BOPCO, L.P.



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District I       State o         1625 N. French Dr., Hobbs, NM 88240       Energy Mineral         District II       Energy Mineral         1301 W. Grand Avenue, Artesia, NM 88210       Oil Conse         District III       000 Rio Brazos Road, Aztec, NM 87410       1220 Sou         1320 Sou       1220 Sou	of New Mexico Is and Natural Resources ervation Division th St. Francis Dr.
Santa I	Fe, NM 87505 Side of form
Release Notificatio	on and Corrective Action
Actuate Protincation	
	OPERATOR Initial Report I Final Report
Name of Company BOPCO, L.P.	Contact Tony Savole
Address 522 W. Weimod, Suite 704 Carisbad, N.M. 88220	1 elephone No. 432-556-8/30
Facility Name Dass rederars weit #4 Release #1	
Surface Owner Federal Mineral Owner	r Federal Lease No.
3001528736	
LUCAIR	UN OF KELEASE
Unit Letter Section Township Range Peet from the Nor	Visouth Line Feet from the Last West Line County
1 I 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	337)
Laurude_N 32.419741	Longitude W 104.071838
NATURI	E OF RELEASE
Type of Release: Produced water and crude oil	Volume of Release: 50 Bbls of Volume Recovered: none
	Produced water and 10 Bbls of
Source of Release: Above ground 2 3/8" flow line	Date and Hour of Occurrence Date and Hour of Discovery
	Unkown 3/5/10 8:00 a.m.
Was Immediate Notice Given?	If YES, To Whom?
Yes 🖾 No 🗋 Not Require	ed
By Whom?	Date and Hour
Was a Watercourse Reached?	If YES, Voluine Impacting the Watercourse.
If a Watercourse was Impacted, Describe Fully.*	
	•
9	
Describe Cause of Problem and Remedial Action Taken.* The flow line	e delivering produced fluid from the well to the tank battery developed a leak, the
en was shut in and a temporary repair champ was praced on the anecte	cu area,
B Describe Area Affected and Cleanup Action Taken.*The released fluid	affected an area of approximately 2300 sq. ft of pasture land with heavily saturated
soil, the fluid was too thick to remove with a vacuum truck, a backhoe v	was dispatched to the site and began to excavate and load the saturated soil/sludge.
The excavated material was hauled to CRI for disposal. It was estimated	d that 1,232 cubic yards of soil/sludge was removed. The excavated area will be left
The Site remediation for the produced water and crude oil spill will follow	ow the NMOCD quidelines for leaks and spills
D I hereby certify that the information given above is true and complete to	the best of my knowledge and understand that pursuant to NMOCD rules and
S regulations all operators are required to report and/or file certain release	notifications and perform corrective actions for releases which may endanger
public health or the environment. The acceptance of a C-141 report by the should their operations have failed to adequately investigate and same difference of a C-141 report by the should their operations have failed to adequately investigate and same difference of a C-141 report by the should the should the should the should be shoul	the NMOCD marked as "Final Report" does not relieve the operator of liability
I or the environment. In addition, NMOCD acceptance of a C-141 report	due contamination that pose a threat to ground water, surface water, human health
5 federal, state, or local laws and/or regulations.	
	OIL CONSERVATION DIVISION
Signature: 1 August 2	Remember Actions to be completed and
a signature.	Approved by District Supervisor: Final C-141 submitted with continuation
Printed Name: Tony Savoie	Expiration Date
Title: Waste Mgmt.& Remediation Specialist	Approval Date: 4-8 [ Expiration Date: 12 840
E-mail Address: TASavoie@BassPet.com	Conditions of Approval
	Attached
Date: 3/15/10 Phone:432-556-8730	Notify OCD 48 hours prior to 2RP-HO
* Attach Additional Sheets If Necessary	obtaining samples where inalyses
	DELINEATION REQUIRED unit
	contamination reaches background levels
	waranted, a work plan nay be required

### Savoie, Tony A.

From:	Savoie	Tony A.
		TONY A.

Sent: Tuesday, April 06, 2010 10:41 AM

To: Johnson, Steve F; Cruz, Carlos

Cc: Gawlik, Robert; Clemmer, Dean D

Subject: Bass 3 Fed #4

On 3/5 thru 3/7/10 we had 3 reportable spills on the Bass 3 Fed #4 Flow line.

Eric with Republic Backhoe responded to the spills and began the process of removing the heavily saturated soil. To-date 1232 cubic yards of soil has been hauled to CRI.

Eric went back to the site starting on 3/15/10 to begin the process of delineation of the spill site.

A total of 10 test holes were excavated with a backhoe to a total depth of 15 ft. soil samples were collected at 5 ft. intervals and tested for TPH and chlorides.

3 of the test holes failed to delineate the vertical extent with readings as high as 19,200 mg/kg chlorides.

The TPH was delineated at the 5 ft. intervals.

I visited with the NMOCD "Sherry Bonham" yesterday 4/5/10.

The delineation was discussed as well as the estimated depth to water and distance to watercourse, before she will issue a closure level for chlorides she wants to know the total vertical extent.

I have instructed Eric to set up a soil boring rig to complete the vertical extent.

Hopefully we can get by with just a little more excavation and hauling, install a liner, and backfill.

Cost Summary: Republic Backhoe \$7557

Republic Backhoe \$75

CRI \$19,712 Cardinal Lab \$6066

Total to-date: \$20,067

The soil boring delineation will probably cost between 5 to 7,000

I can see this project exceeding \$45,000 before closure.

I will keep you posted; I think Carlos was going to set this one up in well-view.

Thanks,

Tony





below	Soil	Cle	Claish E	etroleum 5		II DUTING SD-3	<u>Boring</u> SB-3
surface	Columns	E Field Test	Results	<u>Odor</u>	Stain	Soil Description	Date DrilledApril 26, 2010
E				None	None		Thickness of Bentonite Seal 125 Ft
Ę,				None	None		Depth to Groundwater
E				None	None		Ground Water Elevation
- 10		>2,424				0 - 20' - Sand and sandstone, tan to reddish brown, very fine grained, moist	W Indiantes the DOULevel - second
Ē.				None	None		on
Ē		2,424		None	None		measured on
E av		2,424	4,720	Hono	10110		Laboratory Analysis. PID Head-space reading in ppm obtaine
È			_	None	None		
25		>2,424		None	None		
E 30		>2,500		None	None		
Ē				None	None		
-35		>2,500		None	None		
Ē.		2,500	6,240	NUNE	NUTE		
Ę				None	None		
- *5		>2,500		None	Nore		
		>2,500		None	NOTE	20 - 85' - Sand and sandstone, tan to reddish	
E	南			None	None	brown, very fine grained	
- 55		>2,500		None	None		
E-so		2,500	6,480)	NUNG	NULLE		
E		$\sim$	$\sim$	None	None		
65 		>2,500		Name	N =		
70		>2,500		None	None		
Ē				None	None		
Ē	1.1). 1 9.1						
- B0	2 1948 1 I I I	2,500	(7.440)	None	None		
Ē		$\smile$	$\mathbf{}$	None	None		
<b>E</b> "		>2,500		Mano	Nonn	85 - 110' - Sand and sandstone, tan to reddish	
<b>F</b> ∞		>2,500	(11,000)	NUTE	NOTE	brown, very fine grained with clay	
Ē				None	None		
95 		>2,500		None	None		
Ę∞		924	(1,250)	110110	None		
Ē				None	None		
E 105		676		None	None		
E 110		1,664	2,240				Completion Notes
Ē				None	None		1.) The monitor well was advanced on da
				None	None	115 - 120' - Clay, red to grey, silty, dry	<ul> <li>using air rotary driving techniques.</li> <li>2.) The lines between material types sho on the section is a communication of the section is a section in the section in the section is a section in the section is a section in the section in the section is a section in the section is a section in the section in the section is a section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section in the section is a section in the sec</li></ul>
L 120	目	212	144				boundaries. Actual transitions may be gradual.
E 125			(44)	None	None	120 - 125 - Clay, red, tite, dry	
		$\sim$	$\sim$				
				,			
~			~	-	BO	PCO Basin Enviror	nmental Consul
So	n Bor	ing SB	-2	Bass O v.b.b <sup>=</sup>	3 Fe	a #4 Spill #1 ( New Mexico	Checked By: CJ8
				Luuy C	-ounty	May 25, 2010	

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![](_page_7_Picture_0.jpeg)

![](_page_8_Picture_0.jpeg)

![](_page_9_Picture_0.jpeg)

![](_page_9_Picture_1.jpeg)

![](_page_10_Picture_0.jpeg)

![](_page_10_Picture_1.jpeg)

Photos 4/27/10 Struab drilling horizontal extent Site #1

![](_page_11_Picture_0.jpeg)

Photos 6/17/10 After floor prep

![](_page_12_Picture_0.jpeg)

Liner installation Area #1 on 7/21/10

![](_page_13_Picture_0.jpeg)

Laying in clean sand 7/22/10

![](_page_14_Picture_0.jpeg)

After backfill and re-seeding 9/20/10

![](_page_15_Figure_0.jpeg)

## Bass 3 Federal #4 Flowline Spill #1 Ranking Analysis, Remediation Plan and Closure Request

NMOCD Standards		T			Points
Depth to Ground Wat	er	Greater than 1	00 ft.	1	0
Depth to Ground Wat	er	Less than 100	ft. but greater than 50 ft.		10
Depth to Ground Wat	er	Less than 50 f	t		20
Well Head Protection		Less than 100	0 ft. from a water source, or;	Yes	20
		Less than 200	ft. from private domestic water source	No	0
Distance to Surface w	ater body	Less than 200	Horizontal. ft.	++	20
Distance to Surface w	/ater body	200 to 1000 H	orizontal ft.		10
Distance to Surface w	/ater body	Greater than 1	1000 Horizontal ft.		0
Action levels	>19	10-19	0-9	╋╌╌╋	
Benzene (mg/kg)	10	10	10		
BTEX (mg/kg)	50	50	50		
TPH (mg/kg)	100	1000	5000		

Site Ranking		Points
Depth to Ground Water	165 to 185 ft.	0
Well Head Protection	4,165 Horiz. Ft.	0
Surface Water Body	Greater than 1000 ft. to an active water course	0
	Total Ranking Score	0

		Total Manking Goole
Site Closure Objective		
Benzene (mg/kg)	10	
BTEX (mg/kg)	50	
TPH (mg/kg)	5000	
Chloride (mg/kg)	Delineation 250mg/kg	

### **Remediation Plan:**

The affected area will be delineated horizontally and vertically either with a backhoe or air rotary rig, Soil samples will be collected during this process and analyzed for TPH Method 8015M, BTEX Method 8021B, and Chlorides Method 4500 CIB to assure the site closure levels have been achieved. The affected area will be excavated to a depth of approximately 5 ft. in depth, soil samples will be collected along the sidewalls at intervals that will demonstrate horizontal delineation has met the site closure objective.

### Facts:

An area covering approximately 24,125 sq. ft. was excavated to a depth of 5 ft. BGS Approximately 5,000 cu. yds. were excavated and hauled to an approved surface waste management facility There are no sidewall samples that exceed the closure objectives for TPH, BTEX, or Chlorides. Vertical delineation was achieved with 1 soil bore in the center of the pond area advanced to 125 ft. BGS A dense clay layer was encountered at 115 ft. BGS and was still present at 125 ft. BGS There are no TPH levels above 100 mg/kg or BTEX above .1 anywhere in the excavation.

### **Closure Request:**

Place a minimum of 1 ft. of clean pad material in the entire bottom of the excavation, cover the entire bottom of the excavation with a liner, spec. 20 Mil FT2. Lay in 1 ft. of rock free pad material on top of the liner, then complete the backfill with clean soil. The backfill material will be water packed while being placed into the excavation. Final restoration will be in compliance with the BLM assuring contouring and seed mix is adequate for the area.

# Bass 3 Federal #4 Site "A" 2RP-401 SOIL CHEMISTRY TABLE

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Date	Lab ID	Sample ID	Sample	Sample	Status	TPH GRO	TPH DRO	TPH TOTAL	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	Chloride
Collected			location	Depth (ft.)		C6-C10	C10-C28	C6-C-28					TOTAL	
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
3/17-3/19/10	H19498-27	C .05	Center trench	5	Insitu	<10	<10	<10	-				   	10,000
3/17-3/19/10	H19498-28	C 10	Center trench	10	Insitu	<10	<10	<10						48
3/17-3/19/10	H19498-29	C.15	Center trench	15	Insitu	<10	<10	<10					-	384
3/17-3/19/10	H19498-40	N 1.05	North trench	2	Instu	<10	<10	<10						32
3/17-3/19/10	H19498-41	N 1.10	North trench	10	Insitu	<10	410	< <u></u>						16
3/17-3/19/10	H19498-42	N 1.15	North trench	15	Insitu	<10	<10	<10						32
3/17-3/19/10	H19498-43	N 2.05	North trench	5	Insitu	<10 <10	<10	<10	-					880
3/17-3/19/10	H19498-44	N 2.10	North trench	10	Insitu	<10	<10	<10	; ; ; ; ;				•	4,720
3/17-3/19/10	H19498-45	N 2.15	North trench	15	Insitu	<10	<10	<10	-					9,600
6/8/2012	H20058-6	MA-N #1	North wall	5	Insitu									528
3/17-3/19/10	H19498-1	NE 2.10	NE Trench	1	Insitu	-10 	<10	<10	(     	-		   		32
3/17-3/19/10	H19498-2	NE 2.15	NE Trench	15	Insitu	<10	<10 <10	<u>&lt;10</u>						48
6/8/2012	H20058-4	MA-NE #1	North east wall	5	Insitu									160
3/17-3/19/10	H19498-9	E 2.05	East Trench	2	Insitu	<10	<10	- 410	;		             		!   	48
3/17-3/19/10	H19498-10	E 2.10	East Trench	10	Insitu	<10	<10	<10	1					32
3/17-3/19/10	H19498-11	E 2.15	East Trench	15	Insitu	<10	<10	<10						32
3/17-3/19/10	H19498-12	E 3.05	East Trench	5	Insitu	<10	<10	<10						2,060
3/17-3/19/10	H19498-13	E 3.10	East Trench	10	Insitu	<10	<10	<10				!		912
3/17-3/19/10	H19498-14	E 3.15	East Trench	15	Insitu	<10	<10	<10						144
6/8/2012	H20058-1	MA-EAST #1	East wall		Insitu									<16
3/17-3/19/10	H19498-15	SE 1.05	South East Trench	5	Insitu	<10	<10	<10 						48
3/17-3/19/10	H19498-16	SE 1.10	South East Trench	10	Insitu	<10 <10	<10 <10	<10						32
3/17-3/19/10	H19498-17	SE 1.15	South East Trench	15	Insitu	<10	<10	< 10						<16
3/17-3/19/10	H19498-18	SE 2.05	South East Trench	5	Insitu	<10	<10	<10						12,600
3/17-3/19/10	H19498-19	SE 2.10	South East Trench	10	Insîtu	<10	<10	<10						8,160
3/17-3/19/10	H19498-20	SE 2.15	South East Trench	15	Insitu	<10	<10	<10						1,260
6/8/2012	H20058-5	MA-SE #1	South east wall	5	Insitu									32

# Bass 3 Federal #4 Site "A" 2RP-401 SOIL CHEMISTRY TABLE

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Date	Lab ID	Sample ID	Sample	Sample	Status	TPH GRO	TPH DRO	TPH TOTAL	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	Chloride
Collected			location	Depth (ft.)		C6-C10	C10-C28	C6-C-28					TOTAL	
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
3/17-3/19/10	H19498-30	NSW 3.05	South trench	5	excavated	<10	<10	<10						5,320
3/17-3/19/10	H19498-31	NSW 3.10	South trench	10	Insitu	v 10	<u>م10</u>	<10						15,800
3/17-3/19/10	H19498-32	NSW 3.15	South trench	15	Insitu	<10	<10	<10						6,320
3/17-3/19/10	H19498-35	NS 1.10	South trench	10	Insitu	<10	<10	<10						2,600
3/17-3/19/10	H19498-36	NS 2.05	South trench	5	excavated	410	×10	<10						14,000
3/17-3/19/10	H19498-37	NS 2.10	South trench	10		<10	<10	<10						13,600
3/17-3/19/10	H19498-38	NSE 1.05	South trench	2	Insitu	<10	<10	<10						16
3/17-3/19/10	H19498-39	NSE 1.15	South trench	15	Insitu	۲ <u>0</u>	<10	<10						
6/8/2012	H20058-2	MA-SOUTH #1	South wall	2	Insitu									16

# Bass 3 Federal #4 Site "A" 2RP-401 SOIL CHEMISTRY TABLE

Date	Lab ID	Sample ID	Sample	Sample	Status	TPH GRO	TPH DRO	TPH TOTAL	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	Chloride
Collected			location	Depth (ft.)		C6-C10	C10-C28	C6-C-28					TOTAL	
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
3/17-3/19/10	H19498-51	SS 2.07	South Stream area	7	Insitu	<10	<10	<10						48
3/17-3/19/10	H19498-52	SS 3.07	South Stream area	2	łnsitu	<10	<10	<10	ļ					224
3/17-3/19/10	H19498-53	SSE 1.07	South Stream area	7	Insitu	<10	~ 10	<10 						32
3/17-3/19/10	H19498-54	SS 1.02	South Stream area	N	Insitu	<10	<10	<10			1			112
3/17-3/19/10	H19498-55	SS 2.02	South Stream area	2	excavated	<10	<10	<10						8,800
3/17-3/19/10	H19498-56	SS 3.02	South Stream area	2	excavated	<10	<10 <10	<10						9,300
6/8/2012	H20058-9	R0=#1	Stream area	5	Insitu									48
6/17/2012	H20167-10	- RO-E1A	Stream area east wall	2	Insitu									<16
611712012	H20167-11	RO-E2A	Stream area east walt	5	Insitu									<16
6/17/2012	H20167-12	RO-E3A	Stream area east wall	5	Insitu									416 16
6/8/2012	H20058-13	RO SOUTH 1A	Stream area south wall	5	Insitu									×16
6/8/2012	H20058-10	RO= WEST #1A	Stream area west wall	<del>2</del> 	Insitu						-			80
6/8/2012	H20058-11	RO-WEST 2A	Stream area west wall	5	- Insitu							1	     	<16
6/8/2012	H20058-12	RO WEST 3A	Stream area west wall	5	Insitu				_				[	96

Date	Lab ID	Sample ID	Sample	Sample	Status	TPH GRO	TPH DRO	TPH TOTAL	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	Chloride
Collected			location	Depth (ft.)		C6-C10	C10-C28	C6-C-28					TOTAL	
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
3/17-3/19/10	H19498-21	SW 2.05	South West trench	2	excavated	<10	<10	<10						10,200
3/17-3/19/10	H19498-22	SW 2.10	South West trench	10	Insitu	<10	<10	<10						8,400
3/17-3/19/10	H19498-23	SW 2.15	South West trench	15	Insitu	<10	<10	<10					     	12,400
3/17-3/19/10	H19498-24	SW 1.05	South West trench	2	Insitu	- ×10	×10	×10						16
3/17-3/19/10	H19498-25	SW 1.10	South West trench	10	Insitu	<10	<10	<10						<16
3/17-3/19/10	H19498-26	SW 1.15	South West trench	15	Insitu	<10	<10	<10 <						176
6/8/2012	H20058-3	MA-SW#1	South west wall	5	Insitu									16
3/17-3/19/10	H19498-3	W 2.05	West Trench	5	Insitu	<10	<10							
3/17-3/19/10	H19498-4	W 2.10	West Trench	10	Insitu	<10	<10	<10						4,520
3/17-3/19/10	H19498-5	W 2.15	West Trench	15	Insitu	<10 <	<10							48
3/17-3/19/10	H19498-6	W 1.05	West Trench		Insitu	10	<10	<10		-				<16 
3/17-3/19/10	H19498-7	W 1.10	West Trench	10	Insitu	<10	<10	<10				1		32
3/17-3/19/10	H19498-8	W 1.15	West Trench	15	Insitu	<10	<10	<10						992
6/8/2012	H20058-7	MA-W #1	West wall	5	Insitu									64

# Bass 3 Federal #4 Site "A" 2RP-40<sup>†</sup> SOIL CHEMISTRY TABLE

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Date	Lab ID	Sample ID	Sampte	Sample	Status	TPH GRO	TPH DRO	ТРН ТОТАL	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	Chloride
Collected			location	Depth (ft.)		C6-C10	C10- C28	C6-C-28					TOTAL	
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
3/17-3/19/10	H19498-33	NW 1.05	North West trench	S	Insitu	<10	<10	<10 <						16
3/17-3/19/10	H19498-34	NW 1.15	North West trench	15	Insitu	<10 <	<10	<10						464
3/17-3/19/10	H19498-46	NW 2.05	North West trench	<u>م</u>	Insitu	<10	<10	<10						14,400
3/17-3/19/10	H19498-47	NW 3.05	North West trench	2	excavated	<b>0</b> 1	0 <sup>1</sup>	, 10		4				20,800
3/17-3/19/10	H19498-48	NW 3.10	North West trench	10	Insitu	<10	<10	<10						16,000
3/17-3/19/10	H19498-49	NW 3.15	North West trench	15	Insitu	<10	<10	<10		-				7,200
3/17-3/19/10	H19498-50	NW 2.15	North West trench	15	Insitu	< <u>10</u>	<10	<10						6,800
6/8/2012	H20058-8	MA-NW #1	North west wall	5	Insitu									64
4/27-4/28/10	H19779-1	SB3 at 20'	NW Center pond area	20	Insitu	<10 <10	410	<10	<0.050	<0.050	<0.050	<0.050	<0.300	4,720
4/27-4/28/10	H19779-2	SB3 at 40'	NW Center pond area	40	Insitu								-	6,240
4/27-4/28/10	H19779-3	SB3 at 60'	NW Center pond area		Insitu			-					1	6,480
4/27-4/28/10	H19779-4	SB3 at 80'	NW Center pond area	80	Insitu		1							7,440
4/27-4/28/10	H19779-5	SB3 at 90'	NW Center pond area	06	Insitu	-		• • •						11,000
4/27-4/28/10	H19779-6	SB3 at 100'	NW Center pond area	100	Insitu		-	-						
4/27-4/28/10	H19779-7	SB3 at 110	NW Center pond area	110	Insitu			•		,     		-		2,240
4/27-4/28/10	H19779-8	SB3 at 120'	NW Center pond area	120	Insitu			•						144
4/27-4/28/10	H19779-9	SB3 at 125	NW Center pond area	125	Insitu									48

## RECEIVED

JUL 15 2010

## Bass 3 Federal #4 Flowline Spill #1 | NMOCD ARTESIA **Ranking Analysis, Remediation Plan and Closure Request**

NMOCD Standards					Points
Depth to Ground W	ater	Greater than 10	Greater than 100 ft.		
Depth to Ground W	ater	Less than 100 ft. but greater than 50 ft.			10
Depth to Ground W	ater	Less than 50 ft.			20
Well Head Protection	้าก	Less than 1000	) ft. from a water source, or;	Yes	20
		Less than 200 ft. from private domestic water source		No	0
Distance to Surface water body		Less than 200	Horizontal. ft.		20
Distance to Surface water body		200 to 1000 Ho	prizontal ft.		10
Distance to Surface water body		Greater than 1000 Horizontal ft.			0
Action levels	>19	10-19	0-9	<u> </u> {	
Benzene (mg/kg)	10	10	10		
BTEX (mg/kg)	50	50	50		
TPH (mg/kg)	100	1000	5000		

Site Ranking		Points
Depth to Ground Water	165 to 185 ft.	0
Well Head Protection	4,165 Horiz. Ft.	0
Surface Water Body	Greater than 1000 ft. to an active water course	0
	Total Banking Score	0

		· · · · · · · · · · · · · · · · · · ·	
Site Closure Objective			
Benzene (mg/kg)	10		
BTEX (mg/kg)	50		
TPH (mg/kg)	5000		
Chloride (mg/kg)	Delineation 250mg/kg		

### Remediation Plan:

The affected area will be delineated horizontally and vertically either with a backhoe or air rotary rig, Soil samples will be collected during this process and analyzed for TPH Method 8015M, BTEX Method 8021B, and Chlorides Method 4500 CIB to assure the site closure levels have been achieved. The affected area will be excavated to a depth of approximately 5 ft. in depth, soil samples will be collected along the sidewalls at intervals that will demonstrate horizontal delineation has met the site closure objective.

### Facts:

An area covering approximately 24,125 sq. ft. was excavated to a depth of 5 ft. BGS

Approximately 5,000 cu. yds. were excavated and hauled to an approved surface waste management facility There are no sidewall samples that exceed the closure objectives for TPH, BTEX, or Chlorides.

Vertical delineation was achieved with 1 soil bore in the center of the pond area advanced to 125 ft. BGS

A dense clay layer was encountered at 115 ft. BGS and was still present at 125 ft. BGS

There are no TPH levels above 100 mg/kg or BTEX above .1 anywhere in the excavation.

### **Closure Request:**

Place a minimum of 1 ft. of clean pad material in the entire bottom of the excavation, cover the entire bottom of the excavation with a liner, spec. 20 Mil FT2. Lay in 1 ft. of rock free pad material on top of the liner, then complete the backfill with clean soil. The backfill material will be water packed while being placed into the excavation. Final restoration will be in compliance with the BLM assuring contouring and seed mix is adequate for the area.

TONY Savere

1 ang Banin 7/15/10

![](_page_23_Figure_0.jpeg)

MN (7.9° E)

![](_page_24_Figure_0.jpeg)

![](_page_25_Picture_0.jpeg)

NW looking SE

NW Looking SE

S Looking N

Bass 3 Federal #4 Flow Line Spill #1 After initial response 3/10/10

	1				0.		
Depth below					<u>S0</u>	II Boring SB-3	
ground	Soil	CI-	CI- Lab	Petroleum P	etroleum		Baring SB-3
surface	Columns	Field Test	Results	<u>Odor</u> None	<u>Stain</u> None	Soll Description	Date DriffedApril 26, 2010
Ē	ទេវ			None	None		Thickness of Benionite Sea <u>123 Ft</u> Depth of Exploratory Boring <u>125 Ft bgs</u>
-5	ЦЦ.						Depth to Groundwater
Ē				None	None	0 - 20' - Sand and sandstone, tan to reddish brown.	
<b>5</b> <sup>10</sup>	1.1	>2,424		None	None	very fine grained, moist	Indicates the PSH level measured
, <b>F</b> 15		>2.424		None	NONe		Indextes the groundwater level
Ē				None	None		Indicates samples selected for Laboratory Analysis.
<b>F</b> _20		2,424	4,720				PID Head-space reading in ppm obtained with a photo-ionization detector.
Ē,	111	>2 424		None	None		
Ē		F 2,727		None	None		
- ∞		>2,500					
Ē		. 0 500		None	None		
- <sup>36</sup>		>2,500		None	None		
Ē.		2,500	6,240				
Ē				None	None		
<u> </u>	ЦЦ	>2,500		Nees	Mana		
50		>2.500		None	NONE	20 - 85' - Sand and sandstone, tan to reddish	
Ē		2,000		None	None	brown, very fine grained	
	12.12	>2,500					
Ē		A 100	6 490	None	None		
-		2,500	0,400	None	None		
		>2,500					
Ē				None	None		
- 70 E		>2,500		None	None		
-75				NOTE	NOTE		
Ē	151	_		None	None		
- <b>60</b>		2,500	(7,440)				
E.		>2 500		None	None		
Ē		-2,000		None	None	85 - 110' - Sand and sandstone, tan to reddish	
- w	Der:	>2,500	(1,000				
				None	None		
-**		>2,500		None	None		
- 100	616112	924	(1,250)				
Ē			_	None	None		
- 105		676		None	None		
- 110		(1,664)	(2,240)	NONO	None		Completion Notes
Ē	범수는 한 기능은 한			None	None		1.) The monitor well was edvanced on date
- 115				Mono	Nana	115 - 120' - Clay red to oney sitty dry	using air rotary dritting techniques. 2.) The thes between material types shown
120		(212)	(144)	NOUG	None		on the profile log represent approximate boundaries. Actual transitions may be
		$\underline{}$	$\sim$	None	None	120 - 125' - Clay, red, tite, dry	Uracular.
L <sub>125</sub>			(44)				
					ROF		ronmontal Canadiltina
So	l Bori	na SB-	2	Base	3 Fed	#4 Spill #1	ronmental Consulting
		.9 00-		Eddy Co	ountv	New Mexico	Checked By: CJB
· · · · · · · · · · · · · · · · · · ·						May 25, 2010	

![](_page_27_Picture_0.jpeg)

![](_page_28_Figure_0.jpeg)

![](_page_29_Figure_0.jpeg)

![](_page_30_Picture_0.jpeg)

Bass 3 Federal #4 Flow Line Spill #1 Looking North to South 6/17/10

![](_page_30_Picture_2.jpeg)

Bass 3 Federal #4 Flow Line Spill #1 Looking West to East 6/17/10

![](_page_31_Picture_0.jpeg)

Bass 3 Federal #4 Flow Line Spill #1 Looking North to South 6/17/10

![](_page_31_Picture_2.jpeg)

Bass 3 Federal #4 Flow Line Spill #1 Looking East to West 6/17/10

![](_page_32_Picture_0.jpeg)

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

June 25, 2010

Eric Garcia Republic Backhoe 1513 West Aspen Lovington, NM 88260

Re: Bass 3 Fed #4

Enclosed are the results of analyses for sample number H20167, received by the laboratory on 06/21/10 at 11:50 am.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021 Method SW-846 8260 Method TX 1005 Benzene, Toluene, Ethyl Benzene, and Total Xylenes Benzene, Toluene, Ethyl Benzene, and Total Xylenes Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accredited though the State of Colorado Department of Public Health and Environment for:

Method EPA 55	2.2
Method EPA 52	4.2
Method EPA 52	4.2

Haloacetic Acids (HAA-5) Total Trihalomethanes (TTHM) Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 5 (includes Chain of Custody)

Sincerel

Laboratory Director

![](_page_33_Picture_0.jpeg)

ANALYTICAL RESULTS FOR REPUBLIC BACKHOE SERVICES ATTN: ERIC GARCIA 1513 W. ASPEN LOVINGTON, NM 88260

Receiving Date: 06/21/10 Reporting Date: 06/24/10 Project Number: NOT GIVEN Project Name: BASS 3 FED #4 Project Location: NOT GIVEN

Analysis Date: 06/22/10 Sampling Date: 08/17/10 Sample Type: SOIL Sample Condition: COOL & INTACT @ 6°C Sample Received By: JH Analyzed By: HM

~ **-** -

•		
LAB NUMBER	SAMPLE ID	(mg/kg)
H20167-1	S2-W1	< 16
H20167-2	S2-W2	< 16
H20167-3	S2-E1	< 16
H20167-4	S2-E2	< 16
H20167-5	S2-E3B	< 16
H20167-6	S2-N1	< 16
H20167-7	S2-N2	< 16
H20167-8	S2-S2	< 16
H20167-9	S2-S1B	< 16
H20167-10	RO-E1A	< 16
H20167-11	RO-E2A	< 16
H20167-12	RO-E3A	< 16
Quality Control	,,	490
True Value QC		500
% Recovery		98.0
Relative Percent Diffe	rence	3.8

4500-CI'B METHOD: Standard Methods

Note: Analyses performed on 1:4 wiv aqueous extracts.

Chemist

06/251 Date

### H20167 CL Republic Backhoe

PLEASE NOTE: Liability and Damages. Cardinat'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 client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinat within thirty (30) days after completion of the applicable service. In no event shall Candinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affligites or successore 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. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

![](_page_34_Picture_0.jpeg)

			ANALYTICAL R REPUBLIC BAC ATTN: ERIC G 1513 W. ASPEI LOVINGTON, N FAX TO: (575)	ESULTS FC XHOE ARCIA N IM 88260 396-7782	DR		
Receiv	ing Date: 08/21/	10			Sampling D	ate: 06/17/10	
Reporti	ing Date: 06/24/	10			Sample Typ	be: SOIL	
Project	Owner: NOT GI	VEN			Sample Cor	ndition: COOL	& INTACT @ 6ºC
Project	Name: BASS 3	FED #4			Sample Red	ceived By: JH	-
Project	Location: NOT	GIVEN			Analyzed B	y: AB	
			•	GRO	DRO		
				(C <sub>6</sub> -C <sub>10</sub> )	(>C <sub>10</sub> -C <sub>28</sub> )		
	LAB NUMBER	SAMPLE	ID	(mg/kg)	(mg/kg)		
	ANALYSIS DAT	E:		06/23/10	06/23/10		
	H20167-1	S2-W1		<10.0	<10.0		
	H20167-2	S2-W2		<10.0	<10.0		
	H20167-3	S2-E1		<10.0	<10.0		
	H20167-4	S2-E2		<10.0	<10.0		
	H20167-5	S2-E3B		<10.0	<10.0		
	H20167-6	S2-N1		<10.0	<10.0		
	H20167-7	S2-N2		<10.0	<10.0		
	H20167-8	<u>S2-S2</u>		<10.0	<10.0		
	H20167-9	S2-S1B		<10.0	<10.0		
				<u> </u>		•	
				ļ			
			· · · · · · · · · · · · ·		····-		
	Quality Control			534	599		

**Relative Percent Difference** 1.8 METHOD: SW-846 8015 M Reported on wet weight.

lene Chemist

True Value QC % Recovery

06/25/10

500

120

1.5

Date

500

107

### H20167 TPH8015 RBS

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|--|

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 8824 **CHAIN-OF-CUSTODY AND ANALYSIS REQUEST** 

![](_page_36_Picture_1.jpeg)

roject Manager:	575) 393-2476 Joukhore	P.0.#		AN	ALYSIS REQUES	
ddress: 1513 W A	ser	company: BOOC	Q			
ity:	tate: Zip:	Attn:				
hone#: Fax	x#:	Address:				
roject #: Pro	oject Owner:	city:				
roject Name: Bass 3 Fe	ひゅし	State: Zip:				
roject Location:		Phone #:		·		-
ampter Name: EVIC Go	مالكر	Fax #:				
FOR LAB USE ONLY	MATRIX	PRESERV SAMPI	ING			
Lab I.D. Sample I.D.	G)RAB OR (C)OMP. 9 CONTAINERS 9 CONTAINERS 9 MASTEWATER MASTEWATER 5 OIL 91L	H D D D D D D H E B D D H E B S D H E B S D H E B S C B S C B S S S S S S S S S S S S S	TIME TIME		·····	
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12 60 - E3A			2:50 L			
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EASE NOTE: (LEVERy and Dumages Cardanu's labely, and checks series byses. At cares including those for negligence and any other cases when meas , in no rewn shall Gersties the for accessful or considential dam	ake receipt for any clam attaing chather based in contract of to those receipt for any clam attaing whather based in contract of to waters in fortunation attained between servicedance. Just on	At the based to be amount paid by which the based to the amount paid by hand by Canchest within 30 days after com tase of base of centra interfact by cherk	he chert for the Detries of the applicable to advictation			
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FORM-006	+ Cardinal cannot accept v	verbal changes. Please	fax written changes to	575-393-2476		
Revision 1.0	· 九	44 L	3			
		9				

![](_page_37_Figure_0.jpeg)

![](_page_38_Figure_0.jpeg)

![](_page_39_Picture_0.jpeg)

March 29, 2010

Eric Garcia Republic Backhoe 1513 West Aspen Lovington, NM 88260

Re: Bass 3 Fed #4

Enclosed are the results of analyses for sample number H19498, received by the laboratory on 03/19/10 at 5:10 pm.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021 Method SW-846 8260 Method TX 1005 Benzene, Toluene, Ethyl Benzene, and Total Xylenes Benzene, Toluene, Ethyl Benzene, and Total Xylenes Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accredited though the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2 Method EPA 524.2 Method EPA 524.2 Haloacetic Acids (HAA-5) Total Trihalomethanes (TTHM) Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 15 (includes Chain of Custody)

Sincerely

Celey D/Keene Laboratory Director

![](_page_40_Picture_0.jpeg)

Receiving Date: 03/19/10 Reporting Date: 03/25/10 Project Owner: BOPCO L.P. Project Name: BASS 3 FED #4 Project Location: BASS 3 FED #4

. . . . . . . . . . . . . . . .

Analysis Date: 03/22/10 Sampling Date: 03/17/10 - 03/19/10 Sample Type: SOIL Sample Condition: COOL & INTACT @ 0.5<sup>o</sup>C Sample Received By: JH Analyzed By: SJ

CI\*

LAB NUMBER	SAMPLE ID	(mg/kg)
H19498-1	NE 2.10	32
H19498-2	NE 2.15	48
H19498-3	W 2.05	32
H19498-4	W 2.10	4,520
H19498-5	W 2.15	48
H19498-6	W 1.05	< 16
H19498-7	W 1.10	32
H19498-8	W 1.15	992
H19498-9	E 2.05	48
H19498-10	E 2.10	32
H19498-11	E 2.15	32
H19498-12	E 3.05	2,060
H19498-13	E 3.10	912
H19498-14	E 3.15	144
Quality Control		480
True Value QC		500
% Recovery		96.0
<b>Relative Percen</b>	t Difference	2.1

METHOD: Standard Methods \*Analyses performed on 1:4 w:v aqueous extracts.

-----

741 Date

4500-CI'B

### H19498 Republic Backhoe

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![](_page_41_Picture_0.jpeg)

Receiving Date: 03/19/10 Reporting Date: 03/25/10 Project Owner: BOPCO L.P. Project Name: BASS 3 FED #4 Project Location: BASS 3 FED #4 Analysis Date: 03/22/10 & 03/23/10 Sampling Date: 03/17/10 - 03/19/10 Sample Type: SOIL Sample Condition: COOL & INTACT @ 0.5<sup>0</sup>C Sample Received By: JH Analyzed By: CK/SJ

Cl\*

LAB NUMBER	SAMPLE ID	(mg/kg)
H19498-15	SE 1.05	48
H19498-16	SE 1.10	32
H19498-17	SE 1.15	< 16
H19498-18	SE 2.05	12,600
H19498-19	SE 2.10	8,160
H19498-20	SE 2.15	1,260
H19498-21	SW 2.05	10,200
H19498-22	SW 2.10	8,400
H19498-23	SW 2.15	12,400
H19498-24	SW 1.05	16
H19498-25	SW 1.10	< 16
H19498-26	SW 1.15	176
H19498-27	C .05	10,000
H19498-28	C .10	48
Quality Control		480
True Value QC		500
% Recovery		96.0
<b>Relative Percen</b>	t Difference	< 0.1

METHOD: Standard Methods 4500-CIB \*Analyses performed on 1:4 w:v aqueous extracts.

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### H19498 Republic Backhoe

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![](_page_42_Picture_0.jpeg)

**REPUBLIC BACKHOE** ATTN: ERIC GARCIA 1513 W. ASPEN LOVINGTON, NM 88260 FAX TO: (575) 396-7782

Receiving Date: 03/19/10 Reporting Date: 03/26/10 Project Owner: BOPCO L.P. Project Name: BASS 3 FED #4 Project Location: BASS 3 FED #4 Analysis Date: 03/23/10 Sampling Date: 03/17/10 - 03/19/10 Sample Type: SOIL Sample Condition: COOL & INTACT @ 0.5°C Sample Received By: JH Analyzed By: CK

CI\*

LAB NUMBER	SAMPLE ID	(mg/kg)
H19498-29	C .15	384
H19498-30	NSW 3.05	5,320
H19498-31	NSW 3.10	15,800
H19498-32	NSW 3.15	6,320
H19498-33	NW 1.05	16
H19498-34	NW 1.15	464
H19498-35	NS 1.10	7,600
H19498-36	NS 2.05	14,000
H19498-37	NS 2.10	13,600
H19498-38	NSE 1.05	16
H19498-39	NSE 1.15	19,200
H19498-40	N 1.05	32
H19498-41	N 1.10	16
H19498-42	N 1.15	32
Quality Control		480
True Value QC		500
% Recovery		96.0
<b>Relative Percen</b>	t Difference	< 0.1

4500-CI'B METHOD: Standard Methods \*Analyses performed on 1:4 w:v aqueous extracts.

lene

03/29/10 Date

### H19498 Republic Backhoe

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 client for analyses All claims, including those for negligence and any other cause whateoever shall be deemed waived unless made in writing and received by Cardinal within thirty (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 profils 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. Result relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

![](_page_43_Picture_0.jpeg)

REPUBLIC BACKHOE ATTN: ERIC GARCIA 1513 W. ASPEN LOVINGTON, NM 88260 FAX TO: (575) 396-7782

Receiving Date: 03/19/10 Reporting Date: 03/26/10 Project Owner: BOPCO L.P. Project Name: BASS 3 FED #4 Project Location: BASS 3 FED #4 Analysis Date: 03/23/10 Sampling Date: 03/17/10 - 03/19/10 Sample Type: SOIL Sample Condition: COOL & INTACT @ 0.5<sup>o</sup>C Sample Received By: JH Analyzed By: CK

CI\*

LAB NUMBER	SAMPLE ID	(mg/kg)
H19498-43	N 2.05	880
H19498-44	N 2.10	4,720
H19498-45	N 2.15	9,600
H19498-46	NW 2.05	14,400
H19498-47	NW 3.05	20,800
H19498-48	NW 3.10	16,000
H19498-49	NW 3.15	7,200
H19498-50	NW 2.15	6,800
H19498-51	SS 2.07	48
H19498-52	SS 3.07	224
H19498-53	SSE 1.07	32
H19498-54	SS 1.02	112
H19498-55	SS 2.02	8,800
H19498-56	SS 3.02	9,200
Quality Control		480
True Value QC		500
% Recovery		96.0
<b>Relative Percen</b>	t Difference	< 0.1

METHOD: Standard Methods 4500-CIB \*Analyses performed on 1:4 w:v aqueous extracts.

here

03/29/10

Date

### H19498 Republic Backhoe

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 client for analyser. All claims, including those for negligence and any other cause whatsoever shall be deemed walved unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, whether such claim is based upon any of be above-stated reasons or otherwise. Result relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

![](_page_44_Picture_0.jpeg)

PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR **REPUBLIC BACKHOE** ATTN: ERIC GARCIA 1513 W. ASPEN LOVINGTON, NM 88260 FAX TO: (575) 396-7782

Receiving Date: 03/19/10 Reporting Date: 03/29/10 Project Owner: BOPCO L.P. Project Name: BASS 3 FED #4 Project Location: BASS 3 FED #4 Sampling Date: 03/17/10 & 03/18/10 Sample Type: SOIL Sample Condition: COOL & INTACT @ 0.5°C Sample Received By: JH Analyzed By: AB

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GRO  $\sim$ 

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DRO

1- A

		$(C_8 - C_{10})$	(>C <sub>10</sub> -C <sub>28</sub> )
LAB NUMBER	SAMPLE ID	(mg/kg)	(mg/kg)
ANALYSIS DAT	E:	03/23/10	03/23/10
H19498-1	NE 2.10	<10.0	<10.0
H19498-2	NE 2.15	<10.0	<10.0
H19498-3	W 2.05	<10.0	<10.0
H19498-4	W 2.10	<10.0	<10.0
H19498-5	W 2.15	<10.0	<10.0
H19498-6	W 1.05	<10.0	<10.0
H19498-7	W 1.10	<10.0	<10.0
			· · · · · · · · · · · · · · · · · · ·
	<del>,</del>		
	,		
Quality Control		486	491
True Value QC		500	500
% Recovery		97.2	98,2
Relative Percen	t Difference	2.9	0.5

METHOD: SWr846 8015 M Reported on wet weight.

Chemist

3/29/10 Date

### H19498 TPH8015 RBS

PLEASE NOTE: Liability and Damages. Cardina's liability and client's exclusive remody for any claim srising, whether based in contract or tort, shall be limited to the amount paid by client for snalyses. All claims, including those for negligence and any other cause whatsoever shall be deemed walved unless made in writing and received by Cardinal within thirty (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 araising out of or related to the performance of services hereunder by Cardinal, regardlass of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

![](_page_45_Picture_0.jpeg)

Receiving Date: 03/19/10 Reporting Date: 03/29/10 Project Owner: BOPCO L.P. Project Name: BASS 3 FED #4 Project Location: BASS 3 FED #4

Sampling Date: 03/17/10 & 03/19/10 Sample Type: SOIL Sample Condition: COOL & INTACT @ 0.5<sup>o</sup>C Sample Received By: JH Analyzed By: AB

GRO DRO

		(C <sub>6</sub> -C <sub>10</sub> )	(>C <sub>107</sub> C <sub>28</sub> )
LAB NUMBER	SAMPLE ID	(mg/kg)	(mg/kg)
ANALYSIS DAT	ſE:	03/24/10	03/24/10
H19498-8	W 1.15	<10.0	<10.0
H19498-9	E 2.05	<10.0	<10.0
H19498-10	E 2.10	<10.0	<10.0
H19498-11	E 2.15	<10.0	<10.0
H19498-12*	E 3.05	<10.0	<10.0
H19498-13	E 3.10	<10.0	<10.0
H19498-14	E 3.15	<10.0	<10.0
H19498-15	SE 1.05	<10.0	<10.0
H19498-16	SE 1.10	<10.0	<10.0
	· · · · · · · · · · · · · · · · · · ·		
Quality Control		506	535
True Value QC		500	500
% Recovery		101	107
Relative Percer	nt Difference	1.7	4.8

METHOD: SW-846 8015 M Reported on wet weight.

\*One or more TPH surrogates outside historical limits due to matrix interference.

03/29/10

Date

### H19498 TPH8015 RBS

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![](_page_46_Picture_0.jpeg)

Receiving Date: 03/19/10 Reporting Date: 03/29/10 Project Owner: BOPCO L.P. Project Name: BASS 3 FED #4 Project Location: BASS 3 FED #4 Sampling Date: 03/17/10 - 03/19/10 Sample Type: SOIL Sample Condition: COOL & INTACT @ 0.5<sup>o</sup>C Sample Received By: JH Analyzed By: AB

GRO DRO

		$(\cup_6 \cup_{10})$	(2010-028)
LAB NUMBER	SAMPLE ID	(mg/kg)	(mg/kg)
ANALYSIS DAT	E:	03/25/10	03/25/10
H19498-17*	SE 1.15	<10.0	<10.0
H19498-18*	SE 2.05	<10.0	<10.0
H19498-19	SE 2.10	·<10.0	<10.0
H19498-20	SE 2.15	<10.0	<10.0
H19498-21	SW 2.05	<10.0	<10.0
H19498-22	SW 2.10	<10.0	<10.0
H19498-23	SW 2.15	<10.0	<10.0
H19498-24	SW 1.05	<10.0	<10.0
H19498-25	SW 1.10	<10.0	<10.0
H19498-26*	SW 1.15	<10.0	<10.0
H19498-27	C .05	<10.0	<10.0
H19498-28	C .10	<10.0	<10.0
H19498-29	C .15	<10.0	<10.0
H19498-30	NSW 3.05	<10.0	<10.0
H19498-31	NSW 3.10	<10.0	<10.0
H19498-32	NSW 3.15	<10.0	<10.0
H19498-33	NW 1.05	<10.0	<10.0
H19498-34	NW 1.15	<10.0	<10.0
H19498-35	NS 1.10	<10.0	<10.0
H19498-36	NS 2.05	<10.0	<10.0
Quality Control		448	414
True Value QC		500	500
% Recovery		89.6	82.8
Relative Percen	t Difference	2.5	9.4

METHOD: SW-846 8015 M Reported on wet weight.

\*One or more TPH surrogates outside historical limits due to matrix interference.

H19498 TPH8015 RBS

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![](_page_47_Picture_0.jpeg)

Receiving Date: 03/19/10 Reporting Date: 03/29/10 Project Owner: BOPCO L.P. Project Name: BASS 3 FED #4 Project Location: BASS 3 FED #4 Sampling Date: 03/17/10 & 03/18/10 Sample Type: SOIL Sample Condition: COOL & INTACT @ 0.5<sup>o</sup>C Sample Received By: JH Analyzed By: AB/CK

GRO DRO  $(C_{6}-C_{10})$  (>C<sub>10</sub>-C<sub>28</sub>)

LAB NUMBER	SAMPLE ID	(ma/ka)	(ma/ka)
ANALYSIS DAT	TE:	03/26/10	03/26/10
H19498-37	NS 2.10	<10.0	<10.0
H19498-38	NSE 1.05	<10.0	<10.0
H19498-39	NSE 1.15	<10.0	<10.0
H19498-40	N 1.05	<10.0	<10.0
H19498-41	N 1.10	<10.0	<10.0
H19498-42	N 1.15	<10.0	<10.0
H19498-43	N 2.05	<10.0	<10.0
H19498-44	N 2.10	<10.0	<10.0
H19498-45	N 2.15	<10.0	<10.0
H19498-46	NW 2.05	<10.0	<10.0
H19498-47	NW 3.05	<10.0	<10.0
H19498-48	NW 3.10	<10.0	<10.0
H19498-49*	NW 3.15	<10.0	<10.0
H19498-50	NW 2.15	<10.0	) <10.0
H19498-51	SS 2.07	<10.0	<10.0
H19498-52	SS 3.07	<10.0	<10.0
H19498-53	SSE 1.07	<10.0	<10.0
H19498-54	SS 1.02	<10.0	<10.0
H19498-55	SS 2.02	<10.0	<10.0
H19498-56	SS 3.02	<10.0	18.5
Quality Control	u	481	378
True Value QC	· · · ·	500	500
% Recovery		96.2	2 75.6
<b>Relative Percer</b>	t Difference	0.5	2.0

METHOD: SW-846 8015 M Reported on wet weight.

\*One or more TPH surrogates outside historical limits due to matrix interference.

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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 client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unleas made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential demages, 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. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratores.

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ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240 (575) 393-2326 Fax (575) 393-2476	Company Name: BORDER CONDIN Republic BAckly	Project Manager: CRC CARCA	Address: 15-13 w. Aspen	City: Dour fam. State: MM Zip: 800	Phone #: 5 > 5 - 63 +- 01 3 1 Fax #:	Project #: Project Owner: BOD	Project Name: Rass 3 Fe) # 4	Project Location: BASS 3, Fo) #4	Sampler Name: EErc S	FOR LAB USE ORLY	- dWi		Lab I.D. Sample I.D. R IX	4 CON	Highes-41 N I. ID	42 N 1,15	43 N2.05	M 2 10	も ひょう	46 NW 2.05	11 NW 3.05	48 NK 3.10	51.5 MW 21	PLEASE NOTE: LUARDA AND DAMAGENT ALLANE AND AND AND AND AND AND AND AND AND AND	analyses. All clamp including those for negotines and any other clude whatpoerer shall be deemed welved un surves in no analy shall Carrieral hailaban for increasants or consummating and increase.	attituits of successors anany out of a related to the performance of annexes hereunder by Cardnel, rependent, Common of the Distribution of an eleted to the performance of annexes hereunder by Cardnel, rependent			Relinquished By: Back Allo Received		Delivered Bv: (Circle One)	† Cardinal cannot accept verbai changes. Please fax writte	F

	(575) 393-2326 Fax (575) 39	20 18240 3-2476					Page	of	
Company Name:	The avoir is the	L'HARI	BILL	ro		ANA	LYSIS REQUE	ST	
Project Manager:	the Corcia		P.O. #:						
Address: \5\	S W SOLD		company: D	0000					
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Phone #:575	1-C31-0131 Fax#:		Address:	5					
Project #:	Project Ov	ner: DNO(D) D	City:						
Project Name:	THAT CAN		State: Zip				·		
Project Location:	10053 Fed #	- <i>۲</i>	Phone #:						
Sampler Name:	Eric (-Dimin		Fax #:						
FOR LAB USE ONLY	2	a. MATRIX	PRESERV	SAMPLING			• • • • •		
Lab I.D.	Sample I.D.	AB OR (C)OM DUNDWERS   DUNDWERS   MATANDWERS   MATANDER   EK: NBVZE:		Hal					
- 12 12 14		2710 01F 201 201 801 801 801 801		DATE TIME					
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PLEASE NOTE: Listany and I	Damages. Cardinal's liability and chants exclusive remed	/ for eny claim aroung whether based in contract o	tion, shall the timited to the	trount paid by the client for th		Terms and Condition	is: interest will be charged on all	accounts more than	
Maytes All claims including Mence. In ho event shall Carc Martes of succession around	i those for negligence and sny utber cause whatboever all those to Atable for incidential or consequential damages, in our of or strated in the surface of the strategy of the	all be deemed warved unless made in writing and throng without imitation, business etterruptions, io	eceived by Cardinal wohin 3 is of use, or loss of profits in	Q days star completion of the curred by client, its subsidiarie	applicable 8.	30 days past due at th and all costs of cotlect	is rate of 24% per annum from th bons, inducing stroney's lises.	he prignal date of invoce.	
Sampler Relinqui	shed: Date: Date: Date: Date:	Received By:	vode eta jo Aue uoda beted	Phone Reserves	ut: I	No Add'I P	hone #:		
				REMARKS		No Add'I F	ax #:		
Reinduisneder	101 100 100 100 100 100 100 100 100 100	12 Received By: No	ייע א ערוע						
Delivered By:	(Circle One)	Temp. Sample Condition	I CHECKED						
Samular , 11DC	Rus , Other								

P 2 T T

![](_page_54_Picture_0.jpeg)

June 15, 2010

Eric Garcia Republic Backhoe 1513 West Aspen Lovington, NM 88260

Re: Bass 3 #4

Enclosed are the results of analyses for sample number H20058, received by the laboratory on 06/08/10 at 11:35 am.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021 Method SW-846 8260 Method TX 1005 Benzene, Toluene, Ethyl Benzene, and Total Xylenes Benzene, Toluene, Ethyl Benzene, and Total Xylenes Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accredited though the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2 Method EPA 524.2 Method EPA 524.2

Haloacetic Acids (HAA-5) Total Trihalomethanes (TTHM) Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 5 (includes Chain of Custody)

Sincerely Ceene

Laboratory Director

![](_page_55_Picture_0.jpeg)

ANALYTICAL RESULTS FOR REPUBLIC BACKHOE SERVICES ATTN: ERIC GARCIA 1513 W. ASPEN LOVINGTON, NM 88260

Receiving Date: 08/08/10 Reporting Date: 06/14/10 Project Number: NOT GIVEN Project Name: BASS 3 #4 Project Location: BASS 3 #4

Analysis Date: 06/11/10 Sampling Date: NOT GIVEN Sample Type: SOIL Sample Condition: INTACT @ 13°C Sample Received By: JH Analyzed By: AB

		Cl
LAB NUMBER	SAMPLE ID	(mg/kg)
H20058-1	MA-EAST #1	<16
H20058-2	MA-SOUTH #1	16
H20058-3	MA-SW #1	<16
H20058-4	MA-NE #1	160
H20058-5	MA-SE #1	32
H20058-6	MA-N #1	528
·		
•		
		1
Quality Control		500
True Value QC		500
% Recovery		100
Relative Percent Diffe	rence	7.4

METHOD: Standard Methods

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

06/15/

4500-CI'B

Date

H20058 CL Republic Backhoe

PLEASE NOTE: Liability and Damages. Cardinal's flability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for 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 thirty (30) days after completion of the applicable service. In no event shall Cardinal be kable 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, experiments, clear of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

![](_page_56_Picture_0.jpeg)

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ANALYTICAL RESULTS FOR REPUBLIC BACKHOE SERVICES ATTN: ERIC GARCIA 1513 W. ASPEN LOVINGTON, NM 88260

Receiving Date: 06/08/10 Reporting Date: 06/14/10 Project Number: NOT GIVEN Project Name: BASS 3 #4 Project Location: BASS 3 #4 Analysis Date: 06/11/10 Sampling Date: NOT GIVEN Sample Type: SOIL Sample Condition: INTACT @ 13°C Sample Received By: JH Analyzed By: AB

		Cl
LAB NUMBER	SAMPLE ID	(mg/kg)
H20058-7	MA-W #1	64
H20058-8	MA-NW #1	64
H20058-9	RO= #1	48
H20058-10	RO= WEST #1A	80
H20058-11	RO-WEST 2A.	<16
H20058-12	RO-WEST 3A.	96
H20058-13	RO-SOUTH 1A.	<16
	· · · · · · · · · · · · · · · · · · ·	
Quality Control	· · · · · · · · · · · · · · · · · · ·	
Quality Control	· · · · · · · · · · · · · · · · · · ·	500
True Value QC		500
% Recovery		100
<b>Relative Percent Diffe</b>	rence	<0.1

METHOD: Standard Methods 4500-CI'B Note: Analyses performed on 1:4 w:v aqueous extracts.

delisi

Date

### H20058 CL Republic Backhoe

PLEASE NOTE: Liability and Damages. Cardinat'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 client for 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 thity (30) days after comptotion of the applicable service, in no event shall Cardinal be liable for incidential or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profils 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. Results relate only to the samples identified above. This report chaft not be reproduced except in full with written approval of Cardinal Laboratories. CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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	Abilene.
	2111 Beechwood.
ES	88240
<b>DR</b>	ΣZ
<b>ARDINAL LABORAT(</b>	101 East Mariand, Hobbs,
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	FAX (325)673-7020
	(325) 673-7001
04700 INL -000	(505) 393-2476
31 Manand, 100	393-2326 FAX
	(505)

Company Name	(505) 393-2326 FAX (505) 393-2	2476 (325) 673-7001 F/	AX (325)673-7020	ANALVER BEALIFET	
	1200- DIVE 1461		DITT IO	ANALTSIS REQUEST	
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city: Y	Lite State: NM	כאבלץ :ztp:	Attn:		
Phone #: 5	)ア しょい ・ いらく Fax#:		Address:		
Projact #:	Project Owne	er:	City:		
Project Name:	BASS 3 #14	-	State: Zip:		
Project Locatio	m: BASS 3 # 4		Phone #:		
Sampler Name:	HERE GARDE		Fax #:		
FOR UAB USE ONLY		MATRIX	PRESERV SAMPLIN	SN	
Lab I.D.	Sample I.D.	G)RAB OR (C)OMP. I CONTRINERS ROUNDWATER MASTEWATER OIL JIL SLUDGE	ш DTHER : CE / COOL CID/BASE: DTHER :	- 77 - 77	
H20059-	WA-6.1#1		)   /		
6	MA-Sault # 1				
3	MA- Sw # 1				
	MA-WE#1				
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Relinguished B	i <del>ding out of an interted to the performance of services hereunder by</del> . 3V:	y Certifiely, rependiess of whether such claim Received By:	is besed upon any of the sbowe stated ree	asons of other Mas. Phone Rosult: □ Yes □ No iAdd'I Phone #:	
	Timo:		*	Fax Result: □ Yes □ No iAdd'i Fax #: REMARKS:	
Refinauished E	3v:)	Received Bv:		(all Fee 631-013)	
Lone &	Kallon - 114:35	lodi Me	MON	Also, rall Two Soverie 432.5	56.8930
Delivered B( Sampler - UPS	v:*rC <b>jrđe-Or</b> le) i - Bus - Other:	120 Dot Infact	on CHECKED BY:		
† Cardinal	i cannot accept verbal changes. Pleas	se fax written changes to	505-39322476		

JSTODY AND ANALYSIS REQUEST	ANALYSIS REQUEST																		es LJ No : Add'I Phono #; es LJ No : Add'I Fax #;		•	
CHAIN-OF-CU Abliene, TX 79803 X (325)673-7020	BILL TO	P.O. #:	Company: BOR D	Attn:	Address:	City:	State: Zip:	Phone #:	Fax #:	PRESERV SAMPLING							r tort, shall be limited to the emount paid by the cleant for the received by Candinal within 30 days after completion of the spotlabble of Juse or lease of conting hormond for cleant the advisation	to be sed upon any of the shore stated resort of otherwise.		NUBN	ON CHECKED BY: (Iniudity)	505-393-2476
C ARDINAL LABORATORIES 101 East Marland, Hobbs, NM 88240 2111 Beechwood, (505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FA	Company Name: LPDILD/LD KDCLADE	Project Manager:	Address:	City: State: Zip: /	Phone #: Fax #:	Projact #: Projact Owner: (	Project Name:	Projoct Location:	Sampler Name: (2, (me al)	FOR LABUSE ONLY MATRIX	Гар В.С.ОМР. С.С.ОМР. С.С.ИТАНИЕRS С.С.ИТАНИЕRS С.С.ИТАНИЕRS С.С.ИТАНИЕRS С.С. С.С. С.С. С.С. С.С. С.С. С.С. С.	12009811 20- (uest 2A.	12 Ro- Wort 7A.	13 60 - Sunter A.			PLEASE NOTE: Listonsy and Demagree. Cardinaria lapotty and claim's exclusive remacy har any claim article of where develor or orized to substance. All characterized in the formagrees cardinaria lapotty and claims of the develor dated under by which article in the substance of the content o			Rejhquished By: April Al and Inter: 35 JOUL NO	Sample Condition Sampler - UPS · Bus · Other:	$\pm$ Cardinal cannot accept verbal changes. Please fax written changes to 5 $\mathcal{H}$

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Depth					So	il Boring SB-3	
ground surface	Soil Columns	Chloride Field Test	PHD P Reading	etroleum F Odor	etroleum Stain	Soil Description	Boring SB-3
F°	<u>एक</u>		LAPCI	None	None	<u></u>	Date Drilled <u>April 26, 2010</u> Thickness of Bentonite Seai <u>125 Ft</u>
E,				None	None		Depth of Exploratory Boring <u>125 Ft bys</u> Depth to Groundwater
				None	None	0 - 20' - Sand and sandstone, tan to reddish brown,	Ground Water Elevation
10		>2,424		None	None	very fine grained, moist	Indicates the PSH level measured
- 15		>2,424					Indicates the groundwater level measured on
-20		2,424	4720	None	None		Laboratory Analysis. PiD Hesd-space reading in ppm obtained
			••-	None	None		. with a photo-ionization detector.
- 25		>2,424		None	None		
- 30 -	- 17) 30 31	>2,500		None	Mana		
- 35		>2,500		None	None		
E.		62 50h	6240	None	None		
Ē		2,009	<b>W</b> =10	None	None		
- 45		>2,500		None	None		
-∞		>2,500			None	20 - 85' - Sand and sandstone, tan to reddish	
		>2.500		None	None	prown, very fine grained	
	12 4 1 2 1 5 1 3 1 - 5 1		1.1100	None	None		
		€2,500	6980	None	None		
- 65	2111) 71735	>2,500					
-70	42145 1110	>2,500		None	None		
Ē				None	None		
- 75				None	None		
- **		2,500	7440				
- 85	irnei Mied	>2,500		None	None		
Ē		(J 500)	il avo	None	None	brown, very fine grained with clay	
Ē	20 D V 1 720 40	(2,500)	1,000	None	None		
-*		>2,500		None	Nono		
100		924	1250	NUNE	None	,	
105		676		None	None		
			<b>0</b> 40	None	None		
- 110		(1,664)	2240	None	None		Completion Notes
- 115						445 4201 Clau and to once allow day	<ol> <li>The monitor well was advanced on date using air rotary drilling techniques.</li> <li>The lines between material toges shown</li> </ol>
120		(212)	144	None	None	113 - 120 - Clay, teu lu grey, saly, diy	on the profile log represent approximate boundaries. Actual transitions may be cradual.
Ē			118	None	None	120 - 125' - Clay, red, tite, dry	•
- 12	TO		-40				
					2		
						·····	
90	il Bori	99 na	.2	Base	BOF 3 Fod	CO Basin Env	ironmental Consulting
30		iy ob	- <u>-</u> E	ddy C	ounty,	New Mexico	6 Checked By: CJB
			<u>i i i i i i i i i i i i i i i i i i i </u>				

![](_page_60_Figure_0.jpeg)

![](_page_61_Picture_0.jpeg)

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May 4, 2010

Camille Bryant Basin Environmental Consulting, LLC. 2800 Plains Hwy. Lovington, NM 88260

Re: Bass 3 Federal #4 Spill #1 (BOPCO)

Enclosed are the results of analyses for sample number H19779, received by the laboratory on 04/29/10 at 2:50 pm.

Cardinal Laboratories is accredited through Texas NELAP for:

Method SW-846 8021 Method SW-846 8260 Method TX 1005 Benzene, Toluene, Ethyl Benzene, and Total Xylenes Benzene, Toluene, Ethyl Benzene, and Total Xylenes Total Petroleum Hydrocarbons

Certificate number T104704398-08-TX. Accreditation applies to solid and chemical materials and non-potable water matrices.

Cardinal Laboratories is accredited though the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	
Method EPA 524.2	
Method EPA 524.2	

Haloacetic Acids (HAA-5) Total Trihalomethanes (TTHM) Regulated VOCs (V2, V3)

Accreditation applies to public drinking water matrices.

Total Number of Pages of Report: 4 (includes Chain of Custody)

Sincerely. leene

Celey D. Keene Laboratory Director

![](_page_62_Picture_0.jpeg)

ANALYTICAL RESULTS FOR BASIN ENVIRONMENTAL CONSULTING, LLC ATTN: CAMILLE BRYANT 2800 PLAINS HWY LOVINGTON, NM 88260 FAX TO: (575) 396-1429

Receiving Date: 04/29/10 Reporting Date: 05/04/10 Project Owner: BOPCO Project Name: BASS 3 FEDERAL #4 SPILL #1 Project Location: EDDY CO., NM Analysis Date: 05/04/10 Sampling Date: 04/27/10 & 04/28/10 Sample Type: SOIL Sample Condition: COOL & INTACT @ 3°C Sample Received By: JH Analyzed By: HM

(mg/kg)
4,720
6,240
6,480
7,440
11,000
1,250
2,240
144
48
500
500
100
< 0.1

METHOD: Standard Methods4500-CI BNote: Analyses performed on 1:4 w:v aqueous extracts.

Not accredited for Chloride.

hemist

25/04/10

### H19779 Basin Environmental

PLEASE NOTE: Liability and Damages. Cardinal's flability and client's exclusive remedy for any citain arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed walved unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service, in no event shall Cardinal be table for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profils 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. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

![](_page_63_Picture_0.jpeg)

ANALYTICAL RESULTS FOR **BASIN ENVIRONMENTAL CONSULTING, LLC** ATTN: CAMILLE BRYANT 2800 PLAINS HWY LOVINGTON, NM 88260 FAX TO: (575) 396-1429

Receiving Date: 04/29/10 Reporting Date: 05/03/10 Project Owner: BOPCO Project Name: BASS 3 FEDERAL #4 SPILL #1 Project Location: EDDY CO., NM

Sampling Date: 04/27/10 Sample Type: SOIL Sample Condition: COOL & INTACT @ 3°C Sample Received By: JH Analyzed By: AB/ZL

		GRO	DRO	DRO ext.			ETHYL	TOTAL
LAB NO.	SAMPLE ID	(C <sub>6</sub> -C <sub>10</sub> )	(>C <sub>10</sub> -C <sub>28</sub> )	(>C <sub>28</sub> -C <sub>35</sub> )	BENZENE	TOLUENE	BENZENE	XYLENES
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)

ANALYSIS DATE:	04/30/10	04/30/10	04/30/10	04/30/10	04/30/10	04/30/10	04/30/10
H19779-1 SB-3 @ 20'	<10.0	<10.0	<10.0	<0.050	<0.050	<0.050	<0.300
	······································						
							<u> </u>
· · · · · · · · · · · · · · · · · · ·							
				* • •			
Quality Control	585	580	-	0.059	0.054	0.054	0.161
True Value QC	500	500	-	0.050	0.050	0.050	0.150
% Recovery	117	116	-	118	108	108	107
Relative Percent Difference	0.1	0.6	-	4.3	3.8	6.0	6.5

METHODS: TPH GRO & DRO - EPA SW-846 8015 M; BTEX - SW-846 8021B.

TEXAS NELAP ACCREDITATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE, AND TOTAL XYLENES. Reported on wet weight. Not accredited for GRO/DRO/DRO ext.

5104/11

### H19779 TPHextBTEX BASIN

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 peid by client for energyses. All claims, including those for negligence and any other cause whatsoever shall be deemed walved unless made in writing and received by Cardinal within thirty (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. service, in the versit state calculate be hadre to indeventian or concordentiation analogo, making our model and the state of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

![](_page_64_Figure_0.jpeg)

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