1R - 324

REPORTS

DATE:

2003

MAXIM TECHNOLOGIES INC®
A TETRA TECH COMPANY

10601 Lomas NE, Suite 106
Albuquerque, NM 87112
(505) 237-8440
(505) 237-8656 fax

July 18, 2003

Mr. Neal Goates, Site Manager
ConocoPhillips, Risk Management & Remediation
TN 5044 Threadneedle
600 N. Diary Ashford
Houston, TX 77079

RE: Reed A Groundwater Investigation
Lea County, New Mexico
Maxim Project No. 3690063

Dear Mr. Goates:

This letter report discusses findings of a groundwater investigation performed by Maxim Technologies, Inc. (Maxim) at the former ConocoPhillips Reed A Site, Lea County, New Mexico. A groundwater investigation workplan for the results presented herein was submitted to the New Mexico Oil Conservation Division (NMOCD) for review on ConocoPhillips letterhead dated May 5, 2003. Approval of the workplan was received by ConocoPhillips from NMOCD on May 23, 2003, with the following conditions:

- ConocoPhillips shall obtain soil samples from each borehole from the depth interval with the highest photo-ionization detector (PID) reading and the bottom of the hole.
- All soil samples shall be obtained and analyzed for concentrations of benzene, toluene, ethylbenzene, and total xylenes (BTEX); total petroleum hydrocarbons (TPH); and chloride using EPA-approved methods and quality assurance/quality control (QA/QC).
- Each monitor well shall be drilled to first water or the top of the red bed, whichever is encountered first.

Maxim performed the fieldwork on June 10, 2003. The fieldwork followed the Maxim workplan dated May 5, 2003, as amended by the NMOCD on May 23, 2003. The NMOCD case number for this site is No. 1R-324.

BACKGROUND

Maxim performed a subsurface investigation at the Reed A site on March 12, 13, and 14, 2002. A report was submitted to the NMOCD on August 26, 2002, presenting the results of the investigation. In summary:

- Eleven soil borings were advanced within a natural depression area and a former tank battery area.

- Fifteen excavation pits were advanced within the natural depression area. During this investigation soil samples were collected from the borings at two-foot intervals using continuous split spoon sampling methods, and a sample was obtained from a bottom interval for laboratory analysis.

- The soil samples were analyzed by Severn Trent Laboratories, Inc. (STL) in Austin, Texas, for TPH gasoline-range organics (TPH-GRO) and diesel-range organics (TPH-DRO) using Environmental Protection Agency (EPA) Methods SW-846 and 8015B; chloride using EPA Method MCAWW 300.0A; and percent moisture using ASTM D 2216-90.

- A PID was used to obtain field measurements of organic vapors in all soil samples.

- Composite soil samples were obtained from selected excavations in the natural depression area and from the soil borings in the former tank battery area. The composite samples were analyzed using the EPA Method 1312, Soil Precipitation Leaching Procedure (SPLP).

Results from this subsurface investigation indicate source migration to groundwater from the two areas of concern is not occurring. In order to confirm that groundwater underlying the former tank battery area and the natural depression area is not being impacted, it was proposed by ConocoPhillips to the NMOCD that three groundwater monitor wells be installed.

GROUNDWATER ASSESSMENT

Soil Boring Activities and Results

On June 10, 2003, Maxim returned to the site to drill three monitor wells at locations approved by the NMOCD (Figure 1). The pilot borings were to be advanced until either groundwater or the red bed was encountered, per NMOCD's work plan approval letter dated May 23, 2003. In all three pilot borings, the red bed was encountered at approximately 75 feet below ground surface (bgs). Groundwater was not encountered in any of the borings and, therefore, no monitor wells were completed. Soil samples were collected and composited for PID analysis from the 5- to 10-foot intervals. The sample with the highest PID reading and the sample from the bottom of the boring were submitted to Lancaster Laboratories located in Lancaster, Pennsylvania, for analysis of BTEX by EPA Method 8260B; TPH-DRO and TPH-GRO by EPA Method 8015B; chloride by EPA Method 300.0; and percent moisture by EPA Method 160.3 per NMOCD stipulations.

Three soil borings (B-12, B-13 and B-14) were advanced around the perimeter of the depression area and the former tank battery area (Figure 1) using an air rotary drill rig operated by Scarborough Drilling of Lamesa, Texas. The borings were each drilled to a depth of 80 feet bgs. Soil samples were obtained from the 5- to 10-foot intervals, composited and split, with half placed on ice pending laboratory analysis and half retained for headspace field analysis with a PID. The boring logs illustrating boring depths, PID readings, sample locations, and lithologic descriptions are attached as Appendix A.

Soil samples were retained for laboratory analysis from the interval exhibiting the highest PID reading and the bottom interval of each boring and submitted to Lancaster Laboratories for analysis of BTEX, TPH-GRO, TPH-DRO, chloride, and percent moisture. Laboratory samples were obtained from the 50- to 60-foot bgs interval and the 70- to 80-foot bgs interval for analysis in B-12; the 60- to 70-foot bgs interval and 70- to 80-foot bgs interval in B-13, and the 0 to 5-foot bgs interval and 75- to 80-foot bgs interval in B-14. During drilling, PID readings indicated levels of volatile organic concentrations of less than 1 ppm consistently from surface to 80 feet bgs in borings B-12 and B-13. PID readings in B-14 ranged from 0 to 33.5 parts per million (ppm). No soil staining was observed. BTEX and TPH-GRO were not detected in any of the laboratory samples. TPH-DRO concentrations were reported at 8.5 milligrams per kilograms (mg/kg) in both samples from B-13 and 12 mg/kg in the 0 to 5-foot sample interval from B-14. Chloride concentrations ranged from 54.0 mg/kg in B-12 (70 to 80 feet bgs) to 454 mg/kg in B-14 (75 to 80 feet bgs). Percent moisture ranged from 8.7 percent in B-14 (75 to 80 feet bgs) to 25.8 percent in B-12 (50 to 60 feet bgs). Table 1 presents the laboratory analytical data for the samples obtained during boring activities. The laboratory analytical report is attached as Appendix B.

Following drilling, the borings were allowed to stand open for at least one-half hour to monitor if any groundwater infiltration was occurring. Following this period of time, a groundwater level indicator was used to determine the presence or absence of groundwater. In all borings, groundwater did not develop. In order to ensure that groundwater was absent underlying the Reed A site, the borings were left open overnight and again checked for the presence of groundwater. Groundwater was not present in any soil boring the following day. The borings were plugged back to the surface with bentonite pellets.

CONCLUSIONS

Groundwater was not encountered in any zones overlying the first occurrence of the red bed stratigraphic sequence. Therefore, there is no groundwater contamination associated with the former tank battery and natural depression. The soil encountered during the investigation can be described as clayey sand to sandy clay with caliche occurring at various intervals below 10 feet bgs with the red bed sequence occurring at approximately 75 feet bgs (Appendix A). Most of the surficial soil material is comprised of dry, loose sand.

RECOMMENDATION

The north area identified by Figure 1 as "Stained Area 1" will be excavated to a maximum of four feet in depth indicated by surface staining. If impact is less than four feet below surface, excavation will cease given visual indication accompanied by PID field readings. Borrow soil for backfill will be supplied by neighboring soils identified by the surface owner as near to the site as practical. All residual soils will be properly transported to an NMOCD approved landfarm for final disposal or treatment. The south area identified by figure 2 as "Stained Area 2" currently has 3 to 6 feet of dry, loose sand cover. Based on the laboratory findings of the investigation and the absence of groundwater, it's our recommendation that no further action be required at the south area.

If you have any questions regarding this communication, please contact Clyde Yancey or Kelly Henderson at 505-237-8440.

Sincerely,

MAXIM TECHNOLOGIES, INC.

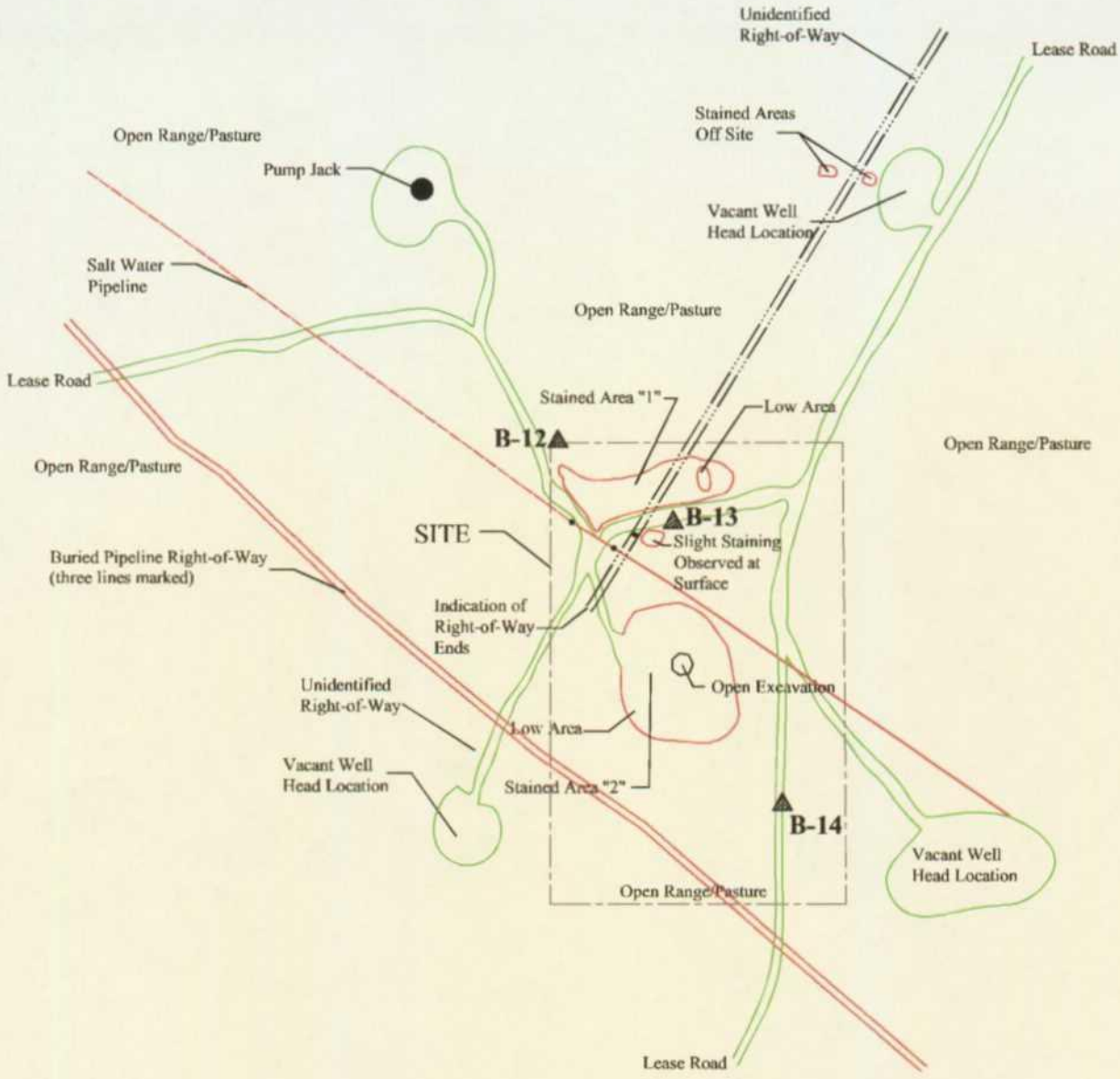
Clyde L. Yancey, P.G.
Senior Project Manager

Kelly E. Henderson
Staff Geologist

Enclosures

Cc: Neal Goates, ConocoPhillips

FIGURE



N

NOTES:

Target Property

• Pipeline
Right-of-Way Marker

Soil Boring Location

Scale: 1 in. = approx. 300 ft.

Locations Are Approximate

SOURCE: USGS Topographical Map - Monument South, NM

TARGET PROPERTY:	Former Tank Battery - Reed "A"	SOIL BORING LOCATIONS	MAXIM TECHNOLOGIES INC
LEGAL DESCRIPTION			
CITY/STATE/ZIP:	Lea County, New Mexico		
LAT/LONG:	N32.55510/W103.31170	Drawing: Reed 'A' WellFig.DWG	FIGURE 1

TABLE

Table 1. ConocoPhillips Reed A Soil Analytical Results

Sample Location	Date Sampled	Sample Depth (feet bgs)	Results Reported in Parts Per Million (mg/kg)				
			EPA Method MCAWW 300.0A	EPA Method SW-846, 8015B		EPA Method 8260B	EPA 160.3 Modified
			Chloride	TPH-GRO	TPH-DRO	Total BTEX	% Moisture
B-12	06/10/03	50-60	72.5	ND	ND	ND	25.8
B-12	06/10/03	70-80	54	ND	ND	ND	24.1
B-13	06/10/03	60-70	343	ND	8.5	ND	25.7
B-13	06/10/03	70-80	232	ND	8.5	ND	23.7
B-14	06/10/03	0-5	ND	ND	12	ND	9.2
B-14	06/10/03	75-80	454	ND	ND	ND	8.7

TPH-GRO	Total petroleum hydrocarbons - gasoline-range organics
TPH-DRO	Total petroleum hydrocarbons - diesel-range organics
BTEX	Benzene, toluene, ethylbenzene & total xylenes
bgs	Below ground surface
EPA	Environmental Protection Agency
B	Boring

APPENDIX A

Boring Logs

PROJECT NAME: Maxim #3690063
LOCATION: Reed A, Lea County, New Mexico

DRILLED BY: Scarborough Drilling
DATE HOLE DRILLED: 6/10/03 925 - 1050 am
DATE ABANDONED: 6/11/03 900 am
REMARKS: bgs = below ground surface
ND=Not Detected, NS=No Sample
NA=Not Applicable

SOIL VAPOR BORING NO. B-12
FIELD LOGGED BY: K.Henderson
GROUNDWATER LEVEL (bgs): Not Encountered (ft)
DRILL TYPE: Air Rotary
Ford Midway 1300
BORE HOLE DIAMETER: 5 (in)

DEPTH (bgs) - ft	SAMPLE INTERVAL/ID #	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	ANALYTICAL	TIME	% RECOVERY	PID RESULT (ppm)	DEPTH (bgs) - ft
0.0		SAND, silty, clayey, very loose, very fine grained, yellowish-orange, trace organics, dry	SM	Hand Auger		925		0	0
5.0		SAND, clayey, silty, very loose, very fine grained, yellowish-orange to light gray	SC	Shovel Samples				0	5
10.0						930		0	10
15.0		SAND, clayey, silty, loose, very fine grained, tan, trace caliche	SC					0	15
20.0		SAND and CLAY, light reddish-orange, trace caliche powder, very fine grained	SC-CL			935		0	20
25.0		SAND, silty, clayey, light yellowish-orange, tan, very fine grained	SM					0	25
30.0						945		0	30
35.0								0	35
40.0		SAND, silty, clayey, very fine grained, reddish-orange to orange, dry	SM			955		0	40
45.0									45
50.0					X	1010		0.4	50
55.0									55

Boring Terminated at 80' bgs

PROJECT NAME: Maxim #3690063
LOCATION: Reed A, Lea County, New Mexico

DRILLED BY: Scarborough Drilling
DATE HOLE DRILLED: 6/10/03 925 - 1050 am
DATE ABANDONED: 6/11/03 900 am
REMARKS: bgs = below ground surface
ND=Not Detected, NS=No Sample
NA=Not Applicable

SOIL VAPOR BORING NO. B-12
FIELD LOGGED BY: K.Henderson
GROUNDWATER LEVEL (bgs): Not Encountered (ft)
DRILL TYPE: Air Rotary
Ford Midway 1300
BORE HOLE DIAMETER: 5 (in)

DEPTH (bgs) - ft	SAMPLE INTERVAL/ID #	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	ANALYTICAL	TIME	% RECOVERY	PID RESULT (ppm)	DEPTH (bgs) - ft
60.0						1030		0	60
65.0									65
70.0					X	1045		0	70
75.0		Shale, red, dry, platy, some very fine grained reddish-orange sand							75
80.0									80

Boring Terminated at 80' bgs

PROJECT NAME: Maxim #3690063
LOCATION: Reed A, Lea County, New Mexico

DRILLED BY: Scarborough Drilling
DATE HOLE DRILLED: 6/10/03 1145 - 1310 am
DATE ABANDONED: 6/11/03 840 am
REMARKS: bgs = below ground surface
ND=Not Detected, NS=No Sample
NA=Not Applicable

SOIL VAPOR BORING NO. B-13
FIELD LOGGED BY: K.Henderson
GROUNDWATER LEVEL (bgs): Not Encountered (ft)
DRILL TYPE: Air Rotary
Ford Midway 1300
BORE HOLE DIAMETER: 5 (in)

DEPTH (bgs) - ft	SAMPLE INTERVAL/ID #	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	ANALYTICAL	TIME	% RECOVERY	PID RESULT (ppm)	DEPTH (bgs) - ft
0.0		SAND, silty, clayey, very loose, very fine grained, yellowish-orange, trace organics, dry	SM	Hand Auger Shovel Samples		1145		0	0
5.0								0	5
10.0		SAND and CLAY, silty, soft, very loose, approximately 70% sand, light yellowish-brown	SC-CL			1150		0	10
15.0		SAND and CLAY, silty, soft, very loose, approximately 75% sand, light yellowish-brown with trace white caliche powder	SC-CL					0	15
20.0		SAND, silty, clayey, light orangish-brown, very fine grained, some clay at 30 feet bgs	SM-SC			1155		0	20
25.0								0	25
30.0						1200		0	30
35.0									35
40.0		SAND, very fine grained, well sorted, tan, very loose dry	SM			1215		0	40
45.0		SAND, clayey, silty, orange to reddish-orange, very fine grained, dry	SC						45
50.0						1225		0	50

Boring Terminated at 80' bgs

PROJECT NAME: Maxim #3690063
LOCATION: Reed A, Lea County, New Mexico

DRILLED BY: Scarborough Drilling
DATE HOLE DRILLED: 6/10/03 1145 - 1310 am
DATE ABANDONED: 6/11/03 840 am
REMARKS: bgs = below ground surface
ND=Not Detected, NS=No Sample
NA=Not Applicable

SOIL VAPOR BORING NO. B-13
FIELD LOGGED BY: K.Henderson
GROUNDWATER LEVEL (bgs): Not Encountered (ft)
DRILL TYPE: Air Rotary
Ford Midway 1300
BORE HOLE DIAMETER: 5 (in)

DEPTH (bgs) - ft	SAMPLE INTERVAL/ID #	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	ANALYTICAL	TIME	% RECOVERY	PID RESULT (ppm)	DEPTH (bgs) - ft
55.0		Caliche, hard, 1/8" to 1" fragments and very fine grained white dust, white and gray, with orange very fine grained sand	SM						55
60.0		SAND, silty, very fine grained, orange to reddish-orange, trace organics			X	1250		0	60
65.0									65
70.0					X	1305		0	70
75.0		Shale and sand, reddish-orange, dry, platy, some clay	CL-SC						75
80.0		Shale, red, platy, sandy, dry							80

Boring Terminated at 80' bgs

3690063	MAXIM TECHNOLOGIES INC®	EXPLORATORY BORING LOG	B-13

PROJECT NAME: Maxim #3690063
LOCATION: Reed A, Lea County, New Mexico

DRILLED BY: Scarborough Drilling
DATE HOLE DRILLED: 6/10/03 1425 - 1525 am
DATE ABANDONED: 6/11/03 850 am
REMARKS: bgs = below ground surface
ND=Not Detected, NS=No Sample
NA=Not Applicable

SOIL VAPOR BORING NO. B-14
FIELD LOGGED BY: K.Henderson
GROUNDWATER LEVEL (bgs): Not Encountered (ft)
DRILL TYPE: Air Rotary
Ford Midway 1300
BORE HOLE DIAMETER: 5 (in)

DEPTH (bgs) - ft	SAMPLE INTERVAL/ID #	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	ANALYTICAL	TIME	% RECOVERY	PID RESULT (ppm)	DEPTH (bgs) - ft
0.0		SAND and caliche, tan, dry, very fine grained, some pebble sized fragments	SC	Hand Auger	X	1425		33.5	0
5.0		CLAY and SAND, orange and orangish-red, dry to damp	CL-SC	Shovel Samples				4.1	5
10.0		CLAY and caliche, tan, gray, and light orangish-brown, dry	CL			1430		0	10
15.0								0.3	15
20.0		SAND and caliche, light orangish-brown, very fine grained, dry	SC			1435		0.3	20
25.0		SAND and caliche, light orangish-brown, very fine grained, dry, some gray and white powder	SC					0	25
30.0		SAND, clayey, silty, some caliche, light orangish-brown, very fine grained, dry	SC			1440		0	30
35.0									35
40.0						1450		0	40
45.0									45
50.0						1500		0.9	50

Boring Terminated at 80' bgs

3690063	MAXIM TECHNOLOGIES INC®	EXPLORATORY BORING LOG	B-14

PROJECT NAME: Maxim #3690063
LOCATION: Reed A, Lea County, New Mexico

DRILLED BY: Scarborough Drilling
DATE HOLE DRILLED: 6/10/03 1425 - 1525 am
DATE ABANDONED: 6/11/03 850 am
REMARKS: bgs = below ground surface
ND=Not Detected, NS=No Sample
NA=Not Applicable

SOIL VAPOR BORING NO. B-14
FIELD LOGGED BY: K.Henderson
GROUNDWATER LEVEL (bgs): Not Encountered (ft)
DRILL TYPE: Air Rotary
Ford Midway 1300
BORE HOLE DIAMETER: 5 (in)

DEPTH (bgs) - ft	SAMPLE INTERVAL/ID #	CLASSIFICATION AND DESCRIPTION	USCS SYMBOL	BLOW COUNT	ANALYTICAL	TIME	% RECOVERY	PID RESULT (ppm)	DEPTH (bgs) - ft
55.0									55
60.0		CLAY and SAND with trace shale, red and orangish-red, dry to damp, platy shale, rounded clay coated with sand, sandy at approximately 75 feet bgs	CL-SC			1510		0.4	60
65.0								0	65
70.0						1520		0	70
75.0		Shale, red, platy, dry			X			0	75
80.0									80

Boring Terminated at 80' bgs

APPENDIX B

Analytical Report

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

ANALYTICAL RESULTS

Prepared for:

ConocoPhillips
P.O. Box 2197; 5027 TN

Houston TX 77252
832-379-6415

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 855773. Samples arrived at the laboratory on Friday, June 13, 2003. The PO# for this group is 4501663033 and the release number is NEAL GOATES.

Client Description	Lancaster Labs Number
B-12(50-60) Soil Sample	4063883
B-12(70-80) Soil Sample	4063884
B-13(60-70) Soil Sample	4063885
B-13(70-80) Soil Sample	4063886
B-14(0-5) Soil Sample	4063887
B-14(75-80) Soil Sample	4063888

1 COPY TO	Maxim Technologies	Attn: Clyde Yancey
ELECTRONIC COPY TO	Maxim Technologies	Attn: Kelly Henderson

Lancaster Laboratories

Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Questions? Contact your Client Services Representative
Danette S Blystone at (717) 656-2300.

Respectfully Submitted,

Robert E. Mellinger
Senior Chemist, Coordinator

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Lancaster Laboratories Sample No. SW 4063883

Collected: 06/10/2003 10:45 by KH

Submitted: 06/13/2003 09:15
Reported: 06/30/2003 at 13:41
Discard: 07/31/2003
B-12(50-60) Soil Sample
Site# EP01002
Monument, NM Lea County

12-50

Account Number: 11288

ConocoPhillips
P.O. Box 2197; 5027 TN

Houston TX 77252

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
08270	TPH-DRO by 8015B	n.a.	N.D.	5.4	mg/kg	1
	According to the SW-846 8015B method, the quantitation for Diesel Range Organics was performed by peak area comparison of the sample pattern to that of our #2 Fuel Oil reference standard (between C10 and C28 normal hydrocarbons).					
00111	Moisture	n.a.	25.8	0.50	%	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					
07333	Chloride by IC (solid)	16887-00-6	72.5	20.2	mg/kg	50
01637	TPH-GRO 8015B - soil					
01641	TPH-GRO 8015B - soil	n.a.	N.D.	0.3	mg/kg	25
	The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.					
02304	UST-Unleaded Soils by 8260B					
05460	Benzene	71-43-2	N.D.	1.	ug/kg	1.01
05466	Toluene	108-88-3	N.D.	1.	ug/kg	1.01
05474	Ethylbenzene	100-41-4	N.D.	1.	ug/kg	1.01
06301	Xylene (Total)	1330-20-7	N.D.	1.	ug/kg	1.01

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08270	TPH-DRO by 8015B	SW-846 8015B	1	06/18/2003 19:45	Tracy A Cole	1
00111	Moisture	EPA 160.3 modified	1	06/16/2003 14:01	Scott W Freisher	1
07333	Chloride by IC (solid)	EPA 300.0	1	06/26/2003 14:14	Shannon L Phillips	50
01637	TPH-GRO 8015B - soil	SW-846 8015B - modified	1	06/16/2003 17:37	Deborah S Garrison	25
02304	UST-Unleaded Soils by 8260B	SW-846 8260B	1	06/17/2003 08:51	Anastasia Papadoplos	1.01
00374	GC/MS VOA Soil Prep	SW-846 5030A	1	06/17/2003 04:25	Anastasia Papadoplos	n.a.
01150	GC VOA Soil Prep	SW-846 5035	1	06/16/2003 05:56	Stephanie A Selis	n.a.
01352	Deionized Water Extraction	EPA 300.0	1	06/24/2003 19:00	James S Mathiot	1
07004	Extraction - DRO (Soils)	SW-846 3550B	1	06/16/2003 08:45	Kenneth A Yingst	1

Lancaster Laboratories

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Analysis Report

Lancaster Laboratories Sample No. SW 4063884

Collected: 06/10/2003 10:50 by KH

Account Number: 11288

Submitted: 06/13/2003 09:15
Reported: 06/30/2003 at 13:41
Discard: 07/31/2003
B-12(70-80) Soil Sample
Site# EP01002
Monument, NM Lea County

ConocoPhillips
P.O. Box 2197; 5027 TN

Houston TX 77252

12-70

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
08270	TPH-DRO by 8015B	n.a.	N.D.	5.3	mg/kg	1
	According to the SW-846 8015B method, the quantitation for Diesel Range Organics was performed by peak area comparison of the sample pattern to that of our #2 Fuel Oil reference standard (between C10 and C28 normal hydrocarbons).					
00111	Moisture	n.a.	24.1	0.50	%	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					
07333	Chloride by IC (solid)	16887-00-6	54.0	19.8	mg/kg	50
01637	TPH-GRO 8015B - soil					
01641	TPH-GRO 8015B - soil	n.a.	N.D.	0.3	mg/kg	25
	The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.					
02304	UST-Unleaded Soils by 8260B					
05460	Benzene	71-43-2	N.D.	1.	ug/kg	0.99
05466	Toluene	108-88-3	N.D.	1.	ug/kg	0.99
05474	Ethylbenzene	100-41-4	N.D.	1.	ug/kg	0.99
06301	Xylene (Total)	1330-20-7	N.D.	1.	ug/kg	0.99

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08270	TPH-DRO by 8015B	SW-846 8015B	1	06/19/2003 09:02	Tracy A Cole	1
00111	Moisture	EPA 160.3 modified	1	06/16/2003 14:01	Scott W Freisher	1
07333	Chloride by IC (solid)	EPA 300.0	1	06/26/2003 14:29	Shannon L Phillips	50
01637	TPH-GRO 8015B - soil	SW-846 8015B - modified	1	06/16/2003 18:14	Deborah S Garrison	25
02304	UST-Unleaded Soils by 8260B	SW-846 8260B	1	06/17/2003 09:21	Anastasia Papadoplos	0.99
00374	GC/MS VOA Soil Prep	SW-846 5030A	1	06/17/2003 04:27	Anastasia Papadoplos	n.a.
01150	GC VOA Soil Prep	SW-846 5035	1	06/16/2003 05:57	Stephanie A Selis	n.a.
01352	Deionized Water Extraction	EPA 300.0	1	06/24/2003 19:00	James S Mathiot	1
07004	Extraction - DRO (Soils)	SW-846 3550B	1	06/16/2003 08:45	Kenneth A Yingst	1

Lancaster Laboratories

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Analysis Report

Lancaster Laboratories Sample No. SW 4063885

Collected: 06/10/2003 13:00 by KH

Submitted: 06/13/2003 09:15
Reported: 06/30/2003 at 13:42
Discard: 07/31/2003
B-13(60-70) Soil Sample
Site# EP01002
Monument, NM Lea County

13-60

Account Number: 11288

ConocoPhillips
P.O. Box 2197; 5027 TN

Houston TX 77252

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
08270	TPH-DRO by 8015B	n.a.	8.5	5.4	mg/kg	1
	According to the SW-846 8015B method, the quantitation for Diesel Range Organics was performed by peak area comparison of the sample pattern to that of our #2 Fuel Oil reference standard (between C10 and C28 normal hydrocarbons).					
00111	Moisture	n.a.	25.7	0.50	%	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					
07333	Chloride by IC (solid)	16887-00-6	343.	202.	mg/kg	500
01637	TPH-GRO 8015B - soil					
01641	TPH-GRO 8015B - soil	n.a.	N.D.	0.3	mg/kg	25
	The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.					
02304	UST-Unleaded Soils by 8260B					
05460	Benzene	71-43-2	N.D.	1.	ug/kg	1
05466	Toluene	108-88-3	N.D.	1.	ug/kg	1
05474	Ethylbenzene	100-41-4	N.D.	1.	ug/kg	1
06301	Xylene (Total)	1330-20-7	N.D.	1.	ug/kg	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08270	TPH-DRO by 8015B	SW-846 8015B	1	06/19/2003 10:00	Tracy A Cole	1
00111	Moisture	EPA 160.3 modified	1	06/16/2003 14:01	Scott W Freisher	1
07333	Chloride by IC (solid)	EPA 300.0	1	06/26/2003 14:43	Shannon L Phillips	500
01637	TPH-GRO 8015B - soil	SW-846 8015B - modified	1	06/16/2003 18:51	Deborah S Garrison	25
02304	UST-Unleaded Soils by 8260B	SW-846 8260B	1	06/17/2003 09:53	Anastasia Papadoplos	1
00374	GC/MS VOA Soil Prep	SW-846 5030A	1	06/17/2003 04:28	Anastasia Papadoplos	n.a.
01150	GC VOA Soil Prep	SW-846 5035	1	06/16/2003 05:58	Stephanie A Selis	n.a.
01352	Deionized Water Extraction	EPA 300.0	1	06/24/2003 19:00	James S Mathiot	1
07004	Extraction - DRO (Soils)	SW-846 3550B	1	06/16/2003 08:45	Kenneth A Yingst	1

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Analysis Report

Lancaster Laboratories Sample No. SW 4063886

Collected:06/10/2003 13:10 by KH

Account Number: 11288

Submitted: 06/13/2003 09:15
Reported: 06/30/2003 at 13:42
Discard: 07/31/2003
B-13(70-80) Soil Sample
Site# EP01002
Monument, NM Lea County

ConocoPhillips
P.O. Box 2197; 5027 TN

Houston TX 77252

13-70

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
08270	TPH-DRO by 8015B	n.a.	8.5	5.2	mg/kg	1
	According to the SW-846 8015B method, the quantitation for Diesel Range Organics was performed by peak area comparison of the sample pattern to that of our #2 Fuel Oil reference standard (between C10 and C28 normal hydrocarbons).					
00111	Moisture	n.a.	23.7	0.50	%	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					
07333	Chloride by IC (solid)	16887-00-6	232.	98.3	mg/kg	250
01637	TPH-GRO 8015B - soil					
01641	TPH-GRO 8015B - soil	n.a.	N.D.	0.3	mg/kg	25
	The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.					
02304	UST-Unleaded Soils by 8260B					
05460	Benzene	71-43-2	N.D.	1.	ug/kg	1
05466	Toluene	108-88-3	N.D.	1.	ug/kg	1
05474	Ethylbenzene	100-41-4	N.D.	1.	ug/kg	1
06301	Xylene (Total)	1330-20-7	N.D.	1.	ug/kg	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Analysis Trial#	Date and Time	Analyst	Dilution Factor
08270	TPH-DRO by 8015B	SW-846 8015B	1	06/19/2003 09:40	Tracy A Cole	1
00111	Moisture	EPA 160.3 modified	1	06/16/2003 14:01	Scott W Freisher	1
07333	Chloride by IC (solid)	EPA 300.0	1	06/26/2003 14:58	Shannon L Phillips	250
01637	TPH-GRO 8015B - soil	SW-846 8015B - modified	1	06/16/2003 19:28	Deborah S Garrison	25
02304	UST-Unleaded Soils by 8260B	SW-846 8260B	1	06/17/2003 10:24	Anastasia Papadoplos	1
00374	GC/MS VOA Soil Prep	SW-846 5030A	1	06/17/2003 04:30	Anastasia Papadoplos	n.a.
01150	GC VOA Soil Prep	SW-846 5035	1	06/16/2003 05:59	Stephanie A Selis	n.a.
01352	Deionized Water Extraction	EPA 300.0	1	06/24/2003 19:00	James S Mathiot	1
07004	Extraction - DRO (Soils)	SW-846 3550B	1	06/16/2003 08:45	Kenneth A Yingst	1

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Analysis Report

Lancaster Laboratories Sample No. SW 4063887

Collected:06/10/2003 14:30 by KH

Account Number: 11288

Submitted: 06/13/2003 09:15
Reported: 06/30/2003 at 13:42
Discard: 07/31/2003
B-14(0-5) Soil Sample
Site# EP01002
Monument, NM Lea County

ConocoPhillips
P.O. Box 2197; 5027 TN

Houston TX 77252

14-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
08270	TPH-DRO by 8015B	n.a.	12.	4.4	mg/kg	1
	According to the SW-846 8015B method, the quantitation for Diesel Range Organics was performed by peak area comparison of the sample pattern to that of our #2 Fuel Oil reference standard (between C10 and C28 normal hydrocarbons).					
00111	Moisture	n.a.	9.2	0.50	%	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					
07333	Chloride by IC (solid)	16887-00-6	N.D.	16.5	mg/kg	50
01637	TPH-GRO 8015B - soil					
01641	TPH-GRO 8015B - soil	n.a.	N.D.	0.2	mg/kg	25
	The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.					
02304	UST-Unleaded Soils by 8260B					
05460	Benzene	71-43-2	N.D.	1.	ug/kg	1
05466	Toluene	108-88-3	N.D.	1.	ug/kg	1
05474	Ethylbenzene	100-41-4	N.D.	1.	ug/kg	1
06301	Xylene (Total)	1330-20-7	N.D.	1.	ug/kg	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08270	TPH-DRO by 8015B	SW-846 8015B	1	06/19/2003 10:19	Tracy A Cole	1
00111	Moisture	EPA 160.3 modified	1	06/16/2003 14:01	Scott W Freisher	1
07333	Chloride by IC (solid)	EPA 300.0	1	06/26/2003 15:12	Shannon L Phillips	50
01637	TPH-GRO 8015B - soil	SW-846 8015B - modified	1	06/16/2003 20:05	Deborah S Garrison	25
02304	UST-Unleaded Soils by 8260B	SW-846 8260B	1	06/17/2003 10:55	Anastasia Papadoplos	1
00374	GC/MS VOA Soil Prep	SW-846 5030A	1	06/17/2003 04:32	Anastasia Papadoplos	n.a.
01150	GC VOA Soil Prep	SW-846 5035	1	06/16/2003 06:00	Stephanie A Selis	n.a.
01352	Deionized Water Extraction	EPA 300.0	1	06/24/2003 19:00	James S Mathiot	1
07004	Extraction - DRO (Soils)	SW-846 3550B	1	06/16/2003 08:45	Kenneth A Yingst	1

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Analysis Report

Lancaster Laboratories Sample No. SW 4063888

Collected:06/10/2003 15:25 by KH

Account Number: 11288

Submitted: 06/13/2003 09:15
Reported: 06/30/2003 at 13:42
Discard: 07/31/2003
B-14(75-80) Soil Sample
Site# EP01002
Monument, NM Lea County

ConocoPhillips
P.O. Box 2197; 5027 TN

Houston TX 77252

14-75

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Units	Dilution Factor
08270	TPH-DRO by 8015B	n.a.	N.D.	4.4	mg/kg	1
	According to the SW-846 8015B method, the quantitation for Diesel Range Organics was performed by peak area comparison of the sample pattern to that of our #2 Fuel Oil reference standard (between C10 and C28 normal hydrocarbons).					
00111	Moisture	n.a.	8.7	0.50	%	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					
07333	Chloride by IC (solid)	16887-00-6	454.	164.	mg/kg	500
01637	TPH-GRO 8015B - soil					
01641	TPH-GRO 8015B - soil	n.a.	N.D.	0.2	mg/kg	25
	The analysis for volatiles was performed on a sample which was preserved in methanol. The reporting limits were adjusted appropriately.					
02304	UST-Unleaded Soils by 8260B					
05460	Benzene	71-43-2	N.D.	1.	ug/kg	1
05466	Toluene	108-88-3	N.D.	1.	ug/kg	1
05474	Ethylbenzene	100-41-4	N.D.	1.	ug/kg	1
06301	Xylene (Total)	1330-20-7	N.D.	1.	ug/kg	1

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
08270	TPH-DRO by 8015B	SW-846 8015B	1	06/19/2003 09:21	Tracy A Cole	1
00111	Moisture	EPA 160.3 modified	1	06/16/2003 14:01	Scott W Freisher	1
07333	Chloride by IC (solid)	EPA 300.0	1	06/26/2003 15:27	Shannon L Phillips	500
01637	TPH-GRO 8015B - soil	SW-846 8015B - modified	1	06/16/2003 20:42	Deborah S Garrison	25
02304	UST-Unleaded Soils by 8260B	SW-846 8260B	1	06/17/2003 14:48	Roy R Mellott Jr	1
00374	GC/MS VOA Soil Prep	SW-846 5030A	1	06/17/2003 11:00	Roy R Mellott Jr	n.a.
01150	GC VOA Soil Prep	SW-846 5035	1	06/16/2003 06:01	Stephanie A Selis	n.a.
01352	Deionized Water Extraction	EPA 300.0	1	06/24/2003 19:00	James S Mathiot	1
07004	Extraction - DRO (Soils)	SW-846 3550B	1	06/16/2003 08:45	Kenneth A Yingst	1

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Analysis Report

Quality Control Summary

Client Name: ConocoPhillips Group Number: 855773
Reported: 06/30/03 at 01:42 PM

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 03163A33C	Sample number(s): 4063883-4063888							
TPH-GRO 8015B - soil	N.D.	0.2	mg/kg	104		70-130		
Batch number: 031650010A	Sample number(s): 4063883-4063888							
TPH-DRO by 8015B	N.D.	4.0	mg/kg	96		74-118		
Batch number: 03167820002A	Sample number(s): 4063883-4063888							
Moisture				100		99-101		
Batch number: 03175175201A	Sample number(s): 4063883-4063888							
Chloride by IC (solid)	N.D.	3.0	mg/kg	101		90-110		
Batch number: D031621AB	Sample number(s): 4063883-4063887							
Benzene	N.D.	1.	ug/kg	99		83-118		
Toluene	N.D.	1.	ug/kg	100		81-116		
Ethylbenzene	N.D.	1.	ug/kg	95		82-115		
Xylene (Total)	N.D.	1.	ug/kg	97		82-117		
Batch number: D031621AC	Sample number(s): 4063888							
Benzene	N.D.	1.	ug/kg	99		83-118		
Toluene	N.D.	1.	ug/kg	100		81-116		
Ethylbenzene	N.D.	1.	ug/kg	95		82-115		
Xylene (Total)	N.D.	1.	ug/kg	97		82-117		

Sample Matrix Quality Control

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 03163A33C	Sample number(s): 4063883-4063888								
TPH-GRO 8015B - soil	79	74	70-130	7	30				
Batch number: 031650010A	Sample number(s): 4063883-4063888								
TPH-DRO by 8015B	96		35-174			N.D.	N.D.	0 (1)	20
Batch number: 03167820002A	Sample number(s): 4063883-4063888								
Moisture						77.4	78.8	2	15
Batch number: 03175175201A	Sample number(s): 4063883-4063888								
Chloride by IC (solid)	(2)		90-110			379,000.	492,000.	26*	20
Batch number: D031621AB	Sample number(s): 4063883-4063887								
Benzene	99	107	52-141	7	30				
Toluene	100	124	53-137	19	30				
Ethylbenzene	106	145*	50-136	27	30				
Xylene (Total)	116	169*	47-139	32*	30				
Batch number: D031621AC	Sample number(s): 4063888								
Benzene	99	107	52-141	7	30				
Toluene	100	124	53-137	19	30				
Ethylbenzene	106	145*	50-136	27	30				
Xylene (Total)	116	169*	47-139	32*	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

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Analysis Report

Quality Control Summary

Client Name: ConocoPhillips Group Number: 855773
Reported: 06/30/03 at 01:42 PM

Surrogate Quality Control

Analysis Name: TPH-GRO 8015B - soil
Batch number: 03163A33C

	Trifluorotoluene-F
4063883	101
4063884	99
4063885	97
4063886	98
4063887	99
4063888	100
Blank	105
LCS	104
MS	94
MSD	92
Limits:	66-117

Analysis Name: TPH-DRO by 8015B
Batch number: 031650010A

	Orthoterphenyl
4063883	96
4063884	98
4063885	97
4063886	102
4063887	103
4063888	100
Blank	95
LCS	99
MS	101
Limits:	59-124

Analysis Name: UST-Unleaded Soils by 8260B
Batch number: D031621AB

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
4063883	98	88	89	85
4063884	95	85	90	85
4063885	96	85	90	86
4063886	98	86	89	85
4063887	96	86	90	85
Blank	91	86	89	84
LCS	98	92	91	88
MS	98	92	88	86
MSD	98	90	89	87
Limits:	70-129	70-121	70-130	70-128

Analysis Name: UST-Unleaded Soils by 8260B
Batch number: D031621AC

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
4063888	95	90	90	85
Blank	93	86	89	83
LCS	98	92	91	88

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

Quality Control Summary

Client Name: ConocoPhillips Group Number: 855773
Reported: 06/30/03 at 01:42 PM

Surrogate Quality Control

MS	98	92	88	86
MSD	98	90	89	87
Limits:	70-129	70-121	70-130	70-128

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The background result was more than four times the spike added.

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2425 New Holland Pike • Lancaster, PA 17601

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	**BMQL**	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	**MPN**	Most Probable Number
IU	International Units	**CP Units**	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	**NTU**	nephelometric turbidity units
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
ug	microgram(s)	**mg**	milligram(s)
ml	milliliter(s)	**l**	liter(s)
m3	cubic meter(s)	**ul**	microliter(s)

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result falls within the Method Detection Limit (MDL) and Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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