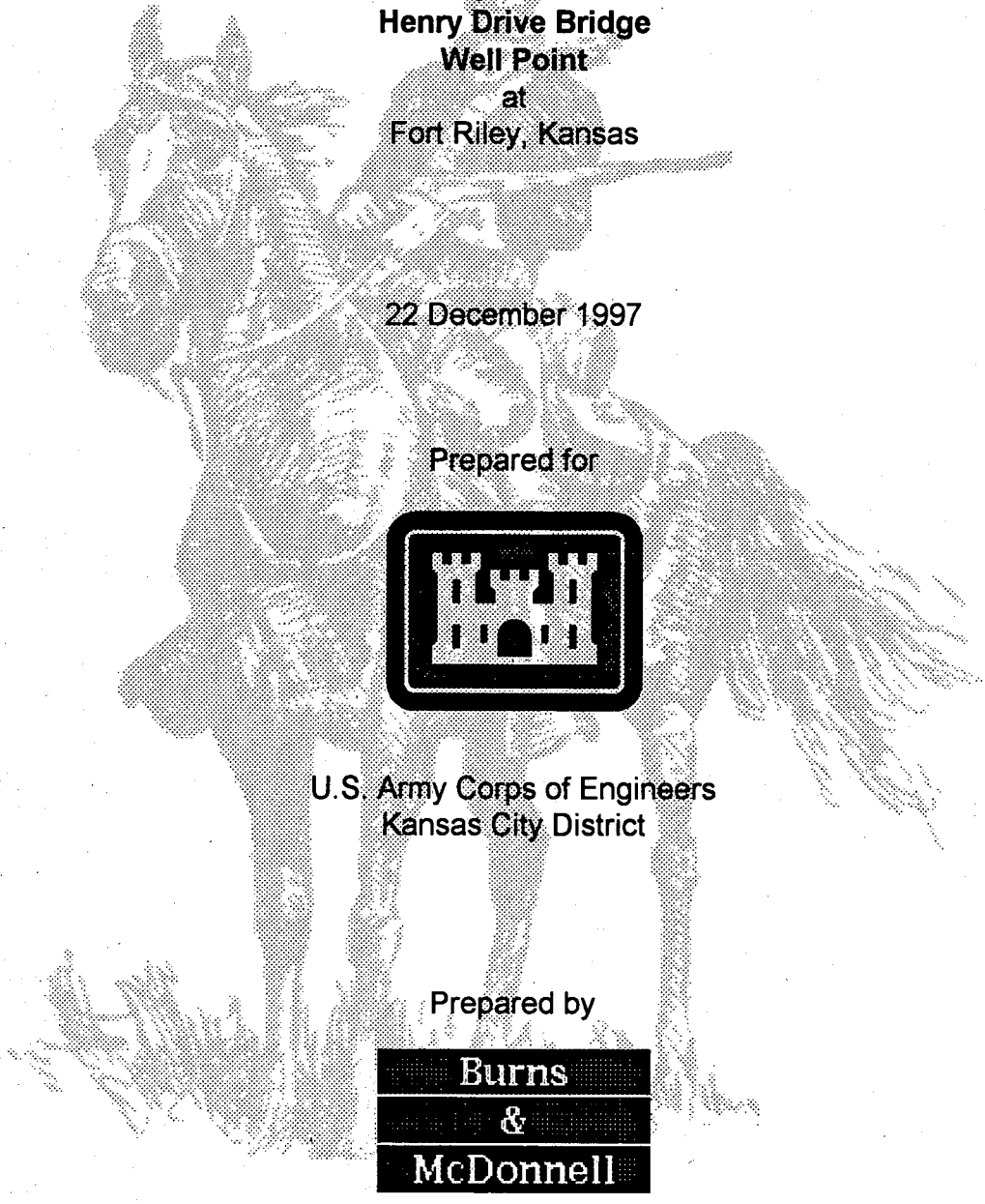
Draft Final

Technical Memorandum Report for Henry Drive Bridge Well Point at Fort Riley, Kansas

22 December 1997



Prepared for

U.S. Army Corps of Engineers
Kansas City District

Prepared by

Burns & McDonnell

Contract Number: DACA41-96-D-8010
Project Number: 96-806-4-004

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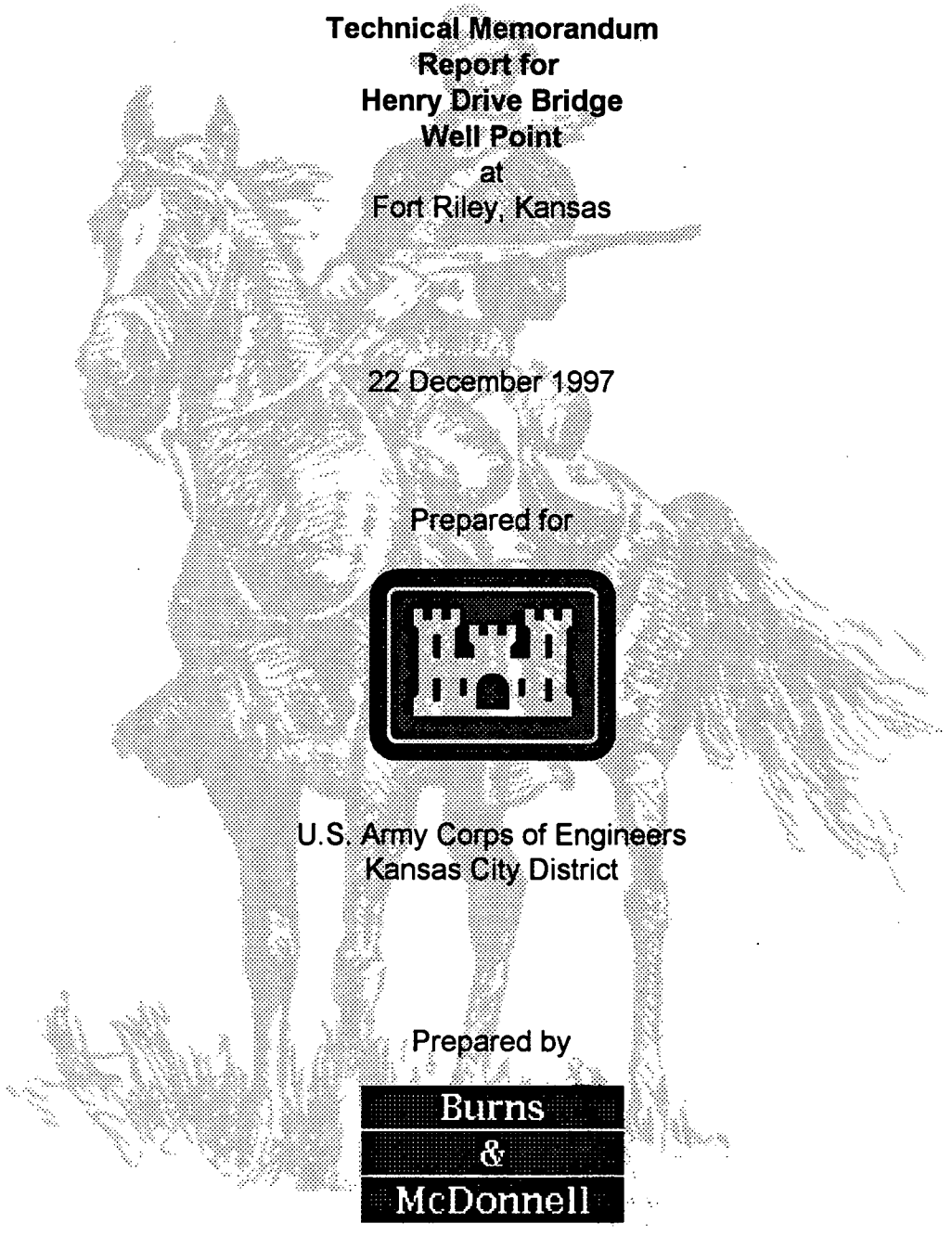

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1.0 Introduction

Burns and McDonnell Engineering Company (BMcD) was retained by the United States Army Corps of Engineers (USACE), Kansas City District, to install a driven well point and collect a groundwater sample from the Henry Drive Bridge Area. The well point was installed to collect hydrogeologic data in the alluvial sands and to determine the influence of the Kansas River on groundwater chemistry upgradient of the Former Building 354 area. The field work for the groundwater sample collection was conducted in September 1997.

2.0 Field Activities

Field activities included the installation of a driven well point, and development and sampling of the well point. Figure 1 presents the location of the well point. (The figure follows the text of this report). Field procedures are described below and were performed in accordance with procedures described in the *Working Draft - Technical Memorandum, Henry Street Bridge Well Point, Fort Riley, Kansas* (BMcD, 1997) (Technical Memorandum) except as noted below.

On 18 September 1997, personnel from Geocore Services, Inc. of Salina, Kansas installed the well point using a small all-terrain drill rig equipped with solid stem augers instead of the hand auger specified in the Technical Memorandum. The boring was logged in the field by a BMcD geologist by observing the cuttings which returned to the surface. The boring log is included as Attachment 1.

A six-inch diameter borehole was drilled to a depth below the silty layer present at the site to prevent driving the well point through the silt which could have potentially plugged the well point. Sand was encountered at approximately 14.0 feet below ground surface (bgs) and boring was terminated at 15.0 feet bgs. Upon reaching the sand, the augers were removed, and a stainless steel, 1.25-inch diameter well point with 5.30 feet of 0.010-inch slotted screen was driven to approximately 26.0 feet bgs using the drill rig hydraulics. The annulus of the borehole caved to 12.25 feet with natural formation sand. The remainder of the annular space was filled with granular bentonite, installed in one- to two-foot lifts, and allowed to hydrate. The riser was 2.5 feet above grade and secured with a locking well cap. After allowing the bentonite to hydrate, a four-inch steel, locking protective casing was installed over the riser, and a three foot square concrete pad was placed in a 2.5 foot deep, inverted, cone-shaped depression around the riser. The well point construction diagram is included as Attachment 2. Three concrete-filled steel protective

posts were installed radially around the concrete pad. The well point was surveyed by a Kansas-licensed surveyor, and the survey data are presented as Attachment 3.

The well point was developed by BMcD personnel on 18 September 1997 until the water removed was clear and free of fines, and the field parameters of temperature, pH and specific conductance had stabilized. A total of 14.5 gallons of water were removed during development, and the final turbidity was 26.6 nephelometric turbidity units (NTUs). The development purging was conducted using an inertial lift pump which consisted of 5/8-inch polyethylene tubing with a stainless steel check valve attached on the bottom. An inertial lift pump is operated by manually raising and lowering the tubing allowing inertia to raise groundwater to the surface. The development form is included as Attachment 4.

A groundwater field sample (HS9701/W01) was collected from the well point by BMcD personnel on 25 September 1997 and analyzed by Intertek Testing Services (ITS) of Richardson, Texas for volatile organic compounds (VOCs) and priority pollutant metals. A trip blank for VOC analysis accompanied the sample to the laboratory. Prior to sample collection, the well point was purged until the field parameters of temperature, pH, and specific conductance had stabilized, which resulted in the removal of 10.0 gallons of water. The purging and sampling was conducted using an inertial lift pump. The turbidity of the groundwater during sample collection was 28.2 NTUs. The Field Groundwater Sampling Report is included as Attachment 5. The data were validated by BMcD and the results of the validation are presented as Attachment 6.

3.0 Results

PID readings above background were not measured in the soil during drilling or at the well head. Non-aqueous phase liquids were not observed in the groundwater removed from the well point.

Table 1 presents the positive detections, and Table 2 presents the summary of results from the groundwater sample. (Tables follow figures of this report). Analytical results, which include chain-of-custody documentation, are presented as Attachment 7. Results were compared against U.S. EPA Maximum Contaminant Levels (MCLs) for drinking water (see Table 3). VOC compounds were not detected in the field or trip blank samples. Several metals were detected in the sample. Metals that exceeded the MCLs are:

- Total chromium was detected in the sample at a concentration of 0.136 mg/L, which exceeds the MCL of 0.1 mg/L by less than an order of magnitude.

- Nickel was detected in the sample at a concentration of 0.107 mg/L, which exceeds the MCL of 0.1 mg/L by less than an order of magnitude.

4.0 References

Burns & McDonnell Engineering Company, Inc. (BMcD), 1997. *Working Draft - Technical Memorandum, Henry Street Bridge Well Point, Fort Riley, Kansas.*

ATTACHMENTS

Figure

Tables

1. HTW Drilling Log
2. Well Point Construction Diagram
3. Survey Data
4. Development Form
5. Field Groundwater Sampling Report
6. QA/QC Review of Analytical Data
7. Analytical Data

FIGURE

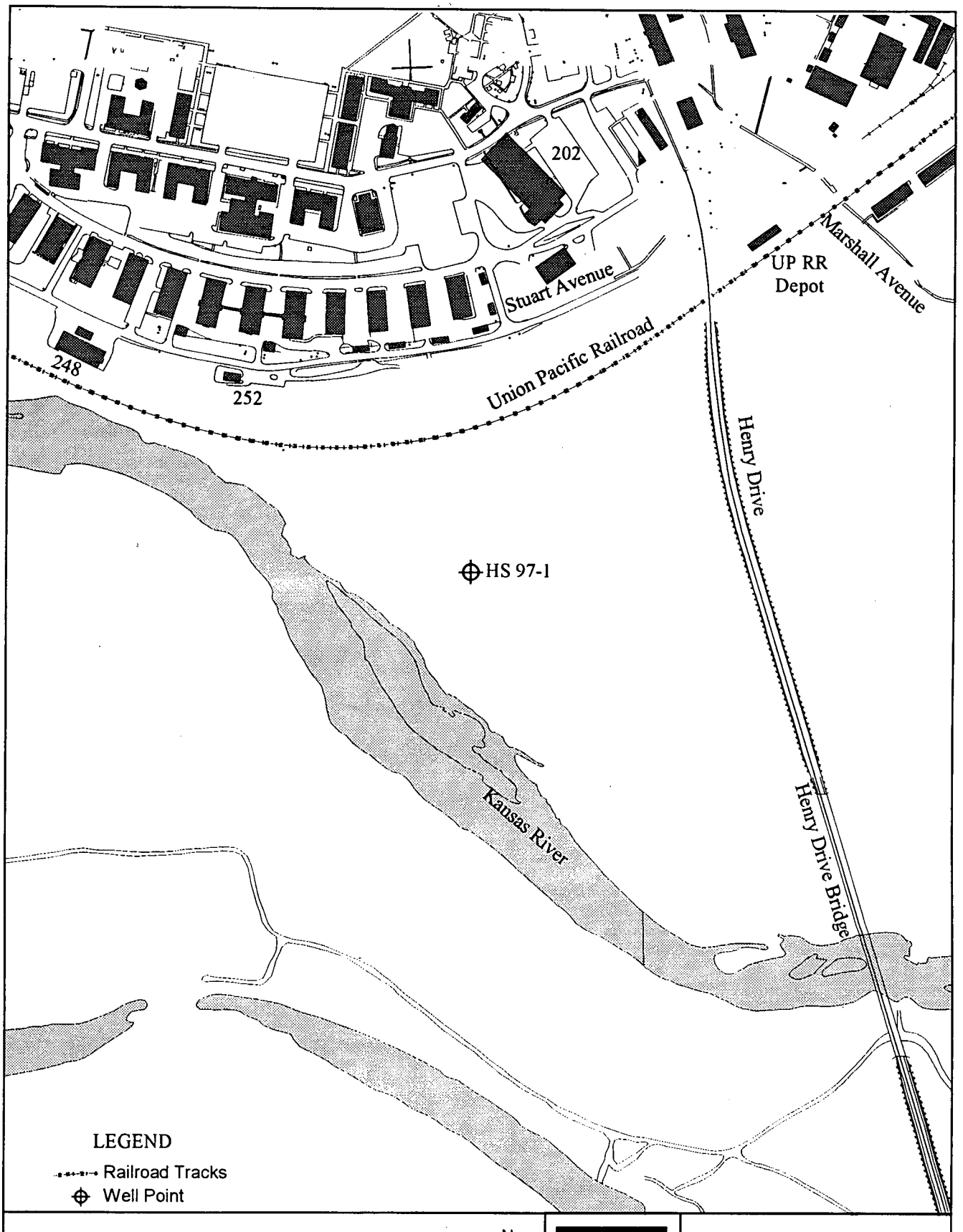


Figure 1

Henry Drive Bridge
Well Point Location
Main Post Fort Riley, Kansas

TABLES

Table 1
Henry Drive Well Point
Groundwater Positive Hits
Fort Riley, Kansas

	Sample Point:	HS97-01/W01	
	Date Sampled:	9/25/97	
	Sample Matrix:	LIQUID	
	Laboratory Number:	D97-11708-1	
Metals, Total	UNITS		USEPA MCL**
Cadmium, Total	mg/L	***0.0033 J***	0.005
Chromium, Total	mg/L	***0.136***	0.1
Nickel, Total	mg/L	***0.107***	0.1
Volatiles	UNITS		
		ND	

LEGEND: ND - Not Detected
J - Qualified as estimated by the laboratory
** From Drinking Water Regulations and Health Advisories, USEPA, October 1996

Table 2
Henry Drive Well Point
Groundwater Analytical Results
Fort Riley, Kansas

	Sample Point:	HS97-01/W01	
	Date Sampled:	9/25/97	
	Sample Matrix:	LIQUID	
	Laboratory Number:	D97-11708-1	
Metals, Total	UNITS		
Antimony, Total	mg/L	0.006	UJ*
Arsenic, Total	mg/L	0.005	U
Beryllium, Total	mg/L	0.003	U
Cadmium, Total	mg/L	***0.0033***	***J***
Chromium, Total	mg/L	***0.136***	
Copper, Total	mg/L	0.006	JU*
Lead, Total	mg/L	0.002	U
Mercury, Total	mg/L	0.0002	UJ*
Nickel, Total	mg/L	***0.107***	
Selenium, Total	mg/L	0.005	U
Silver, Total	mg/L	0.005	U
Thallium, Total	mg/L	0.005	U
Zinc, Total	mg/L	0.02	U
Volatiles	UNITS		
1,1,1,2-Tetrachloroethane	ug/L	5	U
1,1,1-Trichloroethane	ug/L	5	U
1,1,2,2-Tetrachloroethane	ug/L	5	U
1,1,2-Trichloroethane	ug/L	5	U
1,1-Dichloroethane	ug/L	5	U
1,1-Dichloroethene	ug/L	5	U
1,1-Dichloropropene	ug/L	5	U
1,2,3-Trichlorobenzene	ug/L	5	U
1,2,3-Trichloropropane	ug/L	5	U
1,2,4-Trichlorobenzene	ug/L	5	U
1,2,4-Trimethylbenzene	ug/L	5	U
1,2-Dibromo-3-chloropropane	ug/L	25	U
1,2-Dibromoethane	ug/L	5	U
1,2-Dichlorobenzene	ug/L	5	U
1,2-Dichloroethane	ug/L	5	U
1,2-Dichloropropane	ug/L	5	U
1,3,5-Trimethylbenzene	ug/L	5	U
1,3-Dichlorobenzene	ug/L	5	U
1,3-Dichloropropane	ug/L	5	U
1,4-Dichlorobenzene	ug/L	5	U
2,2-Dichloropropane	ug/L	5	U
2-Butanone	ug/L	100	U
2-Chloroethylvinyl ether	ug/L	10	U
2-Chlorotoluene	ug/L	5	U
2-Hexanone	ug/L	50	U
4-Chlorotoluene	ug/L	5	U
4-Methyl-2-pentanone	ug/L	100	U
Acetone	ug/L	20	U
Acrylonitrile	ug/L	5	U

LEGEND: B - Detected in the associated laboratory method blank; F - Detected in the associated equipment rinsate blank; J - Qualified as estimated by the laboratory; J* - Qualified as estimated in the QC evaluation
R - Qualified as unusable in the QC evaluation; T - Detected in associated trip blank; U - Qualified as undetected by the laboratory; U* - Qualified as undetected in the QC evaluation
NA - Not Analyzed; ND - Not Detected

Table 2
Henry Drive Well Point
Groundwater Analytical Results
Fort Riley, Kansas

	Sample Point:	HS97-01/W01	
	Date Sampled:	9/25/97	
	Sample Matrix:	LIQUID	
	Laboratory Number:	D97-11708-1	
Volatiles	**UNITS**		
- CONTINUED -			
Benzene	ug/L	5	U
Bromobenzene	ug/L	5	U
Bromochloromethane	ug/L	5	U
Bromodichloromethane	ug/L	5	U
Bromoform	ug/L	5	U
Bromomethane	ug/L	5	U
Carbon disulfide	ug/L	5	U
Carbon tetrachloride	ug/L	5	U
Chlorobenzene	ug/L	5	U
Chloroethane	ug/L	5	U
Chloroform	ug/L	5	U
cis-1,2-Dichloroethene	ug/L	5	U
cis-1,3-Dichloropropene	ug/L	5	U
Dibromochloromethane	ug/L	5	U
Dibromomethane	ug/L	5	U
Ethylbenzene	ug/L	5	U
Iodomethane	ug/L	5	U
m,p-Xylene	ug/L	5	U
Methyl chloride	ug/L	5	U
Methylene chloride	ug/L	5	U
o-Xylene	ug/L	5	U
Styrene	ug/L	5	U
Tetrachloroethene	ug/L	5	U
Toluene	ug/L	5	U
trans-1,2-Dichloroethene	ug/L	5	U
trans-1,3-Dichloropropene	ug/L	5	U
trans-1,4-Dichloro-2-butene	ug/L	100	U
Trichloroethene	ug/L	5	U
Trichlorofluoromethane	ug/L	5	U
Vinyl acetate	ug/L	50	U
Vinyl chloride	ug/L	2	U

LEGEND: B - Detected in the associated laboratory method blank
R - Qualified as unusable in the QC evaluation
NA - Not Analyzed
F - Detected in the associated equipment rinsate blank
T - Detected in associated trip blank
ND - Not Detected
J - Qualified as estimated by the laboratory
U - Qualified as undetected by the laboratory
J* - Qualified as estimated in the QC evaluation
U* - Qualified as undetected in the QC evaluation

Table 3
Henry Drive Well Point
USEPA Maximum Contaminant Levels
Fort Riley, Kansas

Metals, Total	UNITS	Maximum Contaminant Level
Cadmium, Total	mg/L	0.005
Chromium, Total	mg/L	0.1
Nickel, Total	mg/L	0.1

From Drinking Water Regulations and Health Advisories, USEPA, October 1996

ATTACHMENT 1
HTW DRILLING LOG

HTW DRILLING LOG

HS97-01

HOLE NO. SDZ ~~HS-1~~ HS97-01

1. COMPANY NAME: BURNS & MCDONNELL	2. DRILLING SUBCONTRACTOR: GEOCORE SERVICES	SHEET 1 OF 4 SHEETS
3. PROJECT: USFR354 96-806-4-004	4. LOCATION: FT RILEY, Henry St. Bridge Area	
5. NAME OF DRILLER: DEREK WALTER	6. MANUFACTURER'S DESIGNATION OF DRILL: GEOCORE ATV MINI-RIG	
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: 6" FLIGHT AUGER (SOLID)	8. HOLE LOCATION	
	9. SURFACE ELEVATION	
	10. DATE STARTED: 9/18/97	11. DATE COMPLETED: 9/18/97
12. OVERBURDEN THICKNESS: 26.0 FT	15. DEPTH GROUNDWATER ENCOUNTERED: ESTIMATE ~ 25 FT BGS DURING PULLING OF POINT	
13. DEPTH DRILLED INTO ROCK: 0.0 FT	16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED: 25.74 FT TOC 1 1/2 HRS AFTER INSTALL	
14. TOTAL DEPTH OF HOLE: 26.0 FT	17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY): 25.77' TOC (9/19/97); 25.98' TOC (9/23/97)	

18. GEOTECHNICAL SAMPLES	DISTURBED	UNDISTURBED	19. TOTAL NUMBER OF CORE BOXES
NA	NA	NA	NA

20. SAMPLES FOR CHEMICAL ANALYSIS	VOC	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21. TOTAL CORE RECOVERY
NA	NA	NA	NA	NA	NA	NA %

22. DISPOSITION OF HOLE	BACKFILLED	MONITORING WELL	OTHER (SPECIFY)	23. SIGNATURE OF INSPECTOR
WELL POINT INSTALLED	NA	NA	WELL POINT	

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	0	SAND, v fine to fine grained, some silt (20%), grayish brown (10YR 5/2), loose, subangular to subrounded, moderately poor grading, dry, 3-4' of organic soil at top of section (SM) (Alluvium)	BZ = 0.0 BH = 0.0 O_2 = 19.7% LEL = 0.0	NA	NA	1152 BEGIN MIXING	LOGGED FROM CUTTINGS
	1						
	2						
	3						
	4						
	5						

HS97-01

HTW DRILLING LOG

HS97-01

HOLE NO. ~~HS-1~~ SDL

PROJECT USFR354 96-F06-4-004

INSPECTOR E D LINDGREN

SHEET 2 OF 4 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	5	SAND, v. fine to fine grained, some silt (20%), grayish brown (10YR 5/2), loose, subangular to subrounded, moderately poor grading, dry (SM) (Alluvium)		NA	NA	NA	
	6						
	7		BZ = 0.0				
		SILT, some clay (15%), trace v. fine - fine sand, dark grayish brown (10YR 4/2), damp, soft to medium, trace to medium plasticity (ML) (Alluvium)	Plt = 0.0				
	8		O_2 = 20.7				
	9		LFL = 0.0				
			S = 0.0				
	10						
	11						
	12						
	13						
	14						

HTW DRILLING LOG

HS97-01

HOLE NO.	~~HS-1~~ SD2 HS97-01
PROJECT	USFR354 96-806-4-004
INSPECTOR	E D LINDGREN
SHEET	3 OF 4 SHEETS

ELEV. a	DEPTH b	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	14	SAND, medium to coarse grained, light yellowish brown (10YR 6/4), dry to damp, loose, subangular to subrounded, moderately well to well graded, quartz sand with trace feldspar (5%) (SW) (Alluvium) (Description for grab sample from 14-15' bgs. No samples recovered below 15' bgs)	NA	NA	NA	NA	
	15						CEASED FLIGHT AUGER AT 15' — SHIFT TO PUSHING WELL POINT W/ HAMMER IMPACT
	16						INSTALLED 5.30' 10-SLOT ~~MACHINED~~ SLOTTED STAINLESS STEEL SCREEN W/ 0.35' POINT
	17						1ST RISER SECTION LENGTH 4.92'
	18						2ND RISER SECTION LENGTH 5.05'
	19						3RD RISER SECTION LENGTH 5.08'
							1236 BEGIN DRIVING WELL POINT FROM 15'
	20						1238 COMPLETED DRIVING POINT TO 20'
							4TH RISER SECTION LENGTH 5.07'
	21						1241 BEGIN DRIVING WELL POINT FROM 20'
	22						1242 COMPLETED DRIVING POINT TO 25'
							5TH RISER SECTION LENGTH 3.17'
	23						

HS97-01

HTW DRILLING LOG

HS97-01

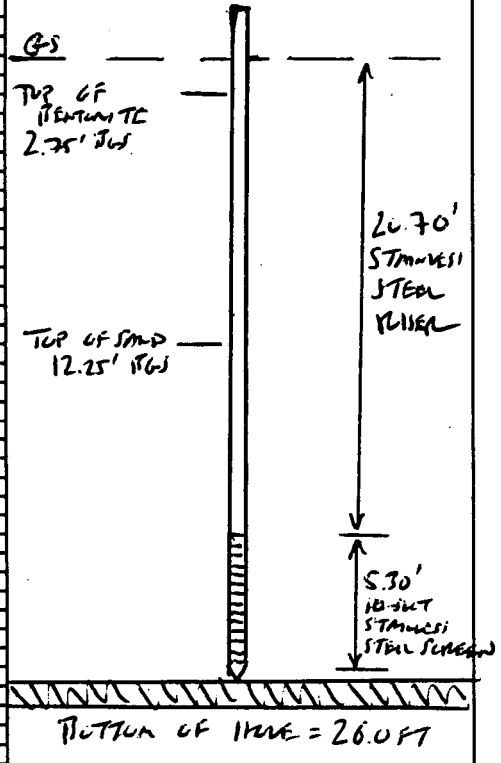
HOLE NO. ~~HS-1~~ SD2

PROJECT USFRC354 96-801-4-004

INSPECTOR E D LINDGREN

SHEET 4 OF 4 SHEETS

ELEV. a	DEPTH To	DESCRIPTION OF MATERIALS c	FIELD SCREENING RESULTS d	GEOTECH SAMPLE OR CORE BOX NO. e	ANALYTICAL SAMPLE NO. f	BLOW COUNTS g	REMARKS h
	23	~~SAND, medium to coarse grained, light yellowish brown (10YR 6/4), dry to damp, loose, subangular to subrounded, moderately well to well graded, quartz sand with trace fines (SP) (SW) (Alluvium)~~ SD2	NA	NA	NA	NA	12SD BEGIN DRILLING LOCAL POINT FROM 25' 12SL COMPLETED DRILLING LOCAL POINT TO 26' SAND FILLED IN TO 12.25' BGS BENTONITE TO 2.75' BGS
	26	BOTTOM OF HOLE 26.0 FT					WL = 25.74' TOC @ 1330



BOTTOM OF HOLE = 26.0 FT

NOT TO SCALE

ATTACHMENT 2
WELL POINT CONSTRUCTION DIAGRAM

TYPE II MONITORING WELL INSTALLATION DIAGRAM

ROJECT NAME USFR354 PROJECT NO. 96-806-4-004

ELL NO. HS97-01 WELL LOCATION FT RILEY, KANSAS (HENRY ST BRIDGE AREA)

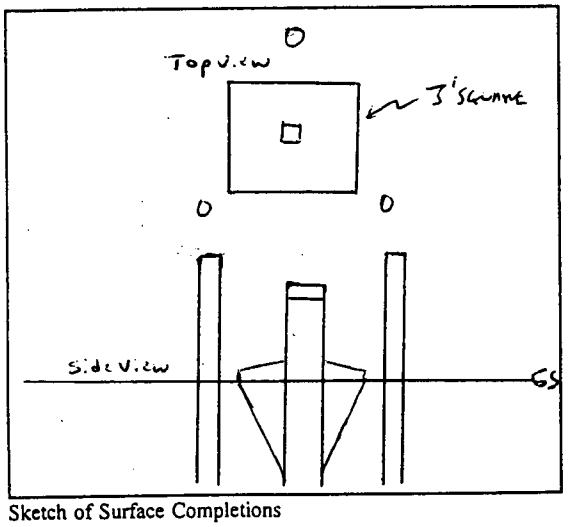
TART OF INSTALLATION DATE/TIME 9/11/97 1150 INSTALLATION COMPLETED DATE/TIME 9/12/97 1250

Protective pipe, top elevation N/A ft. MSL

Well casing, top elevation 1065.23 ft. MSL

Land surface elevation 1062.7 ft. MSL

Surface seal, bottom ____.__ ft. MSL or 2.8 ft. bgs



Sketch of Surface Completions

Bentonite seal, top ____.__ ft. MSL or ~~12.5~~ 2.8 BC ft. bgs

Fine sand, top ____.__ ft. MSL or N/A ft. bgs

Filter pack, top ____.__ ft. MSL or ~~N/A~~ 12.5 BC ft. bgs

Screen joint, top ____.__ ft. MSL or 20.7 ft. bgs

Screen joint, bottom ____.__ ft. MSL or 26.0 ft. bgs

Bottom of end cap ____.__ ft. MSL or 26.4 ft. bgs

Filter pack, bottom ____.__ ft. MSL or N/A ft. bgs

Borehole, bottom ____.__ ft. MSL or N/A ft. bgs

Borehole, diameter 6.0 in. (TO 15 FT BGS)

O.D. well casing N/A in.

I.D. well casing ~~2.00~~ EQ in. 1.25 in

Static water level >24hr. after dev. 25.98 ft TOC

Date/Time 9/23/97

1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
   a. Inside diameter: 4" SQUARE 4.0 in.
   b. Length: 5.0 ft.
   c. Material: Steel ☒ Other ☐
   d. Weep hole location/size BASE OF COVER 1/8"
   e. Additional protection? ☒ Yes ☐ No
   If yes, describe 3 BUMPER POSTS
3. Pad type/dimensions CONCRETE 3 x 3 FT
4. Surface seal: Bentonite ☐ Concrete ☒ Other ☐
5. Material between well casing and protective pipe: Bentonite ☐ Annular space seal ☐ CONCRETE Other ☒
6. Annular space seal a. Granular Bentonite ☒
   b. ____ Lbs/gal mud weight ..... Bentonite-sand slurry ☐
   c. ____ Lbs/gal mud weight ..... Bentonite slurry ☐
   d. ____ % Bentonite ..... Bentonite-cement grout ☐
   e. ____ Ft³ volume added for any of the above
7. Bentonite seal: a. Bentonite granules ☒
   b. ☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐
   c. ____ Other ☐
8. Fine sand material: Manufacturer, product name & mesh size
   a. NATURAL SAND (SEE COMMENTS)
   b. Volume added N/A Lbs
9. Filter pack material: Manufacturer, product name & mesh size
   a. NATURAL SAND (SEE COMMENTS)
   b. Volume added N/A Lbs
10. Well casing: Flush threaded PVC schedule 40 ☐ Flush threaded PVC schedule 80 ☐ STAINLESS STEEL Other ☒
11. Screen material/type STAINLESS STEEL
    a. Manufacturer ____
    b. Slot size: 0.010 in.
    c. Slotted length: 5.3 ft.
    d. Outside diameter ~~2.0 in.~~ 2.00 EQ
    e. Inside diameter 1.25 ~~2.00 in.~~ EQ
    f. Total open area/foot ____ sq. in.
12. Backfill material (below filter pack): None ☒ Other ☐
13. Centralizers
    a. Material/Type N/A
    b. Depth bgs ____

Comments: ~~WELL WAS~~ BOREHOLE WAS DRILLED TO A DEPTH OF ~~6~~ EQ 15 FT USING 6" FLIGHT AUGER. WELL POINT WAS HYDRAULICALLY HAMMERED FROM 15 FT TO TD. FILTER PACK IS IN-SITU NATURAL SAND IN ALLUVIM SEDIMENTS

DRILLER: GEOCORE SERVICES (DEREK WALTER) INSPECTOR: E D LINDGREN

QA/QC

DISCREPANCIES: None CHECKED BY: Bill Cray DATE: 11/5/97

ATTACHMENT 3
SURVEY DATA

ANDERSON
SURVEY COMPANY
203 N.W. EXECUTIVE WAY
P.O. BOX 637
LEE'S SUMMIT, MO 64063
(816) 246-5050
FAX: (816) 246-0502

LAND SURVEYORS
INDUSTRIAL MEASUREMENT SPECIALISTS

FOUNDER: JAMES P. ANDERSON 1887 — 1948

September 25, 1997

Burns & McDonnell Waste Consultants, Inc.
9400 Ward Parkway
Kansas City, MO 64114

Attention: Mr. Tracy Cooley

RE: Location of 14 Piezometer Wells and 2 soil sample points at Ft. Riley, Kansas

Dear Mr. Cooley:

Listed below are the coordinates and elevations of the 14 piezometer wells and 2 soil sample points.

PIEZOMETER NUMBER	STATE PLANE COORDINATE		TOP OF PIPE ELEVATION	GROUND ELEVATION
	NORTH	EAST		
T-1	268,331.16'	2,347,080.80'	1102.61'	1100.0'
T-2	268,206.47'	2,347,178.00'	1099.06'	1099.0'
T-3	268,046.90'	2,347,153.07'	1096.60'	1094.2'
T-4	267,864.44'	2,347,356.05'	1093.21'	1093.2'
T-5	267,780.91'	2,347,301.76'	1087.38'	1087.4'
T-7	267,563.48'	2,347,493.38'	1065.38'	1063.1'
T-8	267,670.62'	2,347,658.12'	1064.83'	1062.7'
T-9	267,620.42'	2,347,280.12'	1076.51'	1075.7'
T-10	267,606.39'	2,347,043.90'	1074.17'	1072.6'
*T-11	267,856.25'	2,347,169.36'	-	1091.9'
*T-12	267,909.24'	2,347,081.35'	-	1089.6'
T-14	267,990.87'	2,347,008.68'	1088.73'	1086.5'
T-15	267,920.84'	2,346,892.46'	1077.50'	1074.9'
T-21	267,690.00'	2,347,208.48'	1073.55'	1072.4'
HS 97-1	266,223.87'	2,345,996.79'	1065.23'	1062.7'
72797-1	264,957.09'	2,350,255.47'	1063.54'	1061.0'

*Soil sample points

The Kansas State Plane Coordinates North Zone, are on NAD 27 Datum.

The elevations are on NAVD 39 Datum.

If you have any questions, please call me at 246-5050.

Sincerely,

Dana G. Kinsley

Dana G. Kinsley, RLS
ANDERSON SURVEY COMPANY, INC.

DGK:jg

ANDERSON
SURVEY COMPANY

ATTACHMENT 4
DEVELOPMENT FORM

Well Development Form

Project Name: USAFLTS4	Project Number: 96-806-4-004	Well Number: HS-1

Project Information

Facility Name: FORT RILEY

Location: N E

Elevation of Well

Ground Surface Elevation (GS):

Top of Casing Elevation (TOC):

Well Information

Date Well Installed: 9/18/97

Total Depth of Well: 26 feet from GS

Depth to Top of Screen: 21 feet from GS

Length of Casing Screened: 5 feet

Type of Formation Screened: SAND, UNCONSOLIDATED

Well Volume Calculation

WL = 25.74

TD = 26.61 TOC

1 TIM VOLUME = 1.15

1 well volume (gallons) = intial height of water column (ft) x 0.0408 x (casing diameter (in))²

intial height of water column (ft) = total depth (ft) - intial depth to water (ft)

Well Development Method

Equipment: 3/8" JIGGLE TUBE

Method Description: USED 5/8" POLY TUBING AND CHECK VALVE TO CONSTRUCT JIGGLE TUBE.

Surge		Bail	
Airlift		Pump	

Observations During Well Development

Date	Time	Depth to Water* (ft)	Total Depth* (ft)	Fluid Removed Gallons	Fluid Removed Total	Temp. (degrees F)	pH (units)	S.C. (µS/cm)	NTU	Fluid Appearance and Remarks (turbidity, color, odor, etc.)
9/18/97	1330	25.74	26.61							
	1346	—	—	0.0	0.0	23.2	6.98	0.90		BROWN, TURBID, NO ODOR
	1352	—	—	3.0	3.0	16.1	6.98	1.00		CLOUDY, BROWN
	1358	—	—	2.0	5.0	15.9	6.99	1.10		~~184~~ 200
	1402	—	—	2.5	7.5	18.0	7.13	1110	69.1	CLOUDY
	1407	—	—	1.0	8.5	16.2	7.01	1110	82.1	"
	1412	—	—	1.0	9.5	16.0	7.00	1110	55.2	"
	1425	—	—	5.0	14.5	16.2	7.04	1100	26.6	CLEAR, NO ODOR
	1430	25.74	26.56							

*from TOC unles otherwise noted in Remarks

091294 Form WCI OP6-1

Burns & McDonnell Waste Consultants, Inc.

ATTACHMENT 5
FIELD GROUNDWATER SAMPLING REPORT

Burns & McDonnell

FIELD GROUND-WATER SAMPLING REPORT

Date: 9/25/97 Job: USFR354 Site: FORT RILEY PID READING @ WELL HEAD (ppm): 0.0

Project No.: ~~USFR 354~~ SB 96-8016-4-004 OTHER READINGS: N/A

WELL NO.

~~HS 97-01~~ SB 10-31-97 HS97-01 ~~78797-01~~ SS 11-31-97

DEPTH TO WATER (feet): 25.16

TOTAL DEPTH (feet): 28.57

INSIDE DIAMETER of WELL (inches): 1.25

PURGE VOLUME CALCULATION: [(3.41 ft of water in casing X 0.08 gallons/foot) = 0.27 gallons/volume X5 = 1.36 total gallons to be purged]

PURGING Equipment Used: Tiggle tube

NOTES: From H.O level = 25.10' TOC

TIME (24 hr)	AMOUNT PURGED (gals)	pH (units)	TEMP (°F) °C	COND. (µmhos /cm³)	TURBIDITY (NTUs)		OBSERVATIONS
0840	0.0	7.03	15.3	1150	205		Cloudy, Brown
0846	1.5	7.04	14.0	1120	389		" "
0850	3.0	7.09	13.8	1130	114		" "
0852	4.0	7.15	13.8	1130	136		" "
0855	5.0	7.16	14.0	1110	87.5		clearing, odorless
0928	10.0	7.12	14.3	1100	109		cloudy, odorless

SAMPLING Equipment Used: Same as above

TIME (24 hr)	pH (units)	TEMP (°F) °C	COND. (µmhos /cm³)	TURBIDITY (NTUs)	DEPTH TO WATER	SAMPLE ID	OBSERVATIONS
0935	7.12	14.3	1100	28.2	25.10	HS9701W01	Clear, odorless

WEATHER: Foggy, pt. Sunny, calm wind AIR TEMP (°F): 60

PARAMETERS REQUESTED FOR ANALYSIS: VOC (pH=1.56), PP Metals (pH=1.46)

SAMPLE ID FOR QC SAMPLE(s): NA

	NAME	SIGNATURE	DATE
PREPARED:	Suzanne Bailey	Suzanne Bailey	9-25-97
REVIEWED:	E D LINDGREN		

File = USFORDSNGWSR.FRM

More on back (circle one)? yes no

ATTACHMENT 6
QA/QC REVIEW OF ANALYTICAL DATA

Memorandum

Burns & McDonnell

Date: December 18, 1997

To: Tracy Cooley

From: Angela Sederquist

Re: QA/QC Review of Analytical Data
Project No. 96-806-4-004 USFR354

Groundwater samples were collected on September 25, 1997 from two well points (HS97-01 and 72797-01) at Fort Riley, Kansas. The samples were analyzed by Intertek Testing Services, Environmental Laboratories (ITS) of Richardson, Texas for one or more of the following parameters:

Parameter	Method
Metals	
Beryllium, Cadmium, Chromium	
Copper, Nickel, Silver, and Zinc	SW-846 Method 3010A/6010B
Arsenic	SW-846 Method 3020A/7060A
Mercury	SW-846 Method 7470/7470A
Lead	SW-846 Method 3020A/7421
Antimony	SW-846 Method 3010/7041
Selenium	SW-846 Method 3020A/7740
Thallium	SW-846 Method 3020A/7841
Semivolatile Organic Compounds (SVOCs)	SW-846 Method 3520B/8270C
Total Petroleum Hydrocarbons (TPH)	
Diesel Range (DRO)	SW-846 Method 3520B/8015B
Gasoline Range (GRO)	SW-846 Method 5030/8015B
Volatile Organic Compounds (VOCs)	SW-846 Method 8260B

Sample results were reviewed for the Level III parameters listed on the attached checklists. Checklist items were evaluated using any SW-846 method-specific QA/QC criteria. When SW-846 method-specific QA/QC criteria were unavailable, data evaluation was performed following the guidelines presented in the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (NFGO (USEPA, 1993)) and the *USEPA Contract Laboratory National Functional Guidelines for Inorganic Data Review* (NFGI (USEPA, 1994)) The quality assurance/ quality control (QA/QC) review results are discussed below:

1. Chain-of-Custody - The chain-of-custody forms were signed by the relinquisher and the receiver.

2. Requested Analyses Completed - All requested analyses were completed.

3. Holding Times Met - All analyses were completed within the respective method holding times.

4. Sample Preservation Acceptable - The samples were received by the laboratory at the

required temperature.

5. Laboratory Method Blank Results - Copper was detected in the method blank for QC batch AC202-62. In accordance with the recommendations of the NFGI, any copper concentration which was less than five times the method blank concentration was qualified as undetected (U*). As such, the copper results in the following associated samples were qualified as undetected (U*): 7279701/W01, 7279701/W02, and HS9701/W01.

6. Field Blanks - No field blanks were collected during this sampling event.

7. Trip Blanks - No positive detections were reported for trip blank TB092597/TB1.

8. Surrogates - Surrogates are added for organic analyses. Surrogates are compounds not normally found in the environment and are added (spiked) into the samples and analyzed for the percent recovery (REC). Maximum and minimum limits on the REC are set by the laboratory for the method used. All surrogate RECs were within QC limits.

9. Laboratory Control Sample/ Laboratory Control Sample Duplicate (LCS/LCSD) - The LCS and LCSD are reference materials that are purchased by the laboratory with known concentration of target analytes. As a measure of accuracy, the results of the LCS and LCSD are compared against the known analytes concentrations in the spike to determine REC. As a measure of precision, the LCS and LCSD are compared against each other to determine the relative percent difference (RPD). The purpose of this LCS/LCSD analysis is to determine the performance of the laboratory with respect to analyte recovery and reproducibility, independent of field sample matrix interferences. All LCS/LCSD RECs and RPDs were within QC limits.

10. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses - MS/MSDs are run for organic and inorganic analyses. A known amount of an analyte is added (spiked) to two portions of the sample. The results of these two portions are compared with each other for reproducibility. They are also compared against the unspiked portion of the sample REC of the spike. Limits on the spike REC were set by the laboratory for the method used.

    All organic MS/MSD RECs and RPDs were within QC limits.

    The MSD REC (76.3 percent) for the mercury MS/MSD performed on QC batch AC202-38 fell below the QC minimum REC of 80 percent. As such, all associated mercury results were qualified as estimated (J*). The following associated samples were qualified as estimated (J*): HS9701/W01, 7279701/W01, and 7279701/W02.

    The MSD REC (79.7 percent) for the lead MS/MSD performed on QC batch AC202-56F

fell below the QC minimum REC of 80 percent. Since the MSD REC only fell sightly below the QC minimum REC, the associated samples were not qualified. The following samples were associated with this MS/MSD analysis: HS9701/W01, 7279701/W01, and 7279701/W02.

The MS and MSD RECs (46.2 and 49.4 percent, respectively) for the antimony MS/MSD performed on QC batch AC202-62F fell below the 70 percent QC minimum REC. As such, all associated sample results were qualified as estimated (J*). The following associated samples were qualified as estimated (J*): HS9701/W01, 7279701/W01, and 7279701/W02.

All other inorganic MS/MSD RECs and RPDs were within QC limits.

11. Laboratory Inorganic Duplicate Results - Duplicate samples are typically run for organic and inorganic analyses. A sample is split by the laboratory into two portions and analyzed separately. The results of those two portions are checked for reproducibility using the RPD equation or a sensitivity test. All laboratory inorganic duplicate results were with QC limits.

12. Field Duplicate Results - Field Duplicate results provide information on the ability to reproduce field results and account for error introduced from handling, shipping, storage, preparation, and analysis of field samples. One field duplicate was collected during this sampling event which was 7279701/W01 // 7279701/W02. In accordance with the United States Army Core of Engineers' (USACE) CEMRK-EP-ES Data Quality Evaluation Guidance, correspondence received March 26, 1997, the following guidelines have been applied to field duplicates:

- Was the compound detected in both samples?
- For minor discrepancies, was the difference between the sample and duplicate results greater than a factor of 3?
- For major discrepancies, was the difference between the sample and duplicated results greater than a factor of 5?

The results for field duplicate pair 7279701/W01 // 7279701/W02 are presented in Table 1. All analyses met USACE's QC guidelines.

13. Quantitation and Detection Limits - None of the samples were diluted.

14. Conclusion - No data was qualified as unusable as a result of the QA/QC data review. As such, the results of this review indicate that the data are valid for use (as qualified) in reporting the results of this investigation.

k:\wci\dvmisc\usfr354.oct

Table 1
Field Duplicate Results
Fort Riley, Kansas

	Sample Point:	7279701/W01	7279701/W02	Meets QC
	Date Sampled:	9/25/97	9/25/97	Criteria?
	Laboratory Number:	D97-11708-2	D97-11708-5	Yes/No
	Sample Delivery Group:	D97-11708	D97-11708	
Metals	**Units**			
Antimony, Total	mg/L	0.006 UJ*	0.006 UJ*	Yes
Arsenic, Total	mg/L	0.005 U	0.005 U	Yes
Beryllium, Total	mg/L	0.003 U	0.003 U	Yes
Cadmium, Total	mg/L	0.005 U	0.0037 J	Yes
Chromium, Total	mg/L	0.0298	0.0375	Yes
Copper, Total	mg/L	0.0048 J	0.0053 JU*	Yes
Lead, Total	mg/L	0.002 U	0.002 UJ*	Yes
Mercury, Total	mg/L	0.0002 U	0.0002 UJ*	Yes
Nickel, Total	mg/L	0.0289	0.0359	Yes
Selenium, Total	mg/L	0.0084	0.0066	Yes
Silver, Total	mg/L	0.005 U	0.005 U	Yes
Thallium, Total	mg/L	0.005 U	0.005 U	Yes
Zinc, Total	mg/L	0.02 U	0.02 U	Yes
SVOCs	**Units**			
1,2,4-Trichlorobenzene	µg/L	10 U	10.6 U	Yes
1,2-Dichlorobenzene	µg/L	10 U	10.6 U	Yes
1,3-Dichlorobenzene	µg/L	10 U	10.6 U	Yes
1,4-Dichlorobenzene	µg/L	10 U	10.6 U	Yes
2,4,5-Trichlorophenol	µg/L	10 U	10.6 U	Yes
2,4,6-Trichlorophenol	µg/L	10 U	10.6 U	Yes
2,4-Dichlorophenol	µg/L	10 U	10.6 U	Yes
2,4-Dimethylphenol	µg/L	10 U	10.6 U	Yes
2,4-Dinitrophenol	µg/L	50 U	53.2 U	Yes
2,4-Dinitrotoluene	µg/L	10 U	10.6 U	Yes
2,6-Dinitrotoluene	µg/L	10 U	10.6 U	Yes
2-Chloronaphthalene	µg/L	10 U	10.6 U	Yes
2-Chlorophenol	µg/L	10 U	10.6 U	Yes
2-Methylnaphthalene	µg/L	10 U	10.6 U	Yes
2-Methylphenol	µg/L	10 U	10.6 U	Yes
2-Nitroaniline	µg/L	50 U	53.2 U	Yes
2-Nitrophenol	µg/L	10 U	10.6 U	Yes
3,3'-Dichlorobenzidine	µg/L	20 U	21.3 U	Yes
3-Nitroaniline	µg/L	50 U	53.2 U	Yes
4,6-Dinitro-2-methylphenol	µg/L	50 U	53.2 U	Yes
4-Bromophenyl-phenyl ether	µg/L	10 U	10.6 U	Yes
4-Chloro-3-methylphenol	µg/L	20 U	21.3 U	Yes
4-Chloroaniline	µg/L	20 U	21.3 U	Yes
4-Chlorophenyl-phenyl ether	µg/L	10 U	10.6 U	Yes
4-Methylphenol	µg/L	10 U	10.6 U	Yes
4-Nitroaniline	µg/L	50 U	53.2 U	Yes

Table 1
Field Duplicate Results
Fort Riley, Kansas

Sample Point:		7279701/W01	7279701/W02	Meets QC
Date Sampled:		9/25/97	9/25/97	Criteria?
Laboratory Number:		D97-11708-2	D97-11708-5	Yes/No
Sample Delivery Group:		D97-11708	D97-11708	
SVOCs (Cont.)	Units			
4-Nitrophenol	µg/L	50 U	53.2 U	Yes
Acenaphthene	µg/L	10 U	10.6 U	Yes
Acenaphthylene	µg/L	10 U	10.6 U	Yes
Anthracene	µg/L	10 U	10.6 U	Yes
Benzo(a)anthracene	µg/L	10 U	10.6 U	Yes
Benzo(a)pyrene	µg/L	10 U	10.6 U	Yes
Benzo(b)fluoranthene	µg/L	10 U	10.6 U	Yes
Benzo(g,h,i)perylene	µg/L	10 U	10.6 U	Yes
Benzo(k)fluoranthene	µg/L	10 U	10.6 U	Yes
Benzoic acid	µg/L	50 U	53.2 U	Yes
Benzyl alcohol	µg/L	20 U	21.3 U	Yes
Bis(2-chloroethoxy)methane	µg/L	10 U	10.6 U	Yes
Bis(2-chloroethyl)ether	µg/L	10 U	10.6 U	Yes
Bis(2-chloroisopropyl)ether	µg/L	10 U	10.6 U	Yes
Bis(2-ethylhexyl)phthalate	µg/L	10 U	10.6 U	Yes
Butylbenzylphthalate	µg/L	10 U	10.6 U	Yes
Carbazole	µg/L	10 U	10.6 U	Yes
Chrysene	µg/L	10 U	10.6 U	Yes
Di-n-butylphthalate	µg/L	10 U	10.6 U	Yes
Di-n-octylphthalate	µg/L	10 U	10.6 U	Yes
Dibenzo(a,h)anthracene	µg/L	10 U	10.6 U	Yes
Dibenzofuran	µg/L	10 U	10.6 U	Yes
Diethyl phthalate	µg/L	10 U	10.6 U	Yes
Dimethyl phthalate	µg/L	10 U	10.6 U	Yes
Fluoranthene	µg/L	10 U	10.6 U	Yes
Fluorene	µg/L	10 U	10.6 U	Yes
Hexachlorobenzene	µg/L	10 U	10.6 U	Yes
Hexachlorobutadiene	µg/L	10 U	10.6 U	Yes
Hexachlorocyclopentadiene	µg/L	10 U	10.6 U	Yes
Hexachloroethane	µg/L	10 U	10.6 U	Yes
Indeno(1,2,3-cd)pyrene	µg/L	10 U	10.6 U	Yes
Isophorone	µg/L	10 U	10.6 U	Yes
N-Nitroso-di-n-propylamine	µg/L	10 U	10.6 U	Yes
N-Nitrosodiphenylamine	µg/L	10 U	10.6 U	Yes
Naphthalene	µg/L	10 U	10.6 U	Yes
Nitrobenzene	µg/L	10 U	10.6 U	Yes
Pentachlorophenol	µg/L	50 U	53.2 U	Yes
Phenanthrene	µg/L	10 U	10.6 U	Yes
Phenol	µg/L	10 U	10.6 U	Yes
Pyrene	µg/L	10 U	10.6 U	Yes

Table 1
Field Duplicate Results
Fort Riley, Kansas

Sample Point:		7279701/W01	7279701/W02	Meets QC
Date Sampled:		9/25/97	9/25/97	Criteria?
Laboratory Number:		D97-11708-2	D97-11708-5	Yes/No
Sample Delivery Group:		D97-11708	D97-11708	
TPH	Units			
Extractable Total Petroleum Hydrocarbons	mg/L	0.5 U	0.5 U	Yes
Volatile Total Petroleum Hydrocarbons	µg/L	50 U	50 U	Yes
VOCs	Units			
1,1,1,2-Tetrachloroethane	µg/L	5 U	5 U	Yes
1,1,1-Trichloroethane	µg/L	5 U	5 U	Yes
1,1,2,2-Tetrachloroethane	µg/L	5 U	5 U	Yes
1,1,2-Trichloroethane	µg/L	5 U	5 U	Yes
1,1-Dichloroethane	µg/L	5 U	5 U	Yes
1,1-Dichloroethene	µg/L	5 U	5 U	Yes
1,1-Dichloropropene	µg/L	5 U	5 U	Yes
1,2,3-Trichlorobenzene	µg/L	5 U	5 U	Yes
1,2,3-Trichloropropane	µg/L	5 U	5 U	Yes
1,2,4-Trichlorobenzene	µg/L	5 U	5 U	Yes
1,2,4-Trimethylbenzene	µg/L	5 U	5 U	Yes
1,2-Dibromo-3-chloropropane	µg/L	25 U	25 U	Yes
1,2-Dibromoethane	µg/L	5 U	5 U	Yes
1,2-Dichlorobenzene	µg/L	5 U	5 U	Yes
1,2-Dichloroethane	µg/L	5 U	5 U	Yes
1,2-Dichloropropane	µg/L	5 U	5 U	Yes
1,3,5-Trimethylbenzene	µg/L	5 U	5 U	Yes
1,3-Dichlorobenzene	µg/L	5 U	5 U	Yes
1,3-Dichloropropane	µg/L	5 U	5 U	Yes
1,4-Dichlorobenzene	µg/L	5 U	5 U	Yes
2,2-Dichloropropane	µg/L	5 U	5 U	Yes
2-Butanone	µg/L	100 U	100 U	Yes
2-Chloroethylvinyl ether	µg/L	10 U	10 U	Yes
2-Chlorotoluene	µg/L	5 U	5 U	Yes
2-Hexanone	µg/L	50 U	50 U	Yes
4-Chlorotoluene	µg/L	5 U	5 U	Yes
4-Methyl-2-pentanone	µg/L	100 U	100 U	Yes
Acetone	µg/L	20 U	20 U	Yes
Acrylonitrile	µg/L	5 U	5 U	Yes
Benzene	µg/L	5 U	5 U	Yes
Bromobenzene	µg/L	5 U	5 U	Yes
Bromochloromethane	µg/L	5 U	5 U	Yes
Bromodichloromethane	µg/L	5 U	5 U	Yes
Bromoform	µg/L	5 U	5 U	Yes
Bromomethane	µg/L	5 U	5 U	Yes

Table 1
Field Duplicate Results
Fort Riley, Kansas

Sample Point:		7279701/W01	7279701/W02	Meets QC
Date Sampled:		9/25/97	9/25/97	Criteria?
Laboratory Number:		D97-11708-2	D97-11708-5	Yes/No
Sample Delivery Group:		D97-11708	D97-11708	
VOCs (Cont.)	Units			
Carbon disulfide	µg/L	5 U	5 U	Yes
Carbon tetrachloride	µg/L	5 U	5 U	Yes
Chlorobenzene	µg/L	5 U	5 U	Yes
Chloroethane	µg/L	5 U	5 U	Yes
Chloroform	µg/L	5 U	5 U	Yes
cis-1,2-Dichloroethene	µg/L	5 U	5 U	Yes
cis-1,3-Dichloropropene	µg/L	5 U	5 U	Yes
Dibromochloromethane	µg/L	5 U	5 U	Yes
Dibromomethane	µg/L	5 U	5 U	Yes
Ethylbenzene	µg/L	5 U	5 U	Yes
Iodomethane	µg/L	5 U	5 U	Yes
m,p-Xylene	µg/L	5 U	5 U	Yes
Methyl chloride	µg/L	5 U	5 U	Yes
Methylene chloride	µg/L	5 U	5 U	Yes
o-Xylene	µg/L	5 U	5 U	Yes
Styrene	µg/L	5 U	5 U	Yes
Tetrachloroethene	µg/L	5 U	5 U	Yes
Toluene	µg/L	5 U	5 U	Yes
trans-1,2-Dichloroethene	µg/L	5 U	5 U	Yes
trans-1,3-Dichloropropen	µg/L	5 U	5 U	Yes
trans-1,4-Dichloro-2-butene	µg/L	100 U	100 U	Yes
Trichloroethene	µg/L	5 U	5 U	Yes
Trichlorofluoromethane	µg/L	5 U	5 U	Yes
Vinyl acetate	µg/L	50 U	50 U	Yes
Vinyl chloride	µg/L	2 U	2 U	Yes

Notes:

mg/L = milligrams per Liter

µg/L = microgram per Liter

U = undetected

J = Qualified as estimated by the laboratory.

J* = Qualified as estimated during the data review.

SVOCs = Semivolatile Organic Compounds

TPH = Total Petroluem Hydrocarbons

VOCs = Volatile Organic Compounds

Organic Data Validation Checklist

SDG No.: D97-11708
Project Name: Fort Riley
Project No.: 96806400A USFR354

Site:
Laboratory: ITS
Analysis Type: VOC, SVOC, TPH

Instructions:

1. Initial and date this form at the start and end of review for this SDG.
2. Place a check mark in the "NA" column when the review item was not applicable.
3. When review of a checklist item is complete, place a check mark in the "Reviewed" column.
4. Place an "NS" designation in the "Reviewed" column when applicable data were not supplied.
5. Place a check mark or an "NR" in the "Qualified" column if related data did or did not require qualification, respectively.
6. See "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1993, for validation purposes.
7. Level IV review is generally performed on 5-10% of all sample results; actual percentage is project specific.
8. Place a check mark in the box at the beginning of the Level IV section if no associated raw data were reviewed.

Level III Review Item	NA	Reviewed	Qualified	Comments
Signed Chain-of-Custody Available		✓		
Requested Analyses Completed		✓		
Holding Times Met		✓		
Sample Preservation Acceptable		✓		
Laboratory Method Blank Results		✓		
Field Blank Results	✓			
Trip Blank Results (VOC only)		✓		
Surrogate Recoveries		✓		
Laboratory Control Sample Results		✓		
MS/MSD Results		✓		
Field Duplicates		✓		7279701/w01 & 7279701/w02
Quantitation Limits	✓			
Level IV Review Item	☐	= Summary Sheets Only		
GC/MS Tuning				
Initial Calibrations				
Continuing Calibrations				
Internal Standards				
Enhanced Level IV Review Item				
Compound Identification				
Compound Quantitation				

Date Started/ Reviewer: 10/15/97 AR

Date Completed/ Reviewer: 10/15/97 AS

Inorganic Data Validation Checklist

SDG No.: D97-11708
Project Name: Fort Riley
Project No.: 968064004 USFR354
Site:
Laboratory: ITS
Analysis Type: Metals

Instructions:

1. Initial and date this form at the start and end of review for this SDG.
2. Place a check mark in the "NA" column when the review item was not applicable.
3. When review of a checklist item is complete, place a check mark in the "Reviewed" column.
4. Place an "NS" designation in the "Reviewed" column when applicable data were not supplied.
5. Place a check mark or an "NR" in the "Qualified" column if related data did or did not require qualification, respectively.
6. See "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," February 1994, for validation purposes.
7. Level IV review is generally performed on 5-10% of all sample results; actual percentage is project specific.
8. Place a check mark in the box at the beginning of the Level IV section if no associated raw data were reviewed.

	NA	Reviewed	Qualified	Comments
Level III Review Item				
Signed Chain-of-Custody Available		✓		
Requested Analyses Completed		✓		
Holding Times Met		✓		
Sample Preservation Acceptable		✓		
Laboratory Method Blank Results		✓		
Field Blank Results	✓			
Laboratory Control Sample Results		✓		
Duplicate Sample Results		✓		
Matrix Spike Results			✓	Mercury, Lead, Antimony
Field Duplicates	✓			
Detection Limits	✓			
Level IV Review Item	☐ = Summary Sheets Only			
Initial Calibrations				
Initial/Continuing Calibration Verification				
ICP Interference Check Sample Results				
ICP Serial Dilution				
Enhanced Level IV Review Item				
Furnace Atomic Absorption QC				
Sample Result Verification				

Date Started/ Reviewer: 10/15/97 AS
Date Completed/ Reviewer: 10/15/97 AS

ATTACHMENT 7
ANALYTICAL DATA

ITS Intertek Testing Services
Environmental Laboratories

DATE RECEIVED: 26-Sep-1997 REPORT NUMBER: D97-11708
REPORT DATE: 7-OCT-1997

SAMPLE SUBMITTED BY : Burns and McDonnell Waste Consultants, Inc.
ADDRESS : 9400 Ward Parkway
Kansas City, MO 64114
ATTENTION : Mr. Tracy Cooley
PROJECT : 96-806-4-004 USFR354
DATE SAMPLED : 25-SEP-1997

CASE NARRATIVE COMMENTS:

The results were reported on a dry weight basis, having been corrected for total solids.

No issues were noted during the sample analysis of this job.

Please refer to the attached case narrative summary for sample identifications, and analytical requests.

If you have any questions, please call Mr. Keith Partin at (972) 238-5591.

Amy Pence
Data Review/QC

Intertek Testing Services NA Inc.
1089 East Collins Boulevard Richardson, TX 75081
Telephone (972) 238-5591 Fax (972) 238-5592

JOB ID : D97-11708
CUSTOMER : Burns & McDonnell Waste Consultants, Inc.
PROJECT : 96-806-4-004 USFR354

SAMPLE ID : D97-11708-1 DATE SAMPLED : 25-SEP-1997
ID MARKS : HS97-01#W01

ANALYSIS	PRP	PRP DATE	ANL	ANL DATE	QC BATCH NUMBER
8260_L /2			MGD	30-SEP-1997	9709297002
M_AG_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_AS_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_BE_TADLP /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CD_TADLP /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CR_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CU_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_HG_T_L_V /1	A_O	26-SEP-1997	CGJ	29-SEP-1997	AC202-38
M_NI_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_PB_TADLF /1	CEL	28-SEP-1997	GGD	29-SEP-1997	AC202-56F
M_SB_TADLF /1	CEL	29-SEP-1997	AH	30-SEP-1997	AC202-62F
M_SE_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_TL_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_ZN_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62

SAMPLE ID : D97-11708-2 DATE SAMPLED : 25-SEP-1997
ID MARKS : 72797-01#W01

ANALYSIS	PRP	PRP DATE	ANL	ANL DATE	QC BATCH NUMBER
8260_L /1			MGD	30-SEP-1997	9709297002
8270_ABN_L /1	KDF	26-SEP-1997	TC	28-SEP-1997	AC196-14
M_AG_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_AS_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_BE_TADLP /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CD_TADLP /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62

Intertek Testing Services NA Inc.
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SAMPLE ID : D97-11708-2 DATE SAMPLED : 25-SEP-1997
ID MARKS : 72797-01#W01

ANALYSIS	PRP	PRP DATE	ANL	ANL DATE	QC BATCH NUMBER
M_CR_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CU_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_HG_T_L_V /1	A_O	26-SEP-1997	CGJ	29-SEP-1997	AC202-38
M_NI_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_PB_TADLF /1	CEL	28-SEP-1997	GGD	29-SEP-1997	AC202-56F
M_SB_TADLF /1	CEL	29-SEP-1997	AH	30-SEP-1997	AC202-62F
M_SE_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_TL_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_ZN_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
TPH_8015EL /1	TDC	26-SEP-1997	VHL	29-SEP-1997	AC196-12
TPH_8015_L /1			CNA	1-OCT-1997	33093097A

SAMPLE ID : D97-11708-3 DATE SAMPLED : 25-SEP-1997
ID MARKS : 72797-01#W01MS

ANALYSIS	PRP	PRP DATE	ANL	ANL DATE	QC BATCH NUMBER
8260_L /1			MGD	30-SEP-1997	9709307001
8270_ABN_L /1	KDF	26-SEP-1997	TC	28-SEP-1997	AC196-14
M_AG_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_AS_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_BE_TADLP /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CD_TADLP /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CR_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CU_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_HG_T_L_V /1	A_O	26-SEP-1997	CGJ	29-SEP-1997	AC202-38
M_NI_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_PB_TADLF /1	CEL	28-SEP-1997	GGD	29-SEP-1997	AC202-56F
M_SB_TADLF /1	CEL	29-SEP-1997	AH	30-SEP-1997	AC202-62F

Intertek Testing Services NA Inc.
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SAMPLE ID : D97-11708-3 DATE SAMPLED : 25-SEP-1997 ID MARKS : 72797-01#WO1MS					
ANALYSIS	PRP	PRP DATE	ANL	ANL DATE	QC BATCH NUMBER
M_SE_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_TL_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_ZN_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
TPH_8015EL /1	TDC	26-SEP-1997	VHL	29-SEP-1997	AC196-12
TPH_8015_L /1			CNA	2-OCT-1997	33093097A

SAMPLE ID : D97-11708-4 DATE SAMPLED : 25-SEP-1997 ID MARKS : 72797-01#WO1MSD					
ANALYSIS	PRP	PRP DATE	ANL	ANL DATE	QC BATCH NUMBER
8260_L /1			MGD	30-SEP-1997	9709307001
8270_ABN_L /1	KDF	26-SEP-1997	TC	28-SEP-1997	AC196-14
M_AG_TADLI /2	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_AS_TADLF /2	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_BE_TADLP /2	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CD_TADLP /2	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CR_TADLI /2	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CU_TADLI /2	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_HG_T_L_V /2	A_O	26-SEP-1997	CGJ	29-SEP-1997	AC202-38
M_NI_TADLI /2	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_PB_TADLF /2	CEL	28-SEP-1997	GGD	29-SEP-1997	AC202-56F
M_SB_TADLF /2	CEL	29-SEP-1997	AH	30-SEP-1997	AC202-62F
M_SE_TADLF /2	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_TL_TADLF /2	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_ZN_TADLI /2	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
TPH_8015EL /1	TDC	26-SEP-1997	VHL	29-SEP-1997	AC196-12
TPH_8015_L /1			CNA	2-OCT-1997	33093097A

Intertek Testing Services NA Inc.
1089 East Collins Boulevard Richardson, TX 75081
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JOB ID : D97-11708
CUSTOMER : Burns & McDonnell Waste Consultants, Inc.
PROJECT : 96-806-4-004 USFR354

SAMPLE ID : D97-11708-5 DATE SAMPLED : 25-SEP-1997
ID MARKS : 72797-01#W02

ANALYSIS	PRP	PRP DATE	ANL	ANL DATE	QC BATCH NUMBER
8260_L /1			MGD	30-SEP-1997	9709297002
8270_ABN_L /1	KDF	26-SEP-1997	TC	28-SEP-1997	AC196-14
M_AG_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_AS_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_BE_TADLP /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CD_TADLP /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CR_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CU_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_HG_T_L_V /1	A_O	26-SEP-1997	CGJ	29-SEP-1997	AC202-38
M_NI_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_PB_TADLF /1	CEL	28-SEP-1997	GGD	29-SEP-1997	AC202-56F
M_SB_TADLF /1	CEL	29-SEP-1997	AH	30-SEP-1997	AC202-62F
M_SE_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_TL_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_ZN_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
TPH_8015EL /1	TDC	26-SEP-1997	VHL	29-SEP-1997	AC196-12
TPH_8015_L /1			CNA	1-OCT-1997	33093097A

SAMPLE ID : D97-11708-6 DATE SAMPLED : 25-SEP-1997
ID MARKS : TB092597#TB1

ANALYSIS	PRP	PRP DATE	ANL	ANL DATE	QC BATCH NUMBER
8260_L /1			MGD	30-SEP-1997	9709297002

Intertek Testing Services NA Inc.
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JOB ID : D97-11708
CUSTOMER : Burns & McDonnell Waste Consultants, Inc.
PROJECT : 96-806-4-004 USFR354

SAMPLE ID : D97-11708-7 DATE SAMPLED : 25-SEP-1997
ID MARKS : LABQC# MBLANK

ANALYSIS	PRP	PRP DATE	ANL	ANL DATE	QC BATCH NUMBER
8260_L /1			MGD	29-SEP-1997	9709297002
8260_L /2			MGD	30-SEP-1997	9709307001
8270_ABN_L /1	KDF	26-SEP-1997	TC	28-SEP-1997	AC196-14
M_AG_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_AS_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_BE_TADLP /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CD_TADLP /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CR_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_CU_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_HG_T_L_V /1	A_O	26-SEP-1997	CGJ	29-SEP-1997	AC202-38
M_NI_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
M_PB_TADLF /1	CEL	28-SEP-1997	GGD	29-SEP-1997	AC202-56F
M_SB_TADLF /1	CEL	29-SEP-1997	AH	30-SEP-1997	AC202-62F
M_SE_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_TL_TADLF /1	CEL	28-SEP-1997	GGD	28-SEP-1997	AC202-56F
M_ZN_TADLI /1	CEL	29-SEP-1997	GAY	29-SEP-1997	AC202-62
TPH_8015EL /1	TDC	26-SEP-1997	VHL	29-SEP-1997	AC196-12
TPH_8015_L /1			CNA	1-OCT-1997	33093097A

Intertek Testing Services NA Inc.
1089 East Collins Boulevard Richardson, TX 75081
Telephone (972) 238-5591 Fax (972) 238-5592

JOB ID : D97-11708
CUSTOMER : Burns & McDonnell Waste Consultants, Inc.
PROJECT : 96-806-4-004 USFR354

ANALYSIS	DESCRIPTION
8260_L	Volatiles, GCMS, 258 App 1, 5 ml Purge
M_AG_TADLI	Silver, Total, Hot Plate, Liquid, by ICP
M_AS_TADLF	Arsenic, Hot Plate, Liquid, by Furnace
M_BE_TADLP	Beryllium, Total, Hot Plate, Liquid by PE-ICP
M_CD_TADLP	Cadmium, Total, Hot Plate, Liquid, by PE-ICP
M_CR_TADLI	Chromium, Total, Hot PLate, Liquid, by ICP
M_CU_TADLI	Copper, Total, Hot Plate, Liquid, by ICP
M_HG_T_L_V	Mercury, Total, Liquid, by GVAA
M_NI_TADLI	Nickel, Total, Hot Plate, Liquid, by ICP
M_PB_TADLF	Lead, Total, Hot Plate, Liquid by Furnace
M_SB_TADLF	Antimony, Total, Hot Plate, Liquid, Furnace
M_SE_TADLF	Selenium, Total, Hot Plate, Liquid, Furnace
M_TL_TADLF	Thallium, Total, Hot Plate, Liquid, Furnace
M_ZN_TADLI	Zinc, Total, Hot Plate, Liquid, by ICP
8270_ABN_L	ABN, Full List, Liquid
TPH_3015EL	Extractable TPH by GC, Liquid, as EPA 8015
TPH_8015_L	Volatile TPH by GC, Liquid, µg/L

Intertek Testing Services NA Inc.
1089 East Collins Boulevard Richardson, TX 75081
Telephone (972) 238-5591 Fax (972) 238-5592

ITS Intertek Testing Services
Environmental Laboratories

DATE RECEIVED : 26-SEP-1997
REPORT NUMBER : D97-11708
REPORT DATE : 7-OCT-1997

SAMPLE SUBMITTED BY : Burns & McDonnell Waste Consultants, Inc.
ADDRESS : 9400 Ward Parkway
: Kansas City, MO 64114
ATTENTION : Tracy Cooley
PROJECT : 96-806-4-004 USFR354

Included in this data package are the analytical results for the sample group which you have submitted to Intertek Testing Services for analysis.

The information contained herein has undergone extensive review and is deemed accurate and complete. Sample analysis and quality control were performed in accordance with all applicable protocols. Any deviations from these protocols or observations of interest are detailed in an accompanying Case Narrative.

If you have any questions regarding this report and its associated materials please call your Project Manager at (214) 238-5591.

We appreciate the opportunity to serve you and look forward to providing continued service in the future.

Martin Jeffus
General Manager

Intertek Testing Services NA Inc.
1089 East Collins Boulevard Richardson, TX 75081
Telephone (972) 238-5591 Fax (972) 238-5592

ITS Intertek Testing Services
Environmental Laboratories

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-1
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: HS97-01#W01
DATE SAMPLED: 25-SEP-1997	:
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /2
Analyzed using EPA 8260B on 30-SEP-1997 by MGD
QC Batch No : 9709297002
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acetone	1	20.0	< 20.0 µg/L	U
Acrylonitrile	1	5.00	< 5.00 µg/L	U
Benzene	1	5.00	< 5.00 µg/L	U
Bromobenzene	1	5.00	< 5.00 µg/L	U
Bromochloromethane	1	5.00	< 5.00 µg/L	U
Bromodichloromethane	1	5.00	< 5.00 µg/L	U
Bromoform	1	5.00	< 5.00 µg/L	U
Carbon disulfide	1	5.00	< 5.00 µg/L	U
Carbon tetrachloride	1	5.00	< 5.00 µg/L	U
Chlorobenzene	1	5.00	< 5.00 µg/L	U
Chloroethane	1	5.00	< 5.00 µg/L	U
Chloroform	1	5.00	< 5.00 µg/L	U
2-Chlorotoluene	1	5.00	< 5.00 µg/L	U
4-Chlorotoluene	1	5.00	< 5.00 µg/L	U
2-Chloroethylvinyl ether	1	10.0	< 10.0 µg/L	U
Dibromochloromethane	1	5.00	< 5.00 µg/L	U
1,2-Dibromo-3-chloropropane	1	25.0	< 25.0 µg/L	U
1,2-Dibromoethane	1	5.00	< 5.00 µg/L	U
1,2-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
1,3-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
1,4-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
trans-1,4-Dichloro-2-butene	1	100	< 100 µg/L	U
1,1-Dichloroethane	1	5.00	< 5.00 µg/L	U
1,2-Dichloroethane	1	5.00	< 5.00 µg/L	U
1,1-Dichloroethene	1	5.00	< 5.00 µg/L	U
cis-1,2-Dichloroethene	1	5.00	< 5.00 µg/L	U
trans-1,2-Dichloroethene	1	5.00	< 5.00 µg/L	U
1,2-Dichloropropane	1	5.00	< 5.00 µg/L	U
2,2-Dichloropropane	1	5.00	< 5.00 µg/L	U
1,1-Dichloropropene	1	5.00	< 5.00 µg/L	U
1,3-Dichloropropane	1	5.00	< 5.00 µg/L	U

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-1
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: HS97-01#W01
DATE SAMPLED: 25-SEP-1997	:
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /2 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
cis-1,3-Dichloropropene	1	5.00	< 5.00 µg/L	U
trans-1,3-Dichloropropene	1	5.00	< 5.00 µg/L	U
Ethylbenzene	1	5.00	< 5.00 µg/L	U
2-Hexanone	1	50.0	< 50.0 µg/L	U
Bromomethane	1	5.00	< 5.00 µg/L	U
Chloromethane	1	5.00	< 5.00 µg/L	U
Dibromomethane	1	5.00	< 5.00 µg/L	U
2-Butanone	1	100	< 100 µg/L	U
Iodomethane	1	5.00	< 5.00 µg/L	U
Methylene chloride	1	5.00	< 5.00 µg/L	U
4-Methyl-2-pentanone	1	100	< 100 µg/L	U
Styrene	1	5.00	< 5.00 µg/L	U
1,1,1,2-Tetrachloroethane	1	5.00	< 5.00 µg/L	U
1,1,2,2-Tetrachloroethane	1	5.00	< 5.00 µg/L	U
Tetrachloroethene	1	5.00	< 5.00 µg/L	U
Toluene	1	5.00	< 5.00 µg/L	U
1,2,3-Trichlorobenzene	1	5.00	< 5.00 µg/L	U
1,2,4-Trichlorobenzene	1	5.00	< 5.00 µg/L	U
1,1,1-Trichloroethane	1	5.00	< 5.00 µg/L	U
1,1,2-Trichloroethane	1	5.00	< 5.00 µg/L	U
Trichloroethene	1	5.00	< 5.00 µg/L	U
Trichlorofluoromethane	1	5.00	< 5.00 µg/L	U
1,2,3-Trichloropropane	1	5.00	< 5.00 µg/L	U
1,3,5-Trimethylbenzene	1	5.00	< 5.00 µg/L	U
1,2,4-Trimethylbenzene	1	5.00	< 5.00 µg/L	U
Vinyl acetate	1	50.0	< 50.0 µg/L	U
Vinyl chloride	1	2.00	< 2.00 µg/L	U
m,p-Xylene	1	5.00	< 5.00 µg/L	U
o-Xylene	1	5.00	< 5.00 µg/L	U

VOLATILE ORGANICS /2 (Page 2)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Toluene-d8 (SS)	1	85 - 120	97.0 %	

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-1
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: HS97-01#W01
DATE SAMPLED: 25-SEP-1997	:
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /2 (Page 3)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Bromofluorobenzene (SS)	1	85 - 125	120 %	
1,2-Dichloroethane-d4 (SS)	1	80 - 120	83.6 %	
Dibromofluoromethane (SS)	1	80 - 120	80.6 %	

Applicable results are reported on dry weight basis.

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-1
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: HS97-01#W01
DATE SAMPLED: 25-SEP-1997	:
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

TOTAL METALS

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Silver	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Arsenic	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7060A on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Beryllium	1	0.0030	< 0.0030 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Cadmium	1	0.0050	0.0033 mg/L	J
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Chromium	1	0.0050	0.136 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Copper	1	0.0100	0.0060 mg/L	J
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Mercury	1	0.0002	< 0.0002 mg/L	U
Prepared using EPA 7470 on 26-SEP-1997 by A_O Analyzed using EPA 7470A on 29-SEP-1997 by CGJ QC Batch No : AC202-38 Method Factor : 1				
Nickel	1	0.0050	0.107 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Lead	1	0.0020	< 0.0020 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7421 on 29-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Antimony	1	0.0060	< 0.0060 mg/L	U
Prepared using EPA 3010 on 29-SEP-1997 by CEL Analyzed using EPA 7041 on 30-SEP-1997 by AH QC Batch No : AC202-62F Method Factor : 1				

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

TOTAL METALS (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Selenium	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7740 on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Thallium	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7841 on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Zinc	1	0.0200	< 0.0200 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				

Applicable results are reported on dry weight basis.

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DATE SAMPLED: 25-SEP-1997	:
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1
Analyzed using EPA 8260B on 30-SEP-1997 by MGD
QC Batch No : 9709297002
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acetone	1	20.0	< 20.0 µg/L	U
Acrylonitrile	1	5.00	< 5.00 µg/L	U
Benzene	1	5.00	< 5.00 µg/L	U
Bromobenzene	1	5.00	< 5.00 µg/L	U
Bromochloromethane	1	5.00	< 5.00 µg/L	U
Bromodichloromethane	1	5.00	< 5.00 µg/L	U
Bromoform	1	5.00	< 5.00 µg/L	U
Carbon disulfide	1	5.00	< 5.00 µg/L	U
Carbon tetrachloride	1	5.00	< 5.00 µg/L	U
Chlorobenzene	1	5.00	< 5.00 µg/L	U
Chloroethane	1	5.00	< 5.00 µg/L	U
Chloroform	1	5.00	< 5.00 µg/L	U
2-Chlorotoluene	1	5.00	< 5.00 µg/L	U
4-Chlorotoluene	1	5.00	< 5.00 µg/L	U
2-Chloroethylvinyl ether	1	10.0	< 10.0 µg/L	U
Dibromochloromethane	1	5.00	< 5.00 µg/L	U
1,2-Dibromo-3-chloropropane	1	25.0	< 25.0 µg/L	U
1,2-Dibromoethane	1	5.00	< 5.00 µg/L	U
1,2-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
1,3-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
1,4-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
trans-1,4-Dichloro-2-butene	1	100	< 100 µg/L	U
1,1-Dichloroethane	1	5.00	< 5.00 µg/L	U
1,2-Dichloroethane	1	5.00	< 5.00 µg/L	U
1,1-Dichloroethene	1	5.00	< 5.00 µg/L	U
cis-1,2-Dichloroethene	1	5.00	< 5.00 µg/L	U
trans-1,2-Dichloroethene	1	5.00	< 5.00 µg/L	U
1,2-Dichloropropane	1	5.00	< 5.00 µg/L	U
2,2-Dichloropropane	1	5.00	< 5.00 µg/L	U
1,1-Dichloropropene	1	5.00	< 5.00 µg/L	U
1,3-Dichloropropane	1	5.00	< 5.00 µg/L	U

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
cis-1,3-Dichloropropene	1	5.00	< 5.00 µg/L	U
trans-1,3-Dichloropropene	1	5.00	< 5.00 µg/L	U
Ethylbenzene	1	5.00	< 5.00 µg/L	U
2-Hexanone	1	50.0	< 50.0 µg/L	U
Bromomethane	1	5.00	< 5.00 µg/L	U
Chloromethane	1	5.00	< 5.00 µg/L	U
Dibromomethane	1	5.00	< 5.00 µg/L	U
2-Butanone	1	100	< 100 µg/L	U
Iodomethane	1	5.00	< 5.00 µg/L	U
Methylene chloride	1	5.00	< 5.00 µg/L	U
4-Methyl-2-pentanone	1	100	< 100 µg/L	U
Styrene	1	5.00	< 5.00 µg/L	U
1,1,1,2-Tetrachloroethane	1	5.00	< 5.00 µg/L	U
1,1,2,2-Tetrachloroethane	1	5.00	< 5.00 µg/L	U
Tetrachloroethene	1	5.00	< 5.00 µg/L	U
Toluene	1	5.00	< 5.00 µg/L	U
1,2,3-Trichlorobenzene	1	5.00	< 5.00 µg/L	U
1,2,4-Trichlorobenzene	1	5.00	< 5.00 µg/L	U
1,1,1-Trichloroethane	1	5.00	< 5.00 µg/L	U
1,1,2-Trichloroethane	1	5.00	< 5.00 µg/L	U
Trichloroethene	1	5.00	< 5.00 µg/L	U
Trichlorofluoromethane	1	5.00	< 5.00 µg/L	U
1,2,3-Trichloropropane	1	5.00	< 5.00 µg/L	U
1,3,5-Trimethylbenzene	1	5.00	< 5.00 µg/L	U
1,2,4-Trimethylbenzene	1	5.00	< 5.00 µg/L	U
Vinyl acetate	1	50.0	< 50.0 µg/L	U
Vinyl chloride	1	2.00	< 2.00 µg/L	U
m,p-Xylene	1	5.00	< 5.00 µg/L	U
o-Xylene	1	5.00	< 5.00 µg/L	U

VOLATILE ORGANICS /1 (Page 2)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Toluene-d8 (SS)	1	85 - 120	92.6 %	

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1 (Page 3)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Bromofluorobenzene (SS)	1	85 - 125	116 %	
1,2-Dichloroethane-d4 (SS)	1	80 - 120	82.8 %	
Dibromofluoromethane (SS)	1	80 - 120	85.2 %	

Applicable results are reported on dry weight basis.

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1
Prepared using EPA 3520B on 26-SEP-1997 by KDF
Analyzed using EPA 8270C on 28-SEP-1997 by TC
QC Batch No : AC196-14
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acenaphthene	1	10.0	< 10.0 µg/L	U
Acenaphthylene	1	10.0	< 10.0 µg/L	U
Anthracene	1	10.0	< 10.0 µg/L	U
Benzo(a)anthracene	1	10.0	< 10.0 µg/L	U
Benzo(b)fluoranthene	1	10.0	< 10.0 µg/L	U
Benzo(k)fluoranthene	1	10.0	< 10.0 µg/L	U
Benzo(g,h,i)perylene	1	10.0	< 10.0 µg/L	U
Benzo(a)pyrene	1	10.0	< 10.0 µg/L	U
Benzyl alcohol	1	20.0	< 20.0 µg/L	U
Bis(2-chloroethoxy)methane	1	10.0	< 10.0 µg/L	U
Bis(2-chloroethyl)ether	1	10.0	< 10.0 µg/L	U
Bis(2-chloroisopropyl)ether	1	10.0	< 10.0 µg/L	U
Bis(2-ethylhexyl)phthalate	1	10.0	< 10.0 µg/L	U
4-Bromophenyl phenyl ether	1	10.0	< 10.0 µg/L	U
Butyl benzyl phthalate	1	10.0	< 10.0 µg/L	U
Carbazole	1	10.0	< 10.0 µg/L	U
4-Chloroaniline	1	20.0	< 20.0 µg/L	U
2-Chloronaphthalene	1	10.0	< 10.0 µg/L	U
4-Chlorophenyl phenyl ether	1	10.0	< 10.0 µg/L	U
Chrysene	1	10.0	< 10.0 µg/L	U
Dibenz(a,h)anthracene	1	10.0	< 10.0 µg/L	U
Dibenzofuran	1	10.0	< 10.0 µg/L	U
Di-n-butylphthalate	1	10.0	< 10.0 µg/L	U
1,2-Dichlorobenzene	1	10.0	< 10.0 µg/L	U
1,3-Dichlorobenzene	1	10.0	< 10.0 µg/L	U
1,4-Dichlorobenzene	1	10.0	< 10.0 µg/L	U
3,3'-Dichlorobenzidine	1	20.0	< 20.0 µg/L	U
Diethyl phthalate	1	10.0	< 10.0 µg/L	U
Dimethyl phthalate	1	10.0	< 10.0 µg/L	U
2,4-Dinitrotoluene	1	10.0	< 10.0 µg/L	U

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
2,6-Dinitrotoluene	1	10.0	< 10.0 µg/L	U
Di-n-octylphthalate	1	10.0	< 10.0 µg/L	U
Fluoranthene	1	10.0	< 10.0 µg/L	U
Fluorene	1	10.0	< 10.0 µg/L	U
Hexachlorobenzene	1	10.0	< 10.0 µg/L	U
Hexachlorobutadiene	1	10.0	< 10.0 µg/L	U
Hexachlorocyclopentadiene	1	10.0	< 10.0 µg/L	U
Hexachloroethane	1	10.0	< 10.0 µg/L	U
Indeno(1,2,3-cd)pyrene	1	10.0	< 10.0 µg/L	U
Isophorone	1	10.0	< 10.0 µg/L	U
2-Methylnaphthalene	1	10.0	< 10.0 µg/L	U
Naphthalene	1	10.0	< 10.0 µg/L	U
2-Nitroaniline	1	50.0	< 50.0 µg/L	U
3-Nitroaniline	1	50.0	< 50.0 µg/L	U
4-Nitroaniline	1	50.0	< 50.0 µg/L	U
Nitrobenzene	1	10.0	< 10.0 µg/L	U
N-Nitrosodiphenylamine	1	10.0	< 10.0 µg/L	U
N-Nitrosodi-n-propylamine	1	10.0	< 10.0 µg/L	U
Phenanthrene	1	10.0	< 10.0 µg/L	U
Pyrene	1	10.0	< 10.0 µg/L	U
1,2,4-Trichlorobenzene	1	10.0	< 10.0 µg/L	U
Benzoic acid	1	50.0	< 50.0 µg/L	U
4-Chloro-3-methylphenol	1	20.0	< 20.0 µg/L	U
2-Chlorophenol	1	10.0	< 10.0 µg/L	U
2,4-Dichlorophenol	1	10.0	< 10.0 µg/L	U
2,4-Dimethylphenol	1	10.0	< 10.0 µg/L	U
4,6-Dinitro-2-methylphenol	1	50.0	< 50.0 µg/L	U
2,4-Dinitrophenol	1	50.0	< 50.0 µg/L	U
2-Methylphenol	1	10.0	< 10.0 µg/L	U
4-Methylphenol	1	10.0	< 10.0 µg/L	U
2-Nitrophenol	1	10.0	< 10.0 µg/L	U
4-Nitrophenol	1	50.0	< 50.0 µg/L	U

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 3)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS			FLAG
Pentachlorophenol	1	50.0	<	50.0	µg/L	U
Phenol	1	10.0	<	10.0	µg/L	U
2,4,5-Trichlorophenol	1	10.0	<	10.0	µg/L	U
2,4,6-Trichlorophenol	1	10.0	<	10.0	µg/L	U

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 3)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED		FLAG
Nitrobenzene-d5 (SS)	1	35 - 114	72.8	%	
2-Fluorobiphenyl (SS)	1	43 - 116	67.0	%	
Terphenyl-d14 (SS)	1	33 - 141	81.0	%	
Phenol-d6 (SS)	1	10 - 94	22.9	%	
2-Fluorophenol (SS)	1	21 - 100	43.3	%	
2,4,6-Tribromophenol (SS)	1	10 - 123	67.5	%	

Applicable results are reported on dry weight basis.

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SAMPLE MATRIX: Liquid	

DIESEL RANGE ORGANICS /1
Prepared using EPA 3520B on 26-SEP-1997 by TDC
Analyzed using EPA 8015B on 29-SEP-1997 by VHL
QC Batch No : AC196-12
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Total Petroleum Hydrocarbon	1	0.50	< 0.50 mg/L	U

DIESEL RANGE ORGANICS /1

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Triacontane (SS)	1	40 - 140	105 %	

Applicable results are reported on dry weight basis.

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SAMPLE MATRIX: Liquid	

GASOLINE RANGE ORGANICS /1
Analyzed using EPA 5030/8015B on 1-OCT-1997 by CNA
QC Batch No : 33093097A
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Total Petroleum Hydrocarbon	1	50.0	< 50.0 µg/L	U

GASOLINE RANGE ORGANICS /1

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Fluorobenzene (SS)	1	75 - 125	104 %	

Applicable results are reported on dry weight basis.

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SAMPLE MATRIX: Liquid	

TOTAL METALS

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Silver	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Arsenic	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7060A on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Beryllium	1	0.0030	< 0.0030 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Cadmium	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Chromium	1	0.0050	0.0298 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Copper	1	0.0100	0.0048 mg/L	J
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Mercury	1	0.0002	< 0.0002 mg/L	U
Prepared using EPA 7470 on 26-SEP-1997 by A_O Analyzed using EPA 7470A on 29-SEP-1997 by CGJ QC Batch No : AC202-38 Method Factor : 1				
Nickel	1	0.0050	0.0289 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Lead	1	0.0020	< 0.0020 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7421 on 29-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Antimony	1	0.0060	< 0.0060 mg/L	U
Prepared using EPA 3010 on 29-SEP-1997 by CEL Analyzed using EPA 7041 on 30-SEP-1997 by AH QC Batch No : AC202-62F Method Factor : 1				

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SAMPLE MATRIX: Liquid	

TOTAL METALS (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Selenium	1	0.0050	0.0084 mg/L	
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7740 on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Thallium	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7841 on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Zinc	1	0.0200	< 0.0200 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				

Applicable results are reported on dry weight basis.

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-3
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DATE SAMPLED: 25-SEP-1997	:
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1
Analyzed using EPA 8260B on 30-SEP-1997 by MGD
QC Batch No : 9709307001
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acetone	1	20.0	29.0 µg/L	
Acrylonitrile	1	5.00	43.6 µg/L	
Benzene	1	5.00	47.6 µg/L	
Bromobenzene	1	5.00	54.8 µg/L	
Bromochloromethane	1	5.00	48.9 µg/L	
Bromodichloromethane	1	5.00	49.3 µg/L	
Bromoform	1	5.00	48.7 µg/L	
Carbon disulfide	1	5.00	35.2 µg/L	
Carbon tetrachloride	1	5.00	44.1 µg/L	
Chlorobenzene	1	5.00	52.8 µg/L	
Chloroethane	1	5.00	36.2 µg/L	
Chloroform	1	5.00	44.9 µg/L	
2-Chlorotoluene	1	5.00	50.7 µg/L	
4-Chlorotoluene	1	5.00	54.6 µg/L	
2-Chloroethylvinyl ether	1	10.0	47.4 µg/L	
Dibromochloromethane	1	5.00	49.8 µg/L	
1,2-Dibromo-3-chloropropane	1	25.0	40.6 µg/L	
1,2-Dibromoethane	1	5.00	50.4 µg/L	
1,2-Dichlorobenzene	1	5.00	52.4 µg/L	
1,3-Dichlorobenzene	1	5.00	51.2 µg/L	
1,4-Dichlorobenzene	1	5.00	44.5 µg/L	
trans-1,4-Dichloro-2-butene	1	100	47.0 µg/L	J
1,1-Dichloroethane	1	5.00	39.0 µg/L	
1,2-Dichloroethane	1	5.00	53.1 µg/L	
1,1-Dichloroethene	1	5.00	43.1 µg/L	
cis-1,2-Dichloroethene	1	5.00	19.6 µg/L	
trans-1,2-Dichloroethene	1	5.00	36.6 µg/L	
1,2-Dichloropropane	1	5.00	46.7 µg/L	
2,2-Dichloropropane	1	5.00	44.7 µg/L	
1,1-Dichloropropene	1	5.00	38.9 µg/L	
1,3-Dichloropropane	1	5.00	52.5 µg/L	

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DATE SAMPLED: 25-SEP-1997	:
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
cis-1,3-Dichloropropene	1	5.00	61.4 µg/L	
trans-1,3-Dichloropropene	1	5.00	64.0 µg/L	
Ethylbenzene	1	5.00	50.6 µg/L	
2-Hexanone	1	50.0	44.8 µg/L	J
Bromomethane	1	5.00	56.1 µg/L	
Chloromethane	1	5.00	40.2 µg/L	
Dibromomethane	1	5.00	54.8 µg/L	
2-Butanone	1	100	26.7 µg/L	J
Iodomethane	1	5.00	36.9 µg/L	
Methylene chloride	1	5.00	42.8 µg/L	
4-Methyl-2-pentanone	1	100	52.7 µg/L	J
Styrene	1	5.00	38.3 µg/L	
1,1,1,2-Tetrachloroethane	1	5.00	46.6 µg/L	
1,1,2,2-Tetrachloroethane	1	5.00	119 µg/L	
Tetrachloroethene	1	5.00	53.1 µg/L	
Toluene	1	5.00	51.5 µg/L	
1,2,3-Trichlorobenzene	1	5.00	49.7 µg/L	
1,2,4-Trichlorobenzene	1	5.00	55.5 µg/L	
1,1,1-Trichloroethane	1	5.00	44.2 µg/L	
1,1,2-Trichloroethane	1	5.00	57.4 µg/L	
Trichloroethene	1	5.00	39.5 µg/L	
Trichlorofluoromethane	1	5.00	28.1 µg/L	
1,2,3-Trichloropropane	1	5.00	46.0 µg/L	
1,3,5-Trimethylbenzene	1	5.00	53.2 µg/L	
1,2,4-Trimethylbenzene	1	5.00	49.1 µg/L	
Vinyl acetate	1	50.0	23.8 µg/L	J
Vinyl chloride	1	2.00	40.3 µg/L	
m,p-Xylene	1	5.00	101 µg/L	
o-Xylene	1	5.00	54.4 µg/L	

VOLATILE ORGANICS /1 (Page 2)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Toluene-d8 (SS)	1	85 - 120	101 %	

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SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1 (Page 3)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Bromofluorobenzene (SS)	1	85 - 125	107 %	
1,2-Dichloroethane-d4 (SS)	1	80 - 120	99.0 %	
Dibromofluoromethane (SS)	1	80 - 120	103 %	

Applicable results are reported on dry weight basis.

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SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1
Prepared using EPA 3520B on 26-SEP-1997 by KDF
Analyzed using EPA 8270C on 28-SEP-1997 by TC
QC Batch No : AC196-14
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acenaphthene	1	10.0	68.0 µg/L	
Acenaphthylene	1	10.0	68.6 µg/L	
Anthracene	1	10.0	73.2 µg/L	
Benzo(a)anthracene	1	10.0	71.1 µg/L	
Benzo(b)fluoranthene	1	10.0	77.6 µg/L	
Benzo(k)fluoranthene	1	10.0	77.0 µg/L	
Benzo(g,h,i)perylene	1	10.0	71.3 µg/L	
Benzo(a)pyrene	1	10.0	73.5 µg/L	
Benzyl alcohol	1	20.0	59.8 µg/L	
Bis(2-chloroethoxy)methane	1	10.0	73.2 µg/L	
Bis(2-chloroethyl)ether	1	10.0	74.5 µg/L	
Bis(2-chloroisopropyl)ether	1	10.0	65.9 µg/L	
Bis(2-ethylhexyl)phthalate	1	10.0	73.7 µg/L	
4-Bromophenyl phenyl ether	1	10.0	65.9 µg/L	
Butyl benzyl phthalate	1	10.0	72.4 µg/L	
Carbazole	1	10.0	64.9 µg/L	
4-Chloroaniline	1	20.0	47.0 µg/L	
2-Chloronaphthalene	1	10.0	65.8 µg/L	
4-Chlorophenyl phenyl ether	1	10.0	70.4 µg/L	
Chrysene	1	10.0	73.3 µg/L	
Dibenz(a,h)anthracene	1	10.0	71.9 µg/L	
Dibenzofuran	1	10.0	70.2 µg/L	
Di-n-butylphthalate	1	10.0	67.7 µg/L	
1,2-Dichlorobenzene	1	10.0	55.7 µg/L	
1,3-Dichlorobenzene	1	10.0	54.6 µg/L	
1,4-Dichlorobenzene	1	10.0	54.1 µg/L	
3,3'-Dichlorobenzidine	1	20.0	25.8 µg/L	
Diethyl phthalate	1	10.0	70.9 µg/L	
Dimethyl phthalate	1	10.0	71.9 µg/L	
2,4-Dinitrotoluene	1	10.0	72.1 µg/L	

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SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
2,6-Dinitrotoluene	1	10.0	71.0 µg/L	
Di-n-octylphthalate	1	10.0	80.0 µg/L	
Fluoranthene	1	10.0	71.0 µg/L	
Fluorene	1	10.0	69.7 µg/L	
Hexachlorobenzene	1	10.0	72.8 µg/L	
Hexachlorobutadiene	1	10.0	58.6 µg/L	
Hexachlorocyclopentadiene	1	10.0	44.9 µg/L	
Hexachloroethane	1	10.0	54.8 µg/L	
Indeno(1,2,3-cd)pyrene	1	10.0	72.2 µg/L	
Isophorone	1	10.0	79.9 µg/L	
2-Methylnaphthalene	1	10.0	67.9 µg/L	
Naphthalene	1	10.0	68.6 µg/L	
2-Nitroaniline	1	50.0	73.5 µg/L	
3-Nitroaniline	1	50.0	55.3 µg/L	
4-Nitroaniline	1	50.0	58.6 µg/L	
Nitrobenzene	1	10.0	73.5 µg/L	
N-Nitrosodiphenylamine	1	10.0	79.7 µg/L	
N-Nitrosodi-n-propylamine	1	10.0	68.6 µg/L	
Phenanthrene	1	10.0	69.8 µg/L	
Pyrene	1	10.0	78.3 µg/L	
1,2,4-Trichlorobenzene	1	10.0	63.0 µg/L	
Benzoic acid	1	50.0	17.4 µg/L	J
4-Chloro-3-methylphenol	1	20.0	64.5 µg/L	
2-Chlorophenol	1	10.0	58.2 µg/L	
2,4-Dichlorophenol	1	10.0	61.8 µg/L	
2,4-Dimethylphenol	1	10.0	60.9 µg/L	
4,6-Dinitro-2-methylphenol	1	50.0	60.0 µg/L	
2,4-Dinitrophenol	1	50.0	52.8 µg/L	
2-Methylphenol	1	10.0	52.6 µg/L	
4-Methylphenol	1	10.0	48.2 µg/L	
2-Nitrophenol	1	10.0	61.4 µg/L	
4-Nitrophenol	1	50.0	31.5 µg/L	J

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SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 3)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Pentachlorophenol	1	50.0	34.9 µg/L	
Phenol	1	10.0	31.2 µg/L	
2,4,5-Trichlorophenol	1	10.0	64.8 µg/L	
2,4,6-Trichlorophenol	1	10.0	58.2 µg/L	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 3)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Nitrobenzene-d5 (SS)	1	35 - 114	74.4 %	
2-Fluorobiphenyl (SS)	1	43 - 116	69.2 %	
Terphenyl-d14 (SS)	1	33 - 141	79.6 %	
Phenol-d6 (SS)	1	10 - 94	29.9 %	
2-Fluorophenol (SS)	1	21 - 100	41.5 %	
2,4,6-Tribromophenol (SS)	1	10 - 123	73.2 %	

Applicable results are reported on dry weight basis.

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DIESEL RANGE ORGANICS /1
Prepared using EPA 3520B on 26-SEP-1997 by TDC
Analyzed using EPA 8015B on 29-SEP-1997 by VHL
QC Batch No : AC196-12
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Total Petroleum Hydrocarbon	1	0.50	2.21 mg/L	

DIESEL RANGE ORGANICS /1

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Triacontane (SS)	1	40 - 140	84.0 %	

Applicable results are reported on dry weight basis.

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SAMPLE MATRIX: Liquid	

GASOLINE RANGE ORGANICS /1
Analyzed using EPA 5030/8015B on 2-OCT-1997 by CNA
QC Batch No : 33093097A
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Total Petroleum Hydrocarbon	1	50.0	463 µg/L	

GASOLINE RANGE ORGANICS /1

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Fluorobenzene (SS)	1	75 - 125	114 %	

Applicable results are reported on dry weight basis.

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SAMPLE MATRIX: Liquid	

TOTAL METALS

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Silver	1	0.0050	0.198 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Arsenic	1	0.0050	0.0338 mg/L	
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7060A on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Beryllium	1	0.0030	0.481 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Cadmium	1	0.0050	0.472 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Chromium	1	0.0050	0.977 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Copper	1	0.0100	0.975 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Mercury	1	0.0002	0.0025 mg/L	
Prepared using EPA 7470 on 26-SEP-1997 by A_O Analyzed using EPA 7470A on 29-SEP-1997 by CGJ QC Batch No : AC202-38 Method Factor : 1				
Nickel	1	0.0050	0.967 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Lead	1	0.0020	0.0172 mg/L	
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7421 on 29-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Antimony	1	0.0060	0.0231 mg/L	
Prepared using EPA 3010 on 29-SEP-1997 by CEL Analyzed using EPA 7041 on 30-SEP-1997 by AH QC Batch No : AC202-62F Method Factor : 1				

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SAMPLE MATRIX: Liquid	

TOTAL METALS (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Selenium	1	0.0050	0.0300 mg/L	
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7740 on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Thallium	1	0.0050	0.0375 mg/L	
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7841 on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Zinc	1	0.0200	0.972 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				

Applicable results are reported on dry weight basis.

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SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1
Analyzed using EPA 8260B on 30-SEP-1997 by MGD
QC Batch No : 9709307001
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acetone	1	20.0	24.3 µg/L	
Acrylonitrile	1	5.00	43.9 µg/L	
Benzene	1	5.00	45.2 µg/L	
Bromobenzene	1	5.00	54.6 µg/L	
Bromochloromethane	1	5.00	45.5 µg/L	
Bromodichloromethane	1	5.00	47.5 µg/L	
Bromoform	1	5.00	48.0 µg/L	
Carbon disulfide	1	5.00	36.5 µg/L	
Carbon tetrachloride	1	5.00	45.1 µg/L	
Chlorobenzene	1	5.00	50.0 µg/L	
Chloroethane	1	5.00	38.3 µg/L	
Chloroform	1	5.00	44.0 µg/L	
2-Chlorotoluene	1	5.00	48.7 µg/L	
4-Chlorotoluene	1	5.00	47.3 µg/L	
2-Chloroethylvinyl ether	1	10.0	47.5 µg/L	
Dibromochloromethane	1	5.00	52.4 µg/L	
1,2-Dibromo-3-chloropropane	1	25.0	45.8 µg/L	
1,2-Dibromoethane	1	5.00	52.4 µg/L	
1,2-Dichlorobenzene	1	5.00	50.4 µg/L	
1,3-Dichlorobenzene	1	5.00	50.1 µg/L	
1,4-Dichlorobenzene	1	5.00	40.8 µg/L	
trans-1,4-Dichloro-2-butene	1	100	94.3 µg/L	J
1,1-Dichloroethane	1	5.00	41.5 µg/L	
1,2-Dichloroethane	1	5.00	51.6 µg/L	
1,1-Dichloroethene	1	5.00	46.8 µg/L	
cis-1,2-Dichloroethene	1	5.00	38.0 µg/L	
trans-1,2-Dichloroethene	1	5.00	36.2 µg/L	
1,2-Dichloropropane	1	5.00	46.8 µg/L	
2,2-Dichloropropane	1	5.00	47.4 µg/L	
1,1-Dichloropropene	1	5.00	45.7 µg/L	
1,3-Dichloropropane	1	5.00	52.6 µg/L	

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SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
cis-1,3-Dichloropropene	1	5.00	58.7 µg/L	
trans-1,3-Dichloropropene	1	5.00	61.8 µg/L	
Ethylbenzene	1	5.00	52.1 µg/L	
2-Hexanone	1	50.0	56.4 µg/L	
Bromomethane	1	5.00	54.2 µg/L	
Chloromethane	1	5.00	38.4 µg/L	
Dibromomethane	1	5.00	50.4 µg/L	
2-Butanone	1	100	38.6 µg/L	J
Iodomethane	1	5.00	40.9 µg/L	
Methylene chloride	1	5.00	40.4 µg/L	
4-Methyl-2-pentanone	1	100	40.8 µg/L	J
Styrene	1	5.00	29.0 µg/L	
1,1,1,2-Tetrachloroethane	1	5.00	49.1 µg/L	
1,1,2,2-Tetrachloroethane	1	5.00	124 µg/L	
Tetrachloroethene	1	5.00	53.4 µg/L	
Toluene	1	5.00	48.8 µg/L	
1,2,3-Trichlorobenzene	1	5.00	51.3 µg/L	
1,2,4-Trichlorobenzene	1	5.00	51.2 µg/L	
1,1,1-Trichloroethane	1	5.00	44.1 µg/L	
1,1,2-Trichloroethane	1	5.00	52.1 µg/L	
Trichloroethene	1	5.00	38.1 µg/L	
Trichlorofluoromethane	1	5.00	33.4 µg/L	
1,2,3-Trichloropropane	1	5.00	48.3 µg/L	
1,3,5-Trimethylbenzene	1	5.00	47.8 µg/L	
1,2,4-Trimethylbenzene	1	5.00	52.5 µg/L	
Vinyl acetate	1	50.0	39.8 µg/L	J
Vinyl chloride	1	2.00	39.8 µg/L	
m,p-Xylene	1	5.00	105 µg/L	
o-Xylene	1	5.00	50.3 µg/L	

VOLATILE ORGANICS /1 (Page 2)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Toluene-d8 (SS)	1	85 - 120	99.2 %	

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SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1 (Page 3)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Bromofluorobenzene (SS)	1	85 - 125	106 %	
1,2-Dichloroethane-d4 (SS)	1	80 - 120	105 %	
Dibromofluoromethane (SS)	1	80 - 120	104 %	

Applicable results are reported on dry weight basis.

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SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1
Prepared using EPA 3520B on 26-SEP-1997 by KDF
Analyzed using EPA 8270C on 28-SEP-1997 by TC
QC Batch No : AC196-14
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acenaphthene	1	10.0	64.2 µg/L	
Acenaphthylene	1	10.0	61.2 µg/L	
Anthracene	1	10.0	69.5 µg/L	
Benzo(a)anthracene	1	10.0	66.9 µg/L	
Benzo(b)fluoranthene	1	10.0	72.0 µg/L	
Benzo(k)fluoranthene	1	10.0	71.6 µg/L	
Benzo(g,h,i)perylene	1	10.0	67.0 µg/L	
Benzo(a)pyrene	1	10.0	69.4 µg/L	
Benzyl alcohol	1	20.0	55.9 µg/L	
Bis(2-chloroethoxy)methane	1	10.0	72.3 µg/L	
Bis(2-chloroethyl)ether	1	10.0	69.2 µg/L	
Bis(2-chloroisopropyl)ether	1	10.0	63.8 µg/L	
Bis(2-ethylhexyl)phthalate	1	10.0	69.7 µg/L	
4-Bromophenyl phenyl ether	1	10.0	63.7 µg/L	
Butyl benzyl phthalate	1	10.0	68.6 µg/L	
Carbazole	1	10.0	61.9 µg/L	
4-Chloroaniline	1	20.0	46.8 µg/L	
2-Chloronaphthalene	1	10.0	62.4 µg/L	
4-Chlorophenyl phenyl ether	1	10.0	66.1 µg/L	
Chrysene	1	10.0	68.8 µg/L	
Dibenz(a,h)anthracene	1	10.0	67.5 µg/L	
Dibenzofuran	1	10.0	65.0 µg/L	
Di-n-butylphthalate	1	10.0	63.7 µg/L	
1,2-Dichlorobenzene	1	10.0	51.2 µg/L	
1,3-Dichlorobenzene	1	10.0	49.5 µg/L	
1,4-Dichlorobenzene	1	10.0	49.7 µg/L	
3,3'-Dichlorobenzidine	1	20.0	26.4 µg/L	
Diethyl phthalate	1	10.0	66.8 µg/L	
Dimethyl phthalate	1	10.0	68.3 µg/L	
2,4-Dinitrotoluene	1	10.0	67.1 µg/L	

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SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
2,6-Dinitrotoluene	1	10.0	66.9 µg/L	
Di-n-octylphthalate	1	10.0	75.0 µg/L	
Fluoranthene	1	10.0	67.2 µg/L	
Fluorene	1	10.0	65.8 µg/L	
Hexachlorobenzene	1	10.0	67.3 µg/L	
Hexachlorobutadiene	1	10.0	54.1 µg/L	
Hexachlorocyclopentadiene	1	10.0	41.3 µg/L	
Hexachloroethane	1	10.0	50.6 µg/L	
Indeno(1,2,3-cd)pyrene	1	10.0	67.6 µg/L	
Isophorone	1	10.0	75.6 µg/L	
2-Methylnaphthalene	1	10.0	63.9 µg/L	
Naphthalene	1	10.0	64.5 µg/L	
2-Nitroaniline	1	50.0	69.5 µg/L	
3-Nitroaniline	1	50.0	51.9 µg/L	
4-Nitroaniline	1	50.0	56.7 µg/L	
Nitrobenzene	1	10.0	70.9 µg/L	
N-Nitrosodiphenylamine	1	10.0	74.2 µg/L	
N-Nitrosodi-n-propylamine	1	10.0	66.7 µg/L	
Phenanthrene	1	10.0	66.4 µg/L	
Pyrene	1	10.0	72.4 µg/L	
1,2,4-Trichlorobenzene	1	10.0	59.1 µg/L	
Benzoic acid	1	50.0	20.2 µg/L	J
4-Chloro-3-methylphenol	1	20.0	58.7 µg/L	
2-Chlorophenol	1	10.0	54.2 µg/L	
2,4-Dichlorophenol	1	10.0	58.4 µg/L	
2,4-Dimethylphenol	1	10.0	55.5 µg/L	
4,6-Dinitro-2-methylphenol	1	50.0	58.1 µg/L	
2,4-Dinitrophenol	1	50.0	49.8 µg/L	J
2-Methylphenol	1	10.0	50.7 µg/L	
4-Methylphenol	1	10.0	46.7 µg/L	
2-Nitrophenol	1	10.0	59.0 µg/L	
4-Nitrophenol	1	50.0	29.2 µg/L	J

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-4
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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 3)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Pentachlorophenol	1	50.0	51.2 µg/L	
Phenol	1	10.0	29.6 µg/L	
2,4,5-Trichlorophenol	1	10.0	57.0 µg/L	
2,4,6-Trichlorophenol	1	10.0	55.6 µg/L	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 3)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Nitrobenzene-d5 (SS)	1	35 - 114	70.2 %	
2-Fluorobiphenyl (SS)	1	43 - 116	67.2 %	
Terphenyl-d14 (SS)	1	33 - 141	71.6 %	
Phenol-d6 (SS)	1	10 - 94	28.6 %	
2-Fluorophenol (SS)	1	21 - 100	37.8 %	
2,4,6-Tribromophenol (SS)	1	10 - 123	68.8 %	

Applicable results are reported on dry weight basis.

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

DIESEL RANGE ORGANICS /1
Prepared using EPA 3510C on 26-SEP-1997 by TDC
Analyzed using EPA 8015B on 29-SEP-1997 by VHL
QC Batch No : AC196-12
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Total Petroleum Hydrocarbon	1	0.50	2.30 mg/L	

DIESEL RANGE ORGANICS /1

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Triacontane (SS)	1	40 - 140	92.4 %	

Applicable results are reported on dry weight basis.

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

GASOLINE RANGE ORGANICS /1
Analyzed using EPA 5030/8015B on 2-OCT-1997 by CNA
QC Batch No : 33093097A
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Total Petroleum Hydrocarbon	1	50.0	475 µg/L	

GASOLINE RANGE ORGANICS /1

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Fluorobenzene (SS)	1	75 - 125	113 %	

Applicable results are reported on dry weight basis.

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

TOTAL METALS

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Silver	1	0.0050	0.196 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Arsenic	1	0.0050	0.0337 mg/L	
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7060A on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Beryllium	1	0.0030	0.482 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Cadmium	1	0.0050	0.474 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Chromium	1	0.0050	0.979 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Copper	1	0.0100	0.975 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Mercury	1	0.0002	0.0023 mg/L	
Prepared using EPA 7470 on 26-SEP-1997 by A_O Analyzed using EPA 7470A on 29-SEP-1997 by CGJ QC Batch No : AC202-38 Method Factor : 1				
Nickel	1	0.0050	0.972 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Lead	1	0.0020	0.0169 mg/L	
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7421 on 29-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Antimony	1	0.0060	0.0247 mg/L	
Prepared using EPA 3010 on 29-SEP-1997 by CEL Analyzed using EPA 7041 on 30-SEP-1997 by AH QC Batch No : AC202-62F Method Factor : 1				

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

TOTAL METALS (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Selenium	1	0.0050	0.0281 mg/L	
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7740 on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Thallium	1	0.0050	0.0380 mg/L	
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7841 on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Zinc	1	0.0200	0.973 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				

Applicable results are reported on dry weight basis.

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1
Analyzed using EPA 8260B on 30-SEP-1997 by MGD
QC Batch No : 9709297002
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acetone	1	20.0	< 20.0 µg/L	U
Acrylonitrile	1	5.00	< 5.00 µg/L	U
Benzene	1	5.00	< 5.00 µg/L	U
Bromobenzene	1	5.00	< 5.00 µg/L	U
Bromochloromethane	1	5.00	< 5.00 µg/L	U
Bromodichloromethane	1	5.00	< 5.00 µg/L	U
Bromoform	1	5.00	< 5.00 µg/L	U
Carbon disulfide	1	5.00	< 5.00 µg/L	U
Carbon tetrachloride	1	5.00	< 5.00 µg/L	U
Chlorobenzene	1	5.00	< 5.00 µg/L	U
Chloroethane	1	5.00	< 5.00 µg/L	U
Chloroform	1	5.00	< 5.00 µg/L	U
2-Chlorotoluene	1	5.00	< 5.00 µg/L	U
4-Chlorotoluene	1	5.00	< 5.00 µg/L	U
2-Chloroethylvinyl ether	1	10.0	< 10.0 µg/L	U
Dibromochloromethane	1	5.00	< 5.00 µg/L	U
1,2-Dibromo-3-chloropropane	1	25.0	< 25.0 µg/L	U
1,2-Dibromoethane	1	5.00	< 5.00 µg/L	U
1,2-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
1,3-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
1,4-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
trans-1,4-Dichloro-2-butene	1	100	< 100 µg/L	U
1,1-Dichloroethane	1	5.00	< 5.00 µg/L	U
1,2-Dichloroethane	1	5.00	< 5.00 µg/L	U
1,1-Dichloroethene	1	5.00	< 5.00 µg/L	U
cis-1,2-Dichloroethene	1	5.00	< 5.00 µg/L	U
trans-1,2-Dichloroethene	1	5.00	< 5.00 µg/L	U
1,2-Dichloropropane	1	5.00	< 5.00 µg/L	U
2,2-Dichloropropane	1	5.00	< 5.00 µg/L	U
1,1-Dichloropropene	1	5.00	< 5.00 µg/L	U
1,3-Dichloropropane	1	5.00	< 5.00 µg/L	U

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
cis-1,3-Dichloropropene	1	5.00	< 5.00 µg/L	U
trans-1,3-Dichloropropene	1	5.00	< 5.00 µg/L	U
Ethylbenzene	1	5.00	< 5.00 µg/L	U
2-Hexanone	1	50.0	< 50.0 µg/L	U
Bromomethane	1	5.00	< 5.00 µg/L	U
Chloromethane	1	5.00	< 5.00 µg/L	U
Dibromomethane	1	5.00	< 5.00 µg/L	U
2-Butanone	1	100	< 100 µg/L	U
Iodomethane	1	5.00	< 5.00 µg/L	U
Methylene chloride	1	5.00	< 5.00 µg/L	U
4-Methyl-2-pentanone	1	100	< 100 µg/L	U
Styrene	1	5.00	< 5.00 µg/L	U
1,1,1,2-Tetrachloroethane	1	5.00	< 5.00 µg/L	U
1,1,2,2-Tetrachloroethane	1	5.00	< 5.00 µg/L	U
Tetrachloroethene	1	5.00	< 5.00 µg/L	U
Toluene	1	5.00	< 5.00 µg/L	U
1,2,3-Trichlorobenzene	1	5.00	< 5.00 µg/L	U
1,2,4-Trichlorobenzene	1	5.00	< 5.00 µg/L	U
1,1,1-Trichloroethane	1	5.00	< 5.00 µg/L	U
1,1,2-Trichloroethane	1	5.00	< 5.00 µg/L	U
Trichloroethene	1	5.00	< 5.00 µg/L	U
Trichlorofluoromethane	1	5.00	< 5.00 µg/L	U
1,2,3-Trichloropropane	1	5.00	< 5.00 µg/L	U
1,3,5-Trimethylbenzene	1	5.00	< 5.00 µg/L	U
1,2,4-Trimethylbenzene	1	5.00	< 5.00 µg/L	U
Vinyl acetate	1	50.0	< 50.0 µg/L	U
Vinyl chloride	1	2.00	< 2.00 µg/L	U
m,p-Xylene	1	5.00	< 5.00 µg/L	U
o-Xylene	1	5.00	< 5.00 µg/L	U

VOLATILE ORGANICS /1 (Page 2)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Toluene-d8 (SS)	1	85 - 120	95.4 %	

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SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1 (Page 3)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Bromofluorobenzene (SS)	1	85 - 125	104 %	
1,2-Dichloroethane-d4 (SS)	1	80 - 120	84.2 %	
Dibromofluoromethane (SS)	1	80 - 120	83.0 %	

Applicable results are reported on dry weight basis.

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1
Prepared using EPA 3520B on 26-SEP-1997 by KDF
Analyzed using EPA 8270C on 28-SEP-1997 by TC
QC Batch No : AC196-14
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acenaphthene	1	11.0	< 11.0 µg/L	U
Acenaphthylene	1	11.0	< 11.0 µg/L	U
Anthracene	1	11.0	< 11.0 µg/L	U
Benzo(a)anthracene	1	11.0	< 11.0 µg/L	U
Benzo(b)fluoranthene	1	11.0	< 11.0 µg/L	U
Benzo(k)fluoranthene	1	11.0	< 11.0 µg/L	U
Benzo(g,h,i)perylene	1	11.0	< 11.0 µg/L	U
Benzo(a)pyrene	1	11.0	< 11.0 µg/L	U
Benzyl alcohol	1	22.0	< 22.0 µg/L	U
Bis(2-chloroethoxy)methane	1	11.0	< 11.0 µg/L	U
Bis(2-chloroethyl)ether	1	11.0	< 11.0 µg/L	U
Bis(2-chloroisopropyl)ether	1	11.0	< 11.0 µg/L	U
Bis(2-ethylhexyl)phthalate	1	11.0	< 11.0 µg/L	U
4-Bromophenyl phenyl ether	1	11.0	< 11.0 µg/L	U
Butyl benzyl phthalate	1	11.0	< 11.0 µg/L	U
Carbazole	1	11.0	< 11.0 µg/L	U
4-Chloroaniline	1	22.0	< 22.0 µg/L	U
2-Chloronaphthalene	1	11.0	< 11.0 µg/L	U
4-Chlorophenyl phenyl ether	1	11.0	< 11.0 µg/L	U
Chrysene	1	11.0	< 11.0 µg/L	U
Dibenz(a,h)anthracene	1	11.0	< 11.0 µg/L	U
Dibenzofuran	1	11.0	< 11.0 µg/L	U
Di-n-butylphthalate	1	11.0	< 11.0 µg/L	U
1,2-Dichlorobenzene	1	11.0	< 11.0 µg/L	U
1,3-Dichlorobenzene	1	11.0	< 11.0 µg/L	U
1,4-Dichlorobenzene	1	11.0	< 11.0 µg/L	U
3,3'-Dichlorobenzidine	1	22.0	< 22.0 µg/L	U
Diethyl phthalate	1	11.0	< 11.0 µg/L	U
Dimethyl phthalate	1	11.0	< 11.0 µg/L	U
2,4-Dinitrotoluene	1	11.0	< 11.0 µg/L	U

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
2,6-Dinitrotoluene	1	11.0	< 11.0 µg/L	U
Di-n-octylphthalate	1	11.0	< 11.0 µg/L	U
Fluoranthene	1	11.0	< 11.0 µg/L	U
Fluorene	1	11.0	< 11.0 µg/L	U
Hexachlorobenzene	1	11.0	< 11.0 µg/L	U
Hexachlorobutadiene	1	11.0	< 11.0 µg/L	U
Hexachlorocyclopentadiene	1	11.0	< 11.0 µg/L	U
Hexachloroethane	1	11.0	< 11.0 µg/L	U
Indeno(1,2,3-cd)pyrene	1	11.0	< 11.0 µg/L	U
Isophorone	1	11.0	< 11.0 µg/L	U
2-Methylnaphthalene	1	11.0	< 11.0 µg/L	U
Naphthalene	1	11.0	< 11.0 µg/L	U
2-Nitroaniline	1	55.0	< 55.0 µg/L	U
3-Nitroaniline	1	55.0	< 55.0 µg/L	U
4-Nitroaniline	1	55.0	< 55.0 µg/L	U
Nitrobenzene	1	11.0	< 11.0 µg/L	U
N-Nitrosodiphenylamine	1	11.0	< 11.0 µg/L	U
N-Nitrosodi-n-propylamine	1	11.0	< 11.0 µg/L	U
Phenanthrene	1	11.0	< 11.0 µg/L	U
Pyrene	1	11.0	< 11.0 µg/L	U
1,2,4-Trichlorobenzene	1	11.0	< 11.0 µg/L	U
Benzoic acid	1	55.0	< 55.0 µg/L	U
4-Chloro-3-methylphenol	1	22.0	< 22.0 µg/L	U
2-Chlorophenol	1	11.0	< 11.0 µg/L	U
2,4-Dichlorophenol	1	11.0	< 11.0 µg/L	U
2,4-Dimethylphenol	1	11.0	< 11.0 µg/L	U
4,6-Dinitro-2-methylphenol	1	55.0	< 55.0 µg/L	U
2,4-Dinitrophenol	1	55.0	< 55.0 µg/L	U
2-Methylphenol	1	11.0	< 11.0 µg/L	U
4-Methylphenol	1	11.0	< 11.0 µg/L	U
2-Nitrophenol	1	11.0	< 11.0 µg/L	U
4-Nitrophenol	1	55.0	< 55.0 µg/L	U

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 3)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Pentachlorophenol	1	55.0	< 55.0 µg/L	U
Phenol	1	11.0	< 11.0 µg/L	U
2,4,5-Trichlorophenol	1	11.0	< 11.0 µg/L	U
2,4,6-Trichlorophenol	1	11.0	< 11.0 µg/L	U

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 3)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Nitrobenzene-d5 (SS)	1	35 - 114	64.7 %	
2-Flucrobiphenyl (SS)	1	43 - 116	67.3 %	
Terphenyl-d14 (SS)	1	33 - 141	84.0 %	
Phenol-d6 (SS)	1	10 - 94	23.9 %	
2-Fluorophenol (SS)	1	21 - 100	39.4 %	
2,4,6-Tribromophenol (SS)	1	10 - 123	65.7 %	

Applicable results are reported on dry weight basis.

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SAMPLE MATRIX: Liquid	

DIESEL RANGE ORGANICS /1
Prepared using EPA 3520B on 26-SEP-1997 by TDC
Analyzed using EPA 8015B on 29-SEP-1997 by VHL
QC Batch No : AC196-12
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Total Petroleum Hydrocarbon	1	0.50	< 0.50 mg/L	U

DIESEL RANGE ORGANICS /1

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Triacontane (SS)	1	40 - 140	105 %	

Applicable results are reported on dry weight basis.

Intertek Testing Services
Environmental Laboratories

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SAMPLE MATRIX: Liquid	

GASOLINE RANGE ORGANICS /1
Analyzed using EPA 5030/8015B on 1-OCT-1997 by CNA
QC Batch No : 33093097A
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Total Petroleum Hydrocarbon	1	50.0	< 50.0 µg/L	U

GASOLINE RANGE ORGANICS /1

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Fluorobenzene (SS)	1	75 - 125	103 %	

Applicable results are reported on dry weight basis.

Intertek Testing Services NA Inc.
1089 East Collins Boulevard Richardson, TX 75081
Telephone (972) 238-5591 Fax (972) 238-5592

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PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

TOTAL METALS

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Silver	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Arsenic	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7060A on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Beryllium	1	0.0030	< 0.0030 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Cadmium	1	0.0050	0.0037 mg/L	J
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Chromium	1	0.0050	0.0375 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Copper	1	0.0100	0.0053 mg/L	J
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Mercury	1	0.0002	< 0.0002 mg/L	U
Prepared using EPA 7470 on 26-SEP-1997 by A_O Analyzed using EPA 7470A on 29-SEP-1997 by CGJ QC Batch No : AC202-38 Method Factor : 1				
Nickel	1	0.0050	0.0359 mg/L	
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Lead	1	0.0020	< 0.0020 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7421 on 29-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Antimony	1	0.0060	< 0.0060 mg/L	U
Prepared using EPA 3010 on 29-SEP-1997 by CEL Analyzed using EPA 7041 on 30-SEP-1997 by AH QC Batch No : AC202-62F Method Factor : 1				

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-5
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: 72797-01#W02
DATE SAMPLED: 25-SEP-1997	:
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

TOTAL METALS (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Selenium	1	0.0050	0.0066 mg/L	
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7740 on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Thallium	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7841 on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Zinc	1	0.0200	< 0.0200 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				

Applicable results are reported on dry weight basis.

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-6
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: TB092597#TB1
DATE SAMPLED: 25-SEP-1997	:
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1
Analyzed using EPA 8260B on 30-SEP-1997 by MGD
QC Batch No : 9709297002
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acetone	1	20.0	< 20.0 µg/L	U
Acrylonitrile	1	5.00	< 5.00 µg/L	U
Benzene	1	5.00	< 5.00 µg/L	U
Bromobenzene	1	5.00	< 5.00 µg/L	U
Bromochloromethane	1	5.00	< 5.00 µg/L	U
Bromodichloromethane	1	5.00	< 5.00 µg/L	U
Bromoform	1	5.00	< 5.00 µg/L	U
Carbon disulfide	1	5.00	< 5.00 µg/L	U
Carbon tetrachloride	1	5.00	< 5.00 µg/L	U
Chlorobenzene	1	5.00	< 5.00 µg/L	U
Chloroethane	1	5.00	< 5.00 µg/L	U
Chloroform	1	5.00	< 5.00 µg/L	U
2-Chlorotoluene	1	5.00	< 5.00 µg/L	U
4-Chlorotoluene	1	5.00	< 5.00 µg/L	U
2-Chloroethylvinyl ether	1	10.0	< 10.0 µg/L	U
Dibromochloromethane	1	5.00	< 5.00 µg/L	U
1,2-Dibromo-3-chloropropane	1	25.0	< 25.0 µg/L	U
1,2-Dibromoethane	1	5.00	< 5.00 µg/L	U
1,2-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
1,3-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
1,4-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
trans-1,4-Dichloro-2-butene	1	100	< 100 µg/L	U
1,1-Dichloroethane	1	5.00	< 5.00 µg/L	U
1,2-Dichloroethane	1	5.00	< 5.00 µg/L	U
1,1-Dichloroethene	1	5.00	< 5.00 µg/L	U
cis-1,2-Dichloroethene	1	5.00	< 5.00 µg/L	U
trans-1,2-Dichloroethene	1	5.00	< 5.00 µg/L	U
1,2-Dichloropropane	1	5.00	< 5.00 µg/L	U
2,2-Dichloropropane	1	5.00	< 5.00 µg/L	U
1,1-Dichloropropene	1	5.00	< 5.00 µg/L	U
1,3-Dichloropropane	1	5.00	< 5.00 µg/L	U

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-6
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: TB092597#TB1
DATE SAMPLED: 25-SEP-1997	
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
cis-1,3-Dichloropropene	1	5.00	< 5.00 µg/L	U
trans-1,3-Dichloropropene	1	5.00	< 5.00 µg/L	U
Ethylbenzene	1	5.00	< 5.00 µg/L	U
2-Hexanone	1	50.0	< 50.0 µg/L	U
Bromomethane	1	5.00	< 5.00 µg/L	U
Chloromethane	1	5.00	< 5.00 µg/L	U
Dibromomethane	1	5.00	< 5.00 µg/L	U
2-Butanone	1	100	< 100 µg/L	U
Iodomethane	1	5.00	< 5.00 µg/L	U
Methylene chloride	1	5.00	< 5.00 µg/L	U
4-Methyl-2-pentanone	1	100	< 100 µg/L	U
Styrene	1	5.00	< 5.00 µg/L	U
1,1,1,2-Tetrachloroethane	1	5.00	< 5.00 µg/L	U
1,1,2,2-Tetrachloroethane	1	5.00	< 5.00 µg/L	U
Tetrachloroethene	1	5.00	< 5.00 µg/L	U
Toluene	1	5.00	< 5.00 µg/L	U
1,2,3-Trichlorobenzene	1	5.00	< 5.00 µg/L	U
1,2,4-Trichlorobenzene	1	5.00	< 5.00 µg/L	U
1,1,1-Trichloroethane	1	5.00	< 5.00 µg/L	U
1,1,2-Trichloroethane	1	5.00	< 5.00 µg/L	U
Trichloroethene	1	5.00	< 5.00 µg/L	U
Trichlorofluoromethane	1	5.00	< 5.00 µg/L	U
1,2,3-Trichloropropane	1	5.00	< 5.00 µg/L	U
1,3,5-Trimethylbenzene	1	5.00	< 5.00 µg/L	U
1,2,4-Trimethylbenzene	1	5.00	< 5.00 µg/L	U
Vinyl acetate	1	50.0	< 50.0 µg/L	U
Vinyl chloride	1	2.00	< 2.00 µg/L	U
m,p-Xylene	1	5.00	< 5.00 µg/L	U
o-Xylene	1	5.00	< 5.00 µg/L	U

VOLATILE ORGANICS /1 (Page 2)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Toluene-d8 (SS)	1	85 - 120	91.2 %	

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-6
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: TB092597#TB1
DATE SAMPLED: 25-SEP-1997	:
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1 (Page 3)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Bromofluorobenzene (SS)	1	85 - 125	110 %	
1,2-Dichloroethane-d4 (SS)	1	80 - 120	85.4 %	
Dibromofluoromethane (SS)	1	80 - 120	81.2 %	

Applicable results are reported on dry weight basis.

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1
Analyzed using EPA 8260B on 29-SEP-1997 by MGD
QC Batch No : 9709297002
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acetone	1	20.0	< 20.0 µg/L	U
Acrylonitrile	1	5.00	< 5.00 µg/L	U
Benzene	1	5.00	< 5.00 µg/L	U
Bromobenzene	1	5.00	< 5.00 µg/L	U
Bromochloromethane	1	5.00	< 5.00 µg/L	U
Bromodichloromethane	1	5.00	< 5.00 µg/L	U
Bromoform	1	5.00	< 5.00 µg/L	U
Carbon disulfide	1	5.00	< 5.00 µg/L	U
Carbon tetrachloride	1	5.00	< 5.00 µg/L	U
Chlorobenzene	1	5.00	< 5.00 µg/L	U
Chloroethane	1	5.00	< 5.00 µg/L	U
Chloroform	1	5.00	< 5.00 µg/L	U
2-Chlorotoluene	1	5.00	< 5.00 µg/L	U
4-Chlorotoluene	1	5.00	< 5.00 µg/L	U
2-Chloroethylvinyl ether	1	10.0	< 10.0 µg/L	U
Dibromochloromethane	1	5.00	< 5.00 µg/L	U
1,2-Dibromo-3-chloropropane	1	25.0	< 25.0 µg/L	U
1,2-Dibromoethane	1	5.00	< 5.00 µg/L	U
1,2-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
1,3-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
1,4-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
trans-1,4-Dichloro-2-butene	1	100	< 100 µg/L	U
1,1-Dichloroethane	1	5.00	< 5.00 µg/L	U
1,2-Dichloroethane	1	5.00	< 5.00 µg/L	U
1,1-Dichloroethene	1	5.00	< 5.00 µg/L	U
cis-1,2-Dichloroethene	1	5.00	< 5.00 µg/L	U
trans-1,2-Dichloroethene	1	5.00	< 5.00 µg/L	U
1,2-Dichloropropane	1	5.00	< 5.00 µg/L	U
2,2-Dichloropropane	1	5.00	< 5.00 µg/L	U
1,1-Dichloropropene	1	5.00	< 5.00 µg/L	U
1,3-Dichloropropane	1	5.00	< 5.00 µg/L	U

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-805-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
cis-1,3-Dichloropropene	1	5.00	< 5.00 µg/L	U
trans-1,3-Dichloropropene	1	5.00	< 5.00 µg/L	U
Ethylbenzene	1	5.00	< 5.00 µg/L	U
2-Hexanone	1	50.0	< 50.0 µg/L	U
Bromomethane	1	5.00	< 5.00 µg/L	U
Chloromethane	1	5.00	< 5.00 µg/L	U
Dibromomethane	1	5.00	< 5.00 µg/L	U
2-Butanone	1	100	< 100 µg/L	U
Iodomethane	1	5.00	< 5.00 µg/L	U
Methylene chloride	1	5.00	< 5.00 µg/L	U
4-Methyl-2-pentanone	1	100	< 100 µg/L	U
Styrene	1	5.00	< 5.00 µg/L	U
1,1,1,2-Tetrachloroethane	1	5.00	< 5.00 µg/L	U
1,1,2,2-Tetrachloroethane	1	5.00	< 5.00 µg/L	U
Tetrachloroethene	1	5.00	< 5.00 µg/L	U
Toluene	1	5.00	< 5.00 µg/L	U
1,2,3-Trichlorobenzene	1	5.00	< 5.00 µg/L	U
1,2,4-Trichlorobenzene	1	5.00	< 5.00 µg/L	U
1,1,1-Trichloroethane	1	5.00	< 5.00 µg/L	U
1,1,2-Trichloroethane	1	5.00	< 5.00 µg/L	U
Trichloroethene	1	5.00	< 5.00 µg/L	U
Trichlorofluoromethane	1	5.00	< 5.00 µg/L	U
1,2,3-Trichloropropane	1	5.00	< 5.00 µg/L	U
1,3,5-Trimethylbenzene	1	5.00	< 5.00 µg/L	U
1,2,4-Trimethylbenzene	1	5.00	< 5.00 µg/L	U
Vinyl acetate	1	50.0	< 50.0 µg/L	U
Vinyl chloride	1	2.00	< 2.00 µg/L	U
m,p-Xylene	1	5.00	< 5.00 µg/L	U
o-Xylene	1	5.00	< 5.00 µg/L	U

VOLATILE ORGANICS /1 (Page 2)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Toluene-d8 (SS)	1	85 - 120	101 %	

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /1 (Page 3)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Bromofluorobenzene (SS)	1	85 - 125	118 %	
1,2-Dichloroethane-d4 (SS)	1	80 - 120	85.0 %	
Dibromofluoromethane (SS)	1	80 - 120	82.0 %	

Applicable results are reported on dry weight basis.

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /2
Analyzed using EPA 8260B on 30-SEP-1997 by MGD
QC Batch No : 9709307001
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acetone	1	20.0	< 20.0 µg/L	U
Acrylonitrile	1	5.00	< 5.00 µg/L	U
Benzene	1	5.00	< 5.00 µg/L	U
Bromobenzene	1	5.00	< 5.00 µg/L	U
Bromochloromethane	1	5.00	< 5.00 µg/L	U
Bromodichloromethane	1	5.00	< 5.00 µg/L	U
Bromoform	1	5.00	< 5.00 µg/L	U
Carbon disulfide	1	5.00	< 5.00 µg/L	U
Carbon tetrachloride	1	5.00	< 5.00 µg/L	U
Chlorobenzene	1	5.00	< 5.00 µg/L	U
Chloroethane	1	5.00	< 5.00 µg/L	U
Chloroform	1	5.00	< 5.00 µg/L	U
2-Chlorotoluene	1	5.00	< 5.00 µg/L	U
4-Chlorotoluene	1	5.00	< 5.00 µg/L	U
2-Chloroethylvinyl ether	1	10.0	< 10.0 µg/L	U
Dibromochloromethane	1	5.00	< 5.00 µg/L	U
1,2-Dibromo-3-chloropropane	1	25.0	< 25.0 µg/L	U
1,2-Dibromoethane	1	5.00	< 5.00 µg/L	U
1,2-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
1,3-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
1,4-Dichlorobenzene	1	5.00	< 5.00 µg/L	U
trans-1,4-Dichloro-2-butene	1	100	< 100 µg/L	U
1,1-Dichloroethane	1	5.00	< 5.00 µg/L	U
1,2-Dichloroethane	1	5.00	< 5.00 µg/L	U
1,1-Dichloroethene	1	5.00	< 5.00 µg/L	U
cis-1,2-Dichloroethene	1	5.00	< 5.00 µg/L	U
trans-1,2-Dichloroethene	1	5.00	< 5.00 µg/L	U
1,2-Dichloropropane	1	5.00	< 5.00 µg/L	U
2,2-Dichloropropane	1	5.00	< 5.00 µg/L	U
1,1-Dichloropropene	1	5.00	< 5.00 µg/L	U
1,3-Dichloropropane	1	5.00	< 5.00 µg/L	U

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /2 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
cis-1,3-Dichloropropene	1	5.00	< 5.00 µg/L	U
trans-1,3-Dichloropropene	1	5.00	< 5.00 µg/L	U
Ethylbenzene	1	5.00	< 5.00 µg/L	U
2-Hexanone	1	50.0	< 50.0 µg/L	U
Bromomethane	1	5.00	< 5.00 µg/L	U
Chloromethane	1	5.00	< 5.00 µg/L	U
Dibromomethane	1	5.00	< 5.00 µg/L	U
2-Butanone	1	100	< 100 µg/L	U
Iodomethane	1	5.00	< 5.00 µg/L	U
Methylene chloride	1	5.00	< 5.00 µg/L	U
4-Methyl-2-pentanone	1	100	< 100 µg/L	U
Styrene	1	5.00	< 5.00 µg/L	U
1,1,1,2-Tetrachloroethane	1	5.00	< 5.00 µg/L	U
1,1,2,2-Tetrachloroethane	1	5.00	< 5.00 µg/L	U
Tetrachloroethene	1	5.00	< 5.00 µg/L	U
Toluene	1	5.00	< 5.00 µg/L	U
1,2,3-Trichlorobenzene	1	5.00	< 5.00 µg/L	U
1,2,4-Trichlorobenzene	1	5.00	< 5.00 µg/L	U
1,1,1-Trichloroethane	1	5.00	< 5.00 µg/L	U
1,1,2-Trichloroethane	1	5.00	< 5.00 µg/L	U
Trichloroethene	1	5.00	< 5.00 µg/L	U
Trichlorofluoromethane	1	5.00	< 5.00 µg/L	U
1,2,3-Trichloropropane	1	5.00	< 5.00 µg/L	U
1,3,5-Trimethylbenzene	1	5.00	< 5.00 µg/L	U
1,2,4-Trimethylbenzene	1	5.00	< 5.00 µg/L	U
Vinyl acetate	1	50.0	< 50.0 µg/L	U
Vinyl chloride	1	2.00	< 2.00 µg/L	U
m,p-Xylene	1	5.00	< 5.00 µg/L	U
o-Xylene	1	5.00	< 5.00 µg/L	U

VOLATILE ORGANICS /2 (Page 2)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Toluene-d8 (SS)	1	85 - 120	101 %	

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

VOLATILE ORGANICS /2 (Page 3)

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Bromofluorobenzene (SS)	1	85 - 125	118 %	
1,2-Dichloroethane-d4 (SS)	1	80 - 120	106 %	
Dibromofluoromethane (SS)	1	80 - 120	104 %	

Applicable results are reported on dry weight basis.

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1
Prepared using EPA 3520B on 26-SEP-1997 by KDF
Analyzed using EPA 8270C on 28-SEP-1997 by TC
QC Batch No : AC196-14
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Acenaphthene	1	10.0	< 10.0 µg/L	U
Acenaphthylene	1	10.0	< 10.0 µg/L	U
Anthracene	1	10.0	< 10.0 µg/L	U
Benzo(a)anthracene	1	10.0	< 10.0 µg/L	U
Benzo(b)fluoranthene	1	10.0	< 10.0 µg/L	U
Benzo(k)fluoranthene	1	10.0	< 10.0 µg/L	U
Benzo(g,h,i)perylene	1	10.0	< 10.0 µg/L	U
Benzo(a)pyrene	1	10.0	< 10.0 µg/L	U
Benzyl alcohol	1	20.0	< 20.0 µg/L	U
Bis(2-chloroethoxy)methane	1	10.0	< 10.0 µg/L	U
Bis(2-chloroethyl)ether	1	10.0	< 10.0 µg/L	U
Bis(2-chloroisopropyl)ether	1	10.0	< 10.0 µg/L	U
Bis(2-ethylhexyl)phthalate	1	10.0	< 10.0 µg/L	U
4-Bromophenyl phenyl ether	1	10.0	< 10.0 µg/L	U
Butyl benzyl phthalate	1	10.0	< 10.0 µg/L	U
Carbazole	1	10.0	< 10.0 µg/L	U
4-Chloroaniline	1	20.0	< 20.0 µg/L	U
2-Chloronaphthalene	1	10.0	< 10.0 µg/L	U
4-Chlorophenyl phenyl ether	1	10.0	< 10.0 µg/L	U
Chrysene	1	10.0	< 10.0 µg/L	U
Dibenz(a,h)anthracene	1	10.0	< 10.0 µg/L	U
Dibenzofuran	1	10.0	< 10.0 µg/L	U
Di-n-butylphthalate	1	10.0	< 10.0 µg/L	U
1,2-Dichlorobenzene	1	10.0	< 10.0 µg/L	U
1,3-Dichlorobenzene	1	10.0	< 10.0 µg/L	U
1,4-Dichlorobenzene	1	10.0	< 10.0 µg/L	U
3,3'-Dichlorobenzidine	1	20.0	< 20.0 µg/L	U
Diethyl phthalate	1	10.0	< 10.0 µg/L	U
Dimethyl phthalate	1	10.0	< 10.0 µg/L	U
2,4-Dinitrotoluene	1	10.0	< 10.0 µg/L	U

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
2.6-Dinitrotoluene	1	10.0	< 10.0 µg/L	U
Di-n-octylphthalate	1	10.0	< 10.0 µg/L	U
Fluoranthene	1	10.0	< 10.0 µg/L	U
Fluorene	1	10.0	< 10.0 µg/L	U
Hexachlorobenzene	1	10.0	< 10.0 µg/L	U
Hexachlorobutadiene	1	10.0	< 10.0 µg/L	U
Hexachlorocyclopentadiene	1	10.0	< 10.0 µg/L	U
Hexachloroethane	1	10.0	< 10.0 µg/L	U
Indeno(1,2,3-cd)pyrene	1	10.0	< 10.0 µg/L	U
Isophorone	1	10.0	< 10.0 µg/L	U
2-Methylnaphthalene	1	10.0	< 10.0 µg/L	U
Naphthalene	1	10.0	< 10.0 µg/L	U
2-Nitroaniline	1	50.0	< 50.0 µg/L	U
3-Nitroaniline	1	50.0	< 50.0 µg/L	U
4-Nitroaniline	1	50.0	< 50.0 µg/L	U
Nitrobenzene	1	10.0	< 10.0 µg/L	U
N-Nitrosodiphenylamine	1	10.0	< 10.0 µg/L	U
N-Nitrosodi-n-propylamine	1	10.0	< 10.0 µg/L	U
Phenanthrene	1	10.0	< 10.0 µg/L	U
Pyrene	1	10.0	< 10.0 µg/L	U
1,2,4-Trichlorobenzene	1	10.0	< 10.0 µg/L	U
Benzoic acid	1	50.0	< 50.0 µg/L	U
4-Chloro-3-methylphenol	1	20.0	< 20.0 µg/L	U
2-Chlorophenol	1	10.0	< 10.0 µg/L	U
2,4-Dichlorophenol	1	10.0	< 10.0 µg/L	U
2,4-Dimethylphenol	1	10.0	< 10.0 µg/L	U
4,6-Dinitro-2-methylphenol	1	50.0	< 50.0 µg/L	U
2,4-Dinitrophenol	1	50.0	< 50.0 µg/L	U
2-Methylphenol	1	10.0	< 10.0 µg/L	U
4-Methylphenol	1	10.0	< 10.0 µg/L	U
2-Nitrophenol	1	10.0	< 10.0 µg/L	U
4-Nitrophenol	1	50.0	< 50.0 µg/L	U

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 3)						
TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS			FLAG
Pentachlorophenol	1	50.0	<	50.0	µg/L	U
Phenol	1	10.0	<	10.0	µg/L	U
2,4,5-Trichlorophenol	1	10.0	<	10.0	µg/L	U
2,4,6-Trichlorophenol	1	10.0	<	10.0	µg/L	U

ACID/BASE-NEUTRAL EXTRACTABLE ORGANICS /1 (Page 3)					
SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED		FLAG
Nitrobenzene-d5 (SS)	1	35 - 114	57.0	%	
2-Fluorobiphenyl (SS)	1	43 - 116	54.8	%	
Terphenyl-d14 (SS)	1	33 - 141	69.8	%	
Phenol-d6 (SS)	1	10 - 94	21.7	%	
2-Fluorophenol (SS)	1	21 - 100	35.6	%	
2,4,6-Tribromophenol (SS)	1	10 - 123	53.7	%	

Applicable results are reported on dry weight basis.

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

DIESEL RANGE ORGANICS /1
Prepared using EPA 3520B on 26-SEP-1997 by TDC
Analyzed using EPA 8015B on 29-SEP-1997 by VHL
QC Batch No : AC196-12
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Total Petroleum Hydrocarbon	1	0.50	< 0.50 mg/L	U

DIESEL RANGE ORGANICS /1

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Triacontane (SS)	1	40 - 140	86.0 %	

Applicable results are reported on dry weight basis.

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

GASOLINE RANGE ORGANICS /1
Analyzed using EPA 5030/8015B on 1-OCT-1997 by CNA
QC Batch No : 33093097A
Method Factor : 1

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Total Petroleum Hydrocarbon	1	50.0	< 50.0 µg/L	U

GASOLINE RANGE ORGANICS /1

SURROGATE COMPOUND	DILUTION FACTOR	CONTROL LIMITS	SPIKE RECOVERED	FLAG
Fluorobenzene (SS)	1	75 - 125	103 %	

Applicable results are reported on dry weight basis.

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

TOTAL METALS

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Silver	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Arsenic	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7060A on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Beryllium	1	0.0030	< 0.0030 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Cadmium	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Chromium	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Copper	1	0.0100	0.0048 mg/L	J
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Mercury	1	0.0002	< 0.0002 mg/L	U
Prepared using EPA 7470 on 26-SEP-1997 by A_O Analyzed using EPA 7470A on 29-SEP-1997 by CGJ QC Batch No : AC202-38 Method Factor : 1				
Nickel	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				
Lead	1	0.0020	< 0.0020 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7421 on 29-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Antimony	1	0.0060	< 0.0060 mg/L	U
Prepared using EPA 3010 on 29-SEP-1997 by CEL Analyzed using EPA 7041 on 30-SEP-1997 by AH QC Batch No : AC202-62F Method Factor : 1				

DATE RECEIVED: 26-SEP-1997	REPORT NUMBER: D97-11708-7
REPORT DATE: 7-OCT-1997 07:52:20.09	ID MARKS: LABQC#
DATE SAMPLED: 25-SEP-1997	: MBLANK
PURCHASE ORDER:	PROJECT: 96-806-4-004 USFR354
SAMPLE MATRIX: Liquid	

TOTAL METALS (Page 2)

TEST REQUESTED	DILUTION FACTOR	DETECTION LIMIT	RESULTS	FLAG
Selenium	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7740 on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Thallium	1	0.0050	< 0.0050 mg/L	U
Prepared using EPA 3020A on 28-SEP-1997 by CEL Analyzed using EPA 7841 on 28-SEP-1997 by GGD QC Batch No : AC202-56F Method Factor : 1				
Zinc	1	0.0200	< 0.0200 mg/L	U
Prepared using EPA 3010A on 29-SEP-1997 by CEL Analyzed using EPA 6010B on 29-SEP-1997 by GAY QC Batch No : AC202-62 Method Factor : 1				

Applicable results are reported on dry weight basis.

Intertek Testing Services
Environmental Laboratories

REPORT DATE : 9-OCT-1997 REPORT NUMBER : D97-11708

SAMPLE SUBMITTED BY : Burns & McDonnell Waste Consultants, Inc.
ATTENTION : Tracy Cooley

LABORATORY QUALITY CONTROL REPORT

ANALYTE	1,1-Dichloroethene	Trichloroethene	Benzene	Toluene	Chlorobenzene
BATCH NO.	9709297002	9709297002	9709297002	9709297002	9709297002
LCS LOT NO.	AB598-77-1	AB598-77-1	AB598-77-1	AB598-77-1	AB598-77-1
PREP METHOD	---	---	---	---	---
PREPARED BY	---	---	---	---	---
ANALYSIS METHOD	EPA 8260B	EPA 8260B	EPA 8260B	EPA 8260B	EPA 8260B
ANALYZED BY	MGD	MGD	MGD	MGD	MGD
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L
METHOD BLANK	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
SPIKE LEVEL	50.0	50.0	50.0	50.0	50.0
SPK REC LIMITS	70.0 - 130	70.0 - 130	70.0 - 130	70.0 - 130	70.0 - 130
SPK RPD LIMITS	20.0	20.0	20.0	20.0	20.0
MS RESULT	42.5	35.2	48.3	49.2	54.8
MS RECOVERY %	85.0	70.4	96.6	98.4	110
MSD RESULT	46.7	35.2	48.8	49.8	52.6
MSD RECOVERY %	93.4	70.4	97.6	99.6	105
MS/MSD RPD %	9.42	0.00	1.03	1.21	4.10
BS RESULT	44.5	39.1	48.3	50.5	52.3
BS RECOVERY %	89.0	78.2	96.6	101	105
BSD RESULT	42.6	39.6	47.2	49.1	54.1
BSD RECOVERY %	85.2	79.2	94.4	98.2	108
BS/BSD RPD %	4.36	1.27	2.30	2.81	3.38
DUP RPD LIMITS	---	---	---	---	---
DUPLICATE RPD %	NA	NA	NA	NA	NA
LCS LEVEL	50.0	50.0	50.0	50.0	50.0
LCS REC LIMITS	70.0 - 130	70.0 - 130	70.0 - 130	70.0 - 130	70.0 - 130
LCS RESULT	SEE_BS	SEE_BS	SEE_BS	SEE_BS	SEE_BS
LCS RECOVERY %	SEE_BS	SEE_BS	SEE_BS	SEE_BS	SEE_BS
SPIKE SAMPLE ID	11708-2	11708-2	11708-2	11708-2	11708-2
SAMPLE VALUE	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
DUP SAMPLE ID	---	---	---	---	---
DUP SAMPLE VAL/1	---	---	---	---	---
DUP SAMPLE VAL/2	---	---	---	---	---

SEE_BS LCS and LCS Duplicate reported as BS and BSD.
NA Not applicable

Intertek Testing Services NA Inc.
1089 East Collins Boulevard Richardson, TX 75081
Telephone (972) 238-5591 Fax (972) 238-5592

ITS Intertek Testing Services
Environmental Laboratories

REPORT DATE : 9-OCT-1997 REPORT NUMBER : D97-11708

SAMPLE SUBMITTED BY : Burns & McDonnell Waste Consultants, Inc.
ATTENTION : Tracy Cooley

LABORATORY QUALITY CONTROL REPORT

ANALYTE	1,1-Dichloroethene	Trichloroethene	Benzene	Toluene	Chlorobenzene
BATCH NO.	9709307001	9709307001	9709307001	9709307001	9709307001
LCS LOT NO.	AB598-77-1	AB598-77-1	AB598-77-1	AB598-77-1	AB598-77-1
PREP METHOD	---	---	---	---	---
PREPARED BY	---	---	---	---	---
ANALYSIS METHOD	EPA 8260B	EPA 8260B	EPA 8260B	EPA 8260B	EPA 8260B
ANALYZED BY	MGD	MGD	MGD	MGD	MGD
UNITS	µg/L	µg/L	µg/L	µg/L	µg/L
METHOD BLANK	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
SPIKE LEVEL	50.0	50.0	50.0	50.0	50.0
SPK REC LIMITS	70.0 - 130	70.0 - 130	70.0 - 130	70.0 - 130	70.0 - 130
SPK RPD LIMITS	20.0	20.0	20.0	20.0	20.0
MS RESULT	43.1	39.5	47.6	51.5	52.8
MS RECOVERY %	86.2	79.0	95.2	103	106
MSD RESULT	46.8	38.1	45.2	48.8	50.0
MSD RECOVERY %	93.6	76.2	90.4	97.6	100
MS/MSD RPD %	8.23	3.61	5.17	5.38	5.45
BS RESULT	36.0	37.0	46.5	50.9	51.3
BS RECOVERY %	72.0	74.0	93.0	102	103
BSD RESULT	36.6	35.8	48.4	51.5	53.6
BSD RECOVERY %	73.2	71.6	96.8	103	107
BS/BSD RPD %	1.65	3.30	4.00	1.17	4.39
DUP RPD LIMITS	---	---	---	---	---
DUPLICATE RPD %	NA	NA	NA	NA	NA
LCS LEVEL	50.0	50.0	50.0	50.0	50.0
LCS REC LIMITS	70.0 - 130	70.0 - 130	70.0 - 130	70.0 - 130	70.0 - 130
LCS RESULT	SEE_BS	SEE_BS	SEE_BS	SEE_BS	SEE_BS
LCS RECOVERY %	SEE_BS	SEE_BS	SEE_BS	SEE_BS	SEE_BS
SPIKE SAMPLE ID	11708-2	11708-2	11708-2	11708-2	11708-2
SAMPLE VALUE	< 5.00	< 5.00	< 5.00	< 5.00	< 5.00
DUP SAMPLE ID	---	---	---	---	---
DUP SAMPLE VAL/1	---	---	---	---	---
DUP SAMPLE VAL/2	---	---	---	---	---

SEE_BS LCS and LCS Duplicate reported as BS and BSD.
NA Not applicable

Intertek Testing Services NA Inc.
1089 East Collins Boulevard Richardson, TX 75081
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ITS Intertek Testing Services
Environmental Laboratories

REPORT DATE : 9-OCT-1997 REPORT NUMBER : D97-11708

SAMPLE SUBMITTED BY : Burns & McDonnell Waste Consultants, Inc.
ATTENTION : Tracy Cooley

LABORATORY QUALITY CONTROL REPORT

ANALYTE	Phenol	2-Chlorophenol	1,4-Dichlorobenzene	N-Nitroso-Di-N-propylamine
BATCH NO.	AC196-14	AC196-14	AC196-14	AC196-14
LCS LOT NO.	AC219-21	AC219-21	AC219-21	AC219-21
PREP METHOD	EPA 3520B	EPA 3520B	EPA 3520B	EPA 3520B
PREPARED BY	KDF	KDF	KDF	KDF
ANALYSIS METHOD	EPA 8270C	EPA 8270C	EPA 8270C	EPA 8270C
ANALYZED BY	TC	TC	TC	TC
UNITS	µg/L	µg/L	µg/L	µg/L
METHOD BLANK	< 10.0	< 10.0	< 10.0	< 10.0
SPIKE LEVEL	100	100	100	100
SPK REC LIMITS	5.00 - 112	23.0 - 134	20.0 - 124	10.0 - 230
SPK RPD LIMITS	23.0	29.0	32.0	35.0
MS RESULT	31.2	58.2	54.1	68.6
MS RECOVERY %	31.2	58.2	54.1	68.6
MSD RESULT	29.6	54.2	49.7	66.7
MSD RECOVERY %	29.6	54.2	49.7	66.7
MS/MSD RPD %	5.26	7.12	8.48	2.81
BS RESULT	29.4	50.6	44.9	59.5
BS RECOVERY %	29.4	50.6	44.9	59.5
BSD RESULT	29.3	56.2	51.9	66.5
BSD RECOVERY %	29.3	56.2	51.9	66.5
BS/BSD RPD %	0.34	10.5	14.5	11.1
DUP RPD LIMITS	---	---	---	---
DUPLICATE RPD %	NA	NA	NA	NA
LCS LEVEL	100	100	100	100
LCS REC LIMITS	5.00 - 112	23.0 - 134	20.0 - 124	10.0 - 230
LCS RESULT	SEE_BS	SEE_BS	SEE_BS	SEE_BS
LCS RECOVERY %	SEE_BS	SEE_BS	SEE_BS	SEE_BS
SPIKE SAMPLE ID	11708-2	11708-2	11708-2	11708-2
SAMPLE VALUE	< 10.0	< 10.0	< 10.0	< 10.0
DUP SAMPLE ID	---	---	---	---
DUP SAMPLE VAL/1	---	---	---	---
DUP SAMPLE VAL/2	---	---	---	---

SEE_BS LCS and LCS Duplicate reported as BS and BSD.
NA Not applicable

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ITS Intertek Testing Services
Environmental Laboratories

REPORT DATE : 9-OCT-1997 REPORT NUMBER : D97-11708

SAMPLE SUBMITTED BY : Burns & McDonnell Waste Consultants, Inc.
ATTENTION : Tracy Cooley

LABORATORY QUALITY CONTROL REPORT

ANALYTE	1,2,4-Trichlorobenzene	4-Chloro-3-methylphenol	Acenaphthene	4-Nitrophenol
BATCH NO.	AC196-14	AC196-14	AC196-14	AC196-14
LCS LOT NO.	AC219-21	AC219-21	AC219-21	AC219-21
PREP METHOD	EPA 3520B	EPA 3520B	EPA 3520B	EPA 3520B
PREPARED BY	KDF	KDF	KDF	KDF
ANALYSIS METHOD	EPA 8270C	EPA 8270C	EPA 8270C	EPA 8270C
ANALYZED BY	TC	TC	TC	TC
UNITS	µg/L	µg/L	µg/L	µg/L
METHOD BLANK	< 10.0	< 20.0	< 10.0	< 50.0
SPIKE LEVEL	100	100	100	100
SPK REC LIMITS	44.0 - 142	22.0 - 147	47.0 - 145	10.0 - 132
SPK RPD LIMITS	28.0	37.0	28.0	47.0
MS RESULT	63.0	64.5	68.0	31.5
MS RECOVERY %	63.0	64.5	68.0	31.5
MSD RESULT	59.1	58.7	64.2	29.2
MSD RECOVERY %	59.1	58.7	64.2	29.2
MS/MSD RPD %	6.39	9.42	5.75	7.58
BS RESULT	52.4	56.4	57.0	27.8
BS RECOVERY %	52.4	56.4	57.0	27.8
BSD RESULT	59.3	62.9	65.8	30.2
BSD RECOVERY %	59.3	62.9	65.8	30.2
BS/BSD RPD %	12.4	10.9	14.3	8.28
DUP RPD LIMITS	---	---	---	---
DUPLICATE RPD %	NA	NA	NA	NA
LCS LEVEL	100	100	100	100
LCS REC LIMITS	44.0 - 142	22.0 - 147	47.0 - 145	10.0 - 132
LCS RESULT	SEE_BS	SEE_BS	SEE_BS	SEE_BS
LCS RECOVERY %	SEE_BS	SEE_BS	SEE_BS	SEE_BS
SPIKE SAMPLE ID	11708-2	11708-2	11708-2	11708-2
SAMPLE VALUE	< 10.0	< 20.0	< 10.0	< 50.0
DUP SAMPLE ID	---	---	---	---
DUP SAMPLE VAL/1	---	---	---	---
DUP SAMPLE VAL/2	---	---	---	---

SEE_BS LCS and LCS Duplicate reported as BS and BSD.
NA Not applicable

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ITS Intertek Testing Services
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REPORT DATE : 9-OCT-1997 REPORT NUMBER : D97-11708

SAMPLE SUBMITTED BY : Burns & McDonnell Waste Consultants, Inc.
ATTENTION : Tracy Cooley

LABORATORY QUALITY CONTROL REPORT

ANALYTE	2,4-Dinitrotoluene	Pentachlorophenol	Pyrene	Total Petroleum Hydrocarbon
BATCH NO.	AC196-14	AC196-14	AC196-14	AC196-12
LCS LOT NO.	AC219-21	AC219-21	AC219-21	AC219-11
PREP METHOD	EPA 3520B	EPA 3520B	EPA 3520B	EPA 3520B
PREPARED BY	KDF	KDF	KDF	TDC
ANALYSIS METHOD	EPA 8270C	EPA 8270C	EPA 8270C	EPA 8015B
ANALYZED BY	TC	TC	TC	VHL
UNITS	µg/L	µg/L	µg/L	mg/L
METHOD BLANK	< 10.0	< 50.0	< 10.0	< 0.500
SPIKE LEVEL	100	100	100	2.50
SPK REC LIMITS	39.0 - 139	14.0 - 176	52.0 - 115	35.0 - 115
SPK RPD LIMITS	22.0	49.0	25.0	25.0
MS RESULT	72.1	54.9	78.3	2.21
MS RECOVERY %	72.1	54.9	78.3	88.4
MSD RESULT	67.1	51.2	72.4	2.30
MSD RECOVERY %	67.1	51.2	72.4	92.0
MS/MSD RPD %	7.18	6.97	7.83	3.99
BS RESULT	60.4	45.5	63.3	2.18
BS RECOVERY %	60.4	45.5	63.3	87.2
BSD RESULT	69.4	52.0	71.1	1.81
BSD RECOVERY %	69.4	52.0	71.1	72.4
BS/BSD RPD %	13.9	13.3	11.6	18.5
DUP RPD LIMITS	---	---	---	---
DUPLICATE RPD %	NA	NA	NA	NA
LCS LEVEL	100	100	100	---
LCS REC LIMITS	39.0 - 139	14.0 - 176	52.0 - 115	---
LCS RESULT	SEE_BS	SEE_BS	SEE_BS	SEE_BS
LCS RECOVERY %	SEE_BS	SEE_BS	SEE_BS	SEE_BS
SPIKE SAMPLE ID	11708-2	11708-2	11708-2	11708-2
SAMPLE VALUE	< 10.0	< 50.0	< 10.0	< 0.500
DUP SAMPLE ID	---	---	---	---
DUP SAMPLE VAL/1	---	---	---	---
DUP SAMPLE VAL/2	---	---	---	---

SEE_BS LCS and LCS Duplicate reported as BS and BSD.
NA Not applicable

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ITS Intertek Testing Services
Environmental Laboratories

REPORT DATE : 9-OCT-1997 REPORT NUMBER : D97-11708

SAMPLE SUBMITTED BY : Burns & McDonnell Waste Consultants, Inc.
ATTENTION : Tracy Cooley

LABORATORY QUALITY CONTROL REPORT

ANALYTE	Total Petroleum Hydrocarbon	Silver	Arsenic	Beryllium	Cadmium
BATCH NO.	33093097A	AC202-62	AC202-56F	AC202-62	AC202-62
LCS LOT NO.	AC033-61A	AC223-01	AB300-85	AC223-01	AC223-01
PREP METHOD	---	EPA 3010A	EPA 3020A	EPA 3010A	EPA 3010A
PREPARED BY	---	CEL	CEL	CEL	CEL
ANALYSIS METHOD	EPA 5030/8015B	EPA 6010B	EPA 7060A	EPA 6010B	EPA 6010B
ANALYZED BY	CNA	GAY	GGD	GAY	GAY
UNITS	µg/L	mg/L	µg/L	mg/L	mg/L
METHOD BLANK	< 50.0	< 0.00500	< 5.00	< 0.00300	< 0.00500
SPIKE LEVEL	500	0.200	40.0	0.500	0.500
SPK REC LIMITS	75.0 - 125	70.0 - 130	80.0 - 120	80.0 - 120	80.0 - 120
SPK RPD LIMITS	25.0	20.0	20.0	20.0	20.0
MS RESULT	463	0.198	33.8	0.481	0.472
MS RECOVERY %	92.6	99.0	84.5	96.2	94.4
MSD RESULT	475	0.196	33.7	0.482	0.474
MSD RECOVERY %	95.0	98.0	84.3	96.4	94.8
MS/MSD RPD %	2.56	1.02	0.30	0.21	0.42
BS RESULT	NA	NA	NA	NA	NA
BS RECOVERY %	NA	NA	NA	NA	NA
BSD RESULT	NA	NA	NA	NA	NA
BSD RECOVERY %	NA	NA	NA	NA	NA
BS/BSD RPD %	NA	NA	NA	NA	NA
DUP RPD LIMITS	---	---	---	---	---
DUPLICATE RPD %	NA	NC	NC	NC	NC
LCS LEVEL	500	0.200	40.0	0.500	0.500
LCS REC LIMITS	75.0 - 125	70.0 - 130	80.0 - 120	80.0 - 120	80.0 - 120
LCS RESULT	493	0.193	34.9	0.478	0.477
LCS RECOVERY %	98.6	96.5	87.3	95.6	95.4
SPIKE SAMPLE ID	11708-2	11708-2	11708-2	11708-2	11708-2
SAMPLE VALUE	< 50.0	< 0.00500	< 5.00	< 0.00300	< 0.00500
DUP SAMPLE ID	---	11708-2	11708-2	11708-2	11708-2
DUP SAMPLE VAL/1	---	---	---	---	---
DUP SAMPLE VAL/2	---	---	---	---	---

NA Not applicable
NC Not calculable

Intertek Testing Services NA Inc.
1089 East Collins Boulevard Richardson, TX 75081
Telephone (972) 238-5591 Fax (972) 238-5592

ITS Intertek Testing Services
Environmental Laboratories

REPORT DATE : 9-OCT-1997 REPORT NUMBER : D97-11708

SAMPLE SUBMITTED BY : Burns & McDonnell Waste Consultants, Inc.
ATTENTION : Tracy Cooley

LABORATORY QUALITY CONTROL REPORT

ANALYTE	Chromium	Copper	Mercury	Nickel	Lead
BATCH NO.	AC202-62	AC202-62	AC202-38	AC202-62	AC202-56F
LCS LOT NO.	AC223-01	AC223-01	AB300-100	AC223-01	AB300-85
PREP METHOD	EPA 3010A	EPA 3010A	EPA 7470	EPA 3010A	EPA 3020A
PREPARED BY	CEL	CEL	A_O	CEL	CEL
ANALYSIS METHOD	EPA 6010B	EPA 6010B	EPA 7470A	EPA 6010B	EPA 7421
ANALYZED BY	GAY	GAY	CGJ	GAY	GGD
UNITS	mg/L	mg/L	µg/L	mg/L	µg/L
METHOD BLANK	< 0.00500	< 0.0100	< 0.200	< 0.00500	< 2.00
SPIKE LEVEL	1.00	1.00	3.00	1.00	20.0
SPK REC LIMITS	80.0 - 120	80.0 - 120	80.0 - 120	80.0 - 120	80.0 - 120
SPK RPD LIMITS	20.0	20.0	20.0	20.0	20.0
MS RESULT	0.977	0.975	2.51	0.967	17.2
MS RECOVERY %	94.7	97.5	83.7 B	93.8	81.0 B
MSD RESULT	0.979	0.975	2.29	0.972	16.9
MSD RECOVERY %	94.9	97.5	76.3 B	94.3	79.7 B
MS/MSD RPD %	0.21	0.00	9.17 B	0.53	1.68 B
BS RESULT	NA	NA	NA	NA	NA
BS RECOVERY %	NA	NA	NA	NA	NA
BSD RESULT	NA	NA	NA	NA	NA
BSD RECOVERY %	NA	NA	NA	NA	NA
BS/BSD RPD %	NA	NA	NA	NA	NA
DUP RPD LIMITS	20.0	---	---	20.0	---
DUPLICATE RPD %	3.41	NC	NC	5.39	NC
LCS LEVEL	1.00	1.00	3.00	1.00	20.0
LCS REC LIMITS	80.0 - 120	80.0 - 120	80.0 - 120	80.0 - 120	80.0 - 120
LCS RESULT	0.953	0.948	2.48	0.951	19.2
LCS RECOVERY %	95.3	94.8	82.7	95.1	96.1
SPIKE SAMPLE ID	11708-2	11708-2	11708-2	11708-2	11708-2
SAMPLE VALUE	0.0298	< 0.0100	< 0.200	0.0289	1.00
DUP SAMPLE ID	11708-2	11708-2	11708-2	11708-2	11708-2
DUP SAMPLE VAL/1	0.0288	---	---	0.0305	---
DUP SAMPLE VAL/2	0.0298	---	---	0.0289	---

NA Not applicable
NC Not calculable
_B Not applicable due to matrix interference in the QC Sample.

Intertek Testing Services NA Inc.
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ITS Intertek Testing Services
Environmental Laboratories

REPORT DATE : 9-OCT-1997 REPORT NUMBER : D97-11708

SAMPLE SUBMITTED BY : Burns & McDonnell Waste Consultants, Inc.
ATTENTION : Tracy Cooley

LABORATORY QUALITY CONTROL REPORT

ANALYTE	Antimony	Selenium	Thallium	Zinc
BATCH NO.	AC202-62F	AC202-56F	AC202-56F	AC202-62
LCS LOT NO.	AB300-85	AB300-85	AB300-85	AC223-01
PREP METHOD	EPA 3010	EPA 3020A	EPA 3020A	EPA 3010A
PREPARED BY	CEL	CEL	CEL	CEL
ANALYSIS METHOD	EPA 7041	EPA 7740	EPA 7841	EPA 6010B
ANALYZED BY	AH	GGD	GGD	GAY
UNITS	µg/L	µg/L	µg/L	mg/L
METHOD BLANK	< 6.00	< 5.00	< 5.00	< 0.0200
SPIKE LEVEL	50.0	20.0	40.0	1.00
SPK REC LIMITS	70.0 - 130	80.0 - 120	80.0 - 120	80.0 - 120
SPK RPD LIMITS	20.0	20.0	20.0	20.0
MS RESULT	23.1	30.0	37.5	0.972
MS RECOVERY %	46.2 B	108	93.8	97.2
MSD RESULT	24.7	28.1	38.0	0.973
MSD RECOVERY %	49.4 B	98.5	95.0	97.3
MS/MSD RPD %	6.69 B	9.20	1.32	0.10
BS RESULT	NA	NA	NA	NA
BS RECOVERY %	NA	NA	NA	NA
BSD RESULT	NA	NA	NA	NA
BSD RECOVERY %	NA	NA	NA	NA
BS/BSD RPD %	NA	NA	NA	NA
DUP RPD LIMITS	---	---	---	---
DUPLICATE RPD %	NC	NC	NC	NC
LCS LEVEL	50.0	20.0	40.0	1.00
LCS REC LIMITS	70.0 - 130	80.0 - 120	80.0 - 120	80.0 - 120
LCS RESULT	48.3	20.9	39.3	0.958
LCS RECOVERY %	96.6	105	98.3	95.8
SPIKE SAMPLE ID	11708-2	11708-2	11708-2	11708-2
SAMPLE VALUE	< 6.00	8.40	< 5.00	< 0.0200
DUP SAMPLE ID	11708-2	11708-2	11708-2	11708-2
DUP SAMPLE VAL/1	---	---	---	---
DUP SAMPLE VAL/2	---	---	---	---

B Not applicable due to matrix interference in the QC Sample.
NA Not applicable
NC Not calculable

Intertek Testing Services NA Inc.
1089 East Collins Boulevard Richardson, TX 75081
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Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc.
9400 Ward Parkway
Kansas City, Missouri 64114
Phone: (816) 333-8787 Fax: (816) 822-3463

Laboratory: ITS Laboratory
Address: 1089 E. Collins Blvd.
City/State/Zip: Richardson, TX 75081
Telephone: 888-847-5591

Attention: TRACY COOLEY

Document Control No.: 092597A
Lab. Reference No. or Episode No.:

Project Number: 96-806-4-004 Project Name: USFR354

Site, Group, or SWMU Name:

Sample Number		Sample Event		Sample Depth (in feet)		Sample Collected		Sample Type: Matrix					Number of Containers	Analysis							Remarks
Sample Point	Sample Designator	Round	Year	From	To	Date	Time	Liquid	Solid	Gas	Composite	Grab		VOC	TPH-GRO	PP Metals	SVOC				
HS97-01	W01	NA	97	—	—	9-25-97	0935	X				X	34	X		X					1 11708
72797-01	W01	↓	↓	↓	↓	↓	1245	X				X	9	X	X	X	X				2
↓	W01MS						↓	X				X	6	X	X						MATRIX SPIKE 3
	W01MSD						↓	X				X	6	X	X						MATRIX SPIKE DUP. 4
↓	W02						0700	X				X	7	X	X	X					5
TB092597	TB1						0700	X				X	2	X							TRIP BLANK 6
TEMP BLANK	—	↓	↓	↓	↓	↓	0700	X				X	1								TEMP. BLANK

COOLER TEMPERATURE WHEN RECEIVED 4 °C

SCREENED FOR RADIOACTIVITY

Sampler (signature):
Sampler (signature):

Special Instructions:
Fedex # 387210851 6

Relinquished By:	Date/Time	Received By:	Date/Time
1. (signature):	9-25-97 1800	(signature):	9-26-97 1100
Relinquished By: 2. (signature):	Date/Time	Received By: (signature):	Date/Time

Condition of Shipping Container: Good ☑ Fair ☐ Poor ☐
Ice Present in Container: Yes ☑ No ☐

Comments:

061996 Form WCI-OP1

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc.
9400 Ward Parkway
Kansas City, Missouri 64114
Phone: (816) 333-8787 Fax: (816) 822-3463

Laboratory: ITS Environmental
Address: 1089 E. Collins Blvd
City/State/Zip: Richardson, TX 75081
Telephone: 888-847-5591

Document Control No.: 092597B
Lab. Reference No. or Episode No.:

Attention: TRACY COOLEY

Project Number: 96-806-4004 Project Name: USFR354

Site, Group, or SWMU Name:

Sample Number		Sample Event		Sample Depth (in feet)		Sample Collected		Sample Type: Matrix					Number of Containers	Analysis: SVOC	Analysis: PPMetals					Remarks
Sample Point	Sample Designator	Round	Year	From	To	Date	Time	Liquid	Solid	Gas	Composite	Grab								
72797-01	wt/MS/MSD	NA	97	—	—	9-25-97	1245	X				X	6	X	X					11708
	W02	↓	↓	↓	↓	↓	0700	X				X	2	X						
TEMP BLANK	—	↓	↓	↓	↓	↓	0700	X				X	1							TEMP BLANK

Sampler (signature):
Sampler (signature):

Special Instructions:
Fedex# 387210851 6

Relinquished By:	Date/Time	Received By:	Date/Time
1. (signature):	9-25-97 1500	B. Wilson (signature):	9-26-97 0803
Relinquished By: 2. (signature):	Date/Time	Received By: (signature):	Date/Time

Condition of Shipping Container: Good ☐ Fair ☐ Poor ☐
Ice Present in Container: Yes ☑ No ☐
Comments:

061996 Form WCI-OP1

Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Waste Consultants, Inc.
9400 Ward Parkway
Kansas City, Missouri 64114
Phone: (816) 333-8787 Fax: (816) 822-3463

Attention: TRACY COOLEY

Laboratory: ITS Environmental
Address: 1089E. Collins Blvd
City/State/Zip: Richardson, TX 75081
Telephone: 888-847-5591

Document Control No.: 092597C
Lab. Reference No. or Episode No.:

Project Number: 96806-4004 Project Name: USFR354

Site, Group, or SWMU Name:

Sample Number		Sample Event		Sample Depth (in feet)		Sample Collected		Sample Type: Matrix					Number of Containers	Analysis: TPH-DRO							Remarks
Sample Point	Sample Designator	Round	Year	From	To	Date	Time	Liquid	Solid	Gas	Composite	Grab									
72797-01	W02	NA	97	—	—	9-25-97	0700	X				X	2	X							11708
72797-01	W01 MS	↓	↓	↓	↓	↓	1245	X				X	2	X							
↓	W01 MSD						1245	X				X	2	X							
72797-a	W01						1245	X				X	2	X							
TEMP BLANK	—						0700	X				X	1								TEMP BLANK

Sampler (signature): [signature]
Sampler (signature): [signature]

Special Instructions: Fedex # 387210851 6

Relinquished By: 1. [signature] (signature) Date/Time 9-25-97 1800
Received Relinquished By: [signature] (signature) Date/Time 9-26-97 1100
Relinquished By: 2. (signature) Date/Time
Relinquished By: (signature) Date/Time

Condition of Shipping Container: Good ☑ Fair ☐ Poor ☐
Ice Present in Container: Yes ☑ No ☐

Comments:

061996 Form WCI-OP1

COOLER RECEIPT

LIMS# _____

Contractor Cooler _____

QA Lab Cooler # _____

Number of Coolers X3

PROJECT: USFR-Atg-354 96-806-4-004 Date received: 9-26-97

USE OTHER SIDE OF THIS FORM TO NOTE DETAILS CONCERNING CHECK-IN PROBLEMS.

A. PRELIMINARY EXAMINATION PHASE: Date cooler was opened: 9-26-97

by (print) B. Wilson (sign) B. Wilson

1. Did cooler come with a shipping slip (air bill, etc.)? ..... YES NO
   If YES, enter carrier name & air bill number here: Fed-Ex # 887210851 6
2. Were custody seals on outside of cooler? ..... YES NO
   How many & where: 2 (Front + Back), seal date: 9-25-97, seal name: EDL
3. Were custody seals unbroken and intact at the date and time of arrival? ..... YES NO
4. Did you screen samples for radioactivity using the Geiger Counter? ..... YES NO
5. Were custody papers sealed in a plastic bag & taped inside to the lid? ..... YES NO
6. Were custody papers filled out properly (ink, signed, etc.)? ..... YES NO
7. Did you sign custody papers in the appropriate place? ..... YES NO
8. Was project identifiable from custody papers? If YES, enter project name at the top of this form. ..... YES NO
9. If required, was enough ice used? ..... Type of ice: baggies crushed ..... YES NO
10. If required, was temperature blank present? ..... Temperature: 4°C ..... YES NO
11. Have designated person initial here to acknowledge receipt of cooler: BW (date) 9-25-97

B. LOG-IN PHASE: Date samples were logged-in: 9-26-97

by (print) Analia Vaca (sign) Analia Vaca

12. Describe type of packing in cooler: Bubble Wrap
13. Were all bottles sealed in separate plastic bags? ..... YES NO
14. Did all bottles arrive unbroken & were labels in good condition? ..... YES NO
15. Were all bottle labels complete (ID, date, time, signature, preservative, etc.)? ..... YES NO
16. Did all bottle labels agree with custody papers? ..... YES NO
17. Were correct containers used for the tests indicated? ..... YES NO
18. Were correct preservatives added to samples? ..... YES NO
19. Was a sufficient amount of sample sent for tests indicated? ..... YES NO
20. Were bubbles absent in VOA samples? If NO, list by sample no.: _____ ..... YES NO
21. Was the project manager called and status discussed? If YES, give details on the back of this form. ..... YES NO
22. Who was called? _____ By whom? _____ (date) _____

ITS Intertek Testing Services
Environmental Laboratories

SAMPLE PRESERVATION INFORMATION SHEET

Preserved By	KRH	**JOB NUMBER**	11T108
Date	9-26-97		
Time		Client Name	Burns + McDonald

Sample No.	Container Type	Apparent Volume (mLs)	Initial pH* (20± 2° C)	Final pH	Preservative Added	Filtration	Comments
11T108-2	2AG	1L	6.5	6.5	8		NP
-3	1	1	6.6	6.6	1		1
-4	1	1	1	1	1		1
-5	1	1	6.5	6.5	1		1
							2-5 includes 2AG1L for TPH (HCL), 1P 500mL (HNO3) #1-5 Pre-preserved

pH Duplicate (maximum difference = 0.2): Sample No. 11T108-2	6.5	**PRESERVATION / FILTRATION KEY** 1 = Pre-preserved 2 = H_2SO_4 to pH<2 3 = HNO_3 to pH<2 4 = HCl to pH<2 5 = NaOH to pH>12 6 = $Na_2S_2O_3$ (0.008%) 7 = 2 mL Zn OAc/NaOH to pH>12 8 = No Preservative Required F = Chain-of-Custody indicates sample was filtered in the field L = Sample filtered (0.45 pm) in the laboratory before preservation
pH LCS (ph = 7.0 ± 0.2): Lot Number: 5041	7.0	

* The initial pH balance is determined in accordance with EPA methods 150.1 / SW-846 9040 using a sample of aliquot which has been adjusted to 20 ± 2°C

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3872108516

1388400 00815/01600

*9-25-97 1585-1898-8

SUZANNE BAILEY 816 333-9400

BURNS & MCDONNELL

9400 WARD PARKWAY

KANSAS CITY MO 64114

USFR354 96-806-4-004

Keith Partin 888 847-5591

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Richardson, TX 75081

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PART #137954

GBFE 1/97

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