PURE RESOURCES

PROJECT PLAN (PJP)
&
SITE INVESTIGATION REPORT

for the
Production Fluid Release
associated with the

SAN ANDRES UNIT
~~WELL #31 TRUNKLINE~~

~7 mile south of Lovington
Lea County, New Mexico
~~UL-C NE¼ of theNW¼ Sec 1, T17S, R36E~~
~~Latitude: 32°52'10"N Longitude: 103°18'36"W~~

API #30025038370000

December 2002

Prepared by

Environmental Plus, Inc.
2100 Avenue O
P.O. Box 1558
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Pure - 189071
incident - nPAC0604834327
application - pPAC0604834463

Table of Contents

1 SAN ANDRES UNIT WELL #31 PROJECT PLAN (PJP)

This plan investigated the vertical extents of production fluid contamination, i.e., saline produced water and crude oil, at the Pure Resources San Andres Unit Well #31 release site approximately 7 miles south of Lovington, New Mexico. Soil borings were advanced and discretely sampled at 5 feet below ground surface ('bgs) intervals and analyzed to identify concentration gradients for the "Constituents of Concern" (CoC), i.e., Total Petroleum Hydrocarbon using EPA Method 8015M (TPH^{8015m}), Benzene, Toluene, Ethylbenzene, m,p,o-Xylenes, and Chloride. Acceptability of the delineation concentrations will be based on thresholds and protocols provided by the New Mexico Oil Conservation Division (NMOCD) guidelines.

1.1 Site Description

The site is located ~ 7 miles south of Lovington, New Mexico on land owned by the City of Lovington. Annotated aerial and topographical maps are included in Attachment I.

1.1.1 Historical Use

This land surface is used for livestock grazing and oil and gas production facilities access roads.

1.1.2 Photographic documentation

Photographs of the site are included in Attachment II.

1.1.3 Ecological Description

The area is typical of the northern most extent of the Upper Chihuahuan Desert Biome consisting primarily of Honey Mesquite (Prosopis glandulosa) and typical desert grasses and weeds. Mammals present, include Orrd's and Merriam's Kangaroo Rat, Deer Mouse, White Throated Wood Rat, Cottontail Rabbit, Black Tailed Jackrabbit, and the occasional Pronghorn Antelope. Reptiles, Amphibians, and Birds are numerous and typical of area. While a biotic survey was not conducted, Listed, Threatened, or Endangered species are not known to exist in this immediate area.

1.1.4 Environmental Media Characterization

Chemical parameters of the soil will be characterized consistent with the New Mexico Oil Conservation Division (NMOCD) guidelines published in the following documents;

- Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993)
- Unlined Surface Impoundment Closure Guidelines (February 1993)

Site Rankings and acceptable "Site Specific" thresholds for contaminants of concern (CoCs), i.e., soil TPH^{8015m}, Benzene, BTEX (mass sum of Benzene, Toluene, Ethyl Benzene, and m, p, o Xylenes), and soil Chloride, will be determined based on the following;

- Depth to Ground water, i.e., distance from the lower most acceptable concentration to the ground water.
- Wellhead Protection Area, i.e., distance from fresh water supply wells.
- Distance to Surface Water Body, i.e., horizontal distance to all down gradient surface water bodies.

1.1.4.1 Ground Water Level

The New Mexico State Engineer's Office (NMSEO) ground water level on-line database showed four wells in Section 1 with an average water level of 48'bgs. More recent, supplementary information from the NMSEO describes a well in Section 1 west of the site with a water level of 83'bgs. Six wells in Section 2 west of the site have an average water level of 69 'bgs. A simple average of these divergent values yields an average area ground water level of 66.67'bgs.

1.1.4.2 Depth to Ground Water Calculation

According to the NMOCD Guidelines, depth to ground water (DtoGW) is defined as the "the vertical distance from the lowermost contaminants (LC) to the seasonal high water elevation of the ground water (WL)." No hydrocarbon was detected above the instrument detection limit, therefore, the calculated depth to ground water is 67'bgs.

$$67ft^{WL} - 0ft^{LC} = 67ft^{DtoGW}$$

1.1.4.3 Ground Water Gradient

Based on available information, the gradient is to the east southeast.

1.1.4.4 Wellhead Protection Area

There are no public water supply wells located within 1 mile of the site. The City of Lovington municipal water supply well field is located transverse gradient approximately 1.1 mile to the north and east of the site.

1.1.4.5 Distance to Nearest Surface Water Body

There are no naturally occurring surface water bodies located within a 1-mile radius of the site.

1.1.4.6 Soil Assessment

Soil samples were collected at 5 strategically located locations within the spill pooling areas and overspray area. The sample locations are noted on the site map included in Attachment I.

1.1.4.7 Ground Water Assessment

The ground water level is conservatively estimated to occur at ~67'bgs. The soil investigation did not warrant ground water assessment.

1.1.5 NMOCD Site Rank and Remedial Goals

Based on the site information, the site has a ranking of 10 points and the respective remedial goals/thresholds for the Constituents of Concern (CoCs). The Chloride remedial goal cannot exceed a soil concentration capable of impacting ground water above the New Mexico Water Quality Control Commission (WQCC) standard of 250 mg/Liter.

1. Ground Water	2. Wellhead Protection Area	3. Distance to Surface Water Body
If Depth to GW <50 feet: *20 points*	If <1000' from water source, or; <200' from private domestic water source: *20 points*	<200 horizontal feet: *20 points*
If Depth to GW 50 to 99 feet: *10 points*		200-100 horizontal feet: *10 points*
If Depth to GW >100 feet: *0 points*	If >1000' from water source, or; >200' from private domestic water source: *0 points*	>1000 horizontal feet: *0 points*
Ground water Score = 10	*Wellhead Protection Area Score= 0*	*Surface Water Score= 0*
Site Rank (1+2+3) = = 10 points		

Total Site Ranking Score and Acceptable Concentrations			
Parameter	>19(Soil >17'bgs)	***10-19(Soil from 0 to 17'bgs)***	0-9 (Not Applicable)
Benzene[1]	10 ppm	***10 ppm***	10 ppm
BTEX[1]	50 ppm	***50 ppm***	50 ppm
TPH	100 ppm	***1000 ppm***	5000 ppm
[1]100 ppm field VOC headspace measurement may be substituted for lab analysis			

2 SAN ANDRES UNIT WELL #31 INVESTIGATION REPORT

On November 11, 2002, Environmental Plus, Inc. (EPI) personnel, with the assistance and direction of Pure Resources, implemented the Project Plan and collected subsurface soil samples at the San Andres Unit Well #31. Annotated topographical and aerial maps of the San Andres Unit Well #31 site are included in Attachment I, photographs in Attachment II, and the original analytical reports are included in Attachment III.

2.1 Analytical Results

The soil borings were advanced in areas considered to be the most contaminated, i.e., fluid pooling areas with the longest residence times. The results are illustrated below. The analytical reports are summarized and included in Attachment III.

2.1.1 Borehole #1

This borehole was advanced in the pooling area adjacent to the leak origin. TPH^{8015m}, Benzene, and BTEX were not detected above the instrument detection limits down to 40'bgs. Chloride was monitored at 336 mg/Kg in the near surface, i.e., 0-2'bgs sample and at background levels to 40'bgs.

2.1.2 Borehole #2

This borehole was advanced in the pooling area west of the leak origin. TPH^{8015m}, Benzene, and BTEX were not detected above the instrument detection limits down to 45'bgs. Chloride was monitored at 1504 mg/Kg in the near surface, i.e., 0-2'bgs sample and at background levels to 45'bgs.

2.1.3 Borehole #3

This borehole was advanced on the perimeter of the pooling area north of the leak origin. TPH^{8015m}, Benzene, and BTEX were not detected above the instrument detection limits down to 15'bgs. Chloride was monitored at 224 mg/Kg in the near surface, i.e., 0-2'bgs sample and at background levels to 15'bgs.

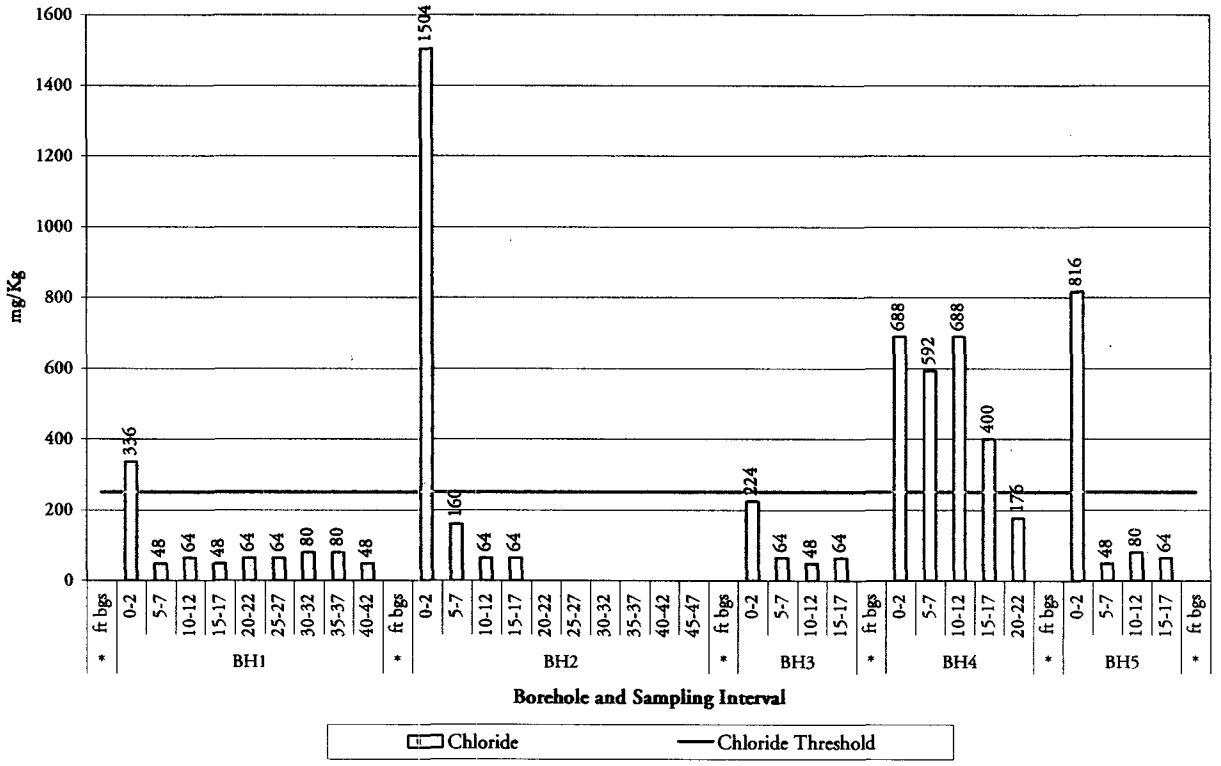
2.1.4 Borehole #4

This borehole was advanced on the perimeter of the pooling area northwest of the leak origin. TPH^{8015m}, Benzene, and BTEX were not detected above the instrument detection limits down to 20'bgs. The Chloride gradient was monitored at 688 mg/Kg in the 0-2'bgs sample to 176 mg/Kg at 20'bgs.

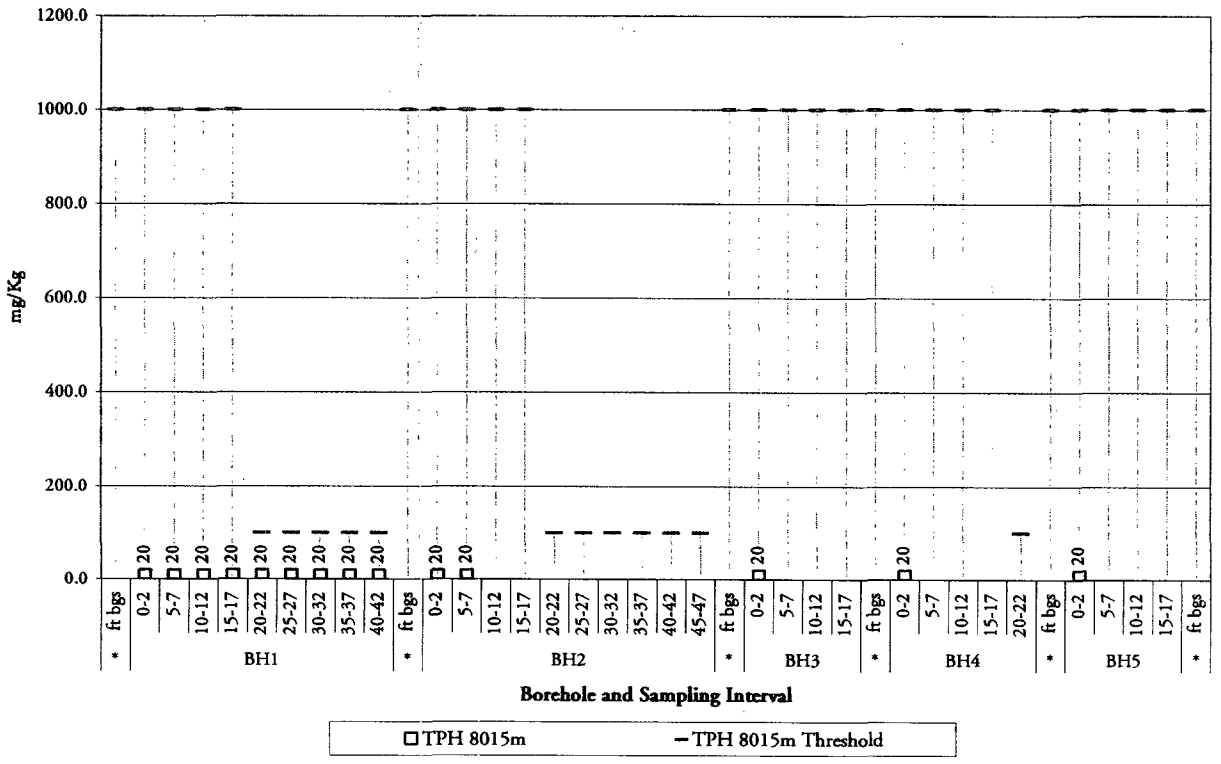
2.1.5 Borehole #5

This borehole was advanced near the west most pooling area perimeter west of the leak origin. TPH^{8015m}, Benzene, and BTEX were not detected above the instrument detection limits down to 15'bgs. Chloride was monitor at 816 mg/Kg in the near surface, i.e., 0-2'bgs sample and at background levels to 15'bgs.

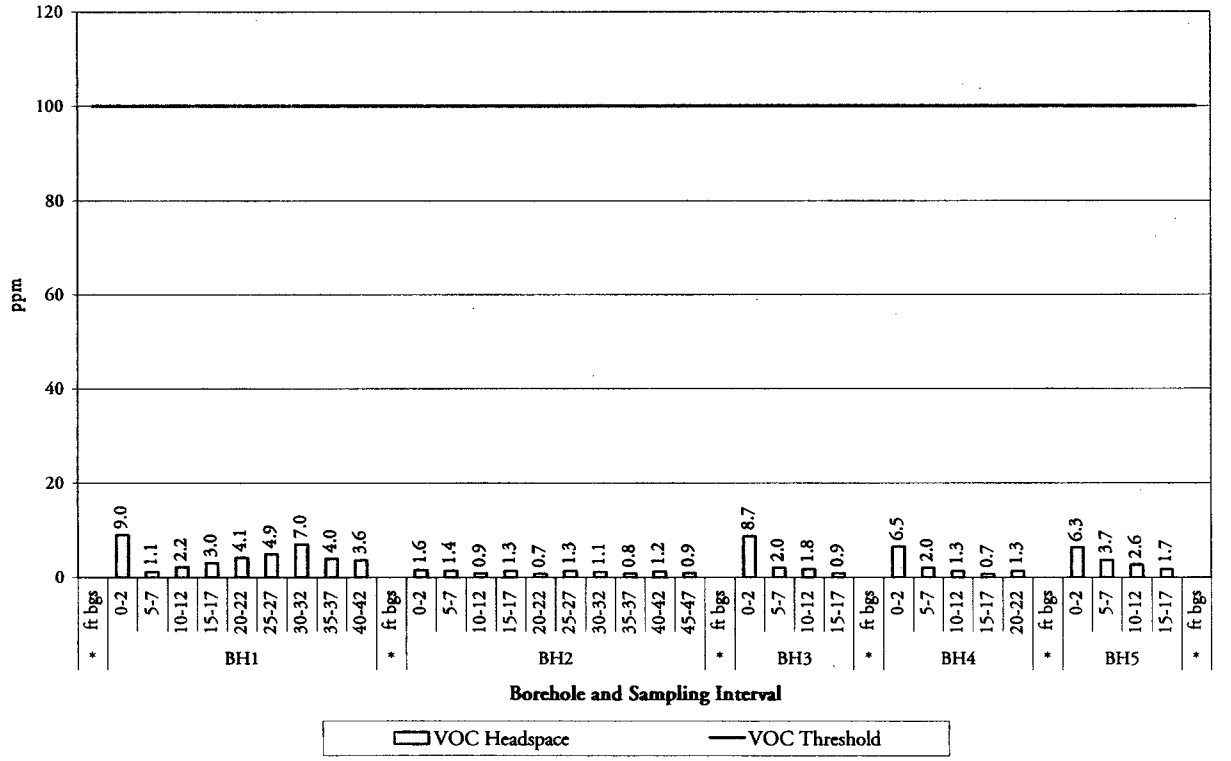
Pure Resources
San Andres #31
Soil Chloride Delineation



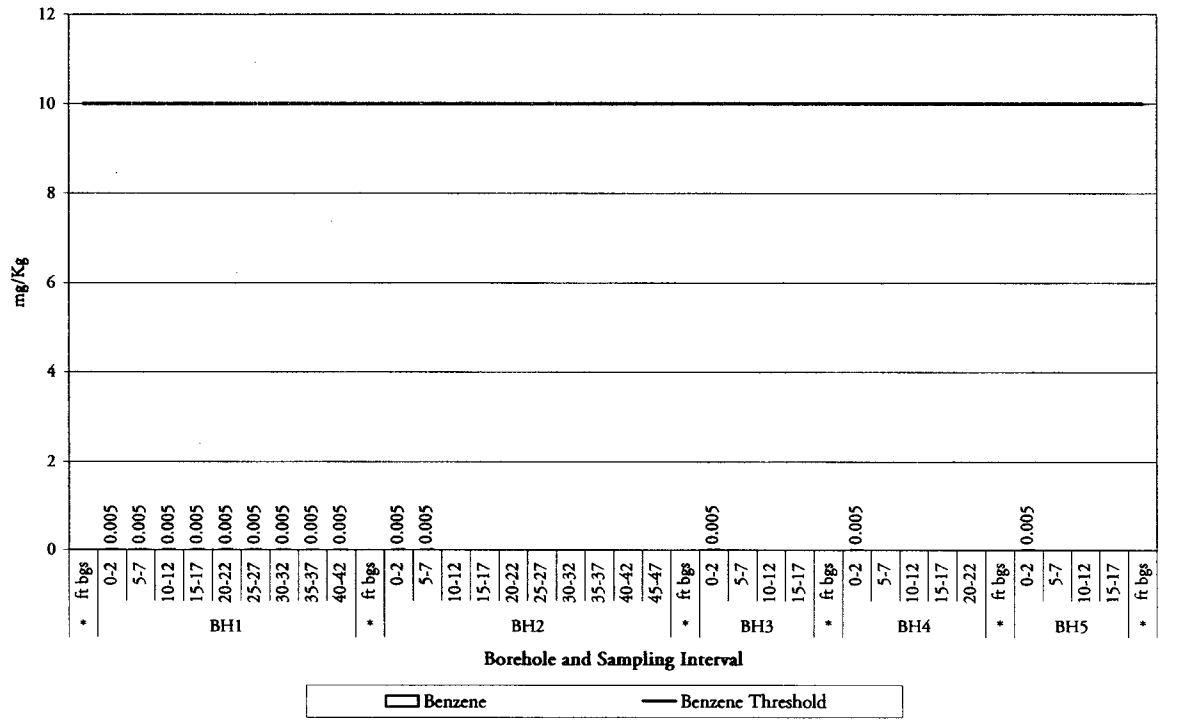
Pure Resources
San Andres #31
Total Petroleum Hydrocarbon (8015m) Delineation

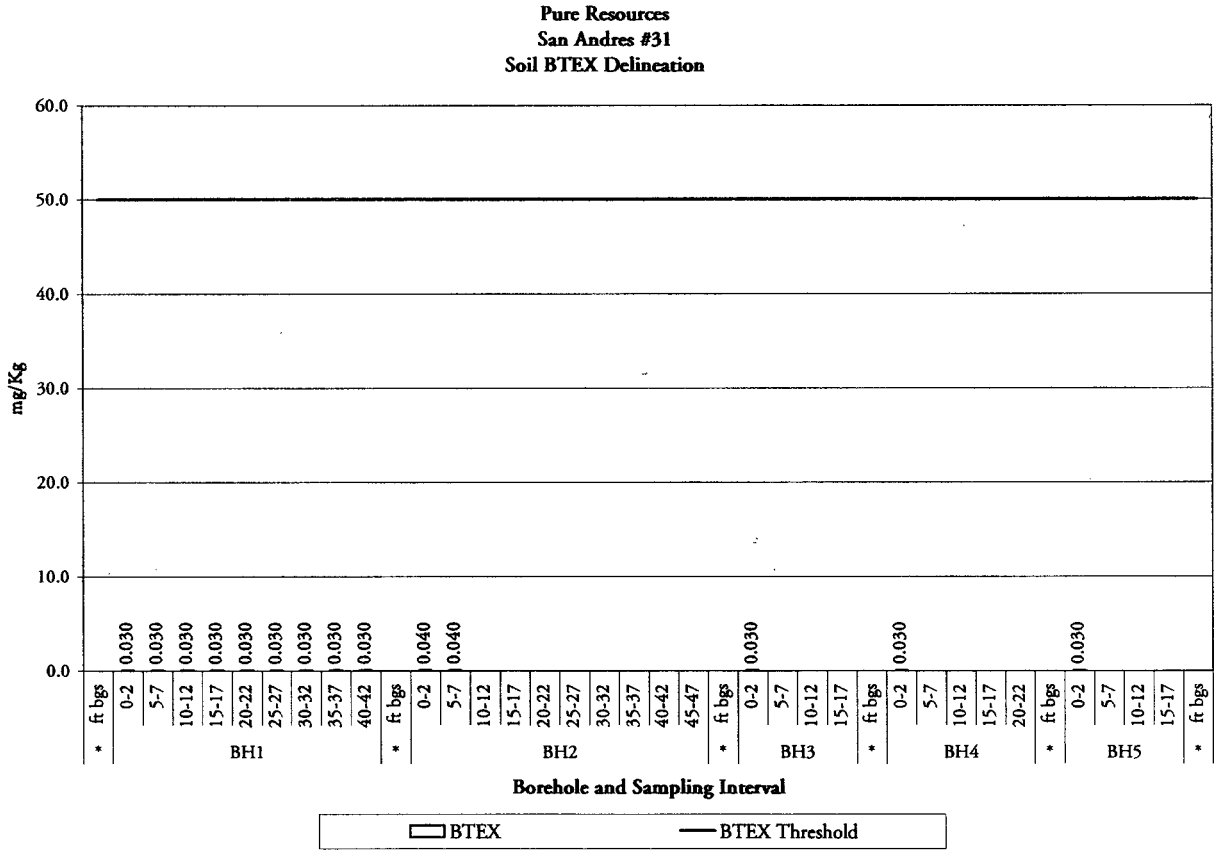


Pure Resources
San Andres #31
Volatile Organic Constituents (VOC) Headspace Delineation



Pure Resources
San Andres #31
Soil Benzene Delineation





2.2 Discussion of Hydrocarbon Data

TPH^{8015m}, Benzene, and BTEX were not detected above the instrument detection limits in any of the laboratory samples and is supported by the Volatile Organic Constituent (VOC) Headspace field survey data.

2.3 Discussion of Chloride Data

Chloride contamination was monitored above background in all near surface sample locations. Vertical migration is restricted to the near surface, i.e., 0-2'bgs interval in all but Borehole #4 (BH4). Data indicate Chloride impact above background concentrations persists to 20'bgs.

2.4 Conclusions and Recommendations

The information collected during this investigation supports achievement of the NMOCD Guideline remedial goals for TPH^{8015m}, Benzene, and BTEX. The investigation also delineated only near surface Chloride contamination at BH1, BH2, BH3, and BH5 and a generally decreasing soil Chloride gradient in BH4, i.e., 688 mg/Kg in the 0-2'bgs sample to 176 mg/Kg at 20'bgs. These concentrations should not be impactive of the local ground water and is supported by the rationale stated in CFR 40 Part 261 Appendix II – Method 1311 Toxicity Characteristic Leaching Procedure (TCLP), 1.0 Scope and Application, excerpted below.

Sheeley, Paul

From: Johnson, Larry
Sent: Thursday, January 09, 2003 8:09 AM
To: Sheeley, Paul
Cc: 'enviplus1@aol.com'
Subject: FW: ?

-----Original Message-----
From: Kieling, Martyne
Sent: Wednesday, January 08, 2003 4:18 PM
To: Johnson, Larry
Subject: RE: ?

Larry,

Whoever gave this to you should send it to you on one page. I cant find a way to quickly change it from an 9 page document to the one pager that it seems to be so it is easy to read. If it is scanned it should be easy to have a one page jpg or if it is a word document have them cut and send just that one page. I am still looking at it and am going to bounce this one off Wayne also.
I will get back to you tomorrow.

Martyne

-----Original Message-----
From: Johnson, Larry
Sent: Wednesday, January 08, 2003 3:00 PM
To: Kieling, Martyne
Subject: ?

Can you make any sense out of this??
<< File: TCLP.bmp >>

Sheeley, Paul

From: Johnson, Larry
Sent: Thursday, January 09, 2003 8:07 AM
To: Sheeley, Paul
Cc: 'enviplus1@aol.com'
Subject: FW: ?

-----Original Message-----
From: Price, Wayne
Sent: Wednesday, January 08, 2003 4:39 PM
To: Kieling, Martyne; Johnson, Larry
Subject: RE: ?

We do not accept TCLP analysis for demonstrating mobility of WQCC groundwater constituents. This method has been proven ineffective for this use. I recommend your customer use a state-of-the-art salt migration modeling program. If your customer has any questions have them call me or Willie. TCLP is used for waste characterization only.

Wayne Price.

-----Original Message-----
From: Kieling, Martyne
Sent: Wednesday, January 08, 2003 4:21 PM
To: Price, Wayne
Subject: FW: ?

-----Original Message-----
From: Johnson, Larry
Sent: Wednesday, January 08, 2003 3:00 PM
To: Kieling, Martyne
Subject: ?

Can you make any sense out of this??
<< File: TCLP.bmp >>

40 CFR Part 261

App. II - Method 1311 Toxicity Characteristic Leaching Procedure (TCLP)

1.0Scope and Application

1.1The TCLP is designed to determine the mobility of both organic and inorganic analytes present in liquid, solid, and multiphasic wastes.

1.2If a total analysis of the waste demonstrates that individual analytes are not present in the waste, or that they are present but at such low concentrations that the appropriate regulatory levels could not possibly be exceeded, the TCLP need not be run.

1.3If an analysis of any one of the liquid fractions of the TCLP extract indicates that a regulated compound is present at such high concentrations that, even after accounting for dilution from the other fractions of the extract, the concentration would be equal to or above the regulatory level for that compound, then the waste is hazardous and it is not necessary to analyze the remaining fractions of the extract.

2.0Summary of Method

2.1For liquid wastes...

2.2 For wastes containing greater than or equal to 0.5% solids, the liquid, if any, is separated from the solid phase and stored for later analysis; the particle size of the solid phase is reduced, if necessary. The solid phase is extracted with an amount of extraction fluid equal to **20 times** the weight of the solid phase. The extraction fluid employed is a function of the alkalinity of the solid phase of the waste...

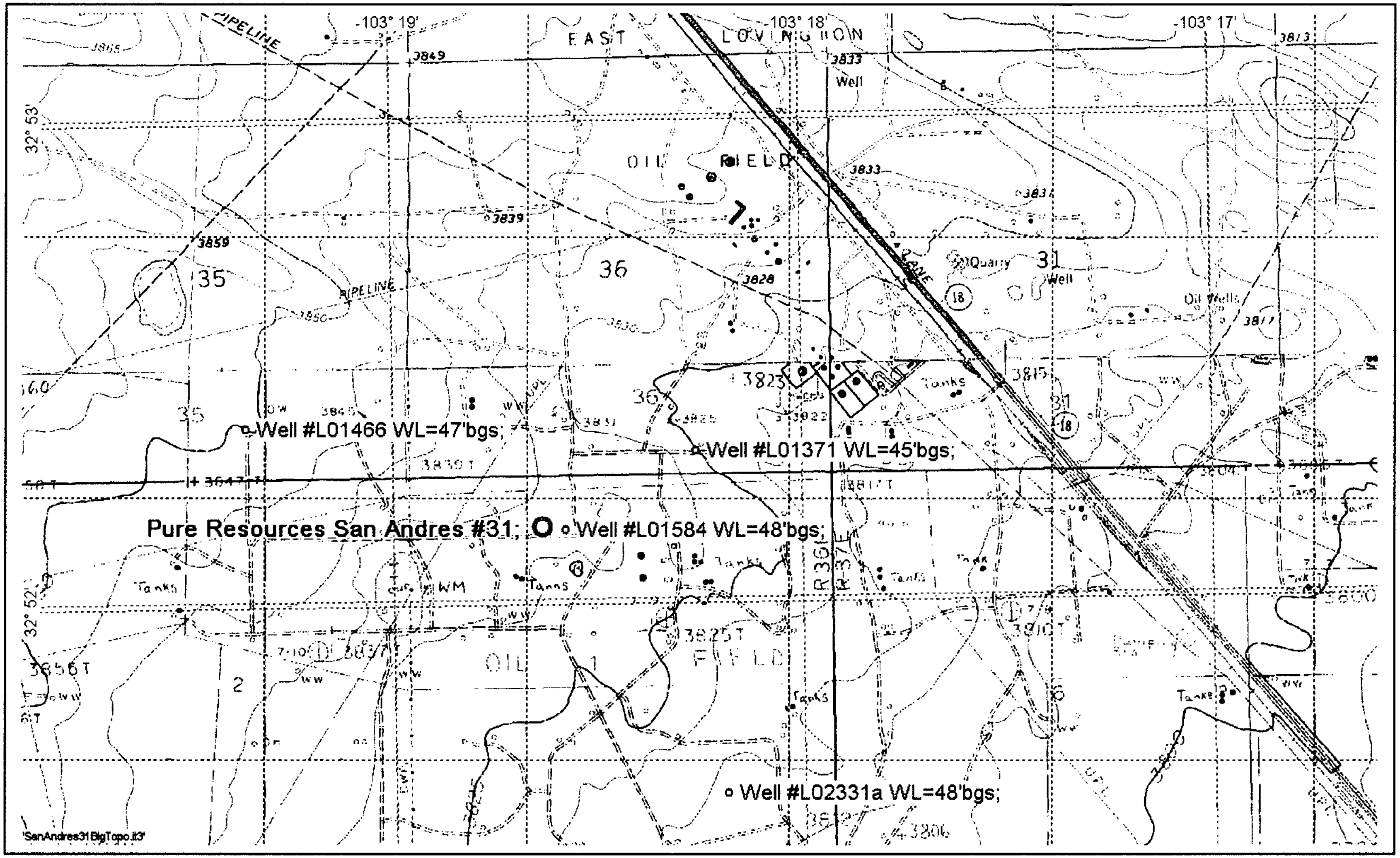
The TCLP acknowledges the physical and chemical mechanisms in play during transport of organic and inorganic constituents. As stated in paragraph 2.2 above, solid phase analytes are extracted using 20 times the weight of the solid phase, essentially diluting the initial analyte concentration by ~20. Using this rationale, an acceptable soil chloride concentration for this site would be 20 times the New Mexico Water Quality Control Commission Standard of 250 mg/Kg, i.e., 5000 mg/Kg. All samples were well below 5000 mg/Kg.

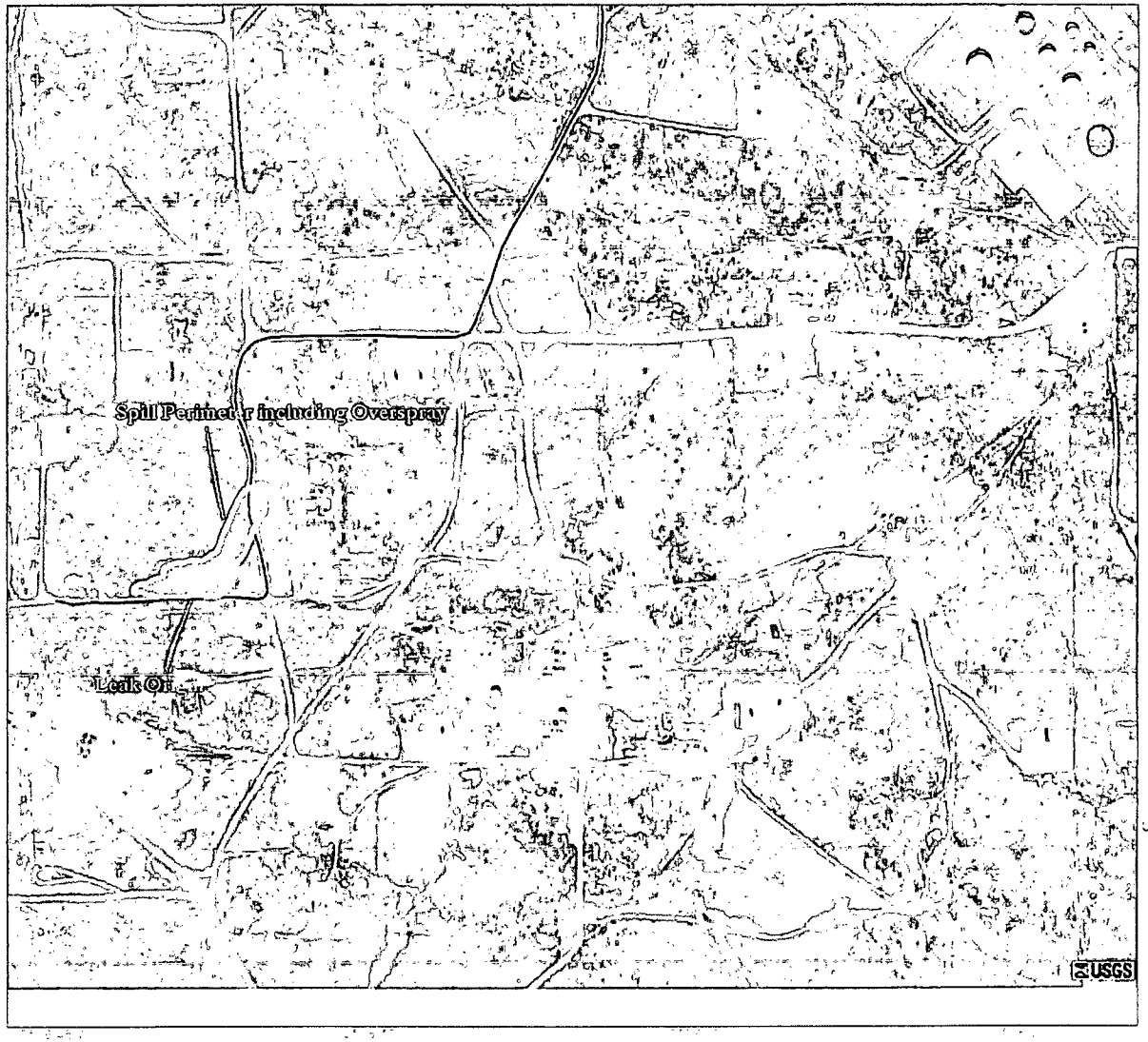
The information collected during this investigation supports the conclusion that soil concentrations of TPH^{8015m}, Benzene, BTEX, and Chloride are below the NMOCD CoC remedial guidelines and therefore justify "no further action" at this site. Nevertheless, current near surface chloride concentrations at BH2, BH4, and BH5 may inhibit vegetative growth and should be removed and replaced with clean soil or blended with clean soil from other parts of the affected area to ensure a viable root zone. Prior to reseeding, a nitrate based fertilizer should be applied and watered into the seed bed to facilitate germination.

2.5 San Andres Unit Well #31 Site Information and Metrics Summary

Site Information and Metrics			
SITE: San Andres Unit Well #31 Trunkline	Assigned Site Reference #:		
Company: Pure Resources			
Company Street Address:3 miles south of Lovington on NMSR #18			
Company Mailing Address: P.O. Box 609			
Company City, State, Zip: Lovington, New Mexico 88260			
Company Representative: Tejay Simpson			
Company Representative Telephone: 915.665.9579			
Company Telephone: 505.396.7503 Fax: 505.396.5950			
Fluid volume released (bbls) = ?			
>25 bbls : Notify NMOCD verbally within 24 hrs and submit form C-141 within 15 days. (Also applies to unauthorized releases >500 mcf Natural Gas)			
5-25 bbls: Submit form C-141 within 15 days (Also applies to unauthorized releases of 50-500 mcf Natural Gas)			
Leak, Spill, or Pit (LSP) Name: San Andres Unit Well #31 Trunkline			
Source of contamination: Pipeline			
Land Owner, i.e., BLM, ST, Fee, Other: City of Lovington			
LSP Dimensions: affected area = 320' x 664' including overspray area			
LSP Area = ~ 70,247 ft^2			
Latitude: 32° 52' 10"N			
Longitude: 103° 18' 36"W			
Elevation above mean sea level: ~ 3833 amsl			
Feet from South Section Line			
Feet from West Section Line			
Location- Unit or ¼¼ Section Township Range = UL-C NE¼ of theNW¼ Sec 1, T17S, R36E			
Surface water body within 1000 ' radius of site: None			
Domestic water wells within 1000' radius of site: None			
Agricultural water wells within 1000' radius of site: None			
Public water supply wells within 1000' radius of site: None			
Depth from land surface to ground water (DG): ~67'bgs			
Depth of contamination (DC): 0'bgs			
Depth to ground water (DG – DC = DtoGW) 67' bgs			
1. Ground Water	**2. Wellhead Protection Area**		**3. Distance to Surface Water Body**
If Depth to GW <50 feet: *20 points*	If <1000' from water source, or; <200' from private domestic water source: *20 points*		<200 horizontal feet: *20 points*
If Depth to GW 50 to 99 feet: *10 points*			200-100 horizontal feet: *10 points*
If Depth to GW >100 feet: *0 points*	If >1000' from water source, or; >200' from private domestic water source: *0 points*		>1000 horizontal feet: *0 points*
Ground water Score = 10	*Wellhead Protection Area Score= 0*		*Surface Water Score= 0*
Site Rank (1+2+3) = = 10 points			
Total Site Ranking Score and Acceptable Concentrations			
Parameter	>19(Soil >17'bgs)	***10-19(Soil from 0 to 17'bgs)***	0-9 (Not Applicable)
Benzene[1]	10 ppm	***10 ppm***	10 ppm
BTEX[1]	50 ppm	***50 ppm***	50 ppm
TPH	100 ppm	***1000 ppm***	5000 ppm
[1]100 ppm field VOC headspace measurement may be substituted for lab analysis			

Attachment I: Site Maps


-103° 19'
-103° 18'
-103° 17'
32° 53'
32° 52'
EAST LOVINGTON
OIL FIELD
PIPELINE
35
36
31
Well #L01466 WL=47'bgs;
Well #L01371 WL=45'bgs;
Pure Resources San Andres #31;
Well #L01584 WL=48'bgs;
Well #L02331a WL=48'bgs;
Tanks
Quarry
R36E
R37E
'SanAndres31BigTopo.tif'



PURE RESOURCES
SAN ANDRES
#31
UL-C SEC 1
T17S R36E
ESTIMATED
AFFECTED AREA
~70,247 SQFT

N

SCALE 1:8,000

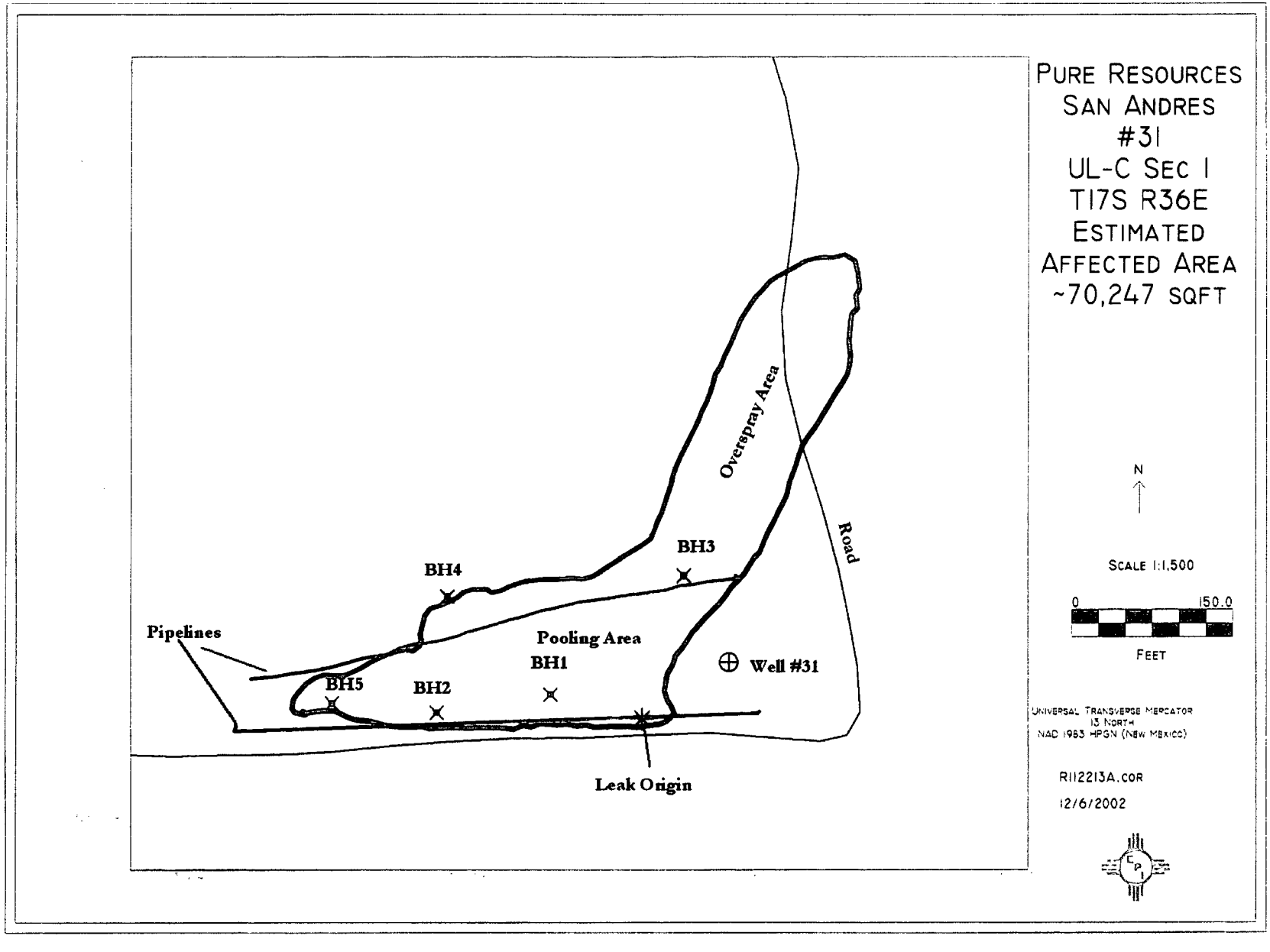
0 750.0

FEET

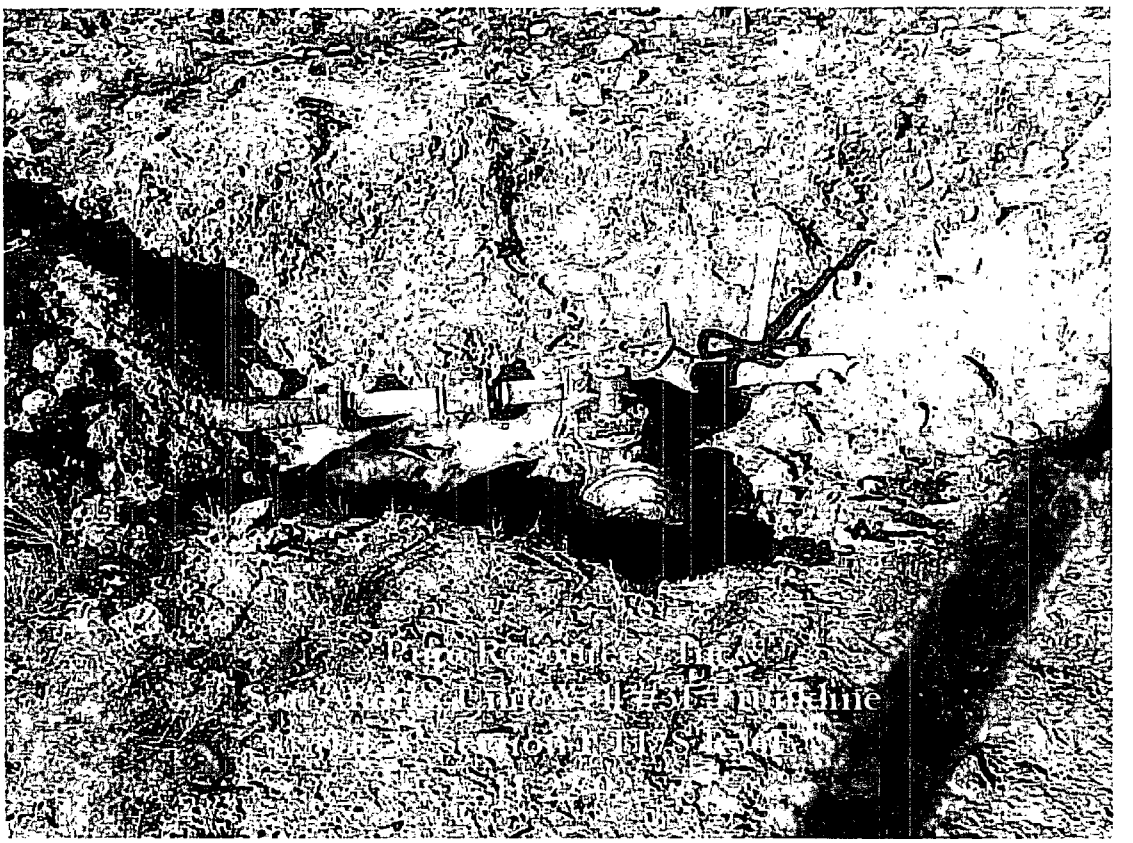
UNIVERSAL TRANSVERSE MERCATOR
13 NORTH
NAD 1983 HPGN (NEW MEXICO)

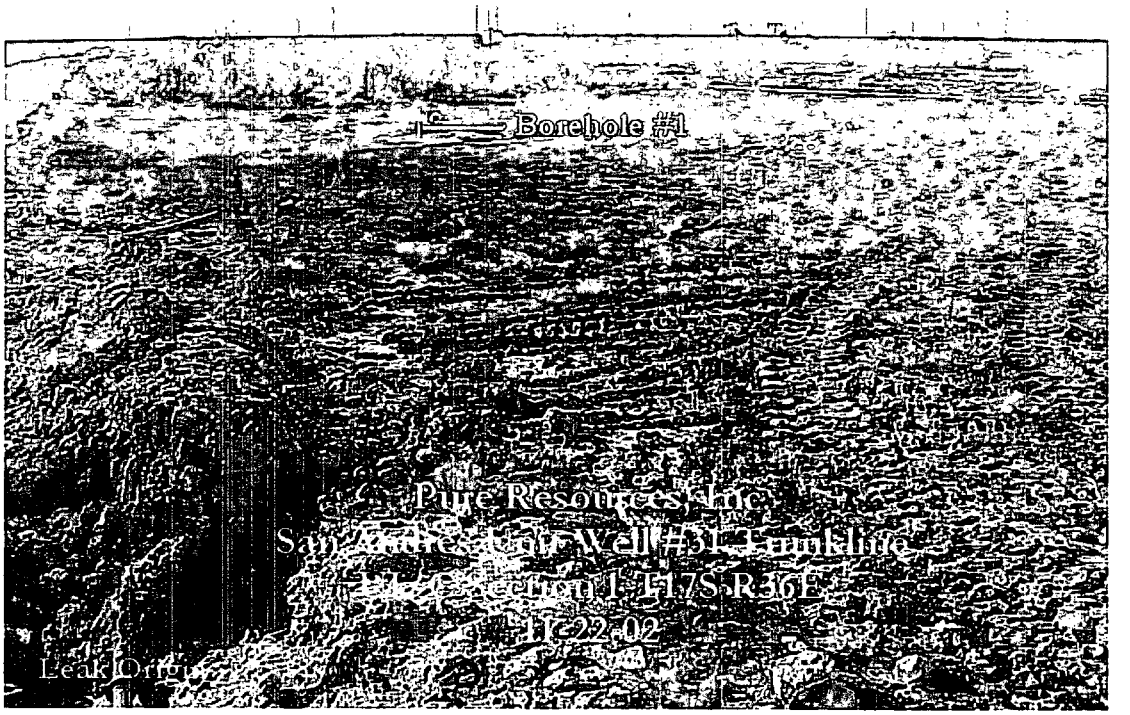
RII2213A.COR

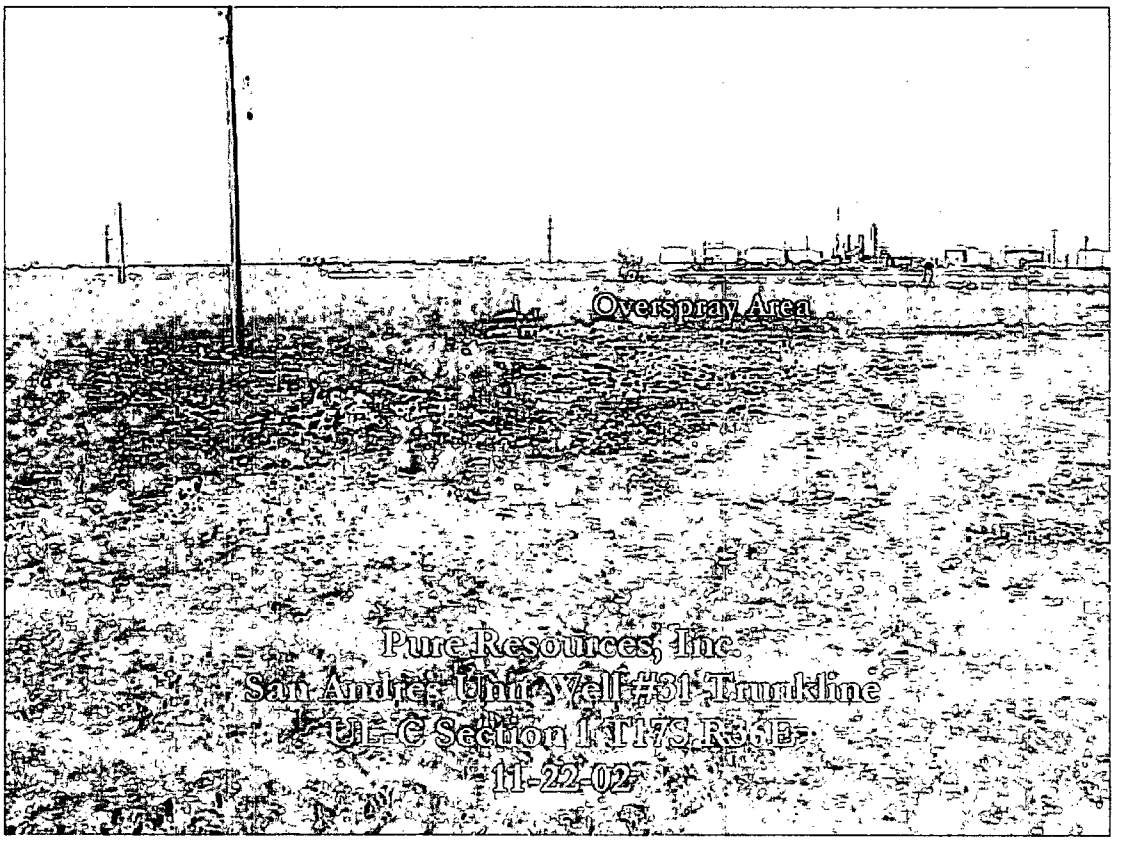
11/26/2002

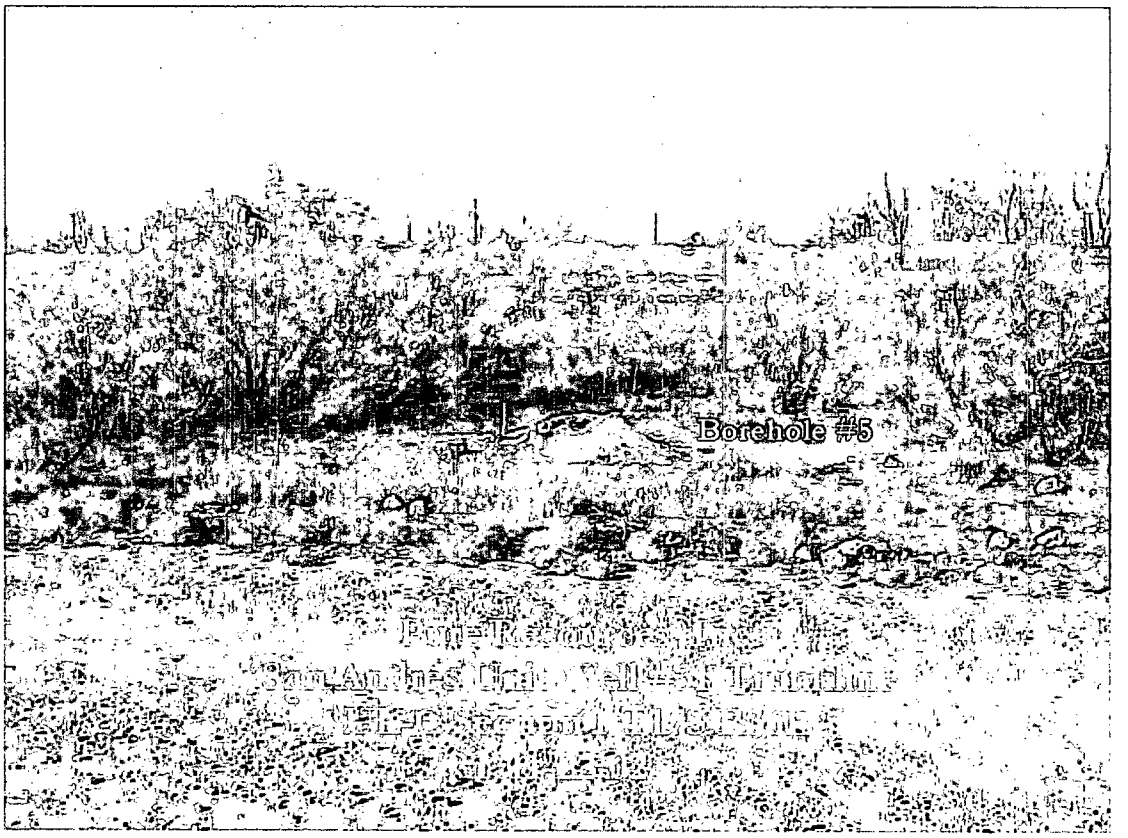

Overspray Area
Road
BH4
BH3
Pipelines
Pooling Area
BH1
Well #31
BH5
BH2
Leak Origin
PURE RESOURCES
SAN ANDRES
#31
UL-C SEC 1
T17S R36E
ESTIMATED
AFFECTED AREA
~70,247 SQFT
N
SCALE 1:1,500
0
150.0
FEET
UNIVERSAL TRANSVERSE MERCATOR
13 NORTH
NAD 1983 HPGN (NEW MEXICO)
R112213A.COR
12/6/2002

Attachment II: Photographs




Borehole #1
Pure Resources, Inc.
Well #31 Trunkline
T17S R36E
Leak Origin


Overspray Area
Pure Resources, Inc.
San Andres Unit Well #31 Trunkline
UL-G Section 1 T17S R36E
11-22-02


Borehole #5

Attachment III: Analytical Reports

PURE RESOURCES, INC.

San Andres Unit Well #31 Trunkline

Sample Area	Sampling Interval (FT. BGS[1])	SAMPLE ID#	Sample Date	Lithology	VOC Headspace	GRO[3]	DRO[4]	TPH[5]	BTEX	Benzene	Toluene	Ehtyl Benzene	m,p,o-Xylene	Chloride
						Instrument Detection Limits and Units								
					ppm	10.0 mg/Kg	10.0 mg/Kg	mg/Kg	mg/Kg	0.005 mg/Kg	0.005 mg/Kg	0.005 mg/Kg	0.025 mg/Kg	1.0 mg/Kg
BH1	0-2	SPR112002BH1-2'	11/20/2002	Tan sand/Indurated sandstone/Caliche	9.0	10	10	*20*	*0.030*	*0.005*	*0.005*	*0.005*	*0.015*	336
	5-7	SPR112002BH1-5'	11/20/2002	Tan sand/Indurated sandstone/Caliche	1.1	10	10	*20*	*0.030*	*0.005*	*0.005*	*0.005*	*0.015*	48
	10-12	SPR112002BH1-10'	11/20/2002	Tan sand/Indurated sandstone/Caliche	2.2	10	10	*20*	*0.030*	*0.005*	*0.005*	*0.005*	*0.015*	64
	15-17	SPR112002BH1-15'	11/20/2002	Tan Sand Fine	3.0	10	10	*20*	*0.030*	*0.005*	*0.005*	*0.005*	*0.015*	48
	20-22	SPR112002BH1-20'	11/20/2002	Tan Sand Fine	4.1	10	10	*20*	*0.030*	*0.005*	*0.005*	*0.005*	*0.015*	64
	25-27	SPR112002BH1-25'	11/20/2002	Brown Sand	4.9	10	10	*20*	*0.030*	*0.005*	*0.005*	*0.005*	*0.015*	64
	30-32	SPR112002BH1-30'	11/20/2002	Tan Sand Fine	7.0	10	10	*20*	*0.030*	*0.005*	*0.005*	*0.005*	*0.015*	80
	35-37	SPR112002BH1-35'	11/20/2002	Tan Sand Fine	4.0	10	10	*20*	*0.030*	*0.005*	*0.005*	*0.005*	*0.015*	80
	40-42	SPR112002BH1-40'	11/20/2002	Fine Brown Sand	3.6	10	10	*20*	*0.030*	*0.005*	*0.005*	*0.005*	*0.015*	48
BH2	0-2	SPR112002BH2-2'	11/21/2002	Dark Brown Clayey Loam	1.6	10	10	*20*	*0.040*	*0.005*	*0.005*	*0.005*	0.025	1504
	5-7	SPR112002BH2-5'	11/21/2002	Tan sand/Indurated sandstone/Caliche	1.4	10	10	*20*	*0.040*	*0.005*	*0.005*	*0.005*	0.025	160
	10-12	SPR112002BH2-10'	11/21/2002	Tan sand/Indurated sandstone/Caliche	0.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	64
	15-17	SPR112002BH2-15'	11/21/2002	Tan Sand Fine	1.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	64
	20-22	SPR112002BH2-20'	11/21/2002	Tan Sand Fine	0.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	25-27	SPR112002BH2-25'	11/21/2002	Tan Sand Fine	1.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	30-32	SPR112002BH2-30'	11/21/2002	Tan Sand Fine	1.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	35-37	SPR112002BH2-35'	11/21/2002	Tan Sand Fine	0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	40-42	SPR112002BH2-40'	11/21/2002	Fine Brown Sand	1.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	45-47	SPR112002BH2-45'	11/21/2002	Fine Brown Sand	0.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[1]bgs – below ground surface

[2]VOC–Volatile Organic Contaminants/Constituents

[3]GRO-Gasoline Range Organics C_6-C_{12}

[4]DRO-Diesel Range Organics C_{12}-C_{35}

[5]TPH-Total Petroleum Hydrocarbon = GRO+DRO.

[6]Bolded values are in excess of the New Mexico Oil Conservation Division guideline threshold for the parameter

[7]ND- Indicates that the parameter was not detected above the instrument detection limit.

[8]N/A - Not Analyzed

PURE RESOURCES, INC.

San Andres Unit Well #31 Trunkline

Sample Area	Sampling Interval (FT. BGS[1])	SAMPLE ID#	Sample Date	Lithology	VOC Headspace	GRO[3]	DRO[4]	TPH[5]	BTEX	Benzene	Toluene	Ehtyl Benzene	m,p,o-Xylene	Chloride
						Instrument Detection Limits and Units								
					ppm	10.0 mg/Kg	10.0 mg/Kg	mg/Kg	mg/Kg	0.005 mg/Kg	0.005 mg/Kg	0.005 mg/Kg	0.025 mg/Kg	1.0 mg/Kg
BH3	0-2	SPR112002BH3-2'	11/22/2002	Tan sand/Indurated sandstone/Caliche	8.7	10	10	*20*	*0.030*	*0.005*	*0.005*	*0.005*	*0.015*	224
	5-7	SPR112002BH3-5'	11/22/2002	Tan sand/Indurated sandstone/Caliche	2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	64
	10-12	SPR112002BH3-10'	11/22/2002	Tan Sand Fine	1.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	48
	15-17	SPR112002BH3-15'	11/22/2002	Tan Sand Fine	0.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	64
BH4	0-2	SPR112002BH4-2'	11/22/2002	Tan sand/Indurated sandstone/Caliche	6.5	10	10	*20*	*0.030*	*0.005*	*0.005*	*0.005*	*0.015*	688
	5-7	SPR112002BH4-5'	11/22/2002	Tan sand/Indurated sandstone/Caliche	2.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	592
	10-12	SPR112002BH4-10'	11/22/2002	Fine Brown Sand	1.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	688
	15-17	SPR112002BH4-15'	11/22/2002	Tan Sand Fine	0.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	400
	20-22	SPR112002BH4-20'	11/22/2002	Tan Sand Fine	1.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	176
BH5	0-2	SPR112002BH5-2'	11/22/2002	Tan sand/Indurated sandstone/Caliche	6.3	10	10	*20*	*0.030*	*0.005*	*0.005*	*0.005*	*0.015*	816
	5-7	SPR112002BH5-5'	11/22/2002	Tan Sand Fine	3.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	48
	10-12	SPR112002BH5-10'	11/22/2002	Fine Brown Sand	2.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	80
	15-17	SPR112002BH5-15'	11/22/2002	Tan Sand Fine	1.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	64

[1]bgs – below ground surface

[2]VOC–Volatile Organic Contaminants/Constituents

[3]GRO-Gasoline Range Organics C_6-C_{12}

[4]DRO-Diesel Range Organics C_{12}-C_{35}

[5]TPH-Total Petroleum Hydrocarbon = GRO+DRO.

[6]Bolded values are in excess of the New Mexico Oil Conservation Division guideline threshold for the parameter

[7]ND- Indicates that the parameter was not detected above the instrument detection limit.

[8]N/A - Not Analyzed

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: PAT McCASLAND
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 11/21/02
Reporting Date: 11/22/02
Project Owner: PURE
Project Name: NOT GIVEN
Project Location: NOT GIVEN

Sampling Date: 11/20/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC

LAB NO.	SAMPLE ID	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE		11/21/02	11/21/02	11/21/02	11/21/02
H7231-1	SPR112002BH1-2'	<0.005	<0.005	<0.005	<0.015
H7231-2	SPR112002BH1-5'	<0.005	<0.005	<0.005	<0.015
H7231-3	SPR112002BH1-10'	<0.005	<0.005	<0.005	<0.015
H7231-4	SPR112002BH1-15'	<0.005	<0.005	<0.005	<0.015
H7231-5	SPR112002BH1-20'	<0.005	<0.005	<0.005	<0.015
H7231-6	SPR112002BH1-25'	<0.005	<0.005	<0.005	<0.015
H7231-7	SPR112002BH1-30'	<0.005	<0.005	<0.005	<0.015
H7231-8	SPR112002BH1-35'	<0.005	<0.005	<0.005	<0.015
H7231-9	SPR112002BH1-40'	<0.005	<0.005	<0.005	<0.015
Quality Control		0.100	0.092	0.092	0.269
True Value QC		0.100	0.100	0.100	0.300
% Recovery		99.7	91.9	92.2	89.7
Relative Percent Difference		9.3	6.5	8.6	7.4

METHOD: EPA SW-846 8260

Chemist

11/22/02
Date

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: PAT McCASLAND
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 11/21/02
Reporting Date: 11/22/02
Project Owner: PURE
Project Name: NOT GIVEN
Project Location: NOT GIVEN

Sampling Date: 11/20/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: AH
Analyzed By: BC/AH

LAB NUMBER	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	Cl* (mg/Kg)
ANALYSIS DATE		11/21/02	11/21/02	11/21/02
H7231-1	SPR112002BH1-2'	<10.0	<10.0	336
H7231-2	SPR112002BH1-5'	<10.0	<10.0	48
H7231-3	SPR112002BH1-10'	<10.0	<10.0	64
H7231-4	SPR112002BH1-15'	<10.0	<10.0	48
H7231-5	SPR112002BH1-20'	<10.0	<10.0	64
H7231-6	SPR112002BH1-25'	<10.0	<10.0	64
H7231-7	SPR112002BH1-30'	<10.0	<10.0	80
H7231-8	SPR112002BH1-35'	<10.0	<10.0	80
H7231-9	SPR112002BH1-40'	<10.0	<10.0	48
Quality Control		757	840	970
True Value QC		800	800	1000
% Recovery		94.7	105	97.0
Relative Percent Difference		4.5	6.5	2.0

METHODS: TPH GRO & DRO: EPA SW-846 8015 M; Cl^-: Std. Methods 4500-Cl^-B
*Analyses performed on 1:4 w:v aqueous extracts.

Chemist

11/22/02
Date

H7231A.XLS

(915) [redacted] Fax (91[redacted]) 673-7020 [redacted] Hobbs, NM 8824[redacted] (50[redacted]) 393-2326 Fax (505) 393-[redacted] [redacted] Page [redacted] of [redacted]

Company Name:	Environmental Plus
Project Manager:	Pat McCasland
Address:	2100 Ave O
City: Eunice	State: N.M. Zip: 88231
Phone #: 505-394-3481	Fax #: 505-394-2601
Project #:	Project Owner: Plure
Project Name:	
Project Location:	
Sampler Name:	Bradley Blev

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	TPH 8015m	Chloride	BTEX 8021b
7231-1	SPR112002BH1-2'	G	[illegible]			X					X						
-2	SPR112002BH-1-5'	G	1			X					X		11-20-02	9:00	X	X	X
-3	SPR112002BH1-10'	G	1			X					X		11-20-02	9:35	X	X	X
-4	SPR112002BH1-15'	G	1			X					X		11-20-02	10:00	X	X	X
-5	SPR112002BH1-20'	G	1			X					X		11-20-02	10:35	X	X	X
-6	SPR112002BH1-25'	G	1			X					X		11-20-02	11:10	X	X	X
-7	SPR112002BH1-30'	G	1			X					X		11-20-02	11:30	X	X	X
-8	SPR112002BH1-35'	G	1			X					X		11-20-02	12:00	X	X	X
-9	SPR112002BH1-40'	G	1			X					X		11-20-02	1:35	X	X	X
											X		11-20-02	2:35	X	X	X

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Terms and Conditions: Interest will be charged on all accounts more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished: Bradley Blev	Date: 11-20-02 Time:	Received By: Matt C
Relinquished By: Matt C	Date: 11-21-02 Time: 8:20	Received By: (Lab Staff) Amy Hill
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition: Cool ☒ Yes ☐ No; Intact ☒ Yes ☐ No	CHECKED BY: (Initials)

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS:

1.3°

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS. NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: PAT McCASLAND
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 11/22/02
Reporting Date: 11/25/02
Project Owner: PURE RESOURCES
Project Name: SAN ANDRES #31
Project Location: NOT GIVEN

Sampling Date: 11/21/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

LAB NO.	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		11/23/02	11/23/02	11/23/02	11/23/02	11/23/02	11/23/02
H7238-1	SPR112102BH2-2'	<10.0	<10.0	<0.005	<0.005	<0.005	<0.025
H7238-2	SPR112102BH2-5'	<10.0	<10.0	<0.005	<0.005	<0.005	<0.025
Quality Control		757	840	0.104	0.099	0.100	0.291
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		94.7	105	104	98.9	100	97.1
Relative Percent Difference		4.5	6.5	4.1	7.1	7.8	7.6

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8260.

Burgess J. A. Cooke, Ph. D.

11/25/02
Date

H7238B.XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: PAT McCASLAND
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 11/22/02
Reporting Date: 11/26/02
Project Owner: PURE RESOURCES
Project Name: SAN ANDRES #31
Project Location: NOT GIVEN

Analysis Date: 11/22/02
Sampling Date: 11/21/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Cl^- (mg/Kg)
H7238-1	SPR112102BH2-2'	1504
H7238-2	SPR112102BH2-5'	160
H7238-3	SPR112102BH2-10'	64
H7238-4	SPR112102BH2-15'	64
Quality Control		970
True Value QC		1000
% Recovery		97.0
Relative Percent Difference		2.0
METHOD: Standard Methods		4500-ClB

Analyses performed on 1:4 w:v aqueous extracts.

Amy Hill
Chemist

11-26-02
Date

(915) 6[redacted]001 Fax (915) 673-7020 (505) 393-2326 Fax (505) 393-2476

Page [redacted] of [redacted]

Company Name:	Environmental Plus	BILL TO	
Project Manager:	Pat McCasland	P.O. #:	
Address:	2100 Ave O	Company:	EPT
	Eunice State: NM Zip: 88231	Attn:	
Phone #:	505-394-3481 Fax #: 505-394-2601	Address:	
Project #:	Project Owner: Pure Resources	City:	
Project Name:	San Andres #31	State: Zip:	
Project Location:		Phone #:	
Sampler Name:	Bradley Blair	Fax #:	

ANALYSIS REQUEST

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	Chlorides	TPH 8015	BTEX 8021B
7238-1	SPR112102BH2-2'	G	1			X					X		11-21-02	8:10	X	X	X
-2	SPR112102BH2-5'	G	1			X					X		11-21-02	8:20	X	X	X
-3	SPR112102BH2-10'	G	1			X					X		11-21-02	8:35	X		
-4	SPR112102BH2-15'	G	1			X					X		11-21-02	8:50	X		
	~~SPR112102BH2-20'~~	G	1			X					X		11-21-02	9:10	X	X	X
	~~SPR112102BH2-25'~~	G	1			X					X		11-21-02	9:30	X	X	X
	SPR112102BH2-30'	G	1			X					X		11-21-02	10:00	X	X	X
	SPR112102BH2-35'	G	1			X					X		11-21-02	10:40	X	X	X
	SPR112102BH2-40'	G	1			X					X		11-21-02	11:15	X	X	X
	SPR112102BH2-45'	G	1			X					X		11-21-02	1:00	X	X	X

NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Terms and Conditions: Interest will be charged on all invoices more than 30 days past due at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished:	Date: 11-21-02	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Bradley Blair	Time: 4:00pm		Fax Result: ☒ Yes ☐ No Add'l Fax #:
Relinquished By:	Date: 11/22/02	Received By: (Lab Staff)	REMARKS:
Matt Cox	Time: 9:30AM	Burgess A Cook	
Delivered By: (Circle One)		Sample Condition: Cool Yes ☒ No ☐ / Intact Yes ☒ No ☐	CHECKED BY: (Initials)
Sampler - UPS - Bus - Other:			

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: PAT McCASLAND
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 11/22/02
Reporting Date: 11/25/02
Project Number: NOT GIVEN
Project Name: SAN ANDRES #31
Project Location: NOT GIVEN

Sampling Date: 11/22/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: BC

LAB NO.	SAMPLE ID	GRO (C_6-C_{10}) (mg/Kg)	DRO (>C_{10}-C_{28}) (mg/Kg)	BENZENE (mg/Kg)	TOLUENE (mg/Kg)	ETHYL BENZENE (mg/Kg)	TOTAL XYLENES (mg/Kg)
ANALYSIS DATE:		11/23/02	11/23/02	11/25/02	11/25/02	11/25/02	11/25/02
H7246-1	SPR112202BH3-2'	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H7246-5	SPR112202BH4-2'	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
H7246-10	SPR112202BH5-2'	<10.0	<10.0	<0.005	<0.005	<0.005	<0.015
Quality Control		827	826	0.105	0.101	0.103	0.297
True Value QC		800	800	0.100	0.100	0.100	0.300
% Recovery		103	103	105	101	103	99.1
Relative Percent Difference		10.9	1.1	1.2	1.8	3.2	2.1

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8260.

Burgess J. A. Cooke, Ph. D.

11/25/02
Date

H7246B.XLS

CARDINAL LABORATORIES

PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
ENVIRONMENTAL PLUS, INC.
ATTN: PAT McCASLAND
P.O. BOX 1558
EUNICE, NM 88231
FAX TO: (505) 394-2601

Receiving Date: 11/22/02
Reporting Date: 11/25/02
Project Number: NOT GIVEN
Project Name: SAN ANDRES #31
Project Location: NOT GIVEN

Analysis Date: 11/25/02
Sampling Date: 11/22/02
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: BC
Analyzed By: AH

LAB NUMBER	SAMPLE ID	Cl^- (mg/Kg)
H7246-1	SPR112202BH3-2'	224
H7246-2	SPR112202BH3-5'	64
H7246-3	SPR112202BH3-10'	48
H7246-4	SPR112202BH3-15'	64
H7246-5	SPR112202BH4-2'	688
H7246-6	SPR112202BH4-5'	592
H7246-7	SPR112202BH4-10'	688
H7246-8	SPR112202BH4-15'	400
H7246-9	SPR112202BH4-20'	176
H7246-10	SPR112202BH5-2'	816
H7246-11	SPR112202BH5-5'	48
H7246-12	SPR112202BH5-10'	80
H7246-13	SPR112202BH5-15'	64
Quality Control		950
True Value QC		1000
% Recovery		95.0
Relative Percent Difference		2.0

METHOD: Standard Methods	4500-ClˉB

Analyses performed on 1:4 w:v aqueous extracts.

Amy Hill
Chemist

11-25-02
Date

(91[redacted]) [redacted] Fax (9[redacted]) 673-[redacted] ... Manard, Hobbs, NM ... (505) 393-2326 Fax (505) 393-2476 [redacted]

Page [redacted] of [redacted]

...any Name: Environmental Plus

...t Manager: Pat McCasland

...ss: 2100 Ave O

Eunice State: N.M Zip: 88231

...#: 505-394-3481 Fax #: 505-394-2601

...t #: Project Owner:

...t Name: San Andres #31

...t Location:

...pler Name: Bradley B...

BILL TO

P.O. #:

Company:

Attn:

Address:

City:

State: Zip:

Phone #:

Fax #:

ANALYSIS REQUEST

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	TPH8015M	Chloride	Btex 8021b
H7246-1	SPR112202BH3-2'	G	1			X					X		11-22-02	8:00	X	X	X
-2	SPR112202BH3-5'	G	1			X					X		11-22-02	8:10	X	X	X
-3	SPR112202BH3-10'	G	1			X					X		11-22-02	8:30	X	X	X
-4	SPR112202BH3-15'	G	1			X					X		11-22-02	9:00	X	X	X
-5	SPR112202BH4-2'	G	1			X					X		11-22-02	10:00	X	X	X
-6	SPR112202BH4-5'	G	1			X					X		11-22-02	10:15	X	X	X
-7	SPR112202BH4-10'	G	1			X					X		11-22-02	10:30	X	X	X
-8	SPR112202BH4-15'	G	1			X					X		11-22-02	10:45	X	X	X
-9	SPR112202BH4-20	G	1			X					X		11-22-02	11:10	X	X	X

[illegible]

[illegible]

Sampler Relinquished:	Date: 11-22-02	Received By:
Bradley B...	Time:	
Relinquished By:	Date:	Received By: (Lab Staff) Burgess J. Cooke
	Time: 5:03	

Delivered By: (Circle One)

Sampler - UPS - Bus - Other:

Sample Condition: Cool ☒ Yes ☐ No; Intact ☐ Yes ☐ No

CHECKED BY: (Initials)

Phone Result: ☐ Yes ☐ No Add'l Phone #:

Fax Result: ☐ Yes ☐ No Add'l Fax #:

REMARKS:

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

[redacted] (915) [redacted] Fax (915) 673-7020 [redacted] (505) 393-2326 Fax (505) 393-2476

[redacted] Page [redacted] of [redacted]

Company Name:	Environmental Plus
Project Manager:	Pat McCasland
Address:	2100 Avenue O
City:	Eunice State: N.M. Zip: 88231
Phone #:	505-394-3481 Fax #: 505-394-2601
Project #:	Project Owner:
Project Name:	San Andres #31
Project Location:	
Sampler Name:	Bradley Blevins

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

ANALYSIS REQUEST

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV: ACID/BASE:	ICE/COOL	OTHER:	SAMPLING: DATE	TIME	TAH 8015m	Chloride	BTEX 8021b
17246-10	SPR112202BH5-2'	G	1			X					X		11-22-02	12:40	X	X	X
-11	SPR112202BH5-5'	G	1			X					X		11-22-02	12:55	X	X	X
-12	SPR112202BH5-10'	G	1			X					X		11-22-02	1:15	X	X	X
-13	SPR112202BH5-15'	G	1			X					X		11-22-02	2:00	X	X	X

NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Terms and Conditions: Interest will be charged on all overdue accounts at the rate of 24% per annum from the original date of invoice, and all costs of collections, including attorney's fees.

Sampler Relinquished:	Date: 11-22-02	Received By:	
Relinquished By:	Time:		
	Date:	Received By: (Lab Staff)	
Delivered By: (Circle One)	Time: 5:13 PM		
Sampler - UPS - Bus - Other:		Sample Condition: Cool: Yes / No; Intact: Yes / No	CHECKED BY: (Initials)

Phone Result: ☐ Yes ☐ No Add'l Phone #:

Fax Result: ☐ Yes ☐ No Add'l Fax #:

REMARKS:

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

Attachment IV: New Mexico Office of the State Engineer Water Level Reports

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: 16S Range: 36E Sections: 35,36

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) Non-Domestic Domestic All

Well / Surface Data Report | Avg Depth to Water Report | Water Column Report | Clear Form | WATERS Menu | Help

AVERAGE DEPTH OF WATER REPORT 12/12/2002

							(Depth Water in Feet)		
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
L	16S	36E	35				5	10	55	41
L	16S	36E	36				6	40	257	116

Record Count: 11

http://seowaters.ose.state.nm.us/awdProd/awd.html?email_address=enviplus1@aol.com&... 12/12/2002

New Mexico Office of the State Engineer
Well Reports and Downloads

Township: 17S Range: 36E Sections: 1,2

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) ○ Non-Domestic ○ Domestic ◉ All

Well / Surface Data Report | Avg Depth to Water Report | Water Column Report | Clear Form | WATERS Menu | Help

AVERAGE DEPTH OF WATER REPORT 12/12/2002

								(Depth Water in Feet)		
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
L	17S	36E	01				4	48	48	48
L	17S	36E	02				6	48	90	69

Record Count: 10

http://seowaters.ose.state.nm.us/awdProd/awd.html?email_address=enviplus1@aol.com&... 12/12/2002

Attachment V: Environmental Plus, Inc. Quality Assurance Plan

1 ENVIRONMENTAL PLUS, INC. QUALITY ASSURANCE PLAN

This Quality Assurance Plan (QAP) ensures the quality and usability of information and data used to support a successful site investigation and subsequent environmental management decisions.

1.1 Project Safety

Occupational and Environmental Safety are key to the efficacy of this QAP. Hazards encountered at remediation sites include the following;

Moving equipment
Buried pipelines
Rotary Equipment
Highway ingress/egress
Excavation
Potential Hydrogen Sulfide Gas

Employees and subcontractors are required to confirm current training in these hazards. Standard personal protective equipment included;

Personal H_2S Monitor
Hard-hat
Steel Toed Boots/Shoes
Safety Glasses

1.2 Data Quality Objectives

For analytical information derived from samples, the following quality controls are documented and verified. Data within these specifications are deemed quantitative and acceptable for use in making environmental management decisions.

- Laboratory data must have extraction recovery for TPH, BTEX and general chemistry parameters •30.0%. Or a "%Extraction Accuracy " between 70 and 130%.
- Laboratory data must have <30% Relative Percent Difference or a "%Instrument Accuracy" between 70 and 130%.
- Field headspace analyses must be supported with instrument calibration data and calibration gas certification.

1.3 Methodology

Collecting representative site samples and information require that the sampling and observational processes and procedures be implemented within strict bounds. These control procedures further ensure the quality of site data and information. Likewise, line personnel implement standard occupational and environmental safety protocols.

1.3.1 Borehole Drilling, Lithologic Sampling, Logging, and Abandonment

Boreholes are located strategically to best determine vertical and horizontal extent of contamination in the vadose zone. Borelogs are developed for each boring noting site lithology. Laboratory samples may be collected to determine more detailed lithologic characteristics, i.e., porosity, transmissivity, etc. Each borehole is plugged with Sodium Bentonite in accordance with the NMOCD guidelines.

1.3.1.1 General Drilling or Hand Augering Procedures

The investigation employs either the Environmental Plus, Inc. drill rig with hollow stem auger and "thin-wall probe" method of discrete sampling or the 2.5" stainless steel hand auger.

1.3.1.1.1Soil Sampling with Hollow Stem Auger and Probe

Upon advancing to the desired sampling interval the probe is extended through the end of the hollow stem auger and pushed into the soil matrix to collect the sample. As the 1.5" X 48" stainless steel probe with a vinyl sampling sleeve was detached from the sampling bar, it is immediately placed on the rack and logged. A 4 oz. sample is then taken from the bottom end of the sleeve sample and decanted into the sample jar for refrigeration and preparation with the remainder (~1 Kg) placed in a 1 gallon Ziploc® bag, warmed to ambient ~ 70-80 °F and the VOC Headspace concentration measured and recorded. All pertinent information is recorded on the field borelog data sheet.

1.3.1.1.2Soil Sampling with the Hand Auger

The auger is rotated into the ground to the desired sampling interval, removed from the subsurface, and the sample decanted into the appropriate container.

1.3.1.2 Borehole Abandonment

The boreholes are filled with a mixture of distilled or drinking water and Sodium Bentonite and a wooden marker denoting the borehole number driven into the center of each backfilled hole.

1.3.2 Sample Handling

Soil samples are collected and prepared in accordance with accepted ASTM and EPA SW846 methods.

1.3.3 Sample Identification

Sample identification numbers are designated as follows;

Site: Evron Dan Wall	Soil/Ground Water	Date	Borehole #	Interval feet bgs
EDW	S /GW	4-5-01	BH1	e.g., 20'

Example: EDWS4501BH1-20

1.3.4 Sampling protocols

- Decontaminate sampling equipment and area with Alconox distilled water after each sample.
- Prepare samples and refrigerate as soon as practicable.

Duplicates or blanks may be submitted to the laboratory, if deemed appropriate.

1.3.5 Sample Containers

Laboratory and field analyses of soil and water require specific containers and are listed in the matrix below.

Media	TPH	BTEX	VOC Headspace	Metals	PAH	General Chemistry
Soil	4 oz. Jars with Teflon seal	4 oz. Jars with Teflon seal	1-gallon Ziploc® bags			
Water	1 liter amber glass w/HCL	2-40 ml VOA vials w/ HCL		16 oz. Plastic w/1ml HNO_3	1 liter Amber Glass	1 liter Plastic

1.3.6 Sample Custody

All analytical request forms are completed and signatured by EPI as sampler. EPI personnel ascension the samples to the contracting laboratory sample-receiving personnel under chain-of-custody signature.

1.3.7 Quality Control Samples

Quality control samples are collected, prepared, and analyzed as deemed appropriate.

1.3.7.1 Field Blank

A field blank for soil or water will identify contamination of the sample.

1.3.7.2 Equipment Blank

An equipment blank will document that the sampling equipment used during the sampling event was clean.

1.3.7.3 Field Duplicate or Co-located Samples

Duplicates or Co-located samples will support data quality by establishing laboratory reproducibility.

1.3.7.4 Trip Blank

A laboratory prepared trip blank accompanies only water samples and will identify sample perturbations during transit.

1.3.8 Field Measurements

The VOC Headspace concentration for each soil sample is measured using the Ultra-Rae PID manufactured by Rae Systems and calibrated with 100.0 ppm isobutylene standard gas from Scott Specialty Gases, Freemont, Colorado.

1.3.8.1 Equipment Calibration and Quality Control

The PID is calibrated at least 3 times daily and checked with the calibration gas hourly. When a check with the calibration gas indicates the instrument reading is 10 ppm too high or low it is calibrated. Variation in the daytime ambient temperature causes the variation. Care is taken to ensure the calibration gas and the instrument are at the same temperature.

1.3.8.2 Equipment Maintenance and Decontamination

All sampling and survey equipment is routinely decontaminated between samples. Nitrile gloves are worn and changed with each sampling iteration.

1.3.9 Analyses

Soil and ground water are analyzed in accordance with the following EPA Methods.

The analytical suite for soil samples includes;

- TPH (EPA method 8015M)
- BTEX (EPA method 8020 or equivalent)
- Chloride (EPA method 4500 Cl^-B)
- SPLP for selected samples

The analytical suite for water samples include:

- TPH (EPA method 8015B)
- Metals (EPA method 600/4-79-020) New Mexico WQCC and EPA RCRA as listed
- BTEX (EPA method 8021B)
- Total Dissolved Solids (EPA method 150.1)
- PAH (EPA method 8270)

Data Evaluation and Usability

All data is reviewed based on the Data Quality Objectives in the section 1.2. The contracting laboratory provides Quality Assurance/Quality Control (QA/QC) information to support the quality of each batch of sample data. TPH and BTEX results are deemed adequate and usable if the "% extraction accuracy" (%EA) is ± 30% and "% instrument accuracy" (%IA) is ± 30%. QA/QC data is reported for each sample batch at the bottom of each analytical report and were all deemed acceptable.