Field data collected during the drilling process included soil samples tested with a Photo-Ionization Detector (PID) Meter. The field data gathered is presented in the following Table.

Table 1-1.

Sample No.	Depth	PID(PPM)
1	3.5-5.5'	7.8
2	8.5-10.5'	1.5
3	13.5-15.5'	8.0
4	18.5-20.5'	7.1

Water encountered next sampling interval

Laboratory Data

The laboratory data gathered is summarized in the following Table. Individual laboratory reports are attached for your viewing.

Table 1-2.

Sample No.	Description		(Units)	
Fed6-404	BTEX EPA Method 602.2	B	ND	PPB
		T	ND	PPB
		E	ND	PPB
		X	1.08	PPB
Fed6-405	Metals EPA Method 600/4	Arsenic	<0.005	PPM
		Barium	<0.25	PPM
		Cadmium	<0.002	PPM
		Chromium	<0.02	PPM
		Lead	<0.005	PPM
		Mercury	<0.001	PPM
		Selenium	<0.006	PPM
		Silver	<0.01	PPM
Fed6-406	Cation / Anion EPA Method 8310	Total Hardness	101	PPM
		Calcium	28.3	PPM
		Magnesium	7.36	PPM
		Potassium	<5.0	PPM
		Sodium	780	PPM
		Iron	0.05	PPM
		Total Alkalinity	497	PPM
		Bicarbonate	497	PPM

		Chloride	20.0	PPM
		Sulfate	1,360	PPM
	Cation / Anion Difference = 3.82			
Fed6-407	Polynuclear Aromatic Hydrocarbons	Acenaphthene	<2.13	PPB
		Acenaphthylene	<3.74	PPB
		Anthracene	<1.49	PPB
		Benzo(a)anthracene	<0.88	PPB
		Benzo(a)pyrene	<0.39	PPB
		Benzo(b)fluoranthene	<0.19	PPB
		Benzo(k)Fluoranthene	<0.34	PPB
		Benzo(ghi)perylene	<1.23	PPB
		Chrysene	<0.88	PPB
		Dibenzo(a,h)anthracene	<0.72	PPB
		Fluoranthene	<0.15	PPB
		Fluorene	<1.29	PPB
		Indeno(1,2,3-cd)pyrene	<1.05	PPB
		Naphthalene	<5.82	PPB
		Phenanthrene	<1.22	PPB
		Pyrene	<0.13	PPB

Conclusions

Water data for BTEX was below New Mexico Drinking Water Standards as outlined in NMED Drinking Water Regulations (Title 20, Chapter 7, Part 1). Large numbers were found in the following concentrations, Sodium, Alkalinity, Sulfate. These values are to be considered normal for water found in a wash bottom such as this.

Recommendations

As confirmed with NMOCD, CES recommends that a second interval of BTEX water analyses should be collected from the monitor well within 60 days. If the BTEX concentration is below groundwater standards as found in this first interval, the monitoring well should be grouted to the surface and abandoned. "No Further Action" would be applied for to NMOCD for groundwater remediation. The contaminated soil in the soil farm should be regularly tilled as the weather warms until it has been reduced to less than 100 PPM from a laboratory TPH analysis. The excavation could then be backfilled and a "Closure Package" prepared for distribution to NMOCD.

Contract Environmental Services, Inc. appreciates this opportunity to present this letter report on the Federal # 6-32 to Louis Dreyfus Natural Gas. If you have questions or require additional information, please don't hesitate to contact our offices at (505) 325-1198 or stop by at 4200 Hawkins Road, Farmington.

Sincerely,

Shawn A. Adams
Contract Environmental Services, Inc.

ANALYTICA
ENVIRONMENTAL LABORATORY

PURGEABLE AROMATICS

Contract Environmental Services, Inc.

Project ID:	Largo Wells	Report Date:	12/09/95
Sample ID:	404 - 407	Date Sampled:	12/05/95
Lab ID:	2066	Date Received:	12/05/95
Sample Matrix:	Water	Date Analyzed:	12/08/95
Preservative:	Cool		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	1.08	1.00
o-Xylene	ND	0.50

Total BTEX	**1.08**

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	100	88 - 110%
Bromofluorobenzene	86	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:

Analyst

Review

ANALYTICA
ENVIRONMENTAL LABORATORY

Total Metals Analysis
Contract Environmental Services, Inc.

Project ID:	Largo Wells	Date Reported:	01/09/96
Sample ID:	404 - 407	Date Sampled:	12/05/95
Laboratory ID:	2066	Time Sampled:	NA
Sample Matrix:	Water	Date Received:	12/05/95

Parameter	Analytical Result (mg/L)	Units
Trace Metals		
Arsenic	< 0.005	mg/L
Barium	< 0.25	mg/L
Cadmium	< 0.002	mg/L
Chromium	< 0.02	mg/L
Lead	< 0.005	mg/L
Mercury	< 0.001	mg/L
Selenium	0.006	mg/L
Silver	< 0.01	mg/L

Reference: U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 1983.
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Comments:

Review

ANALYTICA
ENVIRONMENTAL LABORATORY

API Suite

Contract Environmental Services, Inc.

Project ID:	Largo Wells	Date Reported:	01/09/96
Sample ID:	404 - 407	Date Sampled:	12/05/95
Laboratory ID:	2066	Time Sampled:	NA
Sample Matrix:	Water	Date Received:	12/05/95

Parameter		Analytical Result	Units
General	Lab pH	7.8	s.u.
	Lab Conductivity @ 25° C	3,590	µmhos/cm
	Total Dissolved Solids @ 180°C	2,530	mg/L
	Total Dissolved Solids (Calc)	2,500	mg/L
	Specific Gravity	1.005	***
Anions	Total Alkalinity as $CaCO_3$	497	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	497	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	20.0	mg/L
	Sulfate	1,360	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	101	mg/L
	Calcium	28.3	mg/L
	Magnesium	7.36	mg/L
	Potassium	< 5.0	mg/L
	Sodium	780	mg/L
	Iron	0.05	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	3.82	+/- 5 %
	TDS (180):TDS (calculated)	1.0	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 1983.
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

ANALYTICA
ENVIRONMENTAL LABORATORY

Polyaromatic Hydrocarbons
EPA Method 8310

Contract Environmental Services, Inc.

Project ID:	Largo Wells	Report Date:	01/05/96
Sample ID:	404 - 407	Date Sampled:	12/05/95
Lab ID:	2066	Date Received:	12/05/95
Sample Matrix:	Water	Date Extracted:	12/11/95
Preservative:	Cool	Date Analyzed:	12/21/95
Condition:	Intact		

Target Analyte	Concentration (µg/L)
Acenaphthene	< 2.13
Acenaphthylene	< 3.74
Anthracene	< 1.49
Benzo(a)anthracene	< 0.88
Benzo(a)pyrene	< 0.39
Benzo(b)fluoranthene	< 0.19
Benzo(k)fluoranthene	< 0.34
Benzo(ghi)perylene	< 1.23
Chrysene	< 0.88
Dibenzo(a,h)anthracene	< 0.72
Fluoranthene	< 0.15
Fluorene	< 1.29
Indeno(1,2,3-cd)pyrene	< 1.05
Naphthalene	< 5.82
Phenanthrene	< 1.22
Pyrene	< 0.13

Reference: EPA Method 8310: Polynuclear Aromatic Hydrocarbons .

Review

ANALYTICA
ENVIRONMENTAL LABORATORY
807 S. CARLTON • FARMINGTON, NM 87401 • (505) 326-2395

CHAIN OF CUSTODY

Page _____ of _____

PROJECT MANAGER: _____
Analytica Lab I.D.: _____

Company: Contract Env. Serv.
Address: PO Box 505
Kirtland NM
Phone: 325-1198
Fax: _____

Bill To: Louis Dreyfus Natl
Company: PO Box
Address: Farmington NM 87499

Sample ID	Date	Time	Matrix	Lab ID	Petroleum Hydrocarbons (418.1)	Gasoline / Diesel (mod. 8015)	Gasoline (GRO)	Aromatic HCs BTEX/MTBE (602 / 8020)	Chlorinated Hydrocarbons (8010)	SDWA Volatiles (502.1 / 503.1)	Chlorinated Pesticides / PCBs (608 / 8080)	Herbicides (615 / 8150)	Volatiles GC/MS (624 / 8240 / 8260)	Base / Neutral / Acid GC/MS (625 / 8270)	Polynuclear Aromatic Hydrocarbons (8100)	TCLP Extraction	Other (specify):	Cation / Anion	Specific Cations (specify):	Specific Anions (specify):	BOD / Fecal / Total Coliform	Solids: TDS / TSS / SS	Nutrients: NH4+ / NO2– / NO3– / TKN	Oil and Grease	Other (specify):	Priority Pollutants	RCRA Metals (Total/Dissolved)	RCRA Metals TCLP (1311)	Other (specify):	COMMENTS
400-403	12-5-95		water					X							X			X									X		
404-407	"		"					X							X			X									X		
408-411	"		"					X							X			X									X		

Project Information	Sample Receipt
Proj. #:	No. Containers:
Proj. Name: Largo Wells	Custody Seals: Y / N / NA
P. O. No:	Received Intact:
Shipped Via:	Received Cold:

Required Turnaround Time (Prior Authorization Required for Rush)

Sampled By:	Relinquished By:	Relinquished By:
Signature: [signature] Date: 12.5.95	Signature: Date:	Signature: Date:
Company: Contract Env. Serv. Time:	Company: Time:	Company: Time:
Received By:	**Received By:**	**Received By:**
Signature: Date:	Signature: Date:	Signature: [signature] Date: 12/5
Company: Time:	Company: Time:	Company: Analytica Time: 4:30

Please Fill Out Thoroughly.

Shaded areas for lab use only.

White/Yellow: Analytica
Pink: Client

Contract Environmental Services, Inc.
Post Office Box 505
Kirtland, New Mexico 87417-0505
Phone (505) 325-1198

RECEIVED
OCT 3 1 1995
Environmental Bureau
Oil Conservation Division

October 19, 1995

New Mexico Oil Conservation Division
Mr. Bill Olson
2400 Pacheco Street
Santa Fe, New Mexico 85730

RE: Louis Dreyfus Natural Gas Corporation, Federal #6-32, Sec 6, T26N, R07W SW/NE, Rio Arriba County, New Mexico

Dear Mr. Olson,

Contract Environmental Services, Inc. (CES) is pleased to present this "Plan of Action" for the Federal # 6-32 well location on behalf of Louis Dreyfus Natural Gas Corporation (LDNG). This plan contains background information, current site assessment data, a site plan, conclusions and a "Plan of Action".

Background Information

On October 4, 1995 CES began excavating the soil immediately below the earthen pit. As soils were removed from the excavation, periodic samples were gathered to be analyzed using a Photo-Ionization Detector (PID) meter. Soils removed were transferred to another portion of the wellpad to establish a soil farm for continued remediation. These soils were spread on the wellpad some 6" to 12" in depth to allow for aeration and the release of volatile aromatic hydrocarbons.

Approximately 70 cubic yards of contaminated soil was removed from the pit area during the excavation process. At a depth of 17' a field PID soil sample indicated that the contaminated soil had not been removed. A confirmation laboratory soil sample was gathered to be processed for Total Petroleum Hydrocarbons (TPH) using EPA Method 418.1. This laboratory soil analysis confirmed that uncontaminated soil had not been reached. The remainder of the pit area was "Cleaned Out" to this same depth. It is anticipated that not all contamination was removed from the walls of the excavation. On the north side of the excavation a subsurface flow line prevents removing all contaminated material. On the east side a berm and fence around storage tanks prevents further excavation in that direction. The separator was located on the west side of the excavation. Underground lines and surface equipment prevented further excavation in at least three of the four directions. Leaving the excavation open for an extended period of time will enable the contaminate wall soil to remediate as well.

The following is field PID data collected during the removal process.

Center Of Earthen Pit

PID Field Data Collected

Depth	Sample No.	PID(PPM)	Location
4'	#1	2000+	Center of Pit
6'	#2	2000+	Center of Pit
10'	#3	2000+	Center of Pit
14'	#4	2000+	Center of Pit
17'	#5	2000+	Center of Pit

Laboratory Data Collected

Depth	Sample No.	PID(PPM)	Location
17'	FED6-100	3,050	Northeast Corner

Conclusions

Soil contamination continued beyond the digging ability of the equipment used. Remaining wall contamination will remediate while the excavation remains open during the soil farm remediation process. CES believes that LDNG has not removed the majority of the contaminated soil or sufficiently defined the vertical extent. CES ranks this site at 100 PPM cleanup score with a maximum benzene level of 10 PPM. The amount of impact to the groundwater is unknown at this point.

Plan of Action

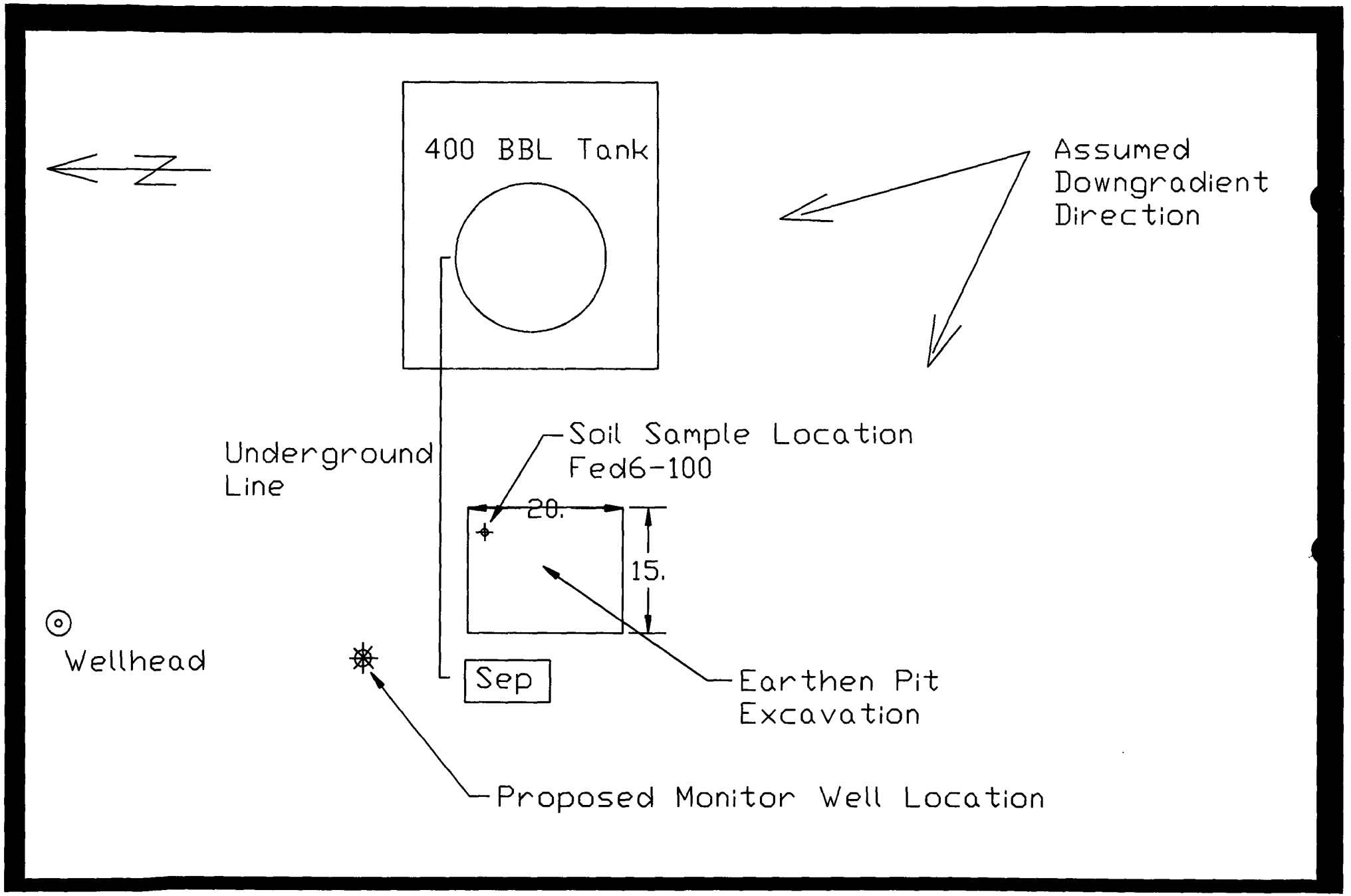
Continue removing the contaminated soils from the excavation, move in a lateral direction testing the excavation walls as the digging proceeds. Remove the contamination in the excavation walls until the PID Meter indicates below 100 PPM. Remediate the soils contained in the soil farm to below 100 PPM laboratory TPH by EPA Method 418.1 or 8015 Modified for gas and diesel. Auger in a monitor well approximately 5' into the groundwater in a downgradient direction from the excavation. A water sample will be collected from this monitor well after the standard 3 volumes of water have been extracted. The water sample will be analyzed for Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) using EPA Method 8020. Return the remediated soils to the pit area as backfill and slightly dome the area to prevent water ponding. In addition, the soils will be checked for contamination approximately every 4' during the drilling process while installing the monitor well. A report on the finding will be presented to NMOCD for their records.

Contract Environmental Services, Inc. appreciates this opportunity to present this "Plan of Action" on behalf of Louis Dreyfus Natural Gas Corporation. If you have questions or require additional information, please don't hesitate to contact our offices at (505) 325-1198 or stop by at 4200 Hawkins Road, Farmington.

Sincerely,

Shawn A. Adams
Contract Environmental Services, Inc.

cc: Mr. Denny Foust, NMOCD Farmington
Mr. Bill Liese, BLM Farmington


400 BBL Tank
Assumed
Downgradient
Direction
Underground
Line
Soil Sample Location
Fed6-100
20.
15.
Wellhead
Sep
Earthen Pit
Excavation
Proposed Monitor Well Location