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# REPORTS

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RITTER ENVIRONMENTAL & GEOTECHNICAL SERVICES, INC. 2900 N. Big Spring, Midland, Texas 79705 Bus: (915) 682-7404 • (915) 570-REGS • Metro: (915) 570-6007 • Fax: (915) 682-7440

Site Assessment Report and Remedial Action Plan

Performed for

Duke Energy Field Services 3300 North "A" Street, Building 7 Midland, Texas 79705

Performed at

## Maljamar Booster Site

Lea County, New Mexico Section 20, T-17-S, R-33-E

July 2001



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## Duke Energy Field Services Site Assessment Report and Remedial Action Plan

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### .0 Introduction

This report will document the findings and provide a recommended site remediation plan for the release of liquids from the Maljamar Booster Site located in the NW/4 of the SE/4 of Section 20, Township 17 South, Range 33 East, Lea County, New Mexico.

The Maljamar Booster Site is a natural gas compressor facility that is located approximately five (5) miles southeast of the Maljamar town site. The booster site is operated by Duke Energy Field Services, LP (DEFS). Two (2) condensate tanks were previously removed and it was suspected at the time of removal that the tanks had historically leaked, due to the fact that visual evidence of soil staining was present beneath the location of the tanks. Evidence of a release was also indicated on March 8, 2001, when DEFS personnel and a representative from Ritter Environmental were on-site to conduct a preliminary site visit. The purpose of the visit was to determine whether a site investigation was warranted in order to detail and document the potential release of condensate from either of the two (2) aboveground condensate tanks.

Upon the initial inspection of the site, which was conducted on March 8, 2001, it was determined that a potential release had occurred. This was due to staining of the pea gravel and soils that were located under the tanks and the presence of free product near the surface, beneath one of the tanks. A backhoe was utilized to excavate under the two (2) tanks. The shallow excavation gave an early indication that product was present at the ground surface. Free product was encountered after the removal of the first one (1) to two (2) feet of soil beneath the northernmost tank. At that time, it was determined that a site investigation consisting of the placement of soil borings and potentially groundwater monitoring wells was warranted due to the potential size of the release. The fact that the highly volatile free product presented an explosion hazard (due to the ignition sources from the machinery utilized for excavation) was also a consideration in the decision to further investigate the site by placement of soil borings instead of excavation.

#### .0 Sample Protocol

Soil samples were collected from the air rotary drilling rig by the split spoon sampling method. Each sample was collected in the sampling device and brought to the surface for evaluation. Each boring was advanced in five (5) foot intervals and each interval was sampled by the split spoon unless a particular interval was unable to be sampled with the sample device. In that event, the samples were collected from the cuttings of the rotary drilling rig as a grab sample. All sampling devices and down hole tools were properly decontaminated between samples and between borings.

The soil was collected in a sealed plastic bag. The sample was kept sealed for approximately ten to fifteen (10-15) minutes holding time prior to evaluation by measurement of headspace volatilization of VOCs. This was accomplished by measuring the accumulated VOCs inside the bag with an Organic Vapor Monitor (OVM) calibrated to Benzene. Portions of each sample were preserved on ice in a glass container with a Teflon lined septum pending the determination of the necessity of laboratory analysis. As each soil sample was field analyzed by headspace measurement, the maximum OVM readings were documented on the drilling log, along with the sample descriptions, the indications of odor, any soil staining and the time of the sample. For reference to the drilling log information, please refer to the appendix of this report.

The samples were selected for laboratory analysis based on one or more of the following:

- 1. The sample that exhibited the highest OVM reading for that boring
- 2. The sample from the total depth of the boring, and/or
- 3. The sample from a particular zone of interest based on either field characteristics or its relevance to the evaluation or characterization of the site

The field samples were properly preserved in accordance with US EPA methodology and NMOCD guidelines by placing the samples on ice and maintaining at a temperature of four degrees Celsius until they reached the laboratory. Proper Chain of Custody

documentation was maintained for transporting the samples to the lab. Trace Analysis Laboratory of Lubbock, Texas performed the analysis.

## **3.0** Site Investigation and Soil Borings

The Site Investigation Plan and Scope of Work was submitted to Mr. Chris Williams and Mr. Paul Sheeley with the NMOCD district offices in Hobbs, New Mexico, on May 30, 2001. Verbal approval to proceed with the plan was granted by Mr. Sheeley via telephone one week prior to proceeding with the site investigation. Mr. Mitchell Ritter and Mr. Dean Flatt with REGS conducted a site assessment on June 5 and 6, 2001.

The investigation consisted of a visual inspection of the surface of the impacted area, the placement of five (5) soil borings and the placement of one (1) temporary monitor well. The first boring, SB-1, was located in close proximity (within two (2) feet) of the former tank pad and drilled to a total depth of one hundred twenty (120) feet below ground surface (bgs). This location was chosen in order to determine the vertical extent of contamination at the point source. The horizontal extent of the release was confirmed by the placement of four (4) soil borings around the perimeter of the tank area. All four (4) of the perimeter soil borings were drilled to a depth of approximately fifty (50) feet from the surface. The borings were located on the north, south, east and west boundaries of the release area.

## **Soil Boring SB-1**

The purpose of the location of SB-1 was that of delineation of the vertical extent of the impacted soils. This boring was drilled immediately adjacent to the tank (within two (2) feet) and the release area (See site map- appendix). It was noted during the drilling of SB-1 that the OVM readings and odor of the samples significantly decreased below a depth of forty to fifty (40-50) feet. Based on the information from the State Engineer's office, it was determined that the depth to groundwater was greater than one hundred ninety (190) feet from the surface. This information was collected from a water well located approximately one thousand one hundred twenty-five (1,125) feet north of the

site. It was desired to obtain a groundwater sample, if possible, to make a determination of any potential groundwater impact. Therefore, the drilling of soil boring SB-1 was advanced to a depth of ninety (90) feet, during which time indications of potential groundwater (moisture in the samples) was encountered, beginning at a depth of seventy five (75) feet. The sample from seventy five (75) to eighty (80) feet was very moist and groundwater was anticipated in the next few feet. Drilling was continued to a depth of one hundred twenty (120) feet, during which time the hole was caving from a depth of ninety (90) feet to the total depth of the hole at one hundred twenty (120) feet. Sampling was not accomplished below ninety (90) feet and the last sample that was recovered was from the eighty (80) to ninety (90) foot horizon.

Based on the indicated groundwater in the soil samples at seventy five (75) to eighty (80) feet, it was decided to set a temporary groundwater monitoring well (TMW-1) at one hundred five (105) feet from the surface in order to attempt to collect a groundwater sample. The hole had caved in from one hundred twenty (120) feet back to one hundred five (105) feet. A 0.010 slot PVC screened casing was set from one hundred five (105) feet back to fifty five (55) feet from the surface and blank casing was set from fifty five (55) feet back to the surface. The well was allowed to stand overnight to determine if groundwater was present. No groundwater accumulated from the screened interval in the approximately 24-hour period from the time the well was placed. It was determined that the indicated wet zone would not produce a sufficient amount of groundwater to allow a sample to be collected. The temporary well TMW-1 was then abandoned by removal of the casing, plugging back to the surface with bentonite and placement a cement cap.

Four (4) samples from SB-1 were collected for analysis. The sample from ten (10) feet, the sample from forty (40) feet, the sample from forty five (45) feet and the sample from ninety (90) feet were collected for analysis. The sample from ten (10) feet was selected over the sample from five (5) feet due to the higher OVM reading of the ten (10) foot sample (46 ppm vs. 42 ppm). The forty (40) and forty five (45) foot samples were selected due to the elevated OVM reading of the forty (40) foot sample and the significantly reduced reading of the forty five (45) foot sample as possibly being a lower

limit to impacted soils. The ninety (90) foot sample was selected as the lowermost sample that was collected from the boring.

### **Soil Boring SB-2**

The purpose of soil borings SB-2 through SB-5 was for horizontal delineation of the impacted area. Soil boring SB-2 is located approximately forty (40) feet west of SB-1. SB-2 was drilled and sampled to a depth of fifty one and one half (51.5) feet. No staining or odor was documented in the field sampling. The OVM readings were very low, ranging from zero (0) to a peak of 0.4 mg/kg. No evidence of any petroleum or other chemical release was apparent from the field analysis. The sample from thirty (30) feet and the sample from fifty (50) feet were collected and shipped to the laboratory for analysis.

### **Soil Boring SB-3**

Soil boring SB-3 is located sixty-six (66) feet east of soil boring SB-1. SB-2 was drilled to a depth of fifty (50) feet and sampled to a depth of fifty one and one half (51.5) feet. No staining or odor was documented in the field sampling. The OVM readings were very low, ranging from zero (0) to a peak of 0.7 mg/kg. No evidence of any petroleum or other chemical release was apparent from the field analysis. Three (3) samples were collected for analysis. The sample from ten (10) feet, the sample from forty (40) feet and the sample from fifty (50) feet were collected for analysis.

#### **Soil Boring SB-4**

Soil boring SB-4 is located sixty (60) feet north and thirteen (13) feet east of SB-1. SB-4 was drilled to a depth of fifty (50) feet and sampled to a depth of fifty one and one half (51.5) feet. No staining or odor was documented in the field sampling. The OVM readings were very low, ranging from zero to a peak of 1.0 mg/kg. No evidence of any petroleum or other chemical release was apparent from the field analysis. The sample from five (5) feet and the sample from fifty (50) feet were collected for analysis.

## **Soil Boring SB-5**

Soil boring SB-5 is located eighty (80) feet south and sixteen (16) feet east of SB-1. SB-4 was drilled to a depth of fifty (50) feet and sampled to a depth of fifty one and one half (51.5) feet. No staining or odor was documented in the field sampling. The OVM readings were very low, ranging from zero to a peak of 0.6 mg/kg. No evidence of any petroleum or other chemical release was apparent from the field analysis. The sample from forty-five (45) feet and the sample from fifty (50) feet were collected for analysis.

## 4.0 Analytical Results and Methodology

The analytical results of the selected samples chosen for analysis are presented in the following table:

Sample	Depth	DRO	GRO	Total BTEX	Benzene	Toluene	E. Benzene	Xylene
SB1-1	10'	260	12.02	1.84	.121	.342	.343	1.03
SB1-8	40'	112	14.9	< 0.025	<0.025	< 0.025	< 0.025	<0.025
SB1-10	50'	51	4.98	< 0.013	<0.013	< 0.013	<0.013	< 0.013
SB1-17	90'	<50	2.21	<0.013	<0.013	< 0.013	<0.013	< 0.013
SB2-6	30'	<50	2.49	< 0.013	<0.013	<0.013	<0.013	<0.013
SB2-10	50'	<50	2.13	< 0.013	<0.013	< 0.013	< 0.013	< 0.013
SB3-2	10'	<50	3.19	< 0.013	<0.013	< 0.013	< 0.013	< 0.013
SB3-8	40'	<50	<2.5	< 0.025	< 0.025	<0.025	<0.025	<0.025
SB3-10	50'	<50	2.4	< 0.013	< 0.013	< 0.013	< 0.013	<0.013
SB4-1	5'	<50	<2.5	< 0.025	< 0.025	< 0.025	<0.025	< 0.025
SB4-10	50'	<50	<1.3	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013
SB5-9	45'	<50	<1.3	< 0.013	< 0.013	< 0.013	< 0.013	<0.013
SB5-10	50'	<50	<1.3	< 0.013	< 0.013	< 0.013	<0.0135	<0.013

ANALYTICAL RESULTS DUKE ENERGY/MALJAMAR BOOSTER SITE ANALYTICAL RESULTS IN Mg/Kg

Methodology

- EPA analytical Method 8021B was utilized for the analysis of BTEX compounds
- EPA analytical Method 8015B was utilized for the analysis of TPH GRO/DRO compounds

#### 5.0 Findings and Conclusions

Analysis of the soil samples from SB-1 documented the highest levels of DRO (Diesel Range Organics) at the site at the depth of ten (10) feet. The DRO at ten (10) feet in SB-1 was reported in the lab report as 260 mg/kg. The documented level of DRO at forty (40) feet was 112 mg/kg, at fifty (50) feet was 51 mg/kg and at ninety (90) feet was <50 mg/kg. All of these levels, as well as the remainder of the sample results, were well below the 5000 ppm guideline limits set forth in the 1993 NMOCD document "Guidelines for Remediation of Leaks, Spills and Releases."

Soil boring SB-2 and SB-3 were placed in order to delineate the east and west horizontal limits of the spill. Each of these borings was drilled and sampled to a depth of fifty feet from the surface. Soil samples from each of these borings determined that DRO was not measured in any sample above the detection limit. GRO was documented in SB-2 at a peak level of 2.49 mg/Kg and a low of 2.13 mg/Kg. GRO was documented in SB-3 at a peak of 3.19 mg/Kg and a low of <2.5mg/Kg. BTEX results were non-detect for all samples from SB-2 and SB-3. Therefore, SB-2 and SB-3 have delineated the east/west component of the spill.

Soil boring SB-4 and SB-5 were placed in order to delineate the north and south horizontal limits of the spill. Each of these borings was drilled and sampled to a depth of fifty (50) feet from the surface. Soil samples from SB-4 documented that DRO, GRO and BTEX levels were below detection limits for all samples. The north/south component of the spill has been delineated by the placement of SB-4 and SB-5.

Maps of the DRO concentrations have been included in the appendix. A detailed site map depicting the surface extent of the spill as well as the selected sample locations is included in the appendix of this report. Photographic documentation of the spill site and the excavated areas is also included in the appendix.

According to the records of the State of New Mexico Engineering office in Santa Fe, it was determined that the groundwater depth in the vicinity of the release was greater than one hundred ninety (190) feet. There is no surface water within one (1) mile of the site. The nearest windmill is located over one thousand one hundred twenty-five (1,125) feet to the north; therefore, the total ranking score according to the recommended guidelines is zero (0). Thus, according to the NMOCD guidelines, the acceptable Benzene level is 10 ppm, the Total BTEX level is 50 ppm and the TPH level is 5000 ppm for this site. No samples were analyzed that approached the recommended levels established in the guidelines. The highest levels documented at the site were those in SB-1 with DRO at 260 mg/kg.

Based upon the work performed on the site investigation and results of the analyses performed on the near surface soils, the following conclusions concerning the site condition can be drawn:

A. The spill has been completely delineated both horizontally and vertically by the placement of the soil borings along the length and width of the spill. The vertical limit of the impacted soils is defined by the soil boring SB-1. The bottom sample analyzed from this boring documented DRO at non-detect or less than 50 mg/kg, GRO at non-detect or less than 5 mg/kg and BTEX at non-detect or less than 0.05 mg/kg. The horizontal limit of the spill has been defined by SB-2, SB-3, SB-4 and SB-5, which documented that all constituents of concern were non-detect.

B. The impacted soils are limited to the near surface sands and limestones that are localized within the top two (2) feet of the surface and in the immediate vicinity of the former tank.

C. As evidenced by the results of the site investigation, no ongoing or longterm leaks have occurred at the slop oil tanks.

D. For those soils that were identified on the original site inspection that were obviously impacted by free product, a sampling event would normally have been conducted at the time the soil borings were placed; however, after the initial site visit on March 8, 2001 and prior to the time the borings were drilled on June 5, 2001, a new slop oil tank was inadvertently placed over portions of the area that was originally determined to be impacted. Surface sampling at the original location cannot be achieved at this time due to the placement of the new tank equipment and a new poly lined berm. It is the opinion of REGS that the surface was only impacted to a limited depth of less than five (5) feet and a limited area less than ten (10) feet in diameter. The originally impacted soils are now located beneath the new tank and the lined berm. This will prevent the downward percolation of the contaminants by rainwater and allow the process of natural attenuation and biodegradation to occur over a period of time. We do not feel that it is of sufficient benefit to the local environment to warrant the removal of the new tank for additional sampling and possible remediation of a very limited amount of soil. At this time, no soils have been documented at the sites that exceed the current guidelines for remediation. The boring SB-1 was located as close to one of the original tanks as physically possible. SB-1 was located within two (2) feet of the middle tank. SB –4 was located as close as possible (within five (5) feet) of the northern edge of the northernmost tank site. However, due to the placement of the new tank directly over the northernmost of the old tanks, it was impossible to drill in the exact location northernmost of the old tanks. Also, at the time we returned to the site to perform the site investigation, new buried piping had been placed to the south of the new tank. This piping connected the tank to the booster site for collection of the slop oil and transfer of the oil off the site (see Site Map Figure 1 in the appendix of this report). This also hindered the placement of the vertical clearance boring SB-1. Nevertheless, we feel that SB-1 was located in close enough proximity to the spill site to fully evaluate the potential impact and the vertical limits of the impact to the soil.

The current soil boring program has defined the limits of the impact and has conclusively documented that there is no groundwater impact or any soil impacts below ten (10) feet from the surface that are in excess of current guidelines. Therefore, we respectfully request that this site be allowed to be closed without further investigation.



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15	20	Light brown, tan loose sand		1-4	20-21.5	Υ	SS	SW	16		z	9:15
20	25	Light brown, tan loose sand		1-5	25-26.5	Υ	SS	SW	2.7		z	9:23
25	30	Light brown, tan loose sand		1-6	30-31.5	Υ	SS	SW	6		z	9:26
30	35	Light brown, tan loose sand		1-7	35-36.5	SL	SS	SW	3		z	9:32
35	40	Off white limestone, light brc	own tan sand	1-8	40-41.5	Υ	SS	SW	32	Υ	z	9:40
40	45	Brown reddish very fine grait	ned sand	1-9	45-46.5	Υ	SS	SW	6	Υ	z	9:54
45	50	Red, very fine grained loose s	sand	1-10	50-51.5	TS	SS	SW	2		z	10:06
50	55	Red, very fine grained loose : limestone	sand, trace white	1-11	55-56.5	NSL	SS	SW	1		z	10:18
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80 Reddish brc gypsum, sli	Reddish bro gypsum, sli	wn very fine grai ghtly wet	uined loose sand, trace	1-16	80-81.5	N	SS	SW	0		Z	11:20
90 Slightly rec sand, trace	Slightly rec sand, trace	ldish brown very . gypsum	fine grained loose	1-17	90-91.5	N	SS	SW	0	Υ	Z	11:50
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DI	<b>ROJECT:</b>	EFS/ MALJAN	<b>JGER SIZE:</b>		SAMPLE	INTERVAL	5-6.5	10-11.5	15-16.5	20-21.5	25-26.5	30-31.5	35-36.5	40-41.5	45-46.5	50-51.5		
	H	IQ	IV	4,,	SAMPLE	NUMBER	SB3-1	SB3-2	SB3-3	SB3-4	SB3-5	SB3-6	SB3-7	SB3-8	SB3-9	SB3-10		
	HOLE / WELL NO .:	SB-3	DRILL METHOD:	AIR ROTARY	NOLLAN		and, white limestone,		ained loose sand	ained loose sand	ose sand	ose sand	ose sand	ose sand	ed loose sand	se sand		
(		Reces	AENTAL & GEOTECHNICAL SERVICES, INC.	N. Big Spring, Midland, Texas 79705 5) 570-RECS • Metro: (915) 570-6007 • Fax: (915) 682-7440	SOIL DESCR		Brown, fine grained loose se caliche	White caliche	Caliche, brown very fine gra	Caliche, brown very fine gra	Brown, very fine grained loo	Brown, very fine grained loc	Brown, very fine grained loc	Brown, very fine grained loc	Light brown very fine grain	Brown very fine grained loo		
			SENVIRONN	2900 5) 682-7404 • (915	HL	Q	5	10	15	20	25	30	35	40	45	50		
			RITTER	Bus: (915	DEF	FROM	0	5	10	15	20	25	30	35	40	45		

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					TIME	9:04	9:15	9:20	9:25	9:30	9:40	9:48	9:56	10:05	10:22		
	IST:				STAIN	Z	N	Z	Z	z	Z	Z	z	z	Z		
	GEOLOG	MRR/DF	ANY:	DPER	LAB ANALYZED	Υ									Υ		
			COMP	N & COO	HNU		0.4	0.6	0.6	0.2	0.2	0.2	0.1	0	0		
IJ	DATE:	6/6/01	DRILLING	HARRISO	SVMBOL SOIL	ML	ML	ML	SP	SP	SP	SP	SP	SP	SP		
NG LO		OSTER			SAMPLE TYPE	IJ	IJ	G	SS	SS	G	G	IJ	IJ	U		
SILLI		<b>MAR BO</b>			ODOR	Z	Z	Z	z	Z	Z	Z	z	z	z		
DI	OJECT:	FS/ MALJAN	JGER SIZE:		SAMPLE INTERVAL	5-6.5	10-11.5	15-16.5	20-21.5	25-26.5	30-31.5	35-36.5	40-41.5	45-46.5	50-51.5		
	PR	DH	IV	4"	SAMPLE NUMBER	SB4-1	SB4-2	SB4-3	SB4-4	SB4-5	SB4-6	SB4-7	SB4-8	SB4-9	SB4-10		
	HOLE / WELL NO.:	SB-4	DRILL METHOD:	AIR ROTARY	IPTION	and, caliche	and, caliche	loose sand	ose sand	ose sand	ed loose sand	ose sand	ose sand	ose sand	ose sand		
(		Reco	ENTAL & GEOTECHNICAL SERVICES, INC.	N. Big Spring, Midland, Texas 79705 ) 570-REGS • Metro: (915) 570-6007 • Fax: (915) 682-7440	SOIL DESCR	Brown, fine grained loose sa	Brown, fine grained loose sa	Caliche, brown fine grained	Brown, very fine grained loc	Brown, very fine grained loc	Light brown very fine grains	Brown, very fine grained loc					
			ENVIRONM	2900 l 682-7404 • (915)	TH TO	5	10	15	20	25	30	35	40	45	50		
			RITTER	Bus: (915)	DEP FROM	0	5	10	15	20	25	30	35	40	45		
					••••••			······		· · · · · · · · · · · · · · · · · · ·						 	

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					TIM	10:4	10:4	10:5	10:5	11:0	11:0	11:1	11:2	11:3	11:4	 		
	:IST:				STAIN	Ŋ	z	z	z	z	z	Z	z	z	z			
	GEOLOG	MRR/DF	ANY:	DPER	LAB ANALYZED									Υ	Y			
			COMP	N & COC	HNU	0	0	0	0	0	0	0	0	0.6	0			
C.	DATE:	6/6/01	DRILLING	HARRISO	SYMBOL SOIL	ML	ML	SC	SP	SP	SP	SP	dS	SP	SP			
NG LO		OSTER			SAMPLE TYPE	G	Ċ	SS	SS	SS	G	SS	SS	SS	SS			
SILLI		<b>AAR BO</b>			ODOR	Z	z	N	z	Z	N	N	Z	Z	N			
DF	<b>OJECT:</b>	FS/ MALJAN	<b>JGER SIZE:</b>		SAMPLE INTERVAL	5-6.5	10-11.5	15-16.5	20-21.5	25-26.5	30-31.5	35-36.5	40-41.5	45-46.5	50-51.5			
	AN	DE	IA	43	SAMPLE NUMBER	SB5-1	SB5-2	SB5-3	SB5-4	SB5-5	SB5-6	SB5-7	SB5-8	SB5-9	SB5-10			
	HOLE / WELL NO.:	SB-5	DRILL METHOD:	AIR ROTARY	ESCRIPTION	d loose sand, caliche		d loose sand	rained loose sand	l loose sand	l loose sand	l loose sand	l loose sand	l loose sand	l loose sand			
		Reces	IENTAL & GEOTECHNICAL SERVICES, IN	N. Big Spring, Midland, Texas 79705 i) 570-RECS • Metro: (915) 570-6007 • Fax: (915) 682-74	A TIOS	Brown, very fine grained	Caliche	Brown, very fine graine	Light brown very fine g	Brown very fine grained								
			ENVIRONM	2900 ) 682-7404 • (915	TH TO	5	10	15	20	25	30	35	40	45	50			
			RITTER	Bus: (915	DEP FROM	0	S	10	15	20	25	30	35	40	45	·		

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	RITTER ENV	IRDNMARA	×	FACILITY	
DATE 6-5-01	TIME 8:30 A	<b>Й</b> /РМ	- JOB #		
CUSTOMER DEFS		ADDR	ESS	MIDLALD	
SPECIFIC LOCATION $\mathcal{N}$	AWAMAR	BOOSTE	n		
TYPE OF WORK DRILL	int				
CHEMICALS USED					
	SAFETY TOP	ICS PRESE	NTED		
PROTECTIVE CLOTHIN	NG/EQUIPMEN	Т: 🗸			
CHEMICAL HAZARDS:	V				
					_
PHYSICAL HAZARDS:	$\checkmark$				
EMERGENCY PROCED	URES: 🗸				
				DAG	
HOSPITAL/CLINIC: HOH	;	PHONE:		EMS:	
HOSPITAL/CLINIC: Holds HOSPITAL ADDRESS:	5 <sup>1</sup>	PHONE:		EMS:	
HOSPITAL/CLINIC: Holds HOSPITAL ADDRESS: SPECIAL EQUIPMENT:		PHONE:		EMS:	
HOSPITAL/CLINIC: Holds HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER:		PHONE:		EMS:	
HOSPITAL/CLINIC: Holds HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER:	<u>ATT</u>	PHONE:		EMS:	
HOSPITAL/CLINIC: Holds HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER:	<u>ATT</u>	PHONE: ENDEES SIGNA	ATURE:	EMS:	
HOSPITAL/CLINIC: Holds HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER: PRINTED NAME: SAM Mar Habr	<u>ATT</u>	PHONE: ENDEES SIGNA	ATURE:	EMS:	
HOSPITAL/CLINIC: Holds HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER: PRINTED NAME: SAM MARHINER (LA/BORNE HORR/SON)	,	PHONE: ENDEES SIGNA		EMS:	
HOSPITAL/CLINIC: Holds HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER: PRINTED NAME: SAM MArtiner (A/BORNE HORR/SON) ESNAD HENN	, I	PHONE: ENDEES SIGNA Se. Mo		EMS:	
HOSPITAL/CLINIC: Holds HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER: PRINTED NAME: SAM MArtiner 'LAIBORNE HORRISON ESUMAD HENNIN : I Floor	, I	PHONE: ENDEES SIGNA Sa. M.C.		EMS:	

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	<b>БАСИ І</b>	TY DEFS/MAL
DATE $6/6/0/$ TIME	L: 40 AMPM IOR #	· · · · · · · · · · · · · · · · · · ·
CUSTOMER DEPS	ADDRESS	
SPECIFIC LOCATION MALLAM	AL Bowter	
TYPE OF WORK DELILING		
CHEMICALS USED		
SAFE'	TY TOPICS PRESENTED	
PROTECTIVE CLOTHING/EQU	IPMENT: - HANGO HAT, SAFTER	losses, Hogeing
PROTECTION, STREET TOE BOOTS	, , , , , , , , , , , , , , , , , , , ,	
CHEMICAL HAZARDS:	ſ	
VOL	<i>Л</i>	
DIIVOICAL HAZADDO.		
PHYSICAL HAZARDS: V He	AT STRESS - Sun - SWAL	w
EMERGENCY PROCEDURES:	AT STRESS - Sun - SWAL	22
EMERGENCY PROCEDURES: HOSPITAL/CLINIC: Hobby	PHONE: EMS:	<i>w</i>
EMERGENCY PROCEDURES: HOSPITAL/CLINIC: Hobbs HOSPITAL ADDRESS:	PHONE: EMS:	~~~~
EMERGENCY PROCEDURES: HOSPITAL/CLINIC: USbbs HOSPITAL ADDRESS: SPECIAL EQUIPMENT:	PHONE: EMS:	<i>w</i>
EMERGENCY PROCEDURES: HOSPITAL/CLINIC: //Shb5 HOSPITAL ADDRESS: - SPECIAL EQUIPMENT: OTHER:	PHONE: EMS:	<i>w</i>
EMERGENCY PROCEDURES: HOSPITAL/CLINIC: UShby HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER:	ATTENDEES	
EMERGENCY PROCEDURES: HOSPITAL/CLINIC: Hobbs HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER:	PHONE: EMS: ATTENDEES SIGNATURE:	
EMERGENCY PROCEDURES: HOSPITAL/CLINIC: Hobbs HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER: PRINTED NAME: Leouma Herror	PHONE: EMS: ATTENDEES SIGNATURE:	
EMERGENCY PROCEDURES: HOSPITAL/CLINIC: Hobbs HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER: PRINTED NAME: LEOUMA HENON CLANDORAL HOPR/FERM	PHONE: EMS: ATTENDEES SIGNATURE: UMAL	2V
EMERGENCY PROCEDURES: HOSPITAL/CLINIC: Hobbs HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER: PRINTED NAME: LEOUMA HENON CLANDORAL HOPPRIMENT SAM MARTINEL	PHONE: EMS: ATTENDEES SIGNATURE: Jun Mark	222
EMERGENCY PROCEDURES: HOSPITAL/CLINIC: Hobbs HOSPITAL ADDRESS: SPECIAL EQUIPMENT: OTHER: PRINTED NAME: LEOUMA HENON CLAIBORNE HENON CLAIBORNE HENON CLAIBORNE HENON CLAIBORNE HERONON CLAIBORNE	PHONE: EMS: ATTENDEES SIGNATURE: Jan Mark Jan Mark	

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# DUKE ENERGY/MALJAMAR BOOSTER MARCH, 2001



Photo #1

Maljamar Booster



Photo #2 Maljamar Booster

# DUKE ENERGY/MALJAMAR BOOSTER MARCH, 2001



Photo #3 Maljamar Booster



Photo #4 Maljamar Booster



1-1 Maljamar Booster

3/8/01



1-2 Maljamar Booster

3/8/01



1-3 Maljamar Booster

3/8/01



1-4 Maljamar Booster

3/8/01



1-5 Maljamar Booster

3/8/01



Duke/Maljamar Booster 1-1 6/6/01 SB-1 (TMW-1)



1-2 Duke/Maljamar Booster SB-1 (TMW-1)



1-3



Duke/Maljamar Booster 1-4 SB-1 (TMW-1)

6/6/01





SB-1 (TMW-1)

1



Duke/Maljamar Booster 1-6



1-7 Duke/Maljamar Booster SB-1 (TMW-1)



1-8 Duke/Maljamar Booster Tank Area



1-9 Duke/Maljamar Booster 6/6/01 SB-3



1-10 Duke/Maljamar Booster SB-5

6/6/01



1-11 Duke/Maljamar Booster WB-4

2



1-12 Duke/Maljamar Booster SB-1 (TMW-1)



Duke/Maljamar Booster 6/6/01 1-13 SB-1 (TMW-1)



Duke/Maljamar Booster 1-14 SB-1 (TMW-1)



1-15 Duke/Maljamar Booster SB-1 (TMW-1)

6/6/01



- Duke/Maljamar Booster 2-1
- 6/6/01



2-2 Duke/Maljamar Booster SB-3



2-3 Duke/Maljamar Booster



Duke/Maljamar Booster 2-4 6/6/01 SB-4



2-5 Duke/Maljamar Booster SB-5



2-6

Duke/Maljamar Booster

6/6/01



Duke/Maljamar Booster 2-7 SB-1 (TMW-1)

6/6/01



Duke/Maljamar Booster 2-8 SB-3



Duke/Maljamar Booster SB-5 2-9

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11000111019010, 211					
Report Date: Jun Duke/Maljamar F	e 12, 2001Order Number: A Booster N/A	.01060713	S I NUL	200 Pa	ige Number: 1 of N/2
				1	
		Summary 1	Report		
Mitch Ritter				Report Date:	June 12, 2001
Ritter Environmen	ntal			-	
2900 N. Big Sprin	g				
Midland, TX 7970	5			Order ID Number	: A01060713
Project Number:	Duke/Maljamar Booster				
Project Name:	N/A				· .
Project Location:	N/A				
			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
172752	SB1-2 060501-10	Soil	6/5/01	9:10	6/7/01
172753	SB1-8 060501-40	Soil	6/4/01	9:40	6/7/01
172754	SB1-10 060501-50	Soil	6/5/01	10:06	6/7/01
172755	SB1-17 060501-90	Soil	6/5/01	10:50	6/7/01
172756	SB2-6 060501-30	Soil	6/5/01	14:38	6/7/01
172757	SB2-10 060501-50	Soil	6/5/01	15:37	6/7/01
172758	SB3-2 060601-10	Soil	6/6/01	7:15	6/7/01
172759	SB3-8 060601-40	Soil	6/6/01	8:02	6/7/01
172760	SB3-10 060601-50	Soil	6/6/01	8:29	6/7/01
72761	SB4-1 060601-5	Soil	6/6/01	9:04	6/7/01
172762	SB4-10 060601-50	Soil	6/6/01	10:22	6/7/01
172763	SB5-9 060601-45	Soil	6/6/01	11:33	6/7/01
172764	SB5-10 060601-50	Soil	6/6/01	11:45	6/7/01

This report consists of a total of 1 page(s) and is intended only as a summary of results for the sample(s) listed above.

		TPH DRO	TPH GRO				
	Benzene	Toluene	Ethylbenzene	M,P,O-Xylene	Total BTEX	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
172752 - SB1-2 060501-10	0.121	0.342	0.343	1.03	1.84	260	12.02
172753 - SB1-8 060501-40	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	112	14.9
172754 - SB1-10 060501-50	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	51	4.98
172755 - SB1-17 060501-90	<0.013	< 0.013	<0.013	< 0.013	< 0.013	<50	2.21
172756 - SB2-6 060501-30	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	<50	2.49
172757 - SB2-10 060501-50	<0.013	<0.013	< 0.013	< 0.013	< 0.013	<50	2.13
172758 - SB3-2 060601-10	< 0.013	<0.013	< 0.013	< 0.013	< 0.013	<50	3.19
172759 - SB3-8 060601-40	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	<50	< 2.5
172760 - SB3-10 060601-50	< 0.013	< 0.013	< 0.013	< 0.013	< 0.013	<50	2.4
172761 - SB4-1 060601-5	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	<50	< 2.5
172762 - SB4-10 060601-50	<0.013	< 0.013	< 0.013	< 0.013	< 0.013	<50	< 1.3
172763 - SB5-9 060601-45	<0.013	< 0.013	< 0.013	<0.013	<0.013	<50	< 1.3
172764 - SB5-10 060601-50	< 0.013	<0.013	< 0.013	< 0.013	< 0.013	<50	<1.3

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6701 Aberdeen Avenue, Suite 9 155 McCutcheon, Suite H

Lubbock, Texas 79424 El Paso, Texas 79932

800•378•1296 888•588•3443 806 • 794 • 1296 FAX 806 • 794 • 1298 FAX 915•585•4944

E-Mail: lab@traceanalysis.com

915•585•3443

## Analytical and Quality Control Report

Mitch Ritter **Ritter Environmental** 2900 N. Big Spring Midland, TX 79705

**Report Date:** 

June 12, 2001

Order ID Number: A01060713

#### Project Number: Duke/Maljamar Booster **Project Name:** N/A Project Location: N/A

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to Trace-Analysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
172752	SB1-2 060501-10	Soil	6/5/01	9:10	6/7/01
172753	SB1-8 060501-40	Soil	6/4/01	9:40	6/7/01
172754	SB1-10 060501-50	Soil	6/5/01	10:06	6/7/01
172755	SB1-17 060501-90	Soil	6/5/01	10:50	6/7/01
172756	SB2-6 060501-30	Soil	6/5/01	14:38	6/7/01
172757	SB2-10 060501-50	Soil	6/5/01	15:37	6/7/01
172758	SB3-2 060601-10	Soil	6/6/01	7:15	6/7/01
172759	SB3-8 060601-40	Soil	6/6/01	8:02	6/7/01
172760	SB3-10 060601-50	Soil	6/6/01	8:29	6/7/01
172761	SB4-1 060601-5	Soil	6/6/01	9:04	6/7/01
172762	SB4-10 060601-50	Soil	6/6/01	10:22	6/7/01
172763	SB5-9 060601-45	Soil	6/6/01	11:33	6/7/01
172764	SB5-10 060601-50	Soil	6/6/01	11:45	6/7/01

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 19 pages and shall not be reproduced except in its entirety including the chain of custody (COC), without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Order Number: A01060713 N/A

## **Analytical Report**

			10				
Sample:	172752	- SB1-2 060501	·10	OC Databa	0(111905	Data Analanak	c /0 /01
Analysis:	BTEX	Analytical Method: Desparation Method	5 8021B	QU Batch: Prop. Batchy	QC11805 DB10004	Date Analyzed: Date Propared:	6/0/01
Analyst:	CG	Preparation Method	: E 9099	Frep Daten:	F D10094	Date Prepareu.	0/9/01
Param		Flag	Result	Units	Dil	ution	RDL
Benzene			0.121	mg/Kg		25	0.001
Toluene			0.342	mg/Kg		25	0.001
Ethylbenzer	ne		0.343	mg/Kg		25	0.001
M,P,O-Xyle	ene		1.03	mg/Kg		25	0.001
Total BTE	X		1.84	mg/Kg		25	0.001
	·····						
					$\mathbf{Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
TFT	1	1.04	mg/Kg	25	0.10	41	72 - 128
4-BFB	2	1.21	mg/Kg	25	0.10	48	72 - 128
<b>C</b> 1	150550		10				
Sample:	172752	- SB1-2 060501	.10				o /= /o.
Analysis:	TPH DRO	Analytical Method	d: Mod. 80	15B QC Bate	h: QC1178	6 Date Analyzed:	6/7/01
Analyst:	11	Preparation Meth	od: 3550 B	Prep Bat	ch: PB1007	9 Date Prepared:	6/7/01
Daram	Flor	Decult	ŤT:	4-a T	Dilution		זתם
Param	F lag	Result	()				RDL
DRO		200	mg/	ng	1		
					Spiles	Donaont	Decourse
Surrogato	Flog	Dogult	Unito	Dilution	Amount	Percent	Limita
n Octano	Tag	218	$\frac{0 \text{ mts}}{n \sigma / K \sigma}$	1	250		1000000000000000000000000000000000000
<u>n-Octane</u>	·	210 1	ng/ng	<b>L</b>	200	01	70 - 150
Sample:	172752	- SB1-2 060501-	.10				
Analysis	TPH GRO	Analytical Meth	ad: 8015B	OC Batch	OC11806	Date Analyzed	6/0/01
Analyst:	CG	Preparation Met	hod: 5035	Pren Batch	PR10004	Date Prepared:	6/0/01
1 <b>1110</b> 1 <i>y</i> 150.	eu		100. 0000	Trep Daten.	1 D10034	Date I Topareu.	0/3/01
Param	Flag	Result	Uni	ts I	Dilution		RDL
GRO		12.02	mg/	Kg	25		0.10
·····							
Sample:	172753	- SB1-8 060501-	-40				
Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC11805	Date Analyzed:	6/9/01
Analyst:	CG	Preparation Method	: E 5035	Prep Batch:	PB10094	Date Prepared:	6/9/01
		1		<b>T</b>			-, •, •
Param		Flag	Result	Units	D	ilution	RDL
Benzene			< 0.025	mg/Kg	······	25	0.001
Toluene			< 0.025	mg/Kg		25	0.001

<sup>1</sup>Surrogate recovery outside normal limits due to matrix difficulties.

< 0.025

mg/Kg

25

Ethylbenzene

<sup>2</sup>Surrogate recovery outside normal limits due to matrix difficulties.

Continued ...

0.001



Continued	Sample: 172753	Analysis: BTEX			
Param	Flag	Result	Units	Dilution	$\operatorname{RDL}$
M,P,O-Xylene	<u></u>	< 0.025	mg/Kg	25	0.001
Total BTEX		< 0.025	mg/Kg	25	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT	3	1.34	mg/Kg	25	0.10	53	72 - 128
4-BFB	4	0.373	mg/Kg	25	0.10	14	72 - 128

Sample:	172753 -	SB1-8	060501-40
---------	----------	-------	-----------

Analysis: Analyst:	TPH DRO JJ	Analytical Method: Preparation Method:	Mod. 8015B 3550 B	QC Batch: Prep Batch:	QC11786 PB10079	Date Analyzed: Date Prepared:	6/7/01 6/7/01
Param	Flag	Result	Units	Dilut	tion		RDL
DRO		112	mg/Kg	1			50
			2001) <u>20</u> 070000000000000000000000000000000000	C		Damaant	Descuert

Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Octane		215	mg/Kg	1	250	86	70 - 130

Analysis: Analyst:	TPH GRO CG	Analytical Method: Preparation Method:	8015B 5035	QC Batch: Prep Batch:	QC11806 PB10094	Date Analyzed: Date Prepared:	6/9/01 6/9/01
Param	Flag	Result	Units	D	ilution		RDL
GRO		14.9	mg/Kg		25		0.10

#### Sample: 172754 - SB1-10 060501-50

Analysis: Analyst:	BTEX CG	Analytical Method: Preparation Method:	S 8021B E 5035	QC Batch: Prep Batch:	QC11805 Date Analyzed PB10094 Date Prenared	d: $6/9/01$
	00		E 0000	Trep Daten.		. 0/5/01
Param		Flag	Result	Units	Dilution	RDL
Benzene			< 0.013	mg/Kg	13	0.001
Toluene			< 0.013	mg/Kg	13	0.001
Ethylbenze	ne		< 0.013	mg/Kg	13	0.001
M,P,O-Xyle	ene		< 0.013	mg/Kg	13	0.001
Total BTE	Χ	<	< 0.013	mg/Kg	13	0.001

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
TFT	5	0.561	mg/Kg	13	0.10	43	72 - 128
4-BFB	6	0.173	mg/Kg	13	0.10	13	72 - 128

<sup>3</sup>Surrogate recovery outside normal limits due to matrix difficulties. <sup>4</sup>Surrogate recovery outside normal limits due to matrix difficulties.

<sup>5</sup>Surrogate recovery outside normal limits due to matrix difficulties.

<sup>6</sup>Surrogate recovery outside normal limits due to matrix difficulties.

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Duke/Malj	te: June 12, 2 amar Booste:	2001 •	0	rder Number N/A	A01060713	3	Page Numb	er: 4 of 19 N/A
Sample: Analysis: Analyst:	172754 TPH DRO JJ	- SB1-10 060 Analytical Me Preparation M	501-50 thod: 1 ethod: 3	Mod. 8015B 3550 B	QC Batcl Prep Bat	n: QC11786 ch: PB10079	Date Analyzed: Date Prepared:	6/7/01 6/7/01
Param	Flag	Resul	t	Units	Г	Dilution		RDL
DRO	1 105	5		mg/Kg		1		50
		······		0, 0			·····	
Surrogate	Flag	Result	Units	Dilu	tion	Spike Amount	Percent Recovery	Recovery Limits
n-Octane		220	mg/K	g		250	88	70 - 130
Sample: Analysis: Analyst:	172754 TPH GRO CG	- SB1-10 060 Analytical M Preparation	501–50 Tethod: Method:	8015B C 5035 F	2C Batch: Prep Batch:	QC11806 PB10094	Date Analyzed: Date Prepared:	6/9/01 6/9/01
Param	Flag	Resul	t	Units	D	Dilution	·····	RDL
GRO		4.98	3	mg/Kg		13		0.10
Analysis: Analyst: Param	CG	Analytical Metho Preparation Met	hod: E { Resu	5035 Pr	ep Batch: Units	QC11805 PB10094 Dil	Date Analyzed: Date Prepared: ution	6/9/01 6/9/01 RDL
Benzene			< 0.0	13	mg/Kg		13	0.001
Toluene			<0.0	13	mg/Kg		13	0.001
			<b>\U.U</b> .		0, 0			
Ethylbenzei	ne		<0.0	13	mg/Kg		13	0.001
Ethylbenzer M,P,O-Xyle	ne ene v		<0.0 <0.0 <0.0	13	mg/Kg mg/Kg		13 13	0.001 0.001
Ethylbenzer M,P,O-Xyle Total BTEX	ne ene X		<0.0 <0.0 <0.0 < 0.0	13 13 13	mg/Kg mg/Kg mg/Kg		13 13 13	0.001 0.001 0.001
Ethylbenzer M,P,O-Xyle Total BTE2 Surrogate	ne ene K Flag 7	Result 0.672	<0.0. <0.0 <0.0 <0.0 Units	13 13 13 	mg/Kg mg/Kg mg/Kg tion	Spike Amount	13 13 13 Percent Recovery 51	0.001 0.001 0.001 Recovery Limits 72 - 128
Ethylbenzer M,P,O-Xyle Total BTE2 Surrogate TFT 4-BFB	ne ene K Flag 7 8	Result 0.672 0.834	<0.0. <0.0. <0.0. <0.0. Units mg/Kg	13 13 13 13 Dilu g 1 g 1	mg/Kg mg/Kg mg/Kg tion	Spike Amount 0.10 0.10	13 13 13 Percent Recovery 51 64	0.001 0.001 0.001 Recovery Limits 72 - 128 72 - 128
Ethylbenzer M,P,O-Xyle Total BTE2 Surrogate TFT 4-BFB Sample: Analysis: Analyst:	ne ene K Flag 7 8 <b>172755</b> TPH DRO JJ	Result 0.672 0.834 - SB1-17 060 Analytical Met Preparation M	<pre>&lt;0.0. &lt;0.0 &lt;0 &lt;0</pre>	13 13 13 13 13 13 13 14 14 15 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	mg/Kg mg/Kg mg/Kg tion 3 3 9 QC Batch Prep Batch	Spike Amount 0.10 0.10 n: QC11786 ch: PB10079	13 13 13 13 13 13 13 13 13 13 13 13 13 1	0.001 0.001 0.001 Recovery Limits 72 - 128 72 - 128 6/7/01 6/7/01
Ethylbenzer M,P,O-Xyle Total BTE2 Surrogate TFT 4-BFB Sample: Analysis: Analyst: Param	ne ene K Flag 7 8 <b>172755</b> TPH DRO JJ JJ Flag	Result 0.672 0.834 - SB1-17 060 Analytical Met Preparation M Resul	<pre>&lt;0.0. &lt;0.0 0 0 0</pre>	13 13 13 13 13 13 13 13 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	mg/Kg mg/Kg mg/Kg tion 3 3 QC Batch Prep Batch	Spike Amount 0.10 0.10 n: QC11786 ch: PB10079 Pilution	13 13 13 13 13 13 13 13 13 13 13 13 13 1	0.001 0.001 0.001 Recovery Limits 72 - 128 72 - 128 6/7/01 6/7/01 RDL
Ethylbenzer M,P,O-Xyle Total BTE2 Surrogate TFT 4-BFB Sample: Analysis: Analysis: Param DRO	ne ene K Flag 7 8 <b>172755</b> TPH DRO JJ Flag	Result 0.672 0.834 - SB1-17 060 Analytical Met Preparation M Result <50	<pre>&lt;0.0. &lt;0.0 &lt;0 &lt;0.0 &lt;0 &lt;0.0 &lt;0 &lt;0.0 &lt;0.</pre>	13 13 13 13 13 13 13 13 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	mg/Kg mg/Kg mg/Kg tion 3 3 QC Batch Prep Batch D	Spike Amount 0.10 0.10 n: QC11786 ch: PB10079 Pilution 1	13 13 13 13 13 13 13 13 13 13 13 13 13 1	0.001 0.001 0.001 Recovery Limits 72 - 128 72 - 128 72 - 128 6/7/01 6/7/01 RDL 50
Ethylbenzer M,P,O-Xyle Total BTE2 Surrogate TFT 4-BFB Sample: Analysis: Analysis: Param DRO Surrogate	ne ene K Flag 7 8 <b>172755</b> TPH DRO JJ Flag Flag	Result 0.672 0.834 - SB1-17 060 Analytical Met Preparation M Result <50	<pre>&lt; 0.0. &lt; 0.0. </pre>	Dilu Dilu g 1. g 1. g 1. Mod. 8015B 8550 B Units mg/Kg Dilu	mg/Kg mg/Kg mg/Kg tion 3 3 QC Batch Prep Bata D	Spike Amount 0.10 0.10 n: QC11786 ch: PB10079 vilution 1 Spike Amount	13 13 13 Percent Recovery 51 64 Date Analyzed: Date Prepared: Percent Recovery	0.001 0.001 0.001 Recovery Limits 72 - 128 72 - 128 72 - 128 6/7/01 6/7/01 RDL 50 Recovery Limits

<sup>7</sup>Surrogate recovery outside normal limits due to matrix difficulties. <sup>8</sup>Surrogate recovery outside normal limits due to matrix difficulties.

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Duke/Malj	amar Booster			N/A			N//
Sample:	172755 -	SB1-17 060501	-90				
Analysis:	TPH GRO	Analytical Metho	d: 8015B	QC Batch:	QC11806	Date Analyzed:	6/9/0
Analyst:	CG	Preparation Meth	od: 5035	Prep Batch:	PB10094	Date Prepared:	6/9/0
Param	Flag	Result	Unit	s I	Dilution		RDI
GRO		2.21	mg/ł	ζg	13		0.1
Sample:	172756 -	SB2-6 060501-3	3U		0011005		<i>c /o /o</i>
Analysis:	BTEX	Analytical Method:	S 8021B	QC Batch:	QC11805	Date Analyzed:	6/9/0
Analyst:	CG .	Preparation Method:	E 5035	Prep Batch:	PB10094	Date Prepared:	6/9/0
Param		Flag	Result	Units	D	ilution	RDI
Benzene			< 0.013	mg/Kg		13	0.00
Toluene			< 0.013	mg/Kg		13	0.003
Ethylbenze	ne		< 0.013	mg/Kg		13	0.00
M,P,O-Xyle	ene	·	<0.013	mg/Kg		13	0.00
Iotal BIE.	X	<	< 0.013	mg/Kg		13	0.00
					Spike	Percent	Recovery
Surrogate	Flag	Result U	Units	Dilution	Amount	Recovery	Limits
TFT	9	0.561 m	ng/Kg	13	0.10	43	72 - 128
4-BFB		0.704 m	ig/Kg	13	0.10	54	72 - 128
Sample: Analysis: Analyst:	1 <b>72756 -</b> TPH DRO JJ	SB2-6 060501-3 Analytical Methods Preparation Metho	<b>30</b> : Mod. 801 d: 3550 B	5B QC Bate Prep Bat	h: QC1178 .ch: PB1007	6 Date Analyzed: 9 Date Prepared:	6/7/01 6/7/01
Param	Flag	Result	Unit	s I	Dilution		RDI
DRO		<50	mg/ŀ	ќg	1		50
					Spike	Percent	Recovery
Surrogate	Flag	Result U	Units	Dilution	Amount	Recovery	Limits
n-Octane		224 m	g/Kg	1	250	89	70 - 130
Sampla	170756	SD2 6 060501 (	20				
Analysis	TPU CPO	Analytical Matha		OC Retabu	0011906	Data Analyzada	c /n /n
Analysis.	CG	Preparation Meth	od: 5035	Prep Batch:	PB10094	Date Prepared:	6/9/0
	•••			r top 200000	1 210001		0/0/0.
Param	Flag	Result	Unit	s I	Dilution		RDI
GRO		2.49	mg/ŀ	ζg	13		0.10
Sample:	172757 -	SB2-10 060501	-50				
Analysis:	BTEX A	Analytical Method:	S 8021B	QC Batch:	QC11805	Date Analyzed:	6/9/0
Analyst	CG F	Preparation Method:	E 5035	Pren Batch:	PB10094	Date Prepared	6/9/0

<sup>9</sup>Surrogate recovery outside normal limits due to matrix difficulties. <sup>10</sup>Surrogate recovery outside normal limits due to matrix difficulties.

Report Dat Duke/Malja	e: June 12, 2 amar Booste	2001 <b>•</b>	O	rder Number: A01060 N/A	0713	Page Numb	ber: 6 of 19 N/A
Param		Flag	Resul	t Units	D	Dilution	RDL
Benzene			< 0.01	3 mg/Kg	· · · · · · · · · · · · · · · · · · ·	13	0.001
Toluene			< 0.01	3 mg/Kg	•	13	0.001
Ethylbenzer	ie		< 0.01	3 mg/Kg		13	0.001
M.P.O-Xvle	ne		< 0.01	3 mg/Kg		13	0.001
Total BTEX	ζ		< 0.01	3 mg/Kg		13	0.001
<u></u>							
					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
TFT	11	0.404	mg/Kg	g 13	0.10	31	72 - 128
4-BFB	12	0.57	mg/Kg	<u>g 13</u>	0.10	43	72 - 128
Sample: Analysis: Analyst:	172757 TPH DRO JJ	- SB2-10 0605 Analytical Meth Preparation Met	01-50 od: N thod: 3	Mod. 8015B QC B 3550 B Prep I	atch: QC117 Batch: PB100 Dilution	786 Date Analyzed: 79 Date Prepared:	6/7/01 6/7/01
Param	Flag	Result					
	••	<00		ing/Kg	1		
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Octane		228	mg/Kg	g 1	250	91	70 - 130
Sample: Analysis: Analyst: Param GRO	172757 TPH GRO CG Flag	- SB2-10 0605 Analytical Met Preparation M Result 2.13	01-50 thod: ethod:	8015B QC Batcl 5035 Prep Bat Units mg/Kg	h: QC11806 ch: PB10094 Dilution 13	Date Analyzed: Date Prepared:	6/9/01 6/9/01 RDL 0.10
Sample: Analysis: Analyst:	<b>172758</b> BTEX CG	- SB3-2 06060 Analytical Method Preparation Metho	<b>1-10</b> l: S 8 od: E 5	021B QC Batch: 5035 Prep Batch	: QC11805 h: PB10094	Date Analyzed: Date Prepared:	6/9/01 6/9/01
Param		Flag	Resul	t Units	Ľ	Dilution	RDL
Benzene			< 0.01	o mg/Kg	•	13	0.001
Toluene			< 0.01	3 mg/Kg		13	0.001
Ethylbenzen	ie		< 0.01	3 mg/Kg	i	13	0.001
M,P,O-Xyle	ne		<0.013	3 mg/Kg		13	0.001
Total BTEX	<u> </u>		< 0.013	3 mg/Kg	• •	13	0.001
					Spike	Percent	Recoverv
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits

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<sup>11</sup>Surrogate recovery outside normal limits due to matrix difficulties. <sup>12</sup>Surrogate recovery outside normal limits due to matrix difficulties. <sup>13</sup>Surrogate recovery outside normal limits due to matrix difficulties.

72 - 128 Continued ...

Flag       Re         14       0         72758 - SB3-         H DRO       Analy         Prepa         Flag         Flag         Re         72758 - SB3-         H DRO         Analy         Prepa         Flag         Re         72758 - SB3-         H GRO         Analy         Prepa	esult .828 1 -2 060601- ytical Method aration Method Result <50 esult 223 1	Units mg/Kg -10 d: Mod. 8 od: 3550 B U mg Units mg/Kg	Dilution 13 3015B QC Ba Prep I nits 5/Kg Dilution 1	Spike Amount 0.10 atch: QC11786 Batch: PB10079 Dilution 1 Spike Amount	Percent Recovery 63 Date Analyzed: Date Prepared: Percent Recovery	Recover Limits 72 - 12 6/7/0 6/7/0 RD 5 Recover
14       0         72758 - SB3-         'H DRO       Analy         Prepa         Flag         Flag         Re         72758 - SB3-         H GRO       Analy         Prepa	-2 060601- ytical Method aration Method Result <50 esult 223 n	mg/Kg -10 d: Mod. 9 od: 3550 B U ma Units mg/Kg	13 3015B QC Ba Prep I nits c/Kg Dilution	0.10 atch: QC11786 Batch: PB10079 Dilution 1 Spike Amount	63 5 Date Analyzed: 9 Date Prepared: Percent Recovery	72 - 12 6/7/0 6/7/0 RD 5 Recover
72758 - SB3- H DRO Analy Prepa Flag Flag Re 72758 - SB3- H GRO Ana Prej	-2 060601- ytical Method aration Method Result <50 esult 223 n	-10 d: Mod. 6 od: 3550 B U units mg/Kg	3015B QC Ba Prep I nits c/Kg Dilution 1	atch: QC11786 Batch: PB10079 Dilution 1 Spike Amount	Date Analyzed: Date Prepared: Percent Becovery	6/7/0 6/7/0 RD 5 Recover
Flag Re Flag Re 72758 - SB3- H GRO Ana Prej	Result <50 esult 223 n	U ma Units mg/Kg	nits g/Kg Dilution 1	Dilution 1 Spike Amount	Percent	RD 5 Recover
Flag Re 72758 - SB3- H GRO Ana Prej	<50 esult 223 1	ma Units mg/Kg	g/Kg Dilution 1	1 Spike Amount	Percent	5 Recover
Flag Re 72758 - SB3- H GRO Ana Prej	esult 223 r	Units mg/Kg	Dilution 1	Spike Amount	Percent Recovery	Recover
72758 - SB3- H GRO Ana Prej	223 1	mg/Kg	1	· · · · · · · · · · · · · · · · · · ·		Limits
7 <b>2758 - SB3-</b> H GRO Ana Prej				250	89	70 - 13
Flag	-2 060601- alytical Metho paration Met Result	-10 od: 80151 hod: 5035 U	3 QC Batch Prep Batch	n: QC11806 ch: PB10094 Dilution	Date Analyzed: Date Prepared:	6/9/0 6/9/0 RD
	3.19	mą	ç/Kg	13		0.1
72759 - SB3- 'EX Analyti Prepara	-8 060601- cal Method: ation Method	- <b>40</b> S 8021B : E 5035	QC Batch: Prep Batcl	QC11805 h: PB10094	Date Analyzed: Date Prepared:	6/9/( 6/9/(
Flag		Result	Units	Dil	ution	RD
		< 0.025	mg/Kg		25	0.00
		< 0.025	mg/Kg		25	0.00
		<0.025	mg/Kg		25	0.00
		0.020	1			
		<0.025	mg/Kg		25	0.00
		<0.025 <0.025 <0.025	mg/Kg Kg		25 25	0.00
Flag Re	esult	<0.025 <0.025 <0.025	mg/Kg mg/Kg Dilution	Spike Amount	25 25 Percent Recovery	0.00 0.00 Recover Limits
7 1'1 ;	2759 - SB3- EX Analyti Prepara Flag	2759 - SB3-8 060601- EX Analytical Method: Preparation Method Flag	2759 - SB3-8 060601-40           EX         Analytical Method: S 8021B           Preparation Method: E 5035           Flag         Result           <0.025	2759 - SB3-8 060601-40         EX       Analytical Method: S 8021B       QC Batch:         Preparation Method: E 5035       Prep Batch         Flag       Result       Units         <0.025	2759 - SB3-8 060601-40         EX       Analytical Method: S 8021B       QC Batch: QC11805         Preparation Method: E 5035       Prep Batch: PB10094         Flag       Result       Units         <0.025	2759 - SB3-8 060601-40EXAnalytical Method:S 8021BQC Batch:QC11805Date Analyzed:Preparation Method:E 5035Prep Batch:PB10094Date Prepared:FlagResultUnitsDilution<0.025

<sup>14</sup>Surrogate recovery outside normal limits due to matrix difficulties.
 <sup>15</sup>Surrogate recovery outside normal limits due to matrix difficulties.
 <sup>16</sup>Surrogate recovery outside normal limits due to matrix difficulties.

Order Number: A01060713 N/A

ParamFlagResultUnitsDilutionDRO<50mg/Kg1SurrogateFlagResultUnitsDilutionAmountRecoveryLinn-Octane228mg/Kg12509170Sample:172759 - SB3-8060601-40Analysis:TPH GROAnalytical Method:8015BQC Batch:QC11806Date Analyzed:6/Analysis:CGPreparation Method:5035Prep Batch:PB10094Date Prepared:6/ParamFlagResultUnitsDilutionGRO<2.5mg/Kg25Sample:172760 - SB3-10060601-50Analysis:BTEXAnalytical Method:5 8021BQC Batch:QC11805Date Analyzed:6/ParamFlagResultUnitsDilutionGRO<2.5mg/Kg130BenzeneCGPreparation Method:5 8021BQC Batch:QC11805Date Analyzed:6/ParamFlagResultUnitsDilutionBenzene<0.013mg/Kg130Toluene<0.013mg/Kg1300GROGROGROSurrogateFlagResultUnitsDilutionAnalysis130TTT170.967mg/Kg130.1074724-BFB181.06mg/Kg130.108172Sample:172760 - SB3-10060601-50 </th <th> Continue</th> <th>ed Sample: Flag</th> <th>172759 Analysis: Result</th> <th>TPH I</th> <th>ORO Units</th> <th></th> <th>Dilution</th> <th></th> <th>RDL</th>	Continue	ed Sample: Flag	172759 Analysis: Result	TPH I	ORO Units		Dilution		RDL
Param       Flag       Result       Units       Dilution         DRO       <50				······································					
DRO       <50       mg/Kg       1         Spike       Percent       Recovery         Surrogate       Flag       Result       Units       Dilution       Amount       Recovery       Lit         n-Octane       228       mg/Kg       1       250       91       70         Sample: 172759 - SB3-8 060601-40         Analysis:       TPH GRO       Analytical Method:       8015B       QC Batch:       QC11806       Date Analyzed:       6/         Analysis:       CG       Preparation Method:       5035       Prep Batch:       PB10094       Date Analyzed:       6/         Param       Flag       Result       Units       Dilution       GRO       <2.5	Param	Flag	Result		Units		Dilution		RDL
SurrogateFlagResultUnitsDilutionAmountRecoveryLinn-Octane228mg/Kg12509170Sample: 172759 - SB3-8 060601-40Analysis:TPH GROAnalytical Method:8015BQC Batch:QC11806Date Analyzed:6/Analysis:CGPreparation Method:5035Prep Batch:PB10094Date Prepared:6/ParamFlagResultUnitsDilutionGROGRO< 2.5	DRO		<50		mg/Kg		1		50
SurrogateFlagResultUnitsDilutionAmountRecoveryLitn-Octane228mg/Kg12509170Sample: 172759 - SB3-8 060601-40Analysis:TPH GROAnalytical Method:8015BQC Batch:QC11806Date Analyzed:6/Analysis:CGPreparation Method:5035Prep Batch:PB10094Date Prepared:6/ParamFlagResultUnitsDilutionGRO<								_	_
SurrogateFlagResultUnitsDilutionAmountRecoveryLnn-Octane228mg/Kg12509170Sample:172759 - SB3-8060601-40Analysis:TPH GROAnalytical Method:8015BQC Batch:QC11806Date Analyzed:6/Analyst:CGPreparation Method:5035Prep Batch:PB10094Date Prepared:6/ParamFlagResultUnitsDilutionGRO< 2.5	~						Spike	Percent	Recovery
n-Octane228mg/Kg125091/// (0-1)Sample:172759 - SB3-8 060601-40Analysis:TPH GROAnalytical Method:8015BQC Batch:QC11806Date Analyzed:6/Analysi:CGPreparation Method:5035Prep Batch:PB10094Date Prepared:6/ParamFlagResultUnitsDilutionGRO< 2.5	Surrogate	Flag	Result	Units	Di		Amount	Recovery	Limits
Sample: 172759 - SB3-8 060601-40Analysis:TPH GRO Preparation Method: 5035QC Batch: Prep Batch:QC11806 PB10094Date Analyzed: Date Prepared:6/ParamFlagResultUnitsDilutionGRO< 2.5	n-Octane		228	mg/K	g	1	250	91	70 - 130
Sample: 172759 - SB3-8 060601-40Analysis: Analyst:TPH GRO Preparation Method:8015B 5035QC Batch: Prep Batch:QC11806 Date Analyzed:6/Param GROFlag CResultUnitsDilutionGRO< 2.5			T.						
Analysis: Analysi: CGTPH GRO Preparation Method: 5035Analytical Method: 5035Suite Souther Prep Batch: PB10094Date Analyzed: Date Prepared: 6/ Date Prepared: 6/Param GROFlag $< 2.5$ Result mg/KgUnits $25$ DilutionSample: Analysis: BTEX Analysis: BTEX Analytical Method: CGSB3-10 060601-50 Preparation Method: $$ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $	Sample:	172759 ·	- SB3-8 06060	1-40					
Analyst:CGPreparation Method:5035Prep Batch:PB10094Date Prepared: $6/$ ParamFlagResultUnitsDilutionGRO< 2.5	Analysis:	TPH GRO	Analytical Me	thod:	8015B	QC Batch:	QC11806	Date Analyzed:	6/9/01
ParamFlagResultUnitsDilutionGRO< 2.5	Analyst:	CG	Preparation M	lethod:	5035	Prep Batch	: PB10094	Date Prepared:	6/9/01
GRO< 2.5mg/Kg25Sample:172760 - SB3-10 060601-50Analysis:BTEXAnalysic:CGPreparation Method:S 8021BQC Batch:QC11805Date Analyzed: $6/$ Analyst:CGPreparation Method:E 5035Prep Batch:PB10094Date Prepared: $6/$ ParamFlagResultUnitsDilutionBenzene<0.013	Param	Flag	Result		Units	]	Dilution		RDL
Sample: 172760 - SB3-10 060601-50Analysis:BTEXAnalytical Method:S 8021BQC Batch:QC11805Date Analyzed:6/Analyst:CGPreparation Method:E 5035Prep Batch:PB10094Date Prepared:6/ParamFlagResultUnitsDilutionBenzene<0.013	GRO		< 2.5		mg/Kg	······	25		0.10
Sample: 172760 - SB3-10 060601-50Analysis:BTEX Analytical Method:S 8021B S 021BQC Batch:QC11805 Prep Batch:Date Analyzed:6/Analyst:CGPreparation Method:E 5035Prep Batch:PB10094Date Prepared:6/Benzene<0.013									
Sample: 172760 - SB3-10 060601-50Analysis:BTEXAnalytical Method:S 8021BQC Batch:QC11805Date Analyzed:6/Analyst:CGPreparation Method:E 5035Prep Batch:PB10094Date Prepared:6/ParamFlagResultUnitsDilutionBenzene<0.013	<b>a 1</b>	1 50 500		01 50					
Analysis:       BTEX       Analytical Method:       S 8021B       QC Batch:       QC11805       Date Analyzed:       6/         Analyst:       CG       Preparation Method:       E 5035       Prep Batch:       PB10094       Date Prepared:       6/         Benzene       <0.013	Sample:	172760 ·	- SB3-10 0606	01-50		000.0	0.01100		0 10 10 4
Analyst:       CG       Preparation Method:       E 5035       Prep Batch:       PB10094       Date Prepared:       6/         Param       Flag       Result       Units       Dilution         Benzene       <0.013       mg/Kg       13       6/         Toluene       <0.013       mg/Kg       13       6/         Ethylbenzene       <0.013       mg/Kg       13       6/         M,P,O-Xylene       <0.013       mg/Kg       13       6/         Total BTEX       <0.013       mg/Kg       13       6/         Surrogate       Flag       Result       Units       Dilution       Amount       Recovery       Lin         TFT       17       0.967       mg/Kg       13       0.10       74       72 -         4-BFB       18       1.06       mg/Kg       13       0.10       81       72 -         Sample:       172760 - SB3-10 060601-50       Analysis:       TPH DRO       Analytical Method:       Mod. 8015B       QC Batch:       QC11786       Date Analyzed:       6/         Analysis:       JJ       Preparation Method:       3550 B       Prep Batch:       PB10079       Date Prepared:       6/	Analysis:	BTEX	Analytical Method	d: 58	3021B	QC Batch:	QC11805	Date Analyzed:	6/9/01
Param         Flag         Result         Units         Dilution           Benzene         <0.013	Analyst:	CG	Preparation Meth	od: E t	5035 .	Prep Batch:	PB10094	Date Prepared:	6/9/01
Benzene       <0.013	Param		Flag	Resul	t	Units	D	ilution	RDL
Toluene       <0.013	Benzene			< 0.01	3	mg/Kg		13	0.001
Ethylbenzene       <0.013	Toluene			< 0.01	3	mg/Kg		13	0.001
M,P,O-Xylene       <0.013       mg/Kg       13       (a)         Total BTEX       <0.013	Ethylbenzen	1e		< 0.01	3	mg/Kg		13	0.001
Total BTEX< 0.013 $mg/Kg$ 13SurrogateFlagResultUnitsDilutionAmountRecoveryLinTFT170.967 $mg/Kg$ 130.107472 -4-BFB181.06 $mg/Kg$ 130.108172 -Sample: 172760 - SB3-10 060601-50Analysis:TPH DROAnalytical Method:Mod. 8015BQC Batch:QC11786Date Analyzed:6/Analyst:JJPreparation Method:3550 BPrep Batch:PB10079Date Prepared:6/	M,P,O-Xyle	ne		< 0.01	3	mg/Kg		13	0.001
SurrogateFlagResultUnitsDilutionAmountRecoveryLirTFT170.967mg/Kg130.107472 -4-BFB181.06mg/Kg130.108172 -Sample: 172760 - SB3-10 060601-50Analysis:TPH DROAnalytical Method:Mod. 8015BQC Batch:QC11786Date Analyzed:6/Analyst:JJPreparation Method:3550 BPrep Batch:PB10079Date Prepared:6/	Total BTEX	<u> </u>		< 0.01	3	mg/Kg		13	0.001
SurrogateFlagResultUnitsDilutionAmountRecoveryLirTFT170.967mg/Kg130.107472 -4-BFB181.06mg/Kg130.108172 -Sample: 172760 - SB3-10 060601-50Analysis:TPH DROAnalytical Method:Mod. 8015BQC Batch:QC11786Date Analyzed:6/Analyst:JJPreparation Method:3550 BPrep Batch:PB10079Date Prepared:6/							<i>a</i> 11		-
SurrogateFlagResultUnitsDilutionAmountRecoveryLirTFT170.967mg/Kg130.107472 -4-BFB181.06mg/Kg130.108172 -Sample:172760 - SB3-10 060601-50Analysis:TPH DROAnalytical Method:Mod. 8015BQC Batch:QC11786Date Analyzed:6/Analyst:JJPreparation Method:3550 BPrep Batch:PB10079Date Prepared:6/	Sumomete	Dia a	Desult	TT!.	D'	1	Spike	Percent	Recovery
IFI       0.907       mg/Kg       13       0.10       74       72 -         4-BFB       18       1.06       mg/Kg       13       0.10       81       72 -         Sample:       172760 - SB3-10       060601-50         Analysis:       TPH DRO       Analytical Method:       Mod. 8015B       QC Batch:       QC11786       Date Analyzed:       6/         Analyst:       JJ       Preparation Method:       3550 B       Prep Batch:       PB10079       Date Prepared:       6/	Surrogate	F lag	Result	Units	I	lution	Amount	Recovery	Limits
YETE       1.00       IIg/Rg       13       0.10       81       12         Sample:       172760 - SB3-10 060601-50         Analysis:       TPH DRO       Analytical Method:       Mod. 8015B       QC Batch:       QC11786       Date Analyzed:       6/         Analyst:       JJ       Preparation Method:       3550 B       Prep Batch:       PB10079       Date Prepared:       6/	1F1 A.BFB	18	1.06	mg/Kg	5	13	0.10	/4 01	(2 - 128 70 100
Sample:172760 - SB3-10 060601-50Analysis:TPH DROAnalytical Method:Mod. 8015BQC Batch:QC11786Date Analyzed:6/Analyst:JJPreparation Method:3550 BPrep Batch:PB10079Date Prepared:6/	4-DI. D		1.00	ing/ K	5	10	0.10		72 - 128
Sample:172760 - SB3-10 060601-50Analysis:TPH DROAnalysis:TPH DROAnalyst:JJPreparation Method:3550 BPrep Batch:PB10079Date Prepared:6/									
Analysis:TPH DROAnalytical Method:Mod. 8015BQC Batch:QC11786Date Analyzed:6/Analyst:JJPreparation Method:3550 BPrep Batch:PB10079Date Prepared:6/	Sample:	172760 -	- SB3-10 0606	01-50					
Analyst: JJ Preparation Method: 3550 B Prep Batch: PB10079 Date Prepared: 6/	Analysis:	TPH DRO	Analytical Meth	od: N	Mod. 8015E	QC Bate	ch: QC1178	36 Date Analyzed:	6/7/01
	Analyst:	JJ	Preparation Me	thod: 3	550 B	Prep Ba	tch: PB1007	'9 Date Prepared:	6/7/01
Param Flag Result Units Dilution	Param	Flag	Result		Units	· J	Dilution		RDL
DRO <50 mg/Kg 1	DRO		<50		mg/Kg		1		50
Spike Percent Reco							Spike	Percent	Recovery
Surrogate Flag Result Units Dilution Amount Recovery Lin	Surrogate	Flag	Result	Units	Di	lution	Amount	Recovery	Limits
n-Octane 227 mg/Kg 1 250 90 70 -	n-Octane		227	mg/Kg	5	1	250	90	70 - 130

<sup>17</sup>Surrogate recovery outside normal limits due to matrix difficulties. <sup>18</sup>Surrogate recovery outside normal limits due to matrix difficulties.

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Sample:	172760	- SB3-10 060	601-50					
Analysis:	TPH GRO	Analytical M	lethod:	8015B	QC Batch:	QC11806	Date Analyzed:	6/9/0
Analyst:	CG	Preparation	Method:	5035	Prep Batch:	PB10094	Date Prepared:	6/9/0
Param	Flag	Resul	t	Units	E	Dilution		RD
GRO		2.	4	mg/Kg	5	13		0.1
Sample:	172761	- SB4-1 0606	01-5			0.0		- 1- 1-
Analysis:	BTEX	Analytical Meth	od: Sa	8021B	QC Batch:	QC11805	Date Analyzed:	6/9/
Analyst:	CG	Preparation Met	thod: E	5035	Prep Batch:	PB10094	Date Prepared:	6/9/0
Param		Flag	Rest	ılt	Units	D	ilution	RL
Benzene			<0.0	25	mg/Kg		25 .	0.0
Foluene			<0.0	25 2 <b>5</b>	mg/Kg		25	0.00
Ethylbenzei	ie		<0.0	25	mg/Kg		25	0.00
M,P,U-Xyle	ene Z		< 0.0	20 05	mg/Kg		20	
Iotal BIE2	<u> </u>	<u></u>	< 0.0	25	mg/Kg		25	0.00
			e <sup>l</sup>			Spike	Percent	Recover
					:1	Amount	Recovery	Limits
Surrogate	Flag	Result	Units	: D	1111101	73 11 13 21 14 112		
Surrogate	Flag	Result	Units	D	25	0.10	74	72 - 12
Surrogate FFT 4-BFB Sample:	Flag 172761 -	Result 1.85 1.93 - SB4-1 0606	Units mg/K mg/K	g g	25 25 25	0.10 0.10	74 77	72 - 12 72 - 12
Surrogate IFT 4-BFB Sample: Analysis: Analyst:	Flag 172761 - TPH DRO JJ	Result 1.85 1.93 - SB4-1 0606 Analytical Me Preparation M	Units mg/K mg/K 01-5 thod:	g g Mod. 8015) 3550 B	25 25 B QC Batch Prep Bate	0.10 0.10 h: QC1178 ch: PB1007	74 77 76 Date Analyzed: 9 Date Prepared:	6/7/0 6/7/0
Surrogate IFT 4-BFB Sample: Analysis: Analyst: Param	Flag 172761 - TPH DRO JJ Flag	Result 1.85 1.93 - SB4-1 0606 Analytical Me Preparation M Resul	Units mg/K mg/K 601-5 thod: 1 lethod: 3 t	g g Mod. 8015 3550 B Units	25 25 B QC Batch Prep Batc D	0.10 0.10 h: QC1178 ch: PB1007 Dilution	74 77 76 Date Analyzed: 9 Date Prepared:	6/7/0 6/7/0 RD
Surrogate FFT 4-BFB Sample: Analysis: Analyst: Param DRO	Flag 172761 TPH DRO JJ Flag	Result 1.85 1.93 - SB4-1 0606 Analytical Me Preparation M Resul <50	Units mg/K mg/K 0 <b>01-5</b> thod: 1 lethod: 2 t	g g Mod. 8015) 3550 B Units mg/Kg	25 25 B QC Batch Prep Bato	0.10 0.10 h: QC1178 ch: PB1007 Dilution 1	74 77 76 Date Analyzed: 9 Date Prepared:	6/7/0 6/7/0 RD
Surrogate IFT 4-BFB Sample: Analysis: Analyst: Param DRO	Flag 172761 - TPH DRO JJ Flag	Result 1.85 1.93 - SB4-1 0606 Analytical Me Preparation M Resul <50	Units mg/K mg/K 001-5 thod: 1 lethod: 1 t 0	g g Mod. 8015) 3550 B Units mg/Kg	25 25 B QC Batch Prep Bato	0.10 0.10 h: QC1178 ch: PB1007 Dilution 1	74 77 76 Date Analyzed: 9 Date Prepared:	6/7/0 6/7/0 RD
Surrogate IFT 4-BFB Sample: Analysis: Analyst: Param DRO	Flag 172761 - TPH DRO JJ Flag	Result 1.85 1.93 - SB4-1 0606 Analytical Me Preparation M Resul	Units mg/K mg/K 601-5 thod: 1 lethod: 1 t 0	g g Mod. 8015) 3550 B Units mg/Kg	25 25 B QC Batch Prep Bato	h: QC1178 ch: PB1007 Dilution 1	74 77 76 Date Analyzed: 9 Date Prepared: Percent	72 - 12 72 - 12 72 - 12 6/7/0 6/7/0 RD E Recover
Surrogate FFT 4-BFB Sample: Analysis: Analyst: Param DRO Surrogate	Flag 172761 TPH DRO JJ Flag Flag	Result 1.85 1.93 - SB4-1 0606 Analytical Me Preparation M Resul <50	Units Units Units	g g Mod. 80151 3550 B Units mg/Kg D	25 25 B QC Batch Prep Bato D	n: QC1178 ch: QC1178 ch: PB1007 Dilution 1 Spike Amount	74 77 76 Date Analyzed: 9 Date Prepared: Percent Recovery	72 - 12 72 - 12 72 - 12 6/7/0 6/7/0 RD E Recover Limits
Surrogate IFT 4-BFB Sample: Analysis: Analyst: Param DRO Surrogate i-Octane	Flag 172761 TPH DRO JJ Flag Flag	Result 1.85 1.93 - SB4-1 0606 Analytical Me Preparation M Result	Units mg/K mg/K 001-5 thod: 1 lethod: 1 lethod: 3 t 0 Units mg/K	g g Mod. 8015 3550 B Units mg/Kg D g	25 25 B QC Batch Prep Bato D ilution 1	n: QC1178 ch: QC1178 ch: PB1007 Dilution 1 Spike Amount 250	74 77 76 Date Analyzed: 9 Date Prepared: 9 Percent Recovery 89	72 - 12 72 - 12 72 - 12 6/7/0 6/7/0 RD 5 Recover Limits 70 - 130
Surrogate IFT 4-BFB Sample: Analysis: Analyst: Param DRO Surrogate -Octane	Flag 172761 TPH DRO JJ Flag Flag	Result 1.85 1.93 - SB4-1 0606 Analytical Me Preparation M Result 224	Units mg/K mg/K 01-5 thod: 1 lethod: 3 t 0 Units mg/K	g g Mod. 8015 3550 B Units mg/Kg g	25 25 B QC Batch Prep Bato D	n: QC1178 ch: QC1178 ch: PB1007 Dilution 1 Spike Amount 250	74 77 76 Date Analyzed: 9 Date Prepared: Percent Recovery 89	72 - 12 72 - 12 72 - 12 6/7/0 6/7/0 RD 8 Recover Limits 70 - 13
Surrogate IFT 4-BFB Sample: Analysis: Analyst: Param DRO Surrogate 1-Octane Sample: Sample:	Flag 172761 TPH DRO JJ Flag Flag 172761	Result           1.85           1.93           - SB4-1 0606           Analytical Me           Preparation M           Result           <50	Units mg/K mg/K 01-5 thod: 1 lethod: 1 t 0 Units mg/K	mod. 8015 3550 B Units mg/Kg	25 25 B QC Batch Prep Batc D ilution 1	0.10 0.10 0.10 h: QC1178 ch: PB1007 Dilution 1 Spike Amount 250	74 77 76 Date Analyzed: 9 Date Prepared: Percent Recovery 89	72 - 12 72 - 12 72 - 12 6/7/0 6/7/0 RD E Recover Limits 70 - 13
Surrogate IFT 4-BFB Sample: Analysis: Analyst: Param DRO Surrogate 1-Octane Sample: Analysis:	Flag 172761 - TPH DRO JJ Flag Flag 172761 - TPH GRO	Result 1.85 1.93 - SB4-1 0606 Analytical Me Preparation M Result 224 - SB4-1 0606 Analytical M	Units mg/K mg/K 01-5 thod: 1 lethod: 3 t 0 Units mg/K 0 01-5 lethod:	8015B	25 25 B QC Batch Prep Bato D ilution 1	Aniount 0.10 0.1	74 77 76 Date Analyzed: 9 Date Prepared: 9 Percent Recovery 89 Date Analyzed:	72 - 12 72 - 12 72 - 12 6/7/0 6/7/0 RD 8 8 8 8 8 70 - 13 6/9/0
Surrogate IFT 4-BFB Sample: Analysis: Analyst: Param DRO Surrogate -Octane Sample: Analysis: Analy	Flag 172761 TPH DRO JJ Flag Flag 172761 TPH GRO CG	Result 1.85 1.93 - SB4-1 0606 Analytical Me Preparation M Result 224 - SB4-1 0606 Analytical M Preparation	Units mg/K mg/K 01-5 thod: 1 lethod: 1 t 0 Units mg/K 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Mod. 8015 3550 B Units mg/Kg D g 8015B 5035	25 25 B QC Batch Prep Batch D ilution 1 QC Batch: Prep Batch:	0.10 0.10 0.10 h: QC1178 ch: PB1007 Dilution 1 Spike Amount 250 QC11806 PB10094	74 77 76 Date Analyzed: 9 Date Prepared: 9 Percent Recovery 89 Date Analyzed: Date Prepared:	6/7/0 6/7/0 6/7/0 RD E Recover Limits 70 - 13
Surrogate IFT 4-BFB Sample: Analysis: Analyst: Param DRO Surrogate n-Octane Sample: Analysis: Analysis: Analysis: Analyst: Param	Flag 172761 TPH DRO JJ Flag Flag 172761 TPH GRO CG Flag	Result 1.85 1.93 - SB4-1 0606 Analytical Me Preparation M Result 224 - SB4-1 0606 Analytical M Preparation T Result	Units mg/K mg/K 01-5 thod: 1 lethod: 3 t 0 Units mg/K 0 0 0 0 0 1-5 lethod: Method: t	Mod. 8015 3550 B Units mg/Kg D g 8015B 5035 Units	25 25 B QC Batch Prep Batch D ilution 1 QC Batch: Prep Batch: D	0.10 0.10 0.10 h: QC1178 ch: PB1007 Dilution 1 Spike Amount 250 QC11806 PB10094 Pilution	74 77 76 Date Analyzed: 9 Date Prepared: 9 Percent Recovery 89 Date Analyzed: Date Prepared:	72 - 12: 72 - 12: 72 - 12: 72 - 12: 6/7/0 6/7/0 RD 5 Recover Limits 70 - 130 6/9/0 6/9/0 RD



Continue	d Sample:	172762 Analy	sis: BTEX					
Param	a Scriptor	Flag	Resu	lt	Units	Dil	ution	RDL
Param		Flag	Resu	1+	Units	Dil	ntion	RDI
Benzene		Tag	<0.01	3	mg/Kg		13	0.001
Toluene			< 0.01	3	mg/Kg		13	0.001
Ethylbenzen	e		< 0.01	3	mg/Kg		13	0.001
M.P.O-Xvler	e 1e		< 0.01	.3	mg/Kg		13	0.001
Total BTEX		·····	< 0.01	.3	mg/Kg		13	0.001
						Spike	Percent	Recovery
Surrogate	Flag	Result	Units	s Di	lution	Amount	Recovery	Limits
TFT	19	0.802	mg/K	g	13	0.10	61	72 - 128
4-BFB	20	0.888	ıng/K	g	13	0.10	68	72 - 128
Sample: Analysis: Analyst:	172762 TPH DRO JJ	- SB4-10 06 Analytical M Preparation	<b>0601-50</b> lethod: Method:	Mod. 8015I 3550 B	B QC Batc Prep Bat	h: QC11786 ch: PB10079	5 Date Analyzed: Date Prepared:	6/7/01 6/7/01
Param	Flag	Res	ult	Units	I	Dilution		RDL
DRO		<	50	mg/Kg		1		50
Surrogate	Flag	Result	Units	Di	lution	Spike Amount	Percent Recovery	Recovery Limits
II-Octane		220	Ing/K	8	1		91	70 - 130
Sample: Analysis:	172762 TPH GRO	- SB4-10 06 Analytical	<b>0601-50</b> Method:	8015B	QC Batch:	QC11806	Date Analyzed:	6/9/01
Analyst:	CG	Preparation	a Method:	5035	Prep Batch:	PB10094	Date Prepared:	6/9/01
Param	Flag	Rest	ılt	Units	- I	Dilution		RDL
GRO		< 1	.3	mg/Kg		13		0.10
Sample:	172763	- SB5-9 060	601-45					
Analysis:	BTEX	Analytical Met	hod: S 8	8021B	QC Batch:	QC11805	Date Analyzed:	6/9/01
Analyst:	CG	Preparation Me	ethod: E	5035	Prep Batch:	PB10094	Date Prepared:	6/9/01
Param		Flag	Resu	lt	Units	Dil	ution	RDL
Benzene			< 0.01	3	mg/Kg		13	0.001
Toluene			< 0.01	3	mg/Kg		13	0.001
Ethylbenzene	9		< 0.01	3	mg/Kg		13	0.001
M,P,O-Xylen	ie		< 0.01	3	mg/Kg		13	0.001
Iotal BTEX			< 0.01	3	mg/Kg	]	13	0.001

,



	/L		N/A			N/
Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recover Limits
21	0.389	mg/Kg	13	0.10	30	72 - 12
22	0.538	mg/Kg	13	0.10	41	72 - 128
<b>172763</b> TPH DRO JJ	- SB5-9 0606 Analytical Me Preparation M	01-45 thod: Mod. lethod: 3550	8015B QC Ba B Prep I	atch: QC1178 3atch: PB1007	6 Date Analyzed: 9 Date Prepared:	6/7/0 6/7/0
Flag	Resul	t	Units	Dilution		RDI
	<5	0 n	ng/Kg	1		5
Flag	Result	Units	Dilution	Spike A mount	Percent Becovery	Recover
I lag		mg/Kg	1	250	89	70 - 130
172763	- SB5-9 0606	01-45	SB OC Batch	0011806	Data Analyzadi	6 /0 /0
CG	Preparation	Method: 503	5 Prep Bate	ch: PB10094	Date Prepared:	6/9/0
			1		1	, ,
101	Derul	t 1	Units	Dilution		וחס
Flag	< 1.7	3 n	ng/Kg	13		0.1
172764 BTEX	- SB5-10 060 Analytical Meth	601-50 od: S 8021E	ng/Kg QC Batch:	13 QC11808	Date Analyzed:	<u>0.1</u>
172764 BTEX CG	<ul> <li>SB5-10 060</li> <li>Analytical Meth Preparation Met</li> </ul>	3 n 601-50 od: S 8021E hod: E 5035	ng/Kg B QC Batch: Prep Batch	13 QC11808 h: PB10095	Date Analyzed: Date Prepared:	6/9/0 6/9/0
172764 BTEX CG	- SB5-10 060 Analytical Meth Preparation Met	601-50 od: S 8021E hod: E 5035 Result	ag/Kg G QC Batch: Prep Batch Units	13 QC11808 h: PB10095 D	Date Analyzed: Date Prepared: ilution	6/9/0 6/9/0 6/9/0 RDI
172764 BTEX CG	<ul> <li>SB5-10 060</li> <li>Analytical Meth</li> <li>Preparation Met</li> <li>Flag</li> </ul>	601-50 od: S 8021E hod: E 5035 Result <0.013 <0.013	B QC Batch: Prep Batch Units mg/Kg	13 QC11808 h: PB10095 g	Date Analyzed: Date Prepared: ilution 13 13	6/9/0 6/9/0 6/9/0 RDI 0.00 0.00
172764 BTEX CG	<ul> <li>SB5-10 060</li> <li>Analytical Meth Preparation Met</li> <li>Flag</li> </ul>	601-50 od: S 8021E hod: E 5035 Result <0.013 <0.013 <0.013	B QC Batch: Prep Batch Units mg/Ki mg/Ki mg/Ki	13 QC11808 h: PB10095 g g	Date Analyzed: Date Prepared: ilution 13 13 13	6/9/0 6/9/0 6/9/0 RDI 0.00 0.00 0.00
172764 BTEX CG ne ene	- SB5-10 060 Analytical Meth Preparation Met Flag	601-50 od: S 8021E hod: E 5035 Result <0.013 <0.013 <0.013 <0.013	g/Kg QC Batch: Prep Batch Units mg/Kg mg/Kg mg/Kg mg/Kg	13 QC11808 h: PB10095 g g g	Date Analyzed: Date Prepared: ilution 13 13 13 13	6/9/0 6/9/0 6/9/0 RDJ 0.00 0.00 0.00 0.00
172764 BTEX CG ne ene X	- SB5-10 060 Analytical Meth Preparation Met Flag	$\begin{array}{c} c\\ \hline 3 & n\\ \hline 1 & n\\ \hline $	B QC Batch: Prep Batch Units mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	13 QC11808 h: PB10095 g g g g g	Date Analyzed: Date Prepared: ilution 13 13 13 13 13 13	6/9/0 6/9/0 RDI 0.00 0.00 0.00 0.00 0.00
172764 BTEX CG ne ene X	- SB5-10 060 Analytical Meth Preparation Met Flag	c = 0 3 = m bod: S 8021E bod: E 5035 Result < 0.013 < 0.013 < 0.013 < 0.013 < 0.013 < 0.013 < 0.013 < 0.013	g/Kg QC Batch: Prep Batch Units mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	13 A QC11808 h: PB10095 D g g g g g g g g g g Spike	Date Analyzed: Date Prepared: ilution 13 13 13 13 13 13	6/9/0 6/9/0 6/9/0 RDI 0.00 0.00 0.00 0.00 0.00 0.00
Flag	Result	c $3$ $r$ $1$ $r$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$	B QC Batch: Prep Batch Units mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	13 QC11808 h: PB10095 D g g g g g g g g g g g g g g g g g g	Date Analyzed: Date Prepared: ilution 13 13 13 13 13 13 13	6/9/0 6/9/0 6/9/0 RDI 0.00 0.00 0.00 0.00 0.00 0.00 0.00
	Flag 172763 TPH DRO JJ Flag Flag 172763 TPH GRO CG	FlagResult210.389220.538172763 - SB5-9 0606TPH DRO JJAnalytical Me Preparation MFlagResultFlagResult224172763 - SB5-9 0606TPH GRO CGAnalytical M PreparationFlagResult224	FlagResultUnits21 $0.389$ mg/Kg22 $0.538$ mg/Kg22 $0.538$ mg/KgTPH DROAnalytical Method:Mod.JJPreparation Method:3550FlagResultImage: Second s	FlagResultUnitsDilution210.389mg/Kg13220.538mg/Kg13172763 - SB5-9060601-45TPH DROAnalytical Method:Mod. 8015BQC BackJJPreparation Method:3550 BPrep HFlagResultUnits<50	FlagResultUnitsDilutionAmount210.389mg/Kg130.10220.538mg/Kg130.10220.538mg/Kg130.10220.538mg/Kg130.10172763 - SB5-9 060601-45TPH DROAnalytical Method:Mod. 8015BQC Batch:QC1178JJPreparation Method:3550 BPrep Batch:PB1007FlagResultUnitsDilutionSpikeFlagResultUnitsDilution224mg/Kg172763 - SB5-9 060601-45TPH GROAnalytical Method:8015BQC Batch:QC11806CGPreparation Method:5035Prep Batch:PB10094FlagResultUnitsDilution	Flag       Result       Units       Dilution       Amount       Recovery         21       0.389       mg/Kg       13       0.10       30         22       0.538       mg/Kg       13       0.10       30         22       0.538       mg/Kg       13       0.10       41         TPT 0.30         172763 - SB5-9       060601-45         TPH DRO       Analytical Method:       Mod. 8015B       QC Batch:       QC11786       Date Analyzed:         JJ       Preparation Method:       3550 B       Prep Batch:       PB10079       Date Prepared:         Flag       Result       Units       Dilution

 <sup>&</sup>lt;sup>21</sup>Surrogate recovery outside normal limits due to matrix difficulties.
 <sup>22</sup>Surrogate recovery outside normal limits due to matrix difficulties.
 <sup>23</sup>Surrogate recovery outside normal limits due to matrix difficulties.
 <sup>24</sup>Surrogate recovery outside normal limits due to matrix difficulties.

Report Da Duke/Mal	te: June 12, 2001 jamar Booster		Ore	der Numbe N	er: A01060713 /A	3	Page Numb	er: 12 of 19 N/A
Param	Flag	Result		Units	]	Dilution		RDL
DRO	****	<50		mg/Kg		1		50
Surrogate	Flag	Result	Units	Di	ilution	Spike Amount	Percent Recovery	Recovery Limits
n-Octane		232	mg/Kg	r 5	1	250	92	70 - 130
Sample: Analysis: Analyst:	<b>172764 - S</b> TPH GRO CG	<b>B5-10 0606</b> Analytical Me Preparation M	<b>01–50</b> thod: lethod:	8015B 5035	QC Batch: Prep Batch:	QC11809 PB10095	Date Analyzed: Date Prepared:	6/9/01 6/9/01
Param	Flag	Result		Units	I	Dilution		RDL
GRO		<1.3		mg/Kg		13		0.10

Report Date: June 12, 2001 Duke/Maljamar Booster			Order N	Number: A01060 N/A	Page Nu	mber: 13 of 1 N/.	
		ር					
Method I	Blank	QCBatch:	QC11786				
Param F DRO		Flag	Res	ults	Units		Reportin Limit
		·····		<50	mg/Kg		50
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recover Limits
n-Octane		<0	mg/Kg	1	250	90	70 - 13
Method I	Blank	QCBatch:	QC11805				
Param		Flag		Results	Units		Reportin Limit
Benzene				< 0.013	mg/Kg	5	0.001
Toluene				< 0.013	mg/Kg	S	0.001
Ethylbenzene				< 0.013	mg/Kg	g	0.001
M,P,U-Xylene	9			<0.013	mg/Kg	5	0.001
Iotal BIEX				< 0.013	mg/Ke	r	0.001

					Spike	$\mathbf{Percent}$	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
TFT		1.27	mg/Kg	13	0.10	97	72 - 128
4-BFB		1.12	mg/Kg	13	0.10	86	72 - 128

Method Blank

QCBatch: QC11806

				Reporting
Param	Flag	Results	Units	Limit
GRO		<1.3	mg/Kg	0.10

Method Blank QCBatch: QC11808

				Reporting
Param	$\mathbf{Flag}$	Results	Units	Limit
Benzene		<0.013	mg/Kg	0.001
Toluene		< 0.013	mg/Kg	0.001
Ethylbenzene		< 0.013	mg/Kg	0.001
M,P,O-Xylene		< 0.013	mg/Kg	0.001
Total BTEX		< 0.013	mg/Kg	0.001

Report Date: June 12, 2001 Duke/Maljamar Booster			Order 1	Order Number: A01060713 N/A			Page Number: 14 of 19 N/A		
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits		
TFT	<u>~</u>	1.28	mg/Kg	13	0.10	98	72 - 128		
4-BFB		1.17	mg/Kg	13	0.10	90	72 - 128		

Method Bla	nk	<b>QCBatch</b> :	QC11809
mound Dia	****		QUILCOU.

				Reporting
Param	$\mathbf{Flag}$	$\mathbf{Results}$	Units	Limit
GRO		< 1.3	mg/Kg	0.10

## Quality Control Report Lab Control Spikes and Duplicate Spikes

Laboratory	Control	Spikes	QCBatch:	QC11786
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	LCS	LCSD			Amount	Matrix			% Rec	RPD
Param	Result	Result	Units	Dil.	Added	Result	% Rec	RPD	Limit	Limit
DRO	245	254	mg/Kg	1	250	<50	98	3	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	$\begin{array}{c} \mathrm{LCS} \\ \mathrm{Result} \end{array}$	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
n-Octane	228	232	mg/Kg	1	250	91	92	70 - 130

Laboratory Control Spikes

QCBatch: QC11805

					Spike					
	LCS	LCSD			Amount	Matrix			% Rec	RPD
Param	Result	Result	Units	Dil.	Added	Result	$\% { m Rec}$	RPD	Limit	Limit
MTBE	1.24	1.21	mg/Kg	13	0.10	< 0.013	95	2	80 - 120	20
Benzene	1.33	1.27	mg/Kg	13	0.10	< 0.013	102	4	80 - 120	20
Toluene	1.26	1.21	mg/Kg	13	0.10	< 0.013	96	4	80 - 120	20
Ethylbenzene	1.24	1.19	mg/Kg	13	0.10	< 0.013	95	4	80 - 120	20
M,P,O-Xylene	3.74	3.59	mg/Kg	13	0.30	< 0.013	95	4	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dilution	Spike Amount	LCS % Rec	LCSD % Rec	Recovery Limits
TFT	1.25	1.23	mg/Kg	13	0.10	96	94	72 - 128
4-BFB	1.22	1.22	mg/Kg	13	0.10	93	93	72 - 128

Laboratory Control Spikes

QCBatch: QC11806

Report Duke/M	Date: June Ialjamar Bo	12, 2001 boster	•	Ore	ler Number: N/A	A01060713		Page Number		15 of 19 N/A
Param	LCS Result	LCSD Result	Units	Dil.	Spike Amount Added	Matrix Result	% Rec	RPD	% Rec Limit	RPD Limit
GRO	1.007	1.034	mg/Kg	1	1	<1.3	100	2	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spikes

QCBatch: QC11808

					Spike					
	LCS	LCSD			Amount	Matrix			$\% { m Rec}$	RPD
Param	Result	Result	Units	Dil.	Added	Result	% Rec	RPD	Limit	Limit
MTBE	1.28	1.29	mg/Kg	13	0.10	< 0.013	98	0	80 - 120	20
Benzene	1.32	1.31	mg/Kg	13	0.10	< 0.013	101	0	80 - 120	. 20
Toluene	1.32	1.31	mg/Kg	13	0.10	< 0.013	101	0	80 - 120	20
Ethylbenzene	1.28	1.28	mg/Kg	13	0.10	< 0.013	98	0	80 - 120	20
M,P,O-Xylene	3.85	3.82	mg/Kg	13	0.30	< 0.013	98	0	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Recovery
Surrogate	Result	Result	Units	Dilution	Amount	$\% { m Rec}$	% Rec	Limits
TFT	1.27	1.24	mg/Kg	13	0.10	97	95	72 - 128
4-BFB	1.26	1.24	mg/Kg	13	0.10	96	95	72 - 128

					Spike					
	LCS	LCSD			Amount	Matrix			% Rec	RPD
Param	Result	Result	Units	Dil.	Added	Result	% Rec	RPD	Limit	Limit
GRO	0.9981	1.0469	mg/Kg	1	1	0.	99	4	70 - 130	20

QC11809

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

QCBatch:

## Quality Control Report Matrix Spikes and Duplicate Spikes

Matrix Spikes QCBatch:

tch: QC11786

					Spike					
	$\mathbf{MS}$	MSD			Amount	Matrix			% Rec	RPD
Param	Result	Result	$\mathbf{Units}$	Dil.	Added	Result	% Rec	RPD	$\mathbf{Limit}$	$\operatorname{Limit}$
DRO	309	329	mg/Kg	1	250	51	103	7	70 - 130	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	${ m MS} { m Result}$	$\begin{array}{c} \mathrm{MSD} \\ \mathrm{Result} \end{array}$	Units	Dilution	Spike Amount	MS % Rec	MSD % Rec	Recovery Limits
n-Octane	215	224	mg/Kg	1	250	86	89	70 - 130

Matrix Spikes QCBatch: QC11808



Order Number: A01060713 N/A

	MS	MSD			Spike Amount	Matrix			% Rec	RPD
Param	Result	Result	Units	Dil.	Added	$\operatorname{Result}$	% Rec	$\operatorname{RPD}$	Limit	Limit
Benzene	1.26	1.25	mg/Kg	13	0.10	< 0.013	96	0	80 - 120	20
Toluene	1.28	1.27	mg/Kg	13	0.10	< 0.013	98	0	80 - 120	20
Ethylbenzene	1.2	1.2	mg/Kg	13	0.10	< 0.013	92	0	80 - 120	20
M,P,O-Xylene	3.57	3.57	mg/Kg	13	0.30	< 0.013	91	0	80 - 120	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			Spike	$\mathbf{MS}$	MSD	Recovery
Surrogate	Result	Result	Units	Dilution	Amount	% Rec	% Rec	Limits
TFT	0.966	25 0.588	mg/Kg	13	0.10	74	45	72 - 128
4-BFB	1.09	<sup>26</sup> 0.749	mg/Kg	13	0.10	83	58	72 - 128

## Quality Control Report Continuing Calibration Verification Standards

CCV (1)	Q	CBatch: C	2C11786				
			CCVs	CCVs	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	253	101	75 - 125	6/7/01
n-Octane		mg/Kg	250	224	89	75 - 125	6/7/01
CCV (2)	Q	CBatch: G	)C11786				
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	271	108	75 - 125	6/7/01
n-Octane		mg/Kg	250	226	90	75 - 125	6/7/01
CCV (3)	Q	CBatch: ຊ	QC11786				
			CCVs	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
1 010111		1	050	970	111	75 - 195	6/7/01
DRO		mg/Kg	250	219	111	10 - 120	0/1/01

QCBatch: QC11786

ICV(1)

<sup>25</sup>Surrogate recovery outside normal limits due to matrix difficulties.
 <sup>26</sup>Surrogate recovery outside normal limits due to matrix difficulties.

Report Date: June 12, 2001 Duke/Maljamar Booster			Order	Order Number: A01060713 N/A			Page Number: 17 of 19 N/A		
			CCVs	CCVs Found	CCVs Percent	Percent Recovery	Date		
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
DRO		mg/Kg	250	275	110	75 - 125	6/7/01		
n-Octane		mg/Kg	250	229	91	75 - 125	6/7/01		

# CCV (1) QCBatch: QC11805

			CCVs	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
MTBE		mg/Kg	0.10	0.106	106	85 - 115	6/9/01
Benzene		mg/Kg	0.10	0.104	104	85 - 115	6/9/01
Toluene		mg/Kg	0.10	0.106	106	85 - 115	6/9/01
Ethylbenzene		mg/Kg	0.10	0.103	103	85 - 115	6/9/01
M,P,O-Xylene		mg/Kg	0.30	0.305	101	85 - 115	6/9/01

# CCV (2)

•

QCBatch: QC11805

			CCVs	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
MTBE		mg/Kg	0.10	0.103	103	85 - 115	6/9/01
Benzene		mg/Kg	0.10	0.101	101	85 - 115	6/9/01
Toluene		mg/Kg	0.10	0.102	102	85 - 115	6/9/01
Ethylbenzene		mg/Kg	0.10	0.101	101	85 - 115	6/9/01
M,P,O-Xylene		mg/Kg	0.30	0.297	99	85 - 115	6/9/01

# ICV (1) QCBatch: QC11805

			$\mathrm{CCVs}$	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
MTBE	, TREAL	mg/Kg	0.10	0.0991	99	85 - 115	6/9/01
Benzene		mg/Kg	0.10	0.104	104	85 - 115	6/9/01
Toluene		mg/Kg	0.10	0.102	102	85 - 115	6/9/01
Ethylbenzene		mg/Kg	0.10	0.102	102	85 - 115	6/9/01
M,P,O-Xylene		mg/Kg	0.30	0.309	103	85 - 115	6/9/01

CCV (1	)	QCBatch:	QC11806				
			CCVs	CCVs	$\mathrm{CCVs}$	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	$\mathbf{Units}$	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1	1.007	100	75 - 125	6/9/01

Report Date: Duke/Maljam	June 1 ar Boo	2, 2001 ster		Order N	Number: A0100 N/A	50713	Page Nur	nber: 18 of 1 N/1
CCV (2)		QCBat	ch: QC	11806				
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	U	nits	Conc.	Conc.	Recovery	Limits	Analyzeo
GRO		mį	g/Kg	1	0.9645	96	75 - 125	6/9/01
Report Date Duke/Maljar CCV (2) Param GRO ICV (1) Param GRO CCV (1) Param MTBE Benzene Toluene Ethylbenzene M,P,O-Xylen MTBE Benzene Toluene Ethylbenzene M,P,O-Xylen		QCBate	h: QC1	1806				· .
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	U	nits	Conc.	Conc.	Recovery	Limits	Analyze
GRO		m	g/Kg	1	0.9875	98	75 - 125	6/9/01
Param		Flag	Units	True Conc.	Found Conc.	Percent Recoverv	Recovery Limits	Date Analvze
MTBE		1.005	mg/Kg	0.10	0.106	106	85 - 115	6/9/01
Benzene			mg/Kg	0.10	0.11	110	85 - 115	6/9/01
Toluene			mg/Kg	0.10	0.108	108	85 - 115	6/9/01
Ethylbenzene			mg/Kg	0.10	0.102	102	85 - 115	6/9/01
M,P,O-Xylene			mg/Kg	0.30	0.305	101	85 - 115	6/9/01
CCV (2)		QCBat	ch: QC	11808				
				CCVs	CCVs	CCVs	Percent	
_				True	Found	Percent	Recovery	Date
Param		Flag	Units	Conc.	Conc.	Recovery	Limits	Analyze
MTBE			mg/Kg	0.10	0.1066	106	85 - 115	6/9/01
Benzene			mg/Kg	0.10	0.106	106	85 - 115	6/9/01
Loluene			mg/Kg	0.10	0.1032	103	85 - 115	6/9/01
Dunyidenzene			mg/Kg	0.10	0.0998	99	80 - 115 85 - 115	6/9/0L
vi,r,O-Ayiene			mg/Kg	0.30	0.2984	99	85 - 115	p/a/01

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# ICV (1) QCBatch: QC11808

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
MTBE		mg/Kg	0.10	0.0991	99	85 - 115	6/9/01
Benzene		mg/Kg	0.10	0.101	101	85 - 115	6/9/01
Toluene		mg/Kg	0.10	0.103	103	85 - 115	6/9/01
Ethylbenzene		mg/Kg	0.10	0.1	100	85 - 115	6/9/01
M,P,O-Xylene		mg/Kg	0.30	0.301	100	85 - 115	6/9/01

Report Date Duke/Maljar	:: June 1 mar Boo	2, 2001 oster	Order	Number: A010 N/A	Page Number: 19 of 19 N/A					
CCV (1)		QCBatch:	QC11809							
Param	Flag	Units	CCVs True Conc	CCVs Found Conc	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed			
GRO	1.005	mg/Kg	1	0.9726	97	75 - 125	6/9/01			
ICV (1)		QCBatch:	QC11809							
			CCVs True	CCVs Found	$\operatorname{CCVs}$	Percent Recovery	Date			
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed			
GRO		mg/Kg	1	0.9645	96	75 - 125	6/9/01			

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	S	E C		<u> </u>	REPORT TO				E TO	
	Ň	es (			COMPANY:	RITTER ENVIRONMENTAL		COMPAI	NY: SAME	
RITTER ENVIRON	/ VMENTAL.A	& GEOTECHNIC	-AL SERVICES		ADDRESS:	2900 N. BIG SPRING		ADDRES	SS:	
25 Bus: (915) 682-7404 • (	915) 570-RECS	ng, Midland, Texas 7 i • Metro: (915) 570-6	79705 5007 • Fax: (915) 68:	12-7440	CITY/STATI	E/ZIP: MIDLAND, TX 79705		CITY/ST	ATE/ZIP	
				• • • • • •	ATTENTION	V: MITCH RITTER PHONE:	570-6007	ATTENT	ION:	PHONE:
PROJECT/SI	ITE NAI	VIE:			REMARKS:				TURNAR	OUND TIME
DUKE/MAL	JAMAR.	BOOSTER	¥		ANALYZED	BY:		NORM	IAL DRUSH	D OTHER
									REQUESTED ANALYSIS	
DATE	TIME	COMP	GRAB	SAN	ÆLE #	SAMPLE DESCRIPTION	MATRIX	L CON #	BTEX (8020) GRO MOD 8015	REMARKS
6/6/01	11:33	172763	>	SB5-9	060601-45	Soil @ 45'	Soil		>	
6/6/01	11:45	21.4	>	SB5-10	060601-50	Soil @ 50'	Soil	1	>	
REVIEWE	D BY									
RELINQU	SHED	BY	DA	TE/TIM	E RECE	IVED BY: DA	ATE / TIMI	E SAM	PLE CONDITIO	DN DATE//TIME
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E 1 OF 2					PHONE:	VD TIME	D OTHER		REMARKS													DATE / TIME		6/13/01		330 40	
PAG	NVOICE TO	COMPANY: SAME	ADDRESS:	CITY/STATE/ZIP	ATTENTION:	TURN AROUN	NORMAL DRUSH	REQUESTED ANALYSIS	BTEX (8020) GRO MOD 8015 DRO MOD 8015			1 2. 2	1 1.1 1	1 1. 1 1	1 1. 1. 1.	1 (. ( (	1 2 2 7	1 2. 5 5	1 5. 5 5			SAMPLE CONDITION			)	6-21 /43 540 5	
DY			7		570-6007	<u>-34</u>			MATRIX # C	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		TE / TIME	61 11:40		100:01 10-		
CHAIN OF CUSTO		RITTER ENVIRONMENTAL	2900 N. BIG SPRING	i/ZIP: MIDLAND, TX 79705	: MITCH RITTER PHONE:		BY: TRACE ANALYSIS		SAMPLE DESCRIPTION	Soil @ 10'	Soil @ 40'	Soil @ 50'	Soil @ 90'	Soil @ 30'	Soil @ 50'	Soil @ 10'	Soil @ 40'	Soil @ 50'	Soil @ 5'	Soil @ 50'		IVED BY: DA	the c/c		ch. Nurseur 6.7	o the	•
	REPORT TO	COMPANY:	ADDRESS:	-740 CITY/STATE	ATTENTION	REMARKS:	ANALYZED		SAMPLE #	SB1-2 060501-10	SB1-8 060501-40	SB1-10 060501-50	SB1-17 060501-90	SB2-6 060501-30	SB2-10 060501-50	SB3-2 060601-10	SB3-8 060601-40	SB3-10 060601-50	SB4-1 060601-5	SB4-10 060601-50	<b>J BNR</b>	re/Time RECE	01 16:40	, , ,	$\sum_{i=1}^{n}$	060601.doc	
			AL SERVICES.	)705 007 • Fax: (915) 683					GRAB	2	2	>	7	2	2	>	>	>	2	>	R	DA'	6/9			Custody Page 1	
	E	35 Se	GEOTECHNIC	, Midland, Texas 7. Metro: (915) 570-60		E: Salar	BOOSTER		COMP	172752	53	54	SS	56	57	58	Sa	00	10	62	DMR	3Ү	$\mathbf{A}$			ter\Word\Chain of	
		Hec.	KONMENTAL &	2900 N. Big Spring 4 • (915) 570-RECS •		SITE NAM	ALJAMAR		TIME	9:10	9:40	10:06	10:50	14:38	15:37	7:15	8:02	8:29	9:04	10:22	ED BY:	I GHHED I				ike\Maljamar Boos	
			RUTTER ENVIR	Bus: (915) 682-740		<b>PROJECT</b>	DUKE/M/		DATE	6/5/01	6/4/01	6/5/01	6/5/01	6/5/01	6/5/01	6/6/01	6/6/01	6/6/01	6/6/01	6/6/01	REVIEW	RELINO	1.	)		S:\Current Projects\Du	

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