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REPORTS

DATE:

2001

MAXIM TECHNOLOGIES INC

10601 Lomas NE
Suite 106
Albuquerque, NM 87112

505-237-8440

IR-345

June 7, 2001

Mr. John E. Skopak
Conoco Inc.
600 North Dairy Ashford
Houston, TX 77079-1175

RE: Results of Lockhart A27 Subsurface Investigation
Eunice, New Mexico
Maxim Project 1690012.100

Dear John:

On March 19, 2001, Maxim Technologies, Inc. (Maxim) performed a subsurface investigation at the Conoco Inc. (Conoco) Lockhart A27 lease. This subsurface investigation was based upon the work plan submitted to Conoco on March 6, 2001. The focus of the investigation was to determine the vertical and horizontal extent of any potential impacts to soil or groundwater underlying and surrounding the identified area of concern.

Background

The Lockhart A27 lease is located north of Eunice, New Mexico, at the end of Continental Road (Figure 1). The site primarily consists of the Lockhart A27 – Unit C Tank Battery, numerous surface flow lines into the tank battery, and the identified area of concern (historic oil field operation) immediately north of the tank battery and partially underlying the flow line corridor (Figure 2). Maxim is currently preparing a *Potential Exposure Pathway Assessment* (PEPA) for the Lockhart A27 facility. The purpose of the PEPA is to identify site-specific exposure pathways and potential receptors with the overall aim of protection of human health and the environment.

A site-specific Health and Safety Plan (HASP) was developed and reviewed by all involved individuals prior to initiating any activities related to the subsurface investigation. The HASP identified potential hazards associated with boring installation and sampling, and response plans if an accident occurred during the investigation. No health or safety incidents occurred during the field implementation of the work plan.

New Mexico One-Call was contacted three days prior to field activities to clear the site for buried utilities and pipelines.

Subsurface Investigation

Maxim supervised the installation of eight soil borings within and surrounding the area of concern (Figure 2) on March 19, 2001. The original work plan specified that ten borings would be needed to adequately define the extent of impacts, however, following the placement of eight borings, it was determined in the field that sufficient information had been obtained to characterize the area of concern. Borings SB-1 through SB-5 were perimeter borings installed to provide stratigraphic control, the lateral extent of the area of concern, and to ascertain if any impacts from the area of concern extended to groundwater. Borings SB-6 and SB-7 were drilled through the center of the area of concern to characterize the thickness of impacted material, as well as the vertical impacts, if any, underlying the area of concern. SB-8 was placed north of the area of concern to characterize an isolated extension of the same area (Figure 2). Access issues, specifically the sandy nature of the soil and the location of surface flow lines, hampered placement of a boring on the southeast perimeter of the area of concern.

Perimeter Borings

The perimeter borings were placed at the interface between visually impacted soils within the area of concern and native soils. Samples for analysis were collected from each boring at or near the surface, as well as the bottom of each boring. The borings were continuously sampled, and headspace analyses performed with a photo-ionization detector (PID) at two-foot intervals during drilling. Soil boring logs, containing lithologic descriptions and PID readings are contained in Attachment 1. Shallow soil samples (less than six feet below ground surface [bgs]) were collected by hand-augering. A hand auger was used as a safety precaution against undetected buried lines. From six feet bgs to total depths, soil samples were collected with split-spoons. All sampling equipment was cleaned between each sampling interval.

Samples were collected for analysis from near or at surface, as well as at the total depth of each perimeter boring. Borings were terminated at the point where PID readings were at or near background, and where any impacts derived from the base of the area of concern would have been encountered. The samples were analyzed for total petroleum hydrocarbons (TPH), both diesel range organics (DRO) and gasoline range organics (GRO), USEPA Method 8015. The results of the analyses for SB-1 through SB-5 are presented in Table 1. TPH impacts were observed in surficial soil samples from borings SB-3 and SB-4. The impacts were primarily in the long-chain hydrocarbon range or DRO analyses. In both cases, the surficial impacts naturally mitigated with depth as indicated by both analytical and PID data (Table 1 and Attachment 1).

Lithologies encountered within the perimeter borings consisted primarily of reddish-brown to tan, intermixed silty sandstones and sandy siltstones with inter-layered, minor clays. The siltstones and sandstones were loosely compacted to tightly cemented with

calcium carbonate. Intermittent caliche horizons, ranging in thickness from several inches to one-foot, were encountered from approximately 5 feet bgs to total depth of the borings (Figures 3 and 4).

Area of Concern Borings

Borings SB-6 and SB-7 were installed directly through the area of concern. Samples of the material of concern were collected for analysis as well as samples from the total depth of both borings. The borings were continuously sampled, and headspace analyses performed with a PID at two-foot intervals during drilling. Soil boring logs, containing lithologic descriptions and PID readings are contained in Attachment 1. Samples from both borings were collected with split spoons from surface to total depth.

In soil boring SB-6, black, silty to sandy, hydrocarbon-saturated material was encountered from surface to eleven feet bgs (Figures 3 and 4). The material emitted a strong hydrocarbon odor, and free oil was noted on the surface of the split spoon sampler. PID readings ranged from 235 parts per million (PPM) to 512 ppm. Background PID readings for the site ranged from 0 ppm to 5 ppm. Underlying this material was tan to gray-green, clayey to sandy siltstone to a depth of twenty-one feet bgs. PID readings within this zone ranged from 476 ppm to 110 ppm, decreasing with depth. At twenty-one feet bgs, the drill rig was unable to push the split spoon due to refusal. Therefore, air rotary methods were used to drill through an extremely competent, tan, indurated siltstone that extended from twenty-one to twenty-three feet bgs. A split spoon sample was collected from the twenty-three to twenty-five foot bgs interval. The material was white, competent sandstone, exhibiting a PID reading of 3.2 ppm, within the range of background. This sample was retained for analysis. No moisture indicative of groundwater was noted at the total depth of the boring. The boring was immediately grouted to the surface with bentonite to prohibit any downward migration of the material, in the area of concern.

Soil boring SB-7 was installed thirty-six feet to the west of SB-7, and went directly through the area of concern (Figure 3). As in SB-6, the material consisted of black silty to sandy material, emitted a strong hydrocarbon odor, presented evidence of free oil, extended from surface to nine feet bgs, and PID readings ranged from 595 ppm to 1,400 ppm. Underlying this material was a tan to brown to gray-green sandy siltstone to a depth of 20 feet bgs. Within this zone, PID readings ranged from 1,311 ppm to 306 ppm, decreasing with depth. At twenty feet bgs, refusal was encountered, and air rotary methods were used to a depth of twenty-three feet bgs, at which point split spoon sampling could again be employed. A split spoon sample was collected from the twenty-three to twenty-five foot bgs interval. The material was a white siltstone with evidence of caliche development, and exhibited a PID reading of 1.9 ppm, within the range of background. This sample was retained for analysis. Similar to soil boring SB-6, no moisture indicative of groundwater was noted at the total depth of the boring. The boring

was immediately grouted to the surface with bentonite to prohibit any downward migration of the material in the area of concern.

Composite samples of the material in the area of concern were collected from the two to six-foot bgs interval in SB-6, and the four to eight-foot bgs interval in SB-7. These samples were submitted for analysis of Synthetic Precipitation Leaching Procedure (SPLP) for both volatile organics and semi-volatile organics using USEPA Method 1311/1312/6010B/8270C. The SPLP analysis will indicate which constituents of concern could be leaching out of the material under natural circumstances, and in turn potentially impact groundwater if a direct pathway to groundwater exists.

Area of Concern Extension Boring

Soil boring SB-8 was installed to a depth of twelve feet bgs within an apparent extension of the main area of concern (Figure 2). The boring was continuously sampled, and headspace analyses performed with a PID at two-foot intervals during drilling. The soil boring log, containing lithologic descriptions and PID readings is contained in Attachment 1. PID readings ranged from 1.8 to 3.6 ppm, all within background concentration levels. Lithologies encountered in this boring consisted of red-brown to gray silty sandstones and sandy siltstones. Two samples, one from the surface and one from total depth were collected from this boring for analysis. Sampling results are contained in Table 1.

Figures 3 and 4 present two cross-sections through the area of concern. One section is oriented west to east (A-A') and the other south to north (B-B'). The sections depict the general morphology of the material in the area of concern and it's relationship to the surrounding and underlying stratigraphy.

Results

Table 1 presents the results of the analytical data. The laboratory reports are presented in Attachment 2. The perimeter borings, SB-1, SB-2, SB-3, SB-4 and SB-5, were analyzed for both TPH, both GRO and DRO. The surface sample from SB-3 exhibited both DRO and GRO concentrations of 6,500 mg/kg and 28 mg/kg, respectively. However, no TPH was detected in the sample collected at depth (18-20 feet bgs), and PID readings were well within background concentration levels. The surface sample from soil boring SB-4 exhibited a DRO concentration of 150 mg/kg. However, no TPH was detected at depth in this boring (12-14 feet bgs), and PID readings were within background concentration levels. The field and laboratory results obtained from the perimeter borings, indicate that lateral migration of constituents derived from leaching of materials within the area of concern has not occurred.

Boring SB-8, installed in the northern extension of the area of concern exhibited DRO concentrations of 57 mg/kg in the 0-2 foot bgs interval and 190 mg/kg in the 10-12 foot

interval. PID readings collected during the installation of this boring were all within background concentration levels (1.8 to 3.6 ppm). The DRO fraction of TPH is representative of mostly long-chain TPH, which are less mobile and less toxic than the short-chain TPH (represented by the GRO fraction).

Composite samples of the material in the area of concern from both borings SB-6 and SB-7 were analyzed using the SPLP to determine if the material produces leachate that could adversely impact groundwater. Benzene leachate concentrations of 54 micrograms per liter (ug/L) and 68 ug/L were reported for soil samples collected from borings SB-6 and SB-7, respectively. The SB-6 sample also generated 16 ug/L of 3-methylphenol within the leachate. The elevated field PID readings collected within the native material underlying the area of concern, to a depth of 20 feet bgs, potentially indicate that the leachate generated from the material in the area of concern has impacted the native material. However, the tightly cemented sandstone (and intermittent caliche zones) underlying this area at a depth of 21 to 23 feet bgs acts as a confining layer to limit downward migration of generated leachate. Field PID measurements in sandstones underlying the confining layer were within background concentration levels.

Analytical results from the sandstones underlying the confining zone exhibited TPH fractionation concentrations of non-detect in SB-7 and a DRO concentration of 220 micrograms per kilogram (mg/kg) in SB-6. It is likely that this DRO concentration is the result of cross-contamination from material derived from "up-hole." If this impact were derived from the downward migration of leachate containing benzene, concentrations of the TPH GRO fraction and elevated PID readings would most likely have been detected in the 23 to 25-foot interval, as opposed to the long-chain, less mobile DRO fraction. Benzene is a simple, very mobile hydrocarbon compound.

Conclusions

Groundwater was not encountered during the subsurface investigation of the Lockhart A27 site. Due to the presence of the tightly cemented, two to three-foot thick sandstone confining zone underlying the area of concern at a depth of 20 to 21 feet bgs, it is unlikely that groundwater impacts have occurred from the presence of the area of concern.

Based upon the preceding data presentation, including field observations, it would appear that the area of concern originated as a result of historical leaks (over time) to the surface from the numerous flow lines overlying the area of concern and feeding into the Lockhart A27 tank battery. This conclusion is primarily supported by the fact that although the area of concern is saturated with hydrocarbons, the lithologic composition and structure of the material parallels the native material observed in the perimeter borings. Also, the downward decrease in PID readings from the base of the area of concern to the confining indurated sandstone supports this conclusion.

Recommendations

Following the New Mexico Oil Conservation Division (OCD) guidance presented in *Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993*, the material within the area of concern would be classified as *highly contaminated/saturated soil* as opposed to *unsaturated contaminated soils*. Therefore, the site is not eligible for the development of risk-based cleanup standards per OCD guidance. The guidance states that *highly contaminated/saturated soil* should be remediated insitu or excavated to the maximum extent practicable. To that end, the most sensible abatement approach for the Lockhart A27 site would be insitu stabilization of the material in the area of concern, followed by installation of a clay cap (capable of supporting vegetation) to prevent infiltration of precipitation to the stabilized material. This approach would be protective of human health and the environment. The following section addresses in-situ stabilization.

Insitu Stabilization

In order to approach this scenario economically, a nearby source of inert material such as fly ash, or kiln dust, would need to be located. To determine the feasibility of this approach, samples of the material in the area of concern would be collected and submitted for treatability studies. The treatability studies would be performed with the inert material to determine what mixing ratios would best stabilize the entire area of concern so that leachate generation would not be an issue. Initial calculations indicate that the volume of material to stabilize ranges from 3,000 to possibly a high of 6,000 cubic yards.

Once a suitable inert material is identified, mixing ratios determined, and stakeholder approval gained, the inert material would be hauled to the site and mixed in place with a trackhoe or comparable equipment. A compacted clay cap would be installed over the area to prevent exposure of the stabilized material to the environment as well as prohibit precipitation infiltration into the stabilized material. The clay cover would be capable of supporting native vegetation.

This remediation approach would not require any future monitoring of environmental media, would be protective of human health and the environment, and should be agreeable to stakeholders. A detailed work plan for this approach will be prepared once Conoco concurrence of this mitigation effort is received.

If you have any questions or comments, please do not hesitate to call me at 505-237-8440.

Sincerely,
MAXIM TECHNOLOGIES, INC.

Clyde L. Yancey, P.G.
Senior Project Manager

Attachments:
Table 1
Figure 1
Figure 2
Figure 3
Figure 4
Attachment 1
Attachment 2

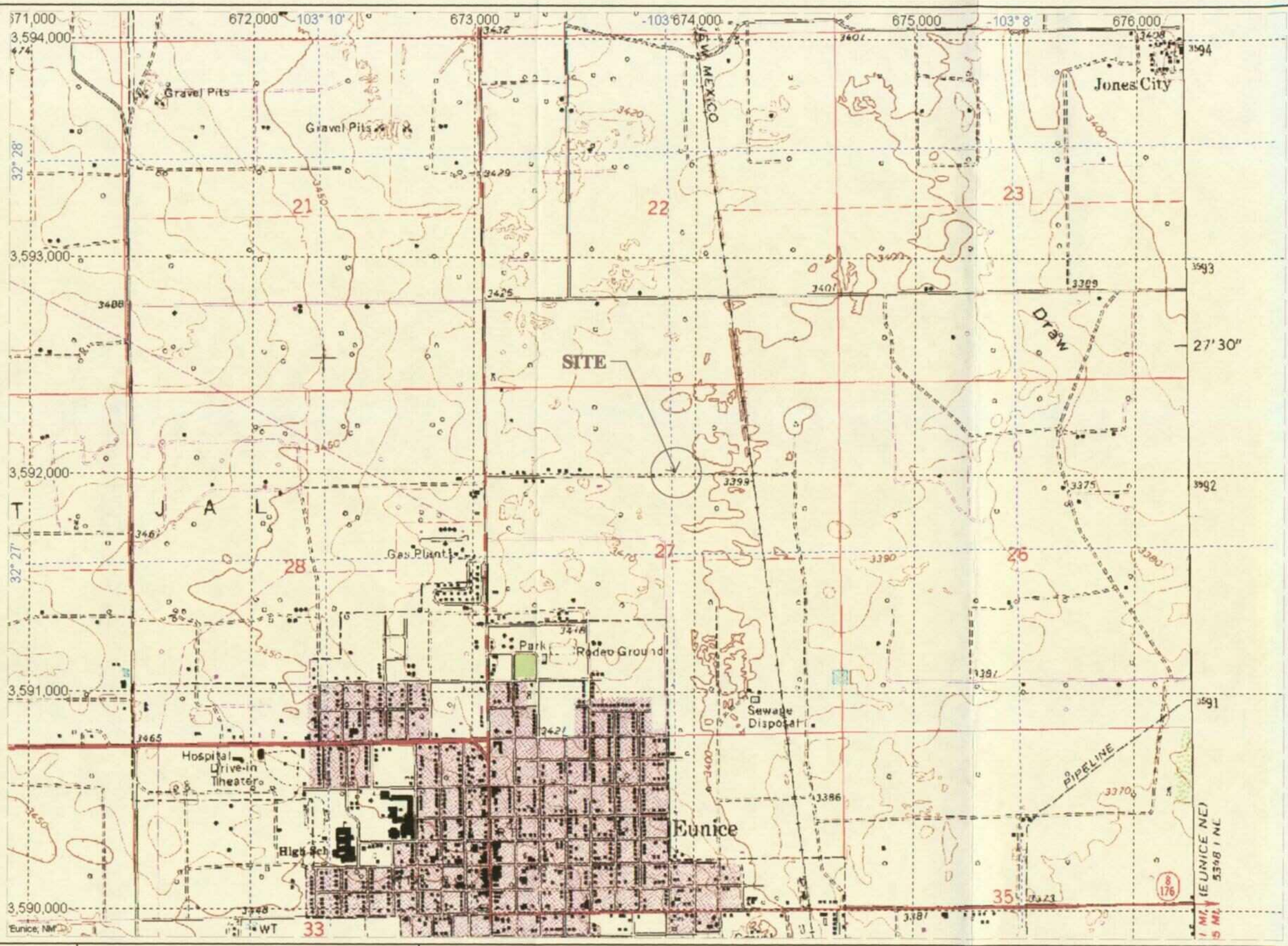
TABLE 1
Soil Boring Analytical Results
Lockhart A27 Site Investigation, Eunice, New Mexico

	Total Pet. Hydrocarb.		SPLP	
Soil Borings	DRO	GRO	Benzene	3-Methylphenol
	mg/kg	mg/kg	ug/L	ug/L
SB-1				
0-2'	ND	ND	NA	NA
14-16'	ND	ND	NA	NA
SB-2				
0-2'	ND	ND	NA	NA
14-16'	ND	ND	NA	NA
SB-3				
2-4'	6500	28	NA	NA
18-20	ND	ND	NA	NA
SB-4				
0-2'	150	ND	NA	NA
12-14'	ND	ND	NA	NA
SB-5				
0-2'	62	ND	NA	NA
12-14'	ND	ND	NA	NA
SB-6				
2-6'	NA	NA	54	16
23-25'	220	ND	NA	NA
SB-7				
4-8'	NA	NA	68	ND
23-25'	ND	ND	NA	NA
SB-8				
0-2'	57	ND	NA	NA
10-12'	190	ND	NA	NA

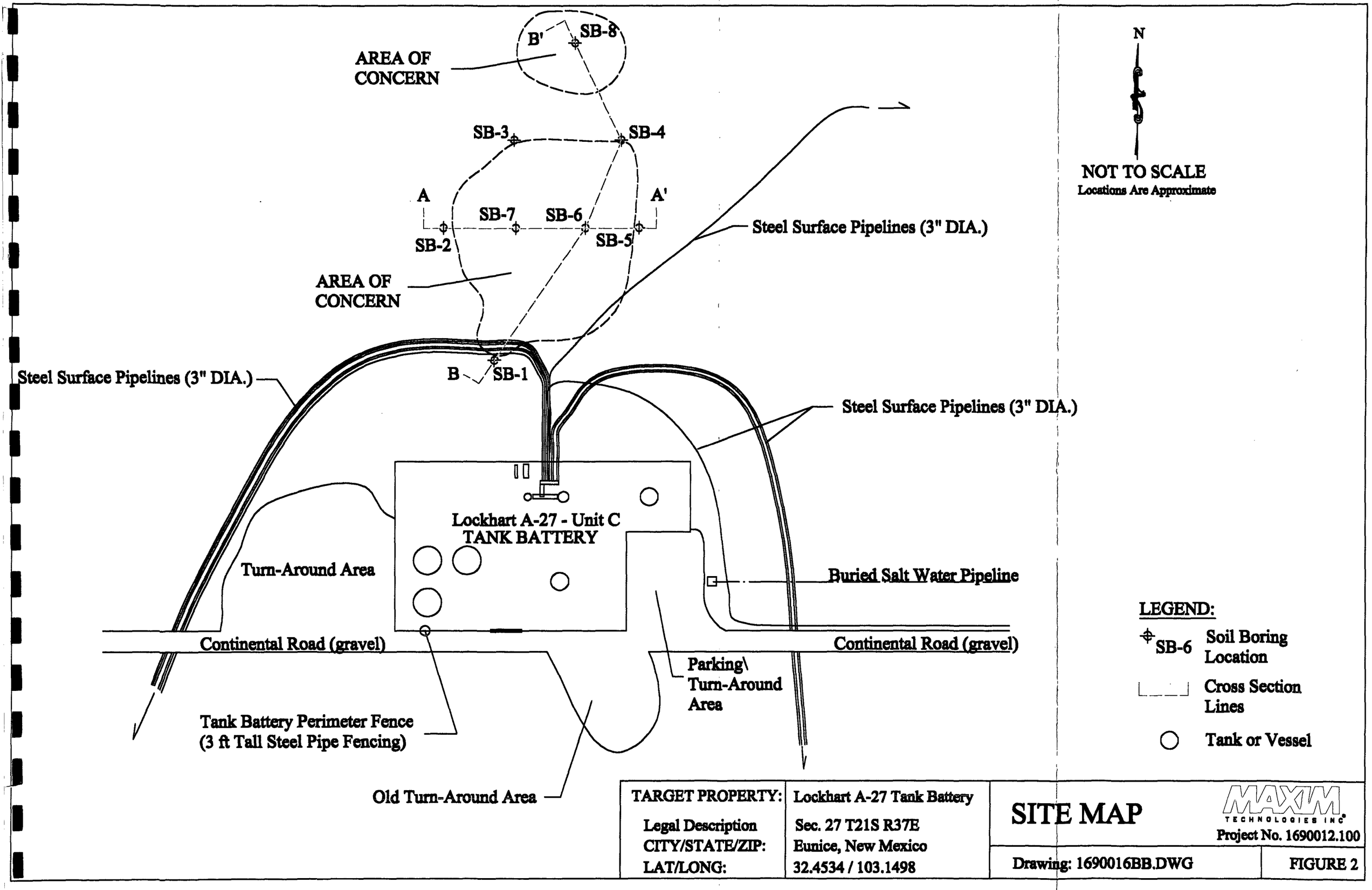
ND - Not Detected
NA - Not Analyzed

N

NOT TO SCALE



TARGET PROPERTY:	Lockhart A-27 Tank Battery	VICINITY MAP	MAXIM TECHNOLOGIES INC Project No. 1690012.100
Legal Description	Sec. 27 T21S R37E		
CITY/STATE/ZIP:	Eunice, New Mexico		
LAT/LONG:	32.4534 / 103.1498	Drawing: 1690016BB.DWG	FIGURE 1



TARGET PROPERTY:	Lockhart A-27 Tank Battery
Legal Description	Sec. 27 T21S R37E
CITY/STATE/ZIP:	Eunice, New Mexico
LAT/LONG:	32.4534 / 103.1498

SITE MAP

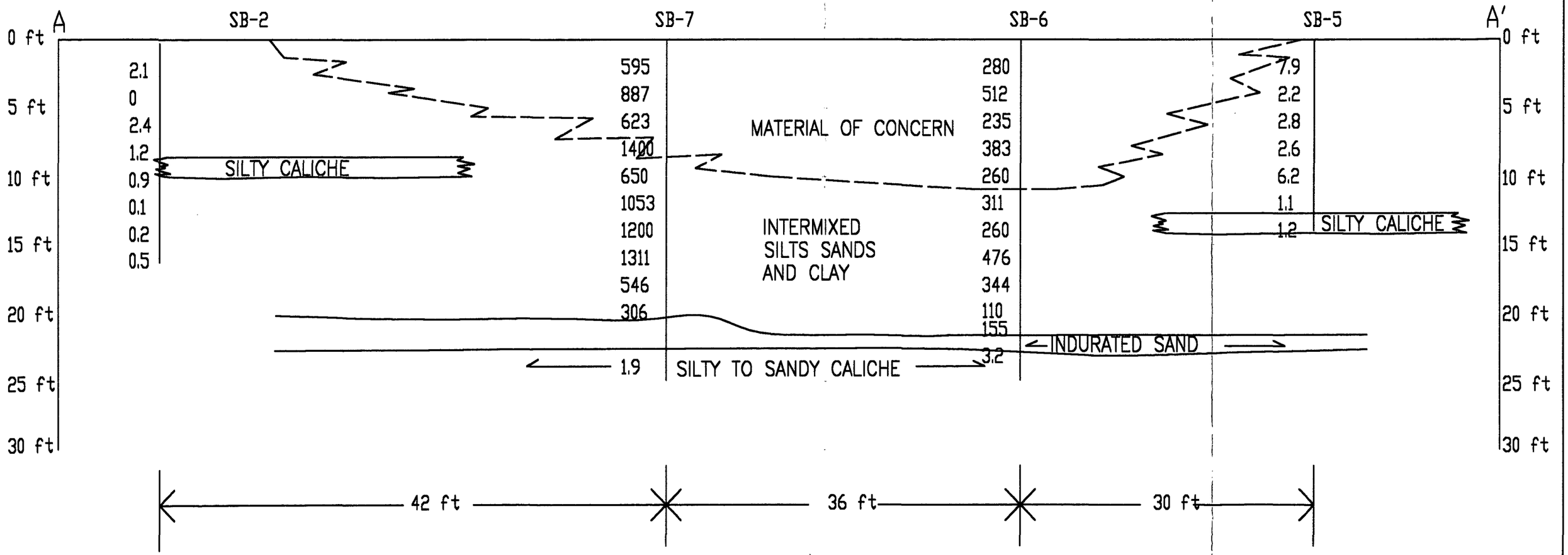
MAXIM TECHNOLOGIES INC

Project No. 1690012.100

Drawing: 1690016BB.DWG

FIGURE 2

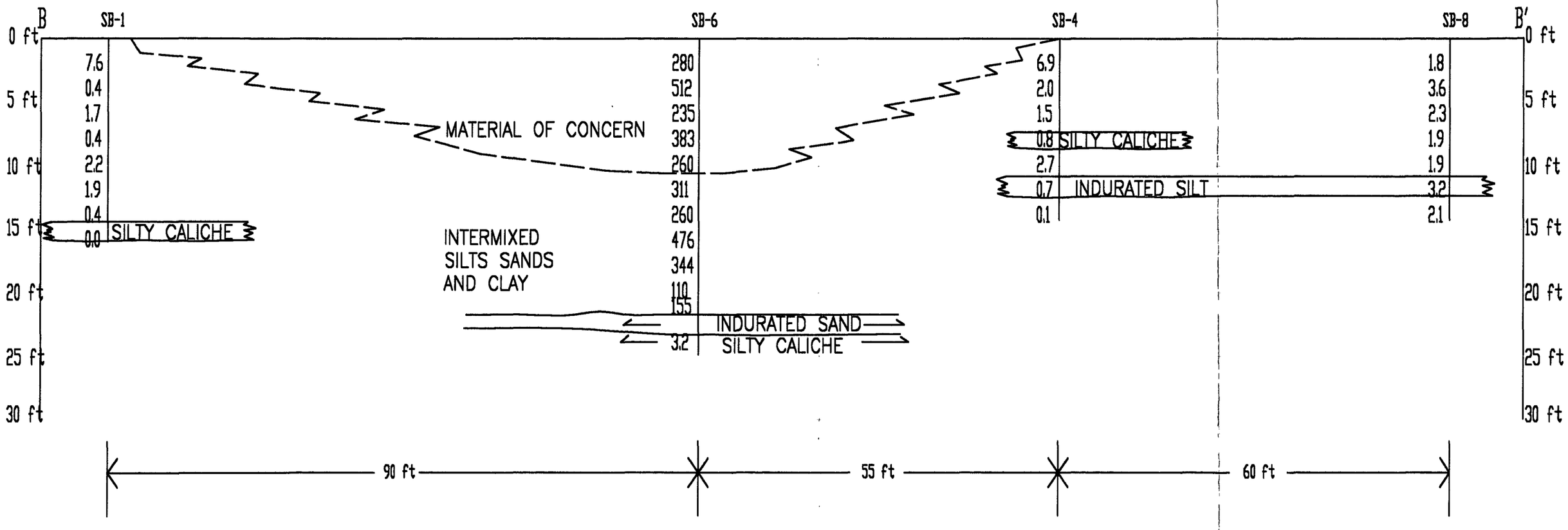
CROSS SECTION A -- A'



CONOCO INC. – LOCKHART A-27 TANK BATTERY
CROSS SECTION A -- A'

1690016	MAXIM TECHNOLOGIES, INC.	FIGURE 3

CROSS SECTION B -- B'



CONOCO INC. – LOCKHART A-27 TANK BATERY CROSS SECTION B -- B'		
1690016	MAXIM TECHNOLOGIES, INC.	FIGURE 4

PROJECT NAME: Lockhart A-27 Tank Battery

LOCATION:

DRILL TYPE: Ingersoll-Rand

DRILLED BY: HARRISON & COOPER, INC.

LOGGED BY: Clyde Yancey

REMARKS: ND=Non Detect
BGS=Below Ground Surface

MONITORING WELL NO. SB-1

ELEVATION: TOP OF BORING (MSL): (ft)

GROUNDWATER ELEVATION (MSL): Dry (ft)

BORE HOLE DIAMETER: 4 3/4 (in)

DATE: HOLE STARTED: 2/19/01

COMPLETED: 2/19/01

NS=No Sample

ELEVATION (MSL) - ft	SAMPLE INTERVAL	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	SAMPLE TO LAB	TIME	% RECOVERY	FID RESULT (ppm)
0.0		SAND, red to brown	SP	Hand-Auger	Y	800		7.6
		Silty SAND, red to brown	SM	Hand-Auger				0.4
5.0		Silty SAND, red to brown	SM	Hand-Auger				1.7
		Silty SAND, red to brown	SM	PUSHED				0.4
		Silty SAND, red to brown	SM	PUSHED				2.2
10.0		Sandy SILT, red to brown	ML	PUSHED				1.9
		SILT interbedded with clay, red to brown with green to gray clay layers	ML	PUSHED				0.4
15.0		SILT with caliche and interbedded with clay, red	ML	PUSHED	Y	850		ND

16.0

Split Spoon Sample (ASTM D1586)

1690016-100 | MAXIM TECHNOLOGIES INC® | EXPLORATORY BORING LOG | SB-1

PROJECT NAME: Lockhart A-27 Tank Battery

LOCATION:

DRILL TYPE: Ingersoll-Rand

DRILLED BY: HARRISON & COOPER, INC.

LOGGED BY: Clyde Yancey

REMARKS: ND=Non Detect
BGS=Below Ground Surface

MONITORING WELL NO. SB-2

ELEVATION: TOP OF BORING (MSL): (ft)

GROUNDWATER ELEVATION (MSL): Dry (ft)

BORE HOLE DIAMETER: 4 3/4 (in)

DATE: HOLE STARTED: 2/19/01

COMPLETED: 2/19/01

NS=No Sample

ELEVATION (MSL) - ft	SAMPLE INTERVAL	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	SAMPLE TO LAB	TIME	% RECOVERY	FID RESULT (ppm)
0.0		Silty SAND, red to brown, no odor	SM	Hand-Auger	Y	1020		2.1
		Silty SAND, red to brown, no odor	SM	Hand-Auger				ND
5.0		Silty SAND, tan	SM	Hand-Auger				2.4
		SAND, red to brown	SP	PUSHED				1.2
		SAND with caliche, tan	SP	PUSHED				0.98
10.0		Sandy SILT, tan	ML	PUSHED				0.1
		Silty SAND, white, fine - grained	SM	PUSHED				0.2
15.0		Silty SAND, mottled white to tan, fine - grained	SM	PUSHED	Y	1110		0.5

16.0

Split Spoon Sample (ASTM D1586)

1690016-100 | MAXIM TECHNOLOGIES INC® | EXPLORATORY BORING LOG | SB-2

PROJECT NAME: Lockhart A-27 Tank Battery

LOCATION:

DRILL TYPE: Ingersoll-Rand

DRILLED BY: HARRISON & COOPER, INC.

LOGGED BY: Clyde Yancey

REMARKS: ND=Non Detect
BGS=Below Ground Surface

MONITORING WELL NO. SB-3

ELEVATION: TOP OF BORING (MSL): (ft)

GROUNDWATER ELEVATION (MSL): Dry (ft)

BORE HOLE DIAMETER: 4 3/4 (in)

DATE: HOLE STARTED: 2/19/01

COMPLETED: 2/19/01

NS=No Sample

ELEVATION (MSL) - ft	SAMPLE INTERVAL	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	SAMPLE TO LAB	TIME	% RECOVERY	FID RESULT (ppm)
0.0		SAND, dark brown to tan, odor	SP	Hand-Auger		1115		13.9
		Silty SAND, dark brown, some oil present	SM	Hand-Auger	Y			71.0
5.0		SAND wtih caliche, reddish tan	SP	Hand-Auger				34.0
		Silty SAND, reddish tan	SM	PUSHED				11.2
		Sandy SILT, reddish tan	ML	PUSHED				7.5
10.0		Sandy SILT, light green to gray	ML	PUSHED				4.3
		Sandy SILT with interbedded clay, light green to gray and brown	ML	PUSHED				25.2
15.0		Silty SAND, tan, clean	SM	PUSHED				5.3
		SILT with caliche from 17.5 to 18.0 ft, tan	ML	PUSHED				5.2
		SILT with caliche, tanish white	ML	PUSHED	Y	1205		2.3
20.0								

20.0 — Split Spoon Sample (ASTM D1586)

1690016-100 | MAXIM TECHNOLOGIES INC® | **EXPLORATORY BORING LOG** | **SB-3**

PROJECT NAME: Lockhart A-27 Tank Battery

LOCATION:

DRILL TYPE: Ingersoll-Rand

DRILLED BY: HARRISON & COOPER, INC.

LOGGED BY: Clyde Yancey

REMARKS: ND=Non Detect
BGS=Below Ground Surface

MONITORING WELL NO. SB-4

ELEVATION: TOP OF BORING (MSL): (ft)

GROUNDWATER ELEVATION (MSL): Dry (ft)

BORE HOLE DIAMETER: 4 3/4 (in)

DATE: HOLE STARTED: 2/19/01

COMPLETED: 2/19/01

NS=No Sample

ELEVATION (MSL) - ft	SAMPLE INTERVAL	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	SAMPLE TO LAB	TIME	% RECOVERY	FID RESULT (ppm)
0.0		Silty SAND, dark brown	SM	Hand-Auger	Y	1220		6.9
		Silty SAND, dark brown	SM					
		SILT with caliche, white	ML	Hand-Auger				2.0
5.0		Silty SAND, tan	SM	Hand-Auger				1.5
		Silty SAND, tan	SM					
		SILT with caliche	SM	PUSHED				0.8
		Sandy SILT, dark brown	ML	PUSHED				2.7
10.0		Sandy SILT, dark tan, indurated	ML	PUSHED				0.7
		Silty SAND, white, fine - grained	SM	PUSHED	Y	1230		0.1

PROJECT NAME: Lockhart A-27 Tank Battery

MONITORING WELL NO. SB-5

LOCATION:

DRILL TYPE: Ingersoll-Rand

ELEVATION: TOP OF BORING (MSL): (ft)

GROUNDWATER ELEVATION (MSL): Dry (ft)

DRILLED BY: HARRISON & COOPER, INC.

BORE HOLE DIAMETER: 4 3/4 (in)

LOGGED BY: Clyde Yancey

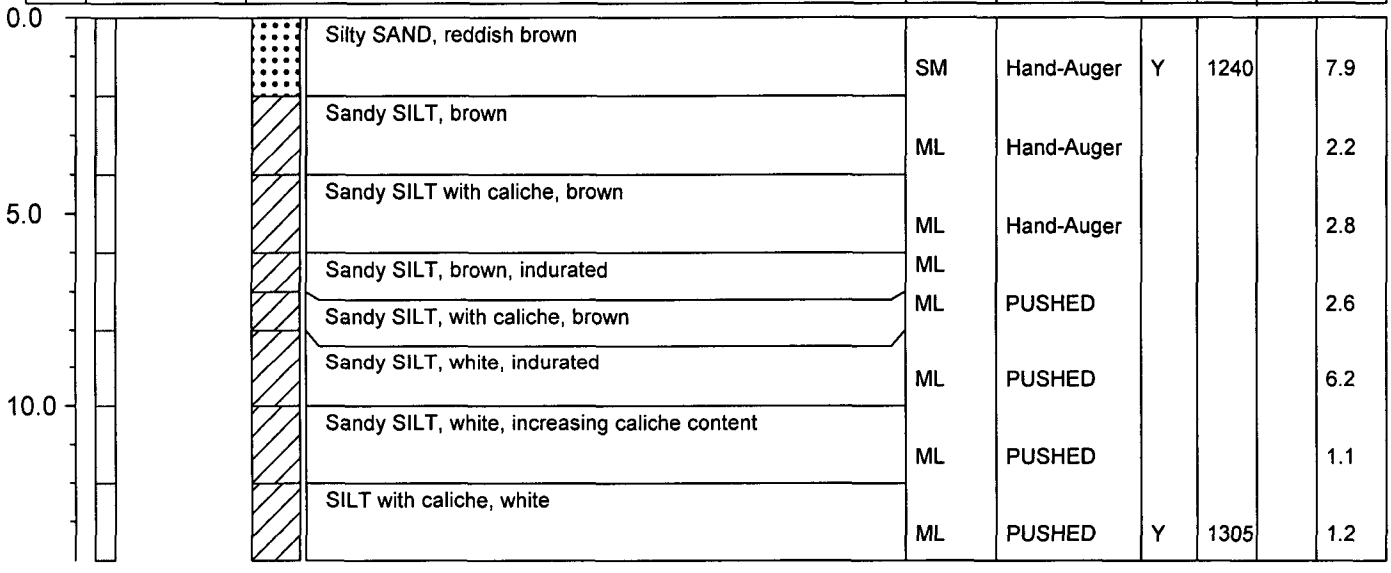
DATE: HOLE STARTED: 2/19/01

COMPLETED: 2/19/01

REMARKS: ND=Non Detect

BGS=Below Ground Surface

NS=No Sample



ELEVATION (MSL) - ft	SAMPLE INTERVAL	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	SAMPLE TO LAB	TIME	% RECOVERY	FID RESULT (ppm)
0.0		Silty SAND, reddish brown	SM	Hand-Auger	Y	1240		7.9
		Sandy SILT, brown	ML	Hand-Auger				2.2
5.0		Sandy SILT with caliche, brown	ML	Hand-Auger				2.8
		Sandy SILT, brown, indurated	ML					
		Sandy SILT, with caliche, brown	ML	PUSHED				2.6
		Sandy SILT, white, indurated	ML	PUSHED				6.2
10.0		Sandy SILT, white, increasing caliche content	ML	PUSHED				1.1
		SILT with caliche, white	ML	PUSHED	Y	1305		1.2

PROJECT NAME: Lockhart A-27 Tank Battery

LOCATION:

DRILL TYPE: Ingersoll-Rand

DRILLED BY: HARRISON & COOPER, INC.

LOGGED BY: Clyde Yancey

REMARKS: ND=Non Detect
BGS=Below Ground Surface

MONITORING WELL NO. SB-6

ELEVATION: TOP OF BORING (MSL): (ft)

GROUNDWATER ELEVATION (MSL): Dry (ft)

BORE HOLE DIAMETER: 4 3/4 (in)

DATE: HOLE STARTED: 2/19/01

COMPLETED: 2/19/01

NS=No Sample

ELEVATION (MSL) - ft	SAMPLE INTERVAL	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	SAMPLE TO LAB	TIME	% RECOVERY	FID RESULT (ppm)
0.0		Silty SAND intermixed with hydrocarbon saturation	SM	PUSHED		1310		280.0
		Silty SAND intermixed with hydrocarbon saturation	SM	PUSHED	Y			512.0
5.0		Silty SAND intermixed with hydrocarbon saturation	SM	PUSHED	Y			235.0
		Silty SAND intermixed with hydrocarbon saturation	SM	PUSHED				383.0
		Silty SAND intermixed with hydrocarbon saturation	SM	PUSHED				260.0
10.0		Silty SAND intermixed with hydrocarbon saturation	ML	PUSHED				311.0
		Clayey SILT, tan						
		Sandy SILT, light green	ML	PUSHED				260.0
15.0		Clayey SILT, gray to green	ML	PUSHED				476.0
		Clayey SILT, gray to green	ML	PUSHED				344.0
		Clayey SILT, gray to green	ML	PUSHED				110.0
20.0		SILT, tan, very hard, indurated	ML	PUSHED				155.0
		SILT, tan, very hard, indurated	ML					
		SILT with sand, white, very hard, indurated						
25.0		SAND, white, indurated	SP	PUSHED	Y	1415		3.2

25.0

Split Spoon Sample (ASTM D1586)

1690016-100 | MAXIM TECHNOLOGIES INC® | EXPLORATORY BORING LOG | SB-6

PROJECT NAME: Lockhart A-27 Tank Battery

LOCATION:

DRILL TYPE: Ingersoll-Rand

DRILLED BY: HARRISON & COOPER, INC.

LOGGED BY: Clyde Yancey

REMARKS: ND=Non Detect
BGS=Below Ground Surface

MONITORING WELL NO. SB-7

ELEVATION: TOP OF BORING (MSL): (ft)

GROUNDWATER ELEVATION (MSL): Dry (ft)

BORE HOLE DIAMETER: 4 3/4 (in)

DATE: HOLE STARTED: 2/19/01
COMPLETED: 2/19/01

NS=No Sample

ELEVATION (MSL) - ft	SAMPLE INTERVAL	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	SAMPLE TO LAB	TIME	% RECOVERY	FID RESULT (ppm)
0.0		Silty SAND intermixed with hydrocarbon saturation	SM	PUSHED		1420		595.0
		Silty SAND intermixed with hydrocarbon saturation	SM	PUSHED				887.0
5.0		Silty SAND intermixed with hydrocarbon saturation	SM	PUSHED	Y			623.0
		Silty SAND intermixed with hydrocarbon saturation	SM	PUSHED	Y			1400.0
		Silty SAND intermixed with hydrocarbon saturation	SM					
		Clay, brown to green	SM	PUSHED				650.0
10.0		Sandy SILT, brown	ML	PUSHED				1053.0
		Sandy SILT, tan	ML	PUSHED				1200.0
15.0		Sandy SILT, tan	ML	PUSHED				1311.0
		Sandy SILT, tan	ML	PUSHED				546.0
		SILT, gray to green	ML	PUSHED				306.0
20.0		SAND, hard	SP					
		SILT with caliche, white	ML	PUSHED	Y	1515		1.9
25.0								

25.0

Split Spoon Sample (ASTM D1586)

1690016-100 | MAXIM TECHNOLOGIES INC® | EXPLORATORY BORING LOG | SB-7

PROJECT NAME: Lockhart A-27 Tank Battery

LOCATION:

DRILL TYPE: Ingersoll-Rand

DRILLED BY: HARRISON & COOPER, INC.

LOGGED BY: Clyde Yancey

REMARKS: ND=Non Detect
BGS=Below Ground Surface

MONITORING WELL NO. SB-8

ELEVATION: TOP OF BORING (MSL): (ft)

GROUNDWATER ELEVATION (MSL): Dry (ft)

BORE HOLE DIAMETER: 4 3/4 (in)

DATE: HOLE STARTED: 2/19/01
COMPLETED: 2/19/01

NS=No Sample

ELEVATION (MSL) - ft	SAMPLE INTERVAL	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	SAMPLE TO LAB	TIME	% RECOVERY	FID RESULT (ppm)
0.0		Silty SAND, red to brown	SM	PUSHED	Y	1520		1.8
		Silty SAND, red to brown	SM					
		Sandy SILT, gray	ML	PUSHED				3.6
5.0		Sandy SILT, gray	ML	PUSHED				2.3
		Sandy SILT, gray to dark brown	ML	PUSHED				1.9
		Sandy SILT, dark brown to grayish green, indurated	ML	PUSHED				3.2
10.0		SILT, greenish gray to tan	ML	PUSHED	Y	1600		2.1

12.0

Split Spoon Sample (ASTM D1586)

1690016-100 | MAXIM TECHNOLOGIES INC® | EXPLORATORY BORING LOG | SB-8

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SERVICES

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4955 Yarrow Street
Arvada, CO 80002-4517

Tel: 303 736 0100
Fax: 303 431 7171
www.stl-inc.com

ANALYTICAL REPORT

Lockhart A27/#EPO1003

Subsurface Investigation

Lot #: D1C240122

Mr. Clyde Yancey

Maxim Technologies
10601 Lomas NE, Suite 106
Albuquerque, NM 87112

Severn Trent Services

Donna Rydberg
Project Manager

April 9, 2001

Table Of Contents

Standard Deliverables

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Standard Deliverables *The Cover Letter and the Report Cover page are considered integral parts of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.*	62

Project Narrative
D1C240122

The following report contains the analytical results for sixteen soil samples submitted to STL Denver on March 23, 2001, according to documented sample acceptance procedures.

The results included in this report have been reviewed for compliance with STL's Quality Assurance/Quality Control (QA/QC) plan.

Dilution factors and footnotes have been provided to assist in the interpretation of the results. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at concentrations above the linear calibration curve, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

STL utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the analytical methods summary page in accordance with the methods indicated. A summary of quality control parameters is provided below.

The test results shown in this report meet all requirements of NELAC. Any exceptions are noted below.

Supplemental QC Information

Sample Arrival and Receipt

The samples presented in this report were received at the laboratory at a temperature of 5.4°C. All sample containers were received in an acceptable condition.

GC/MS Volatiles – Method 8260B SPLP

No anomalies were observed.

GC/MS Semi-Volatiles – Method 8270C SPLP

The method required MS/MSD could not be performed for this batch due to insufficient sample volume. A duplicate LCS (LCSD) was analyzed to provide some evidence of batch precision. The surrogate compound Phenol-d5 and spike compound 4-chloro-3-methylphenol were slightly elevated in the LCSD. All spike recoveries were within control limits in the LCS. Data was accepted.

GC Volatile Organics – Method 8015B GRO

No anomalies were observed.

GC Semi-Volatile Organics – Method 8015B DRO

Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at concentrations above the linear calibration curve, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

The surrogate recovery for samples D1C240122-005, -007 and –015 were diluted below reportable limits. The LCS, Method Blank and Matrix Spike samples were all within control limits.

EXECUTIVE SUMMARY - Detection Highlights

D1C240122

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
SB-3 2-4' 03/21/01 11:15 005				
Diesel Range Organics	6500	40	mg/kg	SW846 8015B
Gasoline Range Organics	28	3.0	mg/kg	SW846 8015B
SB-4 0-2' 03/21/01 12:10 007				
Diesel Range Organics	150	40	mg/kg	SW846 8015B
SB-5 0-2' 03/21/01 12:40 009				
Diesel Range Organics	62	4.0	mg/kg	SW846 8015B
SB-6 2-6' 03/21/01 13:10 011				
3-Methylphenol & 4-Methylphenol	16	10	ug/L	SW846 8270C
Benzene	54	5.0	ug/L	SW846 8260B
SB-6 23-25' 03/21/01 13:10 012				
Diesel Range Organics	220	4.0	mg/kg	SW846 8015B
SB-7 4-8' 03/21/01 14:20 013				
Benzene	68	5.0	ug/L	SW846 8260B
SB-8 0-2' 03/21/01 15:20 015				
Diesel Range Organics	57	20	mg/kg	SW846 8015B
SB-8 10-12' 03/21/01 15:20 016				
Diesel Range Organics	190	4.0	mg/kg	SW846 8015B

METHODS SUMMARY

D1C240122

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Extractable Petroleum Hydrocarbons	SW846 8015B	SW846 3550B
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 1312/3520
Volatile Organics by GC/MS	SW846 8260B	
Volatile Petroleum Hydrocarbons	SW846 8015B	SW846 5035

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D1C240122

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8015B	Erin Wobrock	000373
SW846 8015B	Justin M. Chappell	001380
SW846 8015B	Michael Klasner	009124
SW846 8260B	Mike Armstrong	002544
SW846 8270C	Joann Peterson	011674

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D1C240122

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
DXXC7	001	SB-1 0-2'	03/21/01	08:50
DXXD1	002	SB-1 14-16'	03/21/01	08:50
DXXD4	003	SB-2 0-2'	03/21/01	10:20
DXXD7	004	SB-2 14-16'	03/21/01	10:20
DXXD9	005	SB-3 2-4'	03/21/01	11:15
DXXED	006	SB-3 18-20'	03/21/01	11:15
DXXEE	007	SB-4 0-2'	03/21/01	12:10
DXXEG	008	SB-4 12-14'	03/21/01	12:10
DXXEH	009	SB-5 0-2'	03/21/01	12:40
DXXEJ	010	SB-5 12-14'	03/21/01	12:40
DXXEK	011	SB-6 2-6'	03/21/01	13:10
DXXEM	012	SB-6 23-25'	03/21/01	13:10
DXXEN	013	SB-7 4-8'	03/21/01	14:20
DXXEQ	014	SB-7 23-25'	03/21/01	14:20
DXXET	015	SB-8 0-2'	03/21/01	15:20
DXXEW	016	SB-8 10-12'	03/21/01	15:20

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

CONOCO INC.

Client Sample ID: SB-1 0-2'

GC Volatiles

Lot-Sample #...: D1C240122-001	**Work Order #...:** DXXC71AC	**Matrix.....:** SOLID	
Date Sampled...: 03/21/01 08:50	**Date Received..:** 03/23/01		
Prep Date.....: 03/28/01	**Analysis Date..:** 03/29/01		
Prep Batch #...: 1092291	**Analysis Time..:** 10:13		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	93	(79 - 124)

CONOCO INC.

Client Sample ID: SB-1 0-2'

GC Semivolatiles

Lot-Sample #...: D1C240122-001 Work Order #...: DXXC71AA Matrix.....: SOLID
Date Sampled...: 03/21/01 08:50 Date Received..: 03/23/01
Prep Date.....: 03/27/01 Analysis Date..: 03/28/01
Prep Batch #...: 1086207 Analysis Time..: 18:12
Dilution Factor: 1
Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	ND	4.0	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	75	(34 - 116)

CONOCO INC.

Client Sample ID: SB-1 14-16'

GC Volatiles

Lot-Sample #...: D1C240122-002	**Work Order #...:** DXXD11AC	**Matrix.....:** SOLID
Date Sampled...: 03/21/01 08:50	**Date Received..:** 03/23/01	
Prep Date.....: 03/28/01	**Analysis Date..:** 03/30/01	
Prep Batch #...: 1092291	**Analysis Time..:** 08:55	
Dilution Factor: 1		
	Method.....: SW846 8015B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	98	(79 - 124)

CONOCO INC.

Client Sample ID: SB-1 14-16'

GC Semivolatiles

Lot-Sample #...: D1C240122-002	**Work Order #...:** DXXD11AA	**Matrix.....:** SOLID	
Date Sampled...: 03/21/01 08:50	**Date Received..:** 03/23/01		
Prep Date.....: 03/27/01	**Analysis Date..:** 03/28/01		
Prep Batch #...: 1086207	**Analysis Time..:** 18:43		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	ND	4.0	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	73	(34 - 116)

CONOCO INC.

Client Sample ID: SB-2 0-2'

GC Volatiles

Lot-Sample #...: D1C240122-003	**Work Order #...:** DXXD41AC		**Matrix.....:** SOLID
Date Sampled...: 03/21/01 10:20	**Date Received..:** 03/23/01		
Prep Date.....: 03/28/01	**Analysis Date..:** 03/29/01		
Prep Batch #...: 1092291	**Analysis Time..:** 11:42		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	90	(79 - 124)

CONOCO INC.

Client Sample ID: SB-2 0-2'

GC Semivolatiles

Lot-Sample #...: D1C240122-003	**Work Order #...:** DXXD41AA	**Matrix.....:** SOLID	
Date Sampled...: 03/21/01 10:20	**Date Received..:** 03/23/01		
Prep Date.....: 03/27/01	**Analysis Date..:** 03/28/01		
Prep Batch #...: 1086207	**Analysis Time..:** 19:13		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	ND	4.0	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	70	(34 - 116)

CONOCO INC.

Client Sample ID: SB-2 14-16'

GC Volatiles

Lot-Sample #...: D1C240122-004	**Work Order #...:** DXXD71AC		**Matrix.....:** SOLID
Date Sampled...: 03/21/01 10:20	**Date Received..:** 03/23/01		
Prep Date.....: 03/28/01	**Analysis Date..:** 03/30/01		
Prep Batch #...: 1092291	**Analysis Time..:** 09:31		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	98	(79 - 124)

CONOCO INC.

Client Sample ID: SB-2 14-16'

GC Semivolatiles

Lot-Sample #...: D1C240122-004	Work Order #...: DXXD71AA	Matrix.....: SOLID	
Date Sampled...: 03/21/01 10:20	Date Received..: 03/23/01		
Prep Date.....: 03/27/01	Analysis Date..: 03/28/01		
Prep Batch #...: 1086207	Analysis Time..: 19:43		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	ND	4.0	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	83	(34 - 116)

CONOCO INC.

Client Sample ID: SB-3 2-4'

GC Volatiles

Lot-Sample #...: D1C240122-005	Work Order #...: DXXD91AC		Matrix.....: SOLID
Date Sampled...: 03/21/01 11:15	Date Received..: 03/23/01		
Prep Date.....: 03/28/01	Analysis Date..: 04/04/01		
Prep Batch #...: 1092291	Analysis Time..: 20:14		
Dilution Factor: 2.5			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	28	3.0	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	80	(79 - 124)

CONOCO INC.

Client Sample ID: SB-3 2-4'

GC Semivolatiles

Lot-Sample #...:	D1C240122-005	Work Order #...:	DXXD91AA	Matrix.....:	SOLID
Date Sampled...:	03/21/01 11:15	Date Received..:	03/23/01		
Prep Date.....:	03/27/01	Analysis Date..:	03/28/01		
Prep Batch #...:	1086207	Analysis Time..:	21:14		
Dilution Factor:	10				
		Method.....:	SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	**6500**	**40**	**mg/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	0.0 DIL,NC	(34 - 116)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

NC The recovery and/or RPD were not calculated.

CONOCO INC.

Client Sample ID: SB-3 18-20'

GC Volatiles

Lot-Sample #...: D1C240122-006	Work Order #...: DXXED1AC		Matrix.....: SOLID
Date Sampled...: 03/21/01 11:15	Date Received..: 03/23/01		
Prep Date.....: 03/28/01	Analysis Date..: 03/30/01		
Prep Batch #...: 1092291	Analysis Time..: 10:43		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	91	(79 - 124)

CONOCO INC.

Client Sample ID: SB-3 18-20'

GC Semivolatiles

Lot-Sample #...: D1C240122-006	Work Order #...: DXXED1AA	Matrix.....: SOLID	
Date Sampled...: 03/21/01 11:15	Date Received..: 03/23/01		
Prep Date.....: 03/27/01	Analysis Date..: 03/28/01		
Prep Batch #...: 1086207	Analysis Time..: 21:44		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	ND	4.0	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	71	(34 - 116)

CONOCO INC.

Client Sample ID: SB-4 0-2'

GC Volatiles

Lot-Sample #...: D1C240122-007 Work Order #...: DXXEE1AC Matrix.....: SOLID
Date Sampled...: 03/21/01 12:10 Date Received..: 03/23/01
Prep Date.....: 03/28/01 Analysis Date..: 03/29/01
Prep Batch #...: 1092291 Analysis Time..: 14:41
Dilution Factor: 1
Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	81	(79 - 124)

CONOCO INC.

Client Sample ID: SB-4 0-2'

GC Semivolatiles

Lot-Sample #...: D1C240122-007	**Work Order #...:** DXXEE1AA		**Matrix.....:** SOLID
Date Sampled...: 03/21/01 12:10	**Date Received..:** 03/23/01		
Prep Date.....: 03/27/01	**Analysis Date..:** 03/28/01		
Prep Batch #...: 1086207	**Analysis Time..:** 22:14		
Dilution Factor: 10			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	**150**	**40**	**mg/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	0.0 DIL,NC	(34 - 116)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

NC The recovery and/or RPD were not calculated.

CONOCO INC.

Client Sample ID: SB-4 12-14'

GC Volatiles

Lot-Sample #...: D1C240122-008	**Work Order #...:** DXXEG1AC	**Matrix.....:** SOLID	
Date Sampled...: 03/21/01 12:10	**Date Received..:** 03/23/01		
Prep Date.....: 03/28/01	**Analysis Date..:** 03/29/01		
Prep Batch #...: 1092291	**Analysis Time..:** 15:26		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	79	(79 - 124)

CONOCO INC.

Client Sample ID: SB-4 12-14'

GC Semivolatiles

Lot-Sample #...: D1C240122-008 Work Order #...: DXXEG1AA Matrix.....: SOLID
Date Sampled...: 03/21/01 12:10 Date Received..: 03/23/01
Prep Date.....: 03/27/01 Analysis Date..: 03/28/01
Prep Batch #...: 1086207 Analysis Time..: 22:44
Dilution Factor: 1
Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	ND	4.0	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	77	(34 - 116)

CONOCO INC.

Client Sample ID: SB-5 0-2'

GC Volatiles

Lot-Sample #...: D1C240122-009 Work Order #...: DXXEH1AC Matrix.....: SOLID
Date Sampled...: 03/21/01 12:40 Date Received..: 03/23/01
Prep Date.....: 03/28/01 Analysis Date..: 04/04/01
Prep Batch #...: 1092291 Analysis Time..: 20:50
Dilution Factor: 1
Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	85	(79 - 124)

CONOCO INC.

Client Sample ID: SB-5 0-2'

GC Semivolatiles

Lot-Sample #...: D1C240122-009 Work Order #...: DXXEH1AA Matrix.....: SOLID
Date Sampled...: 03/21/01 12:40 Date Received..: 03/23/01
Prep Date.....: 03/27/01 Analysis Date..: 03/28/01
Prep Batch #...: 1086207 Analysis Time..: 23:15
Dilution Factor: 1
Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	62	4.0	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	82	(34 - 116)

CONOCO INC.

Client Sample ID: SB-5 12-14'

GC Volatiles

Lot-Sample #...: D1C240122-010	Work Order #...: DXXEJ1AC	Matrix.....: SOLID
Date Sampled...: 03/21/01 12:40	Date Received..: 03/23/01	
Prep Date.....: 03/28/01	Analysis Date..: 03/30/01	
Prep Batch #...: 1092291	Analysis Time..: 11:54	
Dilution Factor: 1		
	Method.....: SW846 8015B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	97	(79 - 124)

CONOCO INC.

Client Sample ID: SB-5 12-14'

GC Semivolatiles

Lot-Sample #...: D1C240122-010	**Work Order #...:** DXXEJ1AA	**Matrix.....:** SOLID	
Date Sampled...: 03/21/01 12:40	**Date Received..:** 03/23/01		
Prep Date.....: 03/27/01	**Analysis Date..:** 03/28/01		
Prep Batch #...: 1086207	**Analysis Time..:** 23:45		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	ND	4.0	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	80	(34 - 116)

CONOCO INC.

Client Sample ID: SB-6 2-6'

SPLP GC/MS Volatiles

Lot-Sample #...:	D1C240122-011	**Work Order #...:**	DXXEK1AA	**Matrix.....:**	SOLID
Date Sampled...:	03/21/01 13:10	**Date Received..:**	03/23/01		
Leach Date.....:	03/26/01	**Prep Date.....:**	04/05/01	**Analysis Date..:**	04/05/01
Leach Batch #..:	P108604	**Prep Batch #...:**	1095476	**Analysis Time..:**	14:03
Dilution Factor:	1				
		Method.....:	SW846 8260B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	**54**	**5.0**	**ug/L**
2-Butanone	ND	20	ug/L
Carbon tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
Tetrachloroethene	ND	5.0	ug/L
Trichloroethene	ND	5.0	ug/L
Vinyl chloride	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	89	(82 - 122)
1,2-Dichloroethane-d4	87	(78 - 123)
4-Bromofluorobenzene	99	(80 - 120)
Toluene-d8	101	(82 - 122)

NOTE(S):

Analysis performed in accordance with USEPA Synthetic Precipitation Leaching Procedure Method 1312

CONOCO INC.

Client Sample ID: SB-6 2-6'

SPLP GC/MS Semivolatiles

Lot-Sample #...: D1C240122-011	**Work Order #...:** DXXEK1AC	**Matrix.....:** SOLID
Date Sampled...: 03/21/01 13:10	**Date Received..:** 03/23/01	
Leach Date.....: 03/26/01	**Prep Date.....:** 03/28/01	**Analysis Date..:** 04/02/01
Leach Batch #..: P108605	**Prep Batch #...:** 1087198	**Analysis Time..:** 13:54
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dichlorobenzene	ND	10	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
3-Methylphenol & 4-Methylphenol	**16**	**10**	**ug/L**
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Pyridine	ND	20	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	84	(34 - 97)
Phenol-d5	85	(39 - 90)
Nitrobenzene-d5	87	(33 - 97)
2-Fluorobiphenyl	81	(39 - 91)
2,4,6-Tribromophenol	86	(29 - 95)
Terphenyl-d14	82	(30 - 102)

NOTE(S):

Analysis performed in accordance with USEPA Synthetic Precipitation Leaching Procedure Method 1312

CONOCO INC.

Client Sample ID: SB-6 23-25'

GC Volatiles

Lot-Sample #...: D1C240122-012	**Work Order #...:** DXXEM1AC	**Matrix.....:** SOLID
Date Sampled...: 03/21/01 13:10	**Date Received..:** 03/23/01	
Prep Date.....: 03/28/01	**Analysis Date..:** 04/02/01	
Prep Batch #...: 1092291	**Analysis Time..:** 01:28	
Dilution Factor: 1		
	Method.....: SW846 8015B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	86	(79 - 124)

CONOCO INC.

Client Sample ID: SB-6 23-25'

GC Semivolatiles

Lot-Sample #...: D1C240122-012	Work Order #...: DXXEM1AA	Matrix.....: SOLID	
Date Sampled...: 03/21/01 13:10	Date Received..: 03/23/01		
Prep Date.....: 03/27/01	Analysis Date..: 03/29/01		
Prep Batch #...: 1086207	Analysis Time..: 00:15		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	**220**	**4.0**	**mg/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	62	(34 - 116)

CONOCO INC.

Client Sample ID: SB-7 4-8'

SPLP GC/MS Volatiles

Lot-Sample #...: D1C240122-013	Work Order #...: DXXEN1AA	Matrix.....: SOLID
Date Sampled...: 03/21/01 14:20	Date Received..: 03/23/01	
Leach Date.....: 03/26/01	Prep Date.....: 04/05/01	Analysis Date..: 04/05/01
Leach Batch #..: P108604	Prep Batch #...: 1095476	Analysis Time..: 15:20
Dilution Factor: 1		
	Method.....: SW846 8260B	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Benzene	**68**	**5.0**	**ug/L**
2-Butanone	ND	20	ug/L
Carbon tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
Tetrachloroethene	ND	5.0	ug/L
Trichloroethene	ND	5.0	ug/L
Vinyl chloride	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	85	(82 - 122)
1,2-Dichloroethane-d4	80	(78 - 123)
4-Bromofluorobenzene	93	(80 - 120)
Toluene-d8	102	(82 - 122)

NOTE(S):

Analysis performed in accordance with USEPA Synthetic Precipitation Leaching Procedure Method 1312

CONOCO INC.

Client Sample ID: SB-7 4-8'

SPLP GC/MS Semivolatiles

Lot-Sample #...: D1C240122-013	Work Order #...: DXXEN1AC	Matrix.....: SOLID
Date Sampled...: 03/21/01 14:20	Date Received..: 03/23/01	
Leach Date.....: 03/26/01	Prep Date.....: 03/28/01	Analysis Date..: 04/02/01
Leach Batch #..: P108605	Prep Batch #...: 1087198	Analysis Time..: 14:16
Dilution Factor: 1		
	Method.....: SW846 8270C	

PARAMETER	RESULT	REPORTING LIMIT	UNITS
1,4-Dichlorobenzene	ND	10	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
3-Methylphenol & 4-Methylphenol	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Pyridine	ND	20	ug/L
2,4,5-Trichloro-phenol	ND	10	ug/L
2,4,6-Trichloro-phenol	ND	10	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	76	(34 - 97)
Phenol-d5	76	(39 - 90)
Nitrobenzene-d5	76	(33 - 97)
2-Fluorobiphenyl	68	(39 - 91)
2,4,6-Tribromophenol	79	(29 - 95)
Terphenyl-d14	54	(30 - 102)

NOTE(S):

Analysis performed in accordance with USEPA Synthetic Precipitation Leaching Procedure Method 1312

CONOCO INC.

Client Sample ID: SB-7 23-25'

GC Volatiles

Lot-Sample #...: D1C240122-014 Work Order #...: DXXEQ1AC Matrix.....: SOLID
Date Sampled...: 03/21/01 14:20 Date Received..: 03/23/01
Prep Date.....: 03/28/01 Analysis Date..: 03/30/01
Prep Batch #...: 1092291 Analysis Time..: 12:30
Dilution Factor: 1
Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	102	(79 - 124)

CONOCO INC.

Client Sample ID: SB-7 23-25'

GC Semivolatiles

Lot-Sample #...: D1C240122-014	**Work Order #...:** DXXEQ1AA	**Matrix.....:** SOLID	
Date Sampled...: 03/21/01 14:20	**Date Received..:** 03/23/01		
Prep Date.....: 03/27/01	**Analysis Date..:** 03/29/01		
Prep Batch #...: 1086207	**Analysis Time..:** 00:45		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	ND	4.0	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	84	(34 - 116)

CONOCO INC.

Client Sample ID: SB-8 0-2'

GC Volatiles

Lot-Sample #...: D1C240122-015	**Work Order #...:** DXXET1AC	**Matrix.....:** SOLID	
Date Sampled...: 03/21/01 15:20	**Date Received..:** 03/23/01		
Prep Date.....: 03/28/01	**Analysis Date..:** 03/30/01		
Prep Batch #...: 1092291	**Analysis Time..:** 13:06		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	98	(79 - 124)

CONOCO INC.

Client Sample ID: SB-8 0-2'

GC Semivolatiles

Lot-Sample #...: D1C240122-015	Work Order #...: DXXET1AA	Matrix.....: SOLID	
Date Sampled...: 03/21/01 15:20	Date Received..: 03/23/01		
Prep Date.....: 03/27/01	Analysis Date..: 03/30/01		
Prep Batch #...: 1086207	Analysis Time..: 15:28		
Dilution Factor: 5			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	**57**	**20**	**mg/kg**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	0.0 DIL,NC	(34 - 116)

NOTE(S):

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

NC The recovery and/or RPD were not calculated.

CONOCO INC.

Client Sample ID: SB-8 10-12'

GC Volatiles

Lot-Sample #...: D1C240122-016	**Work Order #...:** DXXEW1AC		**Matrix.....:** SOLID
Date Sampled...: 03/21/01 15:20	**Date Received..:** 03/23/01		
Prep Date.....: 03/28/01	**Analysis Date..:** 03/30/01		
Prep Batch #...: 1092291	**Analysis Time..:** 14:17		
Dilution Factor: 1			
	Method.....: SW846 8015B		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Gasoline Range Organics	ND	1.2	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	96	(79 - 124)

CONOCO INC.

Client Sample ID: SB-8 10-12'

GC Semivolatiles

Lot-Sample #...: D1C240122-016 Work Order #...: DXXEW1AA Matrix.....: SOLID
Date Sampled...: 03/21/01 15:20 Date Received..: 03/23/01
Prep Date.....: 03/27/01 Analysis Date..: 03/29/01
Prep Batch #...: 1086207 Analysis Time..: 01:45
Dilution Factor: 1
Method.....: SW846 8015B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diesel Range Organics	190	4.0	mg/kg

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	85	(34 - 116)

QC DATA ASSOCIATION SUMMARY

D1C240122

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102
002	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102
003	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102
004	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102
005	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102
006	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102
007	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102
008	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102
009	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102
010	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102
011	SOLID	SW846 8260B	P108604	1095476	1095253
	SOLID	SW846 8270C	P108605	1087198	
012	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102
013	SOLID	SW846 8260B	P108604	1095476	1095253
	SOLID	SW846 8270C	P108605	1087198	
014	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102

(Continued on next page)

QC DATA ASSOCIATION SUMMARY

D1C240122

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
015	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102
016	SOLID	SW846 8015B		1086207	1086069
	SOLID	SW846 8015B		1092291	1092102

METHOD BLANK REPORT

SPLP GC/MS Volatiles

Client Lot #...: D1C240122 **Work Order #...:** DX1D11AA **Matrix.....:** SOLID
MB Lot-Sample #: D1C270000-157
Leach Date.....: 03/26/01 **Prep Date.....:** 04/05/01 **Analysis Date..:** 04/05/01
Leach Batch #..: P108604 **Prep Batch #...:** 1095476 **Analysis Time..:** 13:37
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Benzene	ND	5.0	ug/L	SW846 8260B
2-Butanone	ND	20	ug/L	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/L	SW846 8260B
Chlorobenzene	ND	5.0	ug/L	SW846 8260B
Chloroform	ND	5.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/L	SW846 8260B
Tetrachloroethene	ND	5.0	ug/L	SW846 8260B
Trichloroethene	ND	5.0	ug/L	SW846 8260B
Vinyl chloride	ND	10	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	91	(82 - 122)
1,2-Dichloroethane-d4	88	(78 - 123)
4-Bromofluorobenzene	92	(80 - 120)
Toluene-d8	99	(82 - 122)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: D1C240122 **Work Order #...:** EAGW31AC **Matrix.....:** SOLID
LCS Lot-Sample#: D1D050000-476
Prep Date.....: 04/05/01 **Analysis Date..:** 04/05/01
Prep Batch #...: 1095476 **Analysis Time..:** 12:36
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzene	**101**	**(80 - 120)**	**SW846 8260B**
Chlorobenzene	**95**	**(80 - 120)**	**SW846 8260B**
Toluene	**90**	**(77 - 117)**	**SW846 8260B**
1,1-Dichloroethene	**100**	**(80 - 123)**	**SW846 8260B**
Trichloroethene	**96**	**(84 - 124)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	85	(82 - 122)
1,2-Dichloroethane-d4	83	(78 - 123)
4-Bromofluorobenzene	92	(80 - 120)
Toluene-d8	104	(82 - 122)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: D1C240122 Work Order #...: EAGW31AC Matrix.....: SOLID
LCS Lot-Sample#: D1D050000-476
Prep Date.....: 04/05/01 Analysis Date..: 04/05/01
Prep Batch #...: 1095476 Analysis Time..: 12:36
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Benzene	**10.0**	**10.1**	**ug/L**	**101**	**SW846 8260B**
Chlorobenzene	**10.0**	**9.45**	**ug/L**	**95**	**SW846 8260B**
Toluene	**10.0**	**9.01**	**ug/L**	**90**	**SW846 8260B**
1,1-Dichloroethene	**10.0**	**10.0**	**ug/L**	**100**	**SW846 8260B**
Trichloroethene	**10.0**	**9.60**	**ug/L**	**96**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	85	(82 - 122)
1,2-Dichloroethane-d4	83	(78 - 123)
4-Bromofluorobenzene	92	(80 - 120)
Toluene-d8	104	(82 - 122)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

SPLP GC/MS Volatiles

Client Lot #...:	D1C240122	**Work Order #...:**	DXXEK1AD-MS	**Matrix.....:**	SOLID
MS Lot-Sample #:	D1C240122-011		DXXEK1AE-MSD		
Date Sampled...:	03/21/01 13:10	**Date Received..:**	03/23/01		
Leach Date.....:	03/26/01	**Prep Date.....:**	04/05/01	**Analysis Date..:**	04/05/01
Leach Batch #..:	P108604	**Prep Batch #...:**	1095476	**Analysis Time..:**	14:28
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**114**	**(80 - 120)**			**SW846 8260B**
	100	**(80 - 120)**	**6.3**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**99**	**(80 - 120)**			**SW846 8260B**
	94	**(80 - 120)**	**4.8**	**(0-20)**	**SW846 8260B**
Toluene	**91**	**(77 - 117)**			**SW846 8260B**
	89	**(77 - 117)**	**1.5**	**(0-200)**	**SW846 8260B**
1,1-Dichloroethene	**113**	**(80 - 123)**			**SW846 8260B**
	106	**(80 - 123)**	**6.2**	**(0-20)**	**SW846 8260B**
Trichloroethene	**106**	**(84 - 124)**			**SW846 8260B**
	104	**(84 - 124)**	**2.0**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	88	(82 - 122)
	85	(82 - 122)
1,2-Dichloroethane-d4	87	(78 - 123)
	83	(78 - 123)
4-Bromofluorobenzene	95	(80 - 120)
	94	(80 - 120)
Toluene-d8	103	(82 - 122)
	104	(82 - 122)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

SPLP GC/MS Volatiles

Client Lot #...:	D1C240122	Work Order #...:	DXXEK1AD-MS	Matrix.....:	SOLID
MS Lot-Sample #:	D1C240122-011		DXXEK1AE-MSD		
Date Sampled...:	03/21/01 13:10	Date Received..:	03/23/01		
Leach Date.....:	03/26/01	Prep Date.....:	04/05/01	Analysis Date..:	04/05/01
Leach Batch #..:	P108604	Prep Batch #...:	1095476	Analysis Time..:	14:28
Dilution Factor:	1				

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	**54**	**50.0**	**111**	**ug/L**	**114**		**SW846 8260B**
	54	**50.0**	**104**	**ug/L**	**100**	**6.3**	**SW846 8260B**
Chlorobenzene	**ND**	**50.0**	**49.6**	**ug/L**	**99**		**SW846 8260B**
	ND	**50.0**	**47.2**	**ug/L**	**94**	**4.8**	**SW846 8260B**
Toluene	**36**	**50.0**	**81.0**	**ug/L**	**91**		**SW846 8260B**
	36	**50.0**	**79.9**	**ug/L**	**89**	**1.5**	**SW846 8260B**
1,1-Dichloroethene	**ND**	**50.0**	**56.4**	**ug/L**	**113**		**SW846 8260B**
	ND	**50.0**	**53.0**	**ug/L**	**106**	**6.2**	**SW846 8260B**
Trichloroethene	**ND**	**50.0**	**53.2**	**ug/L**	**106**		**SW846 8260B**
	ND	**50.0**	**52.2**	**ug/L**	**104**	**2.0**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	88	(82 - 122)
	85	(82 - 122)
1,2-Dichloroethane-d4	87	(78 - 123)
	83	(78 - 123)
4-Bromofluorobenzene	95	(80 - 120)
	94	(80 - 120)
Toluene-d8	103	(82 - 122)
	104	(82 - 122)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

METHOD BLANK REPORT

SPLP GC/MS Semivolatiles

Client Lot #...: D1C240122 Work Order #...: DX1D41AA Matrix.....: SOLID
MB Lot-Sample #: D1C270000-158
Leach Date.....: 03/26/01 Prep Date.....: 03/28/01 Analysis Date..: 04/02/01
Leach Batch #..: P108605 Prep Batch #...: 1087198 Analysis Time..: 12:40
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
1,4-Dichlorobenzene	ND	10	ug/L	SW846 8270C
2,4-Dinitrotoluene	ND	10	ug/L	SW846 8270C
Hexachlorobenzene	ND	10	ug/L	SW846 8270C
Hexachlorobutadiene	ND	10	ug/L	SW846 8270C
Hexachloroethane	ND	10	ug/L	SW846 8270C
2-Methylphenol	ND	10	ug/L	SW846 8270C
Nitrobenzene	ND	10	ug/L	SW846 8270C
Pentachlorophenol	ND	50	ug/L	SW846 8270C
Pyridine	ND	20	ug/L	SW846 8270C
2,4,5-Trichloro-phenol	ND	10	ug/L	SW846 8270C
2,4,6-Trichloro-phenol	ND	10	ug/L	SW846 8270C
3-Methylphenol & 4-Methylphenol	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	85	(34 - 97)
Phenol-d5	88	(39 - 90)
Nitrobenzene-d5	89	(33 - 97)
2-Fluorobiphenyl	73	(39 - 91)
2,4,6-Tribromophenol	71	(29 - 95)
Terphenyl-d14	77	(30 - 102)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D1C240122 Work Order #...: DX2VP1AA-LCS Matrix.....: SOLID
LCS Lot-Sample#: D1C280000-198 DX2VP1AC-LCSD
Prep Date.....: 03/28/01 Analysis Date..: 04/02/01
Prep Batch #...: 1087198 Analysis Time..: 13:03
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Acenaphthene	70	(49 - 93)			SW846 8270C
	84	(49 - 93)	18	(0-40)	SW846 8270C
4-Chloro-3-methylphenol	80	(52 - 93)			SW846 8270C
	94 a	(52 - 93)	16	(0-40)	SW846 8270C
2-Chlorophenol	77	(51 - 91)			SW846 8270C
	89	(51 - 91)	15	(0-36)	SW846 8270C
4-Nitrophenol	82	(29 - 115)			SW846 8270C
	104	(29 - 115)	24	(0-40)	SW846 8270C
N-Nitrosodi-n-propyl-amine	75	(46 - 86)			SW846 8270C
	86	(46 - 86)	14	(0-40)	SW846 8270C
Phenol	76	(50 - 90)			SW846 8270C
	90	(50 - 90)	16	(0-37)	SW846 8270C
Pyrene	76	(48 - 97)			SW846 8270C
	85	(48 - 97)	11	(0-40)	SW846 8270C
1,2,4-Trichloro-benzene	58	(49 - 90)			SW846 8270C
	79	(49 - 90)	31	(0-40)	SW846 8270C
1,4-Dichlorobenzene	56	(46 - 86)			SW846 8270C
	76	(46 - 86)	31	(0-40)	SW846 8270C
2,4-Dinitrotoluene	87	(53 - 105)			SW846 8270C
	103	(53 - 105)	17	(0-40)	SW846 8270C
Pentachlorophenol	59	(27 - 97)			SW846 8270C
	75	(27 - 97)	23	(0-40)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	76	(34 - 97)
	90	(34 - 97)
Phenol-d5	79	(39 - 90)
	92 *	(39 - 90)
Nitrobenzene-d5	81	(33 - 97)
	94	(33 - 97)
2-Fluorobiphenyl	72	(39 - 91)
	81	(39 - 91)
2,4,6-Tribromophenol	74	(29 - 95)
	86	(29 - 95)
Terphenyl-d14	78	(30 - 102)
	86	(30 - 102)

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D1C240122 Work Order #...: DX2VP1AA-LCS Matrix.....: SOLID
LCS Lot-Sample#: D1C280000-198 DX2VP1AC-LCSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

* Surrogate recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D1C240122 Work Order #...: DX2VP1AA-LCS Matrix.....: SOLID
LCS Lot-Sample#: D1C280000-198 DX2VP1AC-LCSD
Prep Date.....: 03/28/01 Analysis Date..: 04/02/01
Prep Batch #...: 1087198 Analysis Time..: 13:03
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Acenaphthene	100	70.3	ug/L	70		SW846 8270C
	100	84.5	ug/L	84	18	SW846 8270C
4-Chloro-3-methylphenol	150	120	ug/L	80		SW846 8270C
	150	141 a	ug/L	94	16	SW846 8270C
2-Chlorophenol	150	115	ug/L	77		SW846 8270C
	150	134	ug/L	89	15	SW846 8270C
4-Nitrophenol	150	122	ug/L	82		SW846 8270C
	150	156	ug/L	104	24	SW846 8270C
N-Nitrosodi-n-propyl-amine	100	75.0	ug/L	75		SW846 8270C
	100	86.2	ug/L	86	14	SW846 8270C
Phenol	150	115	ug/L	76		SW846 8270C
	150	135	ug/L	90	16	SW846 8270C
Pyrene	100	75.6	ug/L	76		SW846 8270C
	100	84.5	ug/L	85	11	SW846 8270C
1,2,4-Trichloro-benzene	100	57.8	ug/L	58		SW846 8270C
	100	78.8	ug/L	79	31	SW846 8270C
1,4-Dichlorobenzene	100	56.2	ug/L	56		SW846 8270C
	100	76.4	ug/L	76	31	SW846 8270C
2,4-Dinitrotoluene	100	86.8	ug/L	87		SW846 8270C
	100	103	ug/L	103	17	SW846 8270C
Pentachlorophenol	150	88.4	ug/L	59		SW846 8270C
	150	112	ug/L	75	23	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	76	(34 - 97)
	90	(34 - 97)
Phenol-d5	79	(39 - 90)
	92 *	(39 - 90)
Nitrobenzene-d5	81	(33 - 97)
	94	(33 - 97)
2-Fluorobiphenyl	72	(39 - 91)
	81	(39 - 91)
2,4,6-Tribromophenol	74	(29 - 95)
	86	(29 - 95)
Terphenyl-d14	78	(30 - 102)
	86	(30 - 102)

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D1C240122 **Work Order #...:** DX2VP1AA-LCS **Matrix.....:** SOLID
LCS Lot-Sample#: D1C280000-198 DX2VP1AC-LCSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

* Surrogate recovery is outside stated control limits.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: D1C240122 Work Order #...: DX9991AA Matrix.....: SOLID
MB Lot-Sample #: D1D020000-291

Prep Date.....: 03/28/01 Analysis Time..: 08:51
Analysis Date..: 03/29/01 Prep Batch #...: 1092291
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Gasoline Range Organics	ND	1.2	mg/kg	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	94	(79 - 124)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: D1C240122 Work Order #...: DX9991AC Matrix.....: SOLID
LCS Lot-Sample#: D1D020000-291
Prep Date.....: 03/28/01 Analysis Date..: 03/29/01
Prep Batch #...: 1092291 Analysis Time..: 07:07
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Gasoline Range Organics	**80**	**(69 - 124)**	**SW846 8015B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	96	(79 - 124)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: D1C240122 **Work Order #...:** DX9991AC **Matrix.....:** SOLID
LCS Lot-Sample#: D1D020000-291
Prep Date.....: 03/28/01 **Analysis Date..:** 03/29/01
Prep Batch #...: 1092291 **Analysis Time..:** 07:07
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Gasoline Range Organics	**5.00**	**4.00**	**mg/kg**	**80**	**SW846 8015B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	96	(79 - 124)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...:	D1C240122	**Work Order #...:**	DXXC71AD-MS	**Matrix.....:**	SOLID
MS Lot-Sample #:	D1C240122-001		DXXC71AE-MSD		
Date Sampled...:	03/21/01 08:50	**Date Received..:**	03/23/01		
Prep Date.....:	03/28/01	**Analysis Date..:**	03/30/01		
Prep Batch #...:	1092291	**Analysis Time..:**	16:21		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Gasoline Range Organics	**86**	**(69 - 124)**			**SW846 8015B**
	80	**(69 - 124)**	**6.4**	**(0-30)**	**SW846 8015B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	93	(79 - 124)
	95	(79 - 124)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: D1C240122 **Work Order #...:** DXXC71AD-MS **Matrix.....:** SOLID
MS Lot-Sample #: D1C240122-001 DXXC71AE-MSD
Date Sampled...: 03/21/01 08:50 **Date Received..:** 03/23/01
Prep Date.....: 03/28/01 **Analysis Date..:** 03/30/01
Prep Batch #...: 1092291 **Analysis Time..:** 16:21
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Gasoline Range Organics	**ND**	**5.00**	**4.61**	**mg/kg**	**86**		**SW846 8015B**
	ND	**5.00**	**4.32**	**mg/kg**	**80**	**6.4**	**SW846 8015B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
a,a,a-Trifluorotoluene	93	(79 - 124)
	95	(79 - 124)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: D1C240122 Work Order #...: DX1M11AA Matrix.....: SOLID
MB Lot-Sample #: D1C270000-207

Prep Date.....: 03/27/01 Analysis Time..: 14:09
Analysis Date..: 03/28/01 Prep Batch #...: 1086207
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	ND	4.0	mg/kg	SW846 8015B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	79	(34 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D1C240122 Work Order #...: DX1M11AC Matrix.....: SOLID
LCS Lot-Sample#: D1C270000-207
Prep Date.....: 03/27/01 Analysis Date..: 03/28/01
Prep Batch #...: 1086207 Analysis Time..: 14:40
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Diesel Range Organics	**79**	**(39 - 128)**	**SW846 8015B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	74	(34 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D1C240122 Work Order #...: DX1M11AC Matrix.....: SOLID
LCS Lot-Sample#: D1C270000-207
Prep Date.....: 03/27/01 Analysis Date..: 03/28/01
Prep Batch #...: 1086207 Analysis Time..: 14:40
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
Diesel Range Organics	**80.0**	**63.2**	**mg/kg**	**79**	**SW846 8015B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	74	(34 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...:	D1C240122	**Work Order #...:**	DXTWX1AD-MS	**Matrix.....:**	SOLID
MS Lot-Sample #:	D1C220311-001		DXTWX1AE-MSD		
Date Sampled...:	03/20/01 09:10	**Date Received..:**	03/22/01		
Prep Date.....:	03/27/01	**Analysis Date..:**	03/28/01		
Prep Batch #...:	1086207	**Analysis Time..:**	15:40		
Dilution Factor:	1				

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Diesel Range Organics	**73**	**(39 - 128)**			**SW846 8015B**
	66	**(39 - 128)**	**10**	**(0-38)**	**SW846 8015B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	70	(34 - 116)
	66	(34 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D1C240122 **Work Order #...:** DXTWX1AD-MS **Matrix.....:** SOLID
MS Lot-Sample #: D1C220311-001 DXTWX1AE-MSD
Date Sampled...: 03/20/01 09:10 **Date Received..:** 03/22/01
Prep Date.....: 03/27/01 **Analysis Date..:** 03/28/01
Prep Batch #...: 1086207 **Analysis Time..:** 15:40
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Diesel Range Organics	**ND**	**80.0**	**58.1**	**mg/kg**	**73**		**SW846 8015B**
	ND	**80.0**	**52.4**	**mg/kg**	**66**	**10**	**SW846 8015B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	70	(34 - 116)
	66	(34 - 116)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters