FINAL
SITE INSPECTION PRIORITIZATION REPORT
KEEGAN LANDFILL
KEARNY, HUDSON COUNTY, NEW JERSEY

CERCLIS ID No.: NJD981490428

VOLUME 3 OF 3

Prepared for:
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II

DCN: START-02-F-01093
TDD No.: 02-96-11-0044
EPA Contract No.: 68-W5-0019

JULY 1998

Prepared by:
Region II Superfund Technical Assessment and Response Team
Roy F. Weston, Inc.
Federal Programs Division
Edison, New Jersey 08837

232874

REFERENCE NO. 24

START-02-221

Field Logbook for SIP
Keegan Landfill
Kearny, NJ

National® Brand	ACCOUNT BOOKS	9⅝ x 6¼"
Green Book Cloth		
Item No.	Numbered Pages	Ruling
Item No. 56-521	200	Record
Item No. 56-522	"	Journal

AVERY DENNISON

Office Products

Made in USA

Diamond Bar, CA

Product Guarantee

Avery is committed to providing you with quality products, and will gladly replace any product which does not provide complete satisfaction. We also welcome your comments and suggestions. Please send your correspondence with product code to:

Avery Division, Consumer Service Center
P.O. Box 5244
Diamond Bar, CA 91765-4000

G. Gilliland, Region II START

July 1997

Ref. 24

7/30/97

Keegan Landfill - field sampling for SIP
Bergen Avenue, Kearny, NJ

0730 START members, meet at office, load up, go get trucks at EPA lot.
0800 START leaves for site.
0900 START arrived at site:

G. Gilliland	Site Mgr
D. Foerter	SSO
J. Donofrio	Sampler/Wetlands
J. Filosa	Sampler/Decon
J. Leahy	SMO

The landfill access road is blocked with large cement blocks - immovable. Set up box truck in entrance just outside blocks, will try to access the landfill from Harrison Avenue or end of Bergen Avenue.
START began to set up, unload at Bergen Ave access road.
0905 Ildefonso Acosta and Colin Bergin of EPA Region 2 arrived at the site.
0930 JL, JF, DF collected TB01
0935 " " " collected FB01 from trowel, bowl, auger, dredge.
0940 GG, JD, and EPA went to recon sample points SW01/SD01 and SW02/SD02.
0955 Arrived at "head" of Franks Creek to scope out locations.
There are puddles (stained, leachate) on left (north) side of access road but not a permanent stream; follows a low path. Drum near some puddles in tall weeds, also railroad ties (creosote smell) all along the path. Other debris: bottles, balls, tires, metal shot.

Gerald V. Gilliland 7/30/97

7/30/97

Frank Creek appears to originate at the south side of the access road, no conduit or pipe leading to it from under access road. 115

1030 JD takes pictures

P-01 Leachate at head of Frank Creek; facing north.

P-02 Leachate at head of Frank Creek, with Creek in background; facing south 12

1045 To south edge of landfill to scope out SW01/SD01 location. We will be able to access the location.

1050 Tried to get access to a location midway along Frank Creek, but it is too overgrown and too far from access road.

1120 Back to the command post. Pick up DF & JF, bottles for SW01/SD01 and its field duplicate SW05/SD05.

1130 GG, DF, & JF arrived at SW01 location.

Readings: pH = 7
Cond = 60 umhos
Salt = <0.5 ppthousand
Temp = 22°C

No readings above background on OVA or HNU in ambient air above sample location

1145 Collected SW01 and SW05 (field dup).

P-03 JF collecting SW01.

Sample location is approximately 30' north of concrete culvert that goes under RR tracks.

No readings above background on HNU, OVA in ambient air. ~0.5 ppm on HNU off the sample.

Gerald V. Gallo 7/30/97

7/30/97

1150 Young man rode motorbike along tracks to east and turned north into the landfill access road. Saw great blue heron on these tracks earlier. GG back to command post, picked up JD, then back to SW01.

1205 JF collected SW01. DF & JF will collect SW02/SD02. GG, JD, IA, CB went to recon the landfill. We went just over tracks into landfill, turned right off Harrison Ave access road, to end of road where abandoned car is. We walked a little further over a bridge (GVG), saw a makeshift house on the landfill. We called out as we approached, but got no answer. GG & CB heard a cough from inside the shack, we called out again, no answer again. We returned to truck, continued to recon the landfill.

1220 Down another access road, we found an open water wetland on both sides of road. We believe that this is the area that NUS called "unnamed creek", but it really is an open wetland, appears to be connected to the remainder of the wetland. We conclude that NUS made a mistake. We saw a (GVG) great blue heron, snowy egret, and a swan in the emergent wetland in the middle of the open-water wetland. → picture P-04, facing north.

1300 We have driven on all access roads (more than on map) and not found "unnamed creek". IA, consulting with GG, decides to eliminate the SW03 and SW04 locations, will just get sediments from wetlands (tomorrow). Also decides to collect landfill waste samples from 3 locations close to the wetland area for source characterization.

Gerald V. Gibbs 7/30/97

7/30/97

1330 Back to command post for lunch break.
Notes: There was debris along all access roads and evidence of debris within overgrowth next to all access roads. Some construction debris piles (bricks, concrete, broken pavement) looks recently deposited (no overgrowth) and access roads are all fairly clear, as if they are used presently.
Debris/refuse noted included:
ash piles, tires, tools, brick, glass, pavement scrap, abandoned car, car battery, cement, construction debris, mattress, bottles, boards, plastic, metal pipes, fiberglass, bedding
Note: at end of northwestern-most access road, JD saw a kayaker in open water wetland from top of a debris pile.

1340 Lunch. Iron out scope of work with IA. He said take 3 landfill waste (source) samples, and 2 backgrounds off-site.

1440 Went to collect LF01. Went to end of southernmost access road. There's an apparent dumping area between the end of the road and the RR tracks, with some iron-stained ponded water. We're very close to the open-water wetland (About 20 feet west of a wetland channel). Garbage includes glass, tires, boards, plastic bags, boots, crushed drum ~5 feet from LF01, remains of another. IA approves location.

1500 Collected LF01.
P-025 JF collecting LF01 (location described above); facing south.

Gerald V. Gill 7/30/97

7/30/97

1530 Arrived at potential location for LF02, at ash/debris pile at end of western-most access road. JF augers down to determine composition and depth of material. Ash ~ 1'.
IA consults with GG and crew, decides to collect a source sample from ash at the edge of the pile. Main pile is about 4' high, long thin pile running adjacent to it about 1' high.
1540 JD collects LF02 about 30' from main pile.
1545 P-086 JD collecting LF02, facing west. Sample is collected from low pile of ash debris. This material is not completely overgrown, as if it was deposited within last 10 years (small trees, less than 5' high).
1550 Finished LF02. ~~The~~
P-087 Ash pile to extreme left, sample location to extreme right; facing west.
Went back to command post.
1555 GG and IA walked footpath off to left (looking in) of main access road, closer to Bergen Ave than Frank Creek. We found an area with numerous crushed drums & drum lids among other landfill debris. Will collect LF03 here. Walked back to command post, got others.
1615 Collected LF03 from location described above.
P-088 JF collecting LF03, facing southeast.
1625 Finished collecting LF03. DF & JF back to command post; IA, GG, JD & CB followed footpath west from LF03, to path along RR tracks (abandoned, overgrown tracks). Followed the path a while and came across another wetland area. JD says it's probably contiguous with other wetland areas.

Gerald V. Gillette 7/30/97

7/30/97

We continued to walk along tracks, wetland w/ standing water continued. We walked until we encountered the canal that shows up as the upstream end of Frank Creek on the map. It is channelized w/ walls on opposite (north/NW) side of tracks and also along its northernmost reach within the landfill. ~~The~~ JA said that the wetland area along the tracks, that we'd been following, is connected with the channel and with the remainder of the wetlands that we've seen (one big wetland system).

JA mentioned that he will want to get samples from this side of the landfill. We began to walk back to the command post.

1650 Back at command post. JA will rethink the sampling plan overnight; GG to call him upon arrival at the site in the morning, prior to start of sampling activities. Will probably want to collect extra sediment samples, plus the background soil samples for comparison with today's LF samples.

1700 START members have packed samples for FedEx shipping. Loading trucks to leave site. EPA guys (JA and CB) left the site at this time.

1710 START left the site. JD and JL will drop off the samples at FedEx in Edison, NJ.

Carol V. Gilbert 7/30/97

7/30/97

Summary of Keegan Landfill Sampling - Day 1

A. Upon viewing the site throughout the day, and consulting with START member G. Gilliland and others, Ildefonso Acosta of EPA decided to change the sampling plan as follows:

1) Eliminated sample locations SW03 and SW04, and moved their corresponding sediments (SD03 and SD04) to other portions of landfill.
2) Collected three landfill waste samples from the surface of the landfill ~~for source~~ GW. These samples (LF01, LF02, LF03) were added to the scope of work for source characterization. We will collect background soil samples from off-site tomorrow for comparison to LF samples.
3) Will probably request additional sediment samples to characterize contamination of the wetland/sensitive environment in which the landfill is situated. GG will call IA tomorrow to confirm this part of the plan.

B. Today's samples:

Landfill Samples	LF01
	LF02
	LF03
SW/sed Samples	SW01/SD01 (Frank Creek headwaters leachate)
	SW02/SD02 (Frank Creek downstream)
	SW05/SD05 (Duplicate of SW01/SD01)
QA samples	FB01
	TB01

Gerald V Gilliland 7/30/97

This page was left blank intentionally.

GVG

7/31/97

7/31/97

0850 START crew arrived on site for Day 2 of Keegan Landfill SIP sampling. START members:

G. Gilliland	Site Mgr
J. D'Onofrio	Sampling / wetlands
D. Foerter	SSO
J. Filosa	Sampling / Decon
J. Leahy	SMO

0900 GG called Ildefonso Acosta of EPA Region 2. IA directed GG to collect 2 samples from wetland area at west-northwest edge of landfill. These will be extra sediment samples, in addition to those already in plan. Use them to document at least 0.1 mile of wetland frontage. Also use 2 existing samples from plan to document 0.1 mile of wetland frontage at east edge of landfill (near LF01). Scope of work summary: 9 sediments, + 2 background soil samples for comparison to landfill waste samples collected yesterday.

0910 GG off phone. DF goes to buy ice while others set up for sampling.
Weather: sunny, 70s to 80s, comfortable

0935 GG and JD took suburban to go flag out sample locations SD03, SD04, and SD06 (collected SD05 yesterday as duplicate of SD01). JF, JL, and DF prepping bottles, decanning, collecting field and trip blanks.

1025 GG and JD back to command post. We saw a biigg dog with collar near/in open-water wetland area down middle access road. At command post, gathered, boat, bottles, etc.

1040 GG, JD, JF, DF to location for SD03 and others.

Gerald V. Gilliland 7/31/97

7/31/97

1050 At location SD03. ~30' east of LF01. DF collects the sample.
P-0~~8~~9 DF collecting SD03; facing east. Sample is dark brown, composed of silty muck with some clay, some grassy vegetation.

1105 Finished collecting SD03. Gather equipment for SD04, launched boat from makeshift ~~boat~~ bridge at end of this ~~ea~~ southernmost access road.

1115 ~~P-09~~ Launched boat, JD and JF going out to collect SD04.
P-~~09~~10 JF and JD in boat on way to SD04. Small stand of phragmites in middle of water is about 300' north of bridge, from whence picture was taken. Egret, swan, and heron have been seen on bright-green (emergent) wetland in background.

1120 DF goes to collect SD06 from "boat launch" area (just west of next access road). Transcribed notes:

1125 DF collects SD06. Sample is composed of dark brown silt with gray clay, ~~trace~~ little organic material. Surface sample at west corner of boat launch. No picture of sample. No readings above background on HNU.
Much debris in and around the boat launch area, including a bobber and hole-punched coffee can lid. These two items were collected as evidence that the open-water wetland adjacent to the landfill is used as a fishery. Exhibits A (bobber) and B (can lid).

1730 DF finished collecting SD06.

[signature] 7/31/97

7/31/97

1130 GG takes picture P-~~10~~11
Looking east from SD03 at open-water/emergent wetland area. RR tracks to the right (south).
Note: These tracks show evidence of current use, but no activity seen yet yesterday or today.

1140 DF returns to small bridge.
JD and JF arrived at sample location SD04 and begin to collect sample. Sample location is 500' from bridge; 550' north of SD03 along landfill edge of wetland. They are hidden behind some phragmites; no picture taken.

1150 DF goes to command post to drop off samples SD03 and SD06 and do some decon.

1155 GG notes that JD and JF are returning from location SD04 in boat.

1200 P-~~11~~12 JD and JF attempting to return from sample location SD04.
Pulled boat out, DF returned, all headed over to launch boat for SD07, SD08, and SD09.
JF described sample SD04 as dark brown to very dark brown organic silt with debris (glass, plastic). Sample collected about 2.5' below water surface, about 1' into sediment. No odors, no readings above background on HNU. Salinity of water about 1 ppt.

1230 JD and JF get in boat at SD06 location. Will measure 550' to SD07 ~~then collect~~ (V6) in a north-northwest direction.
Launched boat at this time. JD to take notes & photos.

1240 DF and GG dropped off sample at command post.

Gerald V. Gelb 7/31/97

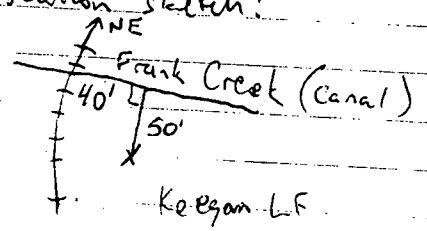
7/31/97

1245 DF and GG arrived at wetland on western side of landfill. There is very little standing water (much less than yesterday).

1305 GG goes to find a good location for SD11 in wetland area.

1315 GG collects SD11 from wetland area. There is very little standing water, but all ground is saturated and covered with tall phragmites. JD has camera; no photo.

Sample location sketch:



Sample is very dark brown silty muck, organic, with debris about 4" below ground surface. There is also debris scattered about surface. Debris includes: glass, bottles, gum wrappers, paper. Sample is saturated; standing water in hole at about 6" depth.

1335 DF collects SD10.
Sample location is 600' southwest of location SD11, collected from edge of wetland area ~40' from RR path. Location has a rusted half-drum, tires, garbage. JD had camera, so no photo.

1345 DF finished collecting SD10.
We went back up to RR tracks to pace off measurements.

Gerald V. Gill 7/31/97

7/31/97

Measurements along RR tracks:
Bergen Ave to trail where LF03 was collected. 300'
Trail (LF03) to SD10 - 400'
SD10 to SD11 600'

1355 DF and GG back to command post with samples SD11 and SD10. DF goes to buy lunch, use bathroom. GG called JF and JD. They have collected all 3 samples, scoped out wetlands; now heading back to boat launch.
1400 GG goes to help JD and JF get boat out of water. Notes for collection of SD07, SD08, SD09 attached topp. 17-20.
1430 Boat is out of water, onto truck, head back to command post.
1440 Command post, short lunch break.
1500 Get ready to go get background soils and wetland sediment samples.
1515 DF, JD, and GG went to collect backgrounds.
1530 Arrived at location. Parked along Harrison Ave. and walked through tall phragmites on Block 286, Lot 47 to edge of open water that lies in middle of this lot.

1540 JD collects SD12.
P-19 JD collecting SD12, facing northwest. Sample is at edge of open water area, about 4' in from where phragmites begins to grow. Very dark brown, silty muck, organic, with roots, trace pebbles.
There's a tire about 2' from sample location.
1550 Finished SD12. It's about 60' north-northeast of turnpike ramp just past intersection with Harrison.
Gerald V. Gill 7/31/97

7/31/97

1555 Collect BK01 at leading edge of wetland area near turnpike ramp. About 25' NE of ramp roadway, 15' NE of guardrail.
P-20 DF collects BK01, facing northeast
Sample is dry to moist, very dark brown sandy silt with little clay, numerous root fragments, no debris/refuse.

1605 Head back to command post, drop off Dennis. JF left site.
1610 JD and GG to other background locations.
1625 Arrived at end of Barczewski St (off Belleville Tpk)
This end of road (dead end at tracks) is closed, bumpy. Moved barrier to get to dead end. Will have to walk along tracks to get to sediment location in wetland.
1700 Scoped it out, there's a trucking business on this side of tracks, small wetland areas to its east and west along tracks (small compared to Keegan site). Decide to collect sample at west edge of saturated wetland phragmites area 75' north of tracks
1700 JD collects SD13.
No apparent industry or dumping here, within 100's of feet, except tracks. There's the trucking business ~ 500 feet away, landfill to the northeast of that.
See note next page * P-25 JD collecting SD13, facing north.
Sample is very dark brown, silty, organic muck with vegetative roots/fragments, saturated.

Gerald V. Gallo, 7/31/97

7/31/97

1710 Finished collecting SD13. Walked back along tracks, looking for a good soil location for background.

1720 Back at truck, there are no good background locations. It's all wetlands, and upland areas are composed of debris fill material or are very close to RR tracks. Decided not to collect another sample. Head back to command post.

1730 GG and JD back at command post. DF just left. JD, GG and JL pack up and ready samples.

1755 Packed up, left site.

1800 Stopped along Harrison Ave to scope out Frank Creek. The Creek runs along the LF access road, then takes a jog just before Harrison Ave. Flows into a culvert under Harrison Ave, but there is no exit culvert on the other side of the road. ?

1810 At this time, we left Kearny to bring the samples to Fed Ex, Edison.

Gerald V. Gillespie 7/31/97

* Note: Photos P-21 through P-24 were taken by GG at approximately 1700 hours. They are all photos of the wetlands area adjacent to Keegan Landfill. Looking SW to SE from RR tracks north of the site.

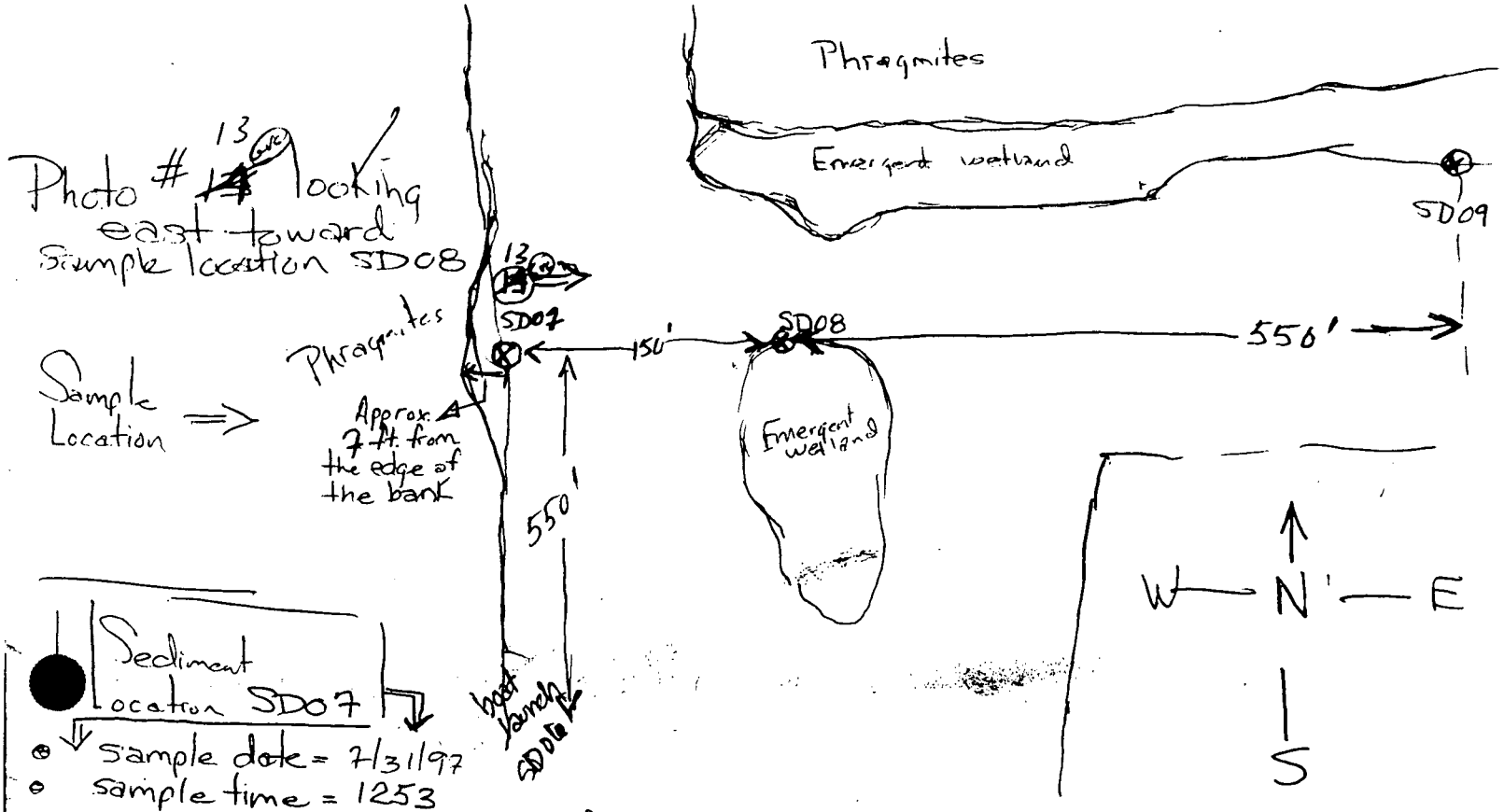
Gerald V Gillespie 7/31/97

Summary of Two Day Sampling Event
Keegan Landfill

		Collected
Landfill Samples	LF01	7/30/97
	LF02	↓
	LF03	↓
Background Soil	BK01	7/31/97
SW/Sed	SW01/SD01 (Frank Creek up)	7/30/97
	SW05/SD05 (dup)	↓
	SW02/SD02 (Frank Creek down)	↓
Sediment (Wetlands) (Adjacent to Keegan LF)	SD03	7/31/97
	SD04	↓
	~~SD05~~	↓
	SD06	↓
	SD07	↓
	SD08	↓
	SD09	↓
	~~SD10~~	↓
	SD10	↓
	SD11	↓
Background Sed (Wetlands remote from Keegan LF)	SD12	↓
	SD13	↓

Gerald V Gill 7/31/97

1241 Arrived at sediment sample location SD07



Sediment Location SD07

- sample date = 7/31/97
- sample time = 1253
- Sample depth = Approx. 1 foot
- Distance from edge of bank = 7 feet
- Type of sample (composition) = dark brown; organic silt; with fiberous organic roots (decomposed phrag) with some inorganic debri
- Any order to the sample = Smelled like hydrogen sulfide because of the anerobic conditions
- No real exposure of landfill debri. Some plastic was grabbed white taking the sample
- Salinity ~~of sea at 50%~~ 1%
- Depth of water = 2 1/2 feet
- Grab sample with the soil auger and composited the sediment sample in stainless steel bowl

J. D'Onofrio 7/31/97

1309 At sediment sample location SD08 which is on the emergent island

Photo # 14 (GRC) view west of SD07 with landfill in the background

Sediment Location SD08

Sample date 7/31/97

Sample time 1310

depth of water 1 foot

depth of sample 0 to 1 ft.

Composition = rich organic silt dark brown in color
Sample had ~~contained~~ more peat ~~like~~ in it
(small fiberous root mass)

slight hydrogen sulfide odor

- No debri in sediment just scattered surficial
- debri (plastic bags) that washed up on shore
- Salinity ~~off scale at 50%~~ → 1 %
- Took sample with the soil auger and composited the sample in the stainless steel bowl
- A fish was feeding in the shallow water just off the wetland (species unknown)

J. D'Onofrio 7/31/97

1336 Arrived at sediment station SD09

Sample date 7/31/97

Sample time 1338

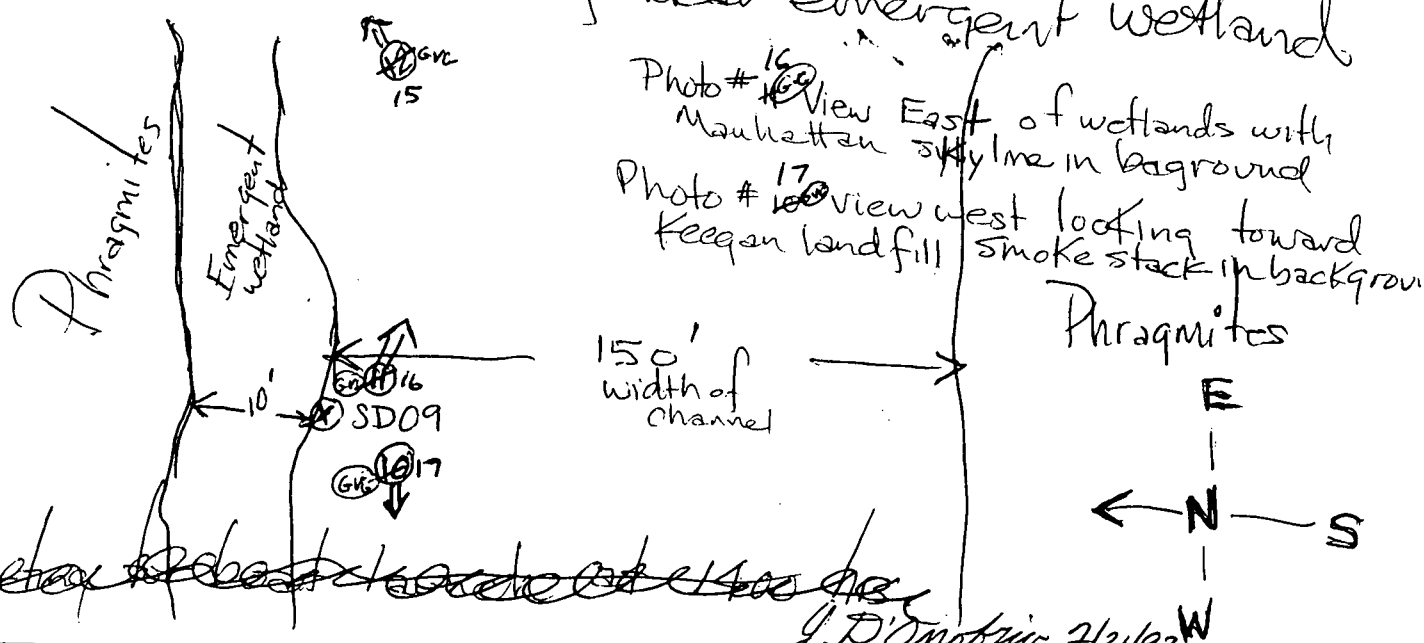
Composition → rich organic silt, dark brown in color w/ peat like root mass

→ slight hydrogen sulfide odor

Depth of water = 6"

Depth of sample = 0 to 1 foot

- No debri in sediment just some garbage along shoreline
- Took sample with the soil auger and composited the sediment in a stainless steel bowl before putting into the sample jars
- Salinity = 1%
- Photo # 15 View northeast of great blue heron feeding near emergent wetland



~~[illegible]~~

J. D'Onofrio 7/31/97

1400 Started motor up and took a look around to get an idea of the wetlands

Photo # 18 View facing west of mute swan and wetland area just barely visible is the railroad embankment in the background

1411 Departing for boat launch

We did see aqus of debri floating in the water and also an occasional tire.

Wildlife observations made while sampling and motoring around

1 Killdeer
1 Female mallard
2 mute swans
3 Great blue heron
3 Common egrets
Fish feeding along bank (species unknown)
Red wing blackbirds
Flock of Canada geese
Swallows

J. D'Onofrio 7/31/97

REFERENCE NO. 25

SAMPLING TRIP REPORT

SITE NAME: Keegan Landfill Site
DCN: START-02-F-01518
TDD #: 02-96-11-0044B
CASE NO.: 25601

EPA I.D. NO.: NJD981490428

SAMPLING DATES: 30 and 31 July 1997

1. Site Location: Refer to Figure 1

2. Sample Locations: Refer to Figure 2

3. Sample Descriptions: Refer to Table 1

4. Laboratories Receiving Samples:

Sample Type	Name and Address of Laboratory
Target Compound List (TCL)	Southwest Labs of Oklahoma 1700 West Albany Suite C Broken Arrow, OK 74012
Target Analyte List (TAL) Metals (excluding cyanide)	Sentinel, Inc. 2800 Bob Wallace Avenue - Suite L3 Huntsville, AL 35805

5. Sample Dispatch Data:

One aqueous rinsate, six soil/sediment, and three surface water samples were shipped to Sentinel, Inc. for TAL metal analysis on 30 July 1997 at 1730 hours via Federal Express (Air Bill No. 1550042524).

One aqueous rinsate and eleven soil/sediment samples were shipped to Sentinel, Inc. for TAL metal analysis on 31 July 1997 at 1830 hours via Federal Express (Air Bill No. 1550042513).

One aqueous rinsate, six soil/sediment, and three surface water samples were shipped to Southwest Labs of Oklahoma for TCL volatiles, BNA, and Pesticides/Polychlorinated biphenyls (PCB) analysis. A trip blank was also submitted for TCL volatiles analysis. The samples were shipped on 30 July 1997 at 1730 hours via Federal Express (Air Bill No. 1550042561).

One aqueous rinsate and eleven soil/sediment samples were shipped to Southwest Labs of Oklahoma for TCL volatiles, BNA, and Pesticides/PCB analysis on 31 July 1997 at 1830 hours via federal Express (Air Bill No. 1550042480).

6. On-Site Personnel:

Name	Company	Duties on Site
Ildefonso Acosta	Region II EPA	Representing EPA TM
Gerry Gilliland	Region II START	Task Manager
Dennis Foerter	Region II START	Health and Safety Officer
Jennifer Leahy	Region II START	Sample Management Officer (SMO)
Joe Filosa	Region II START	Sampler
Joanne D'Onofrio	Region II START	Sampler

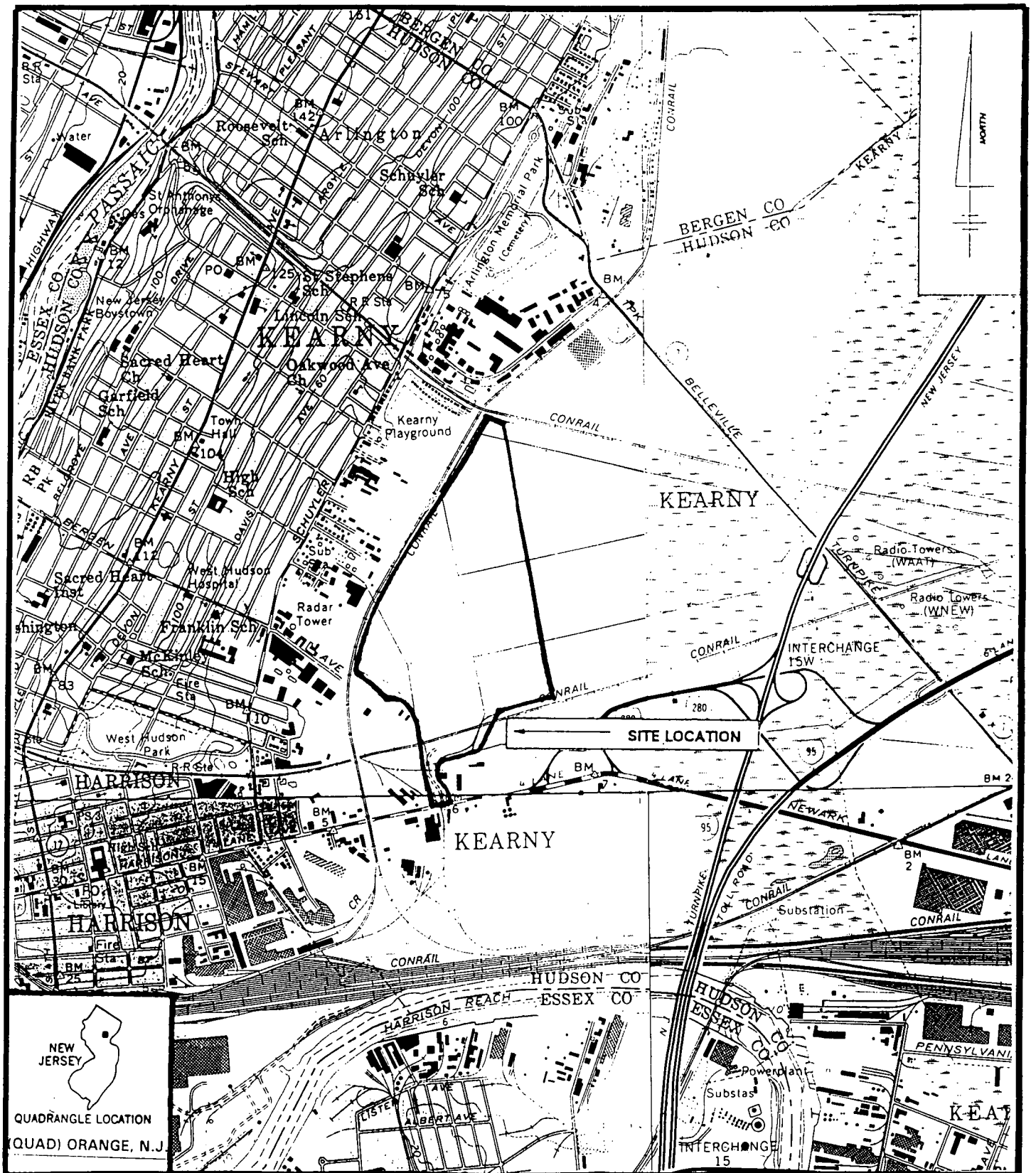
7. Additional Comments:

On 30 and 31 July 1997, the Region II Superfund Technical Assessment and Response Team (START) collected soil/sediment and surface water samples from the Keegan Landfill site. These samples were collected as part of a Site Inspection Prioritization (SIP). All samples were collected by Region II START and analyzed for Target Compound List (TCL) and Target Analyte List (TAL), excluding cyanide, parameters through the U.S. EPA Contract Laboratory Program. Organic and Inorganic Traffic Reports are attached.

A Sample Location Map will be prepared and submitted at a later date.

8. Report Prepared by: Gerald V Gilliland Date: 12/4/97
Gerald V. Gilliland, P.G.

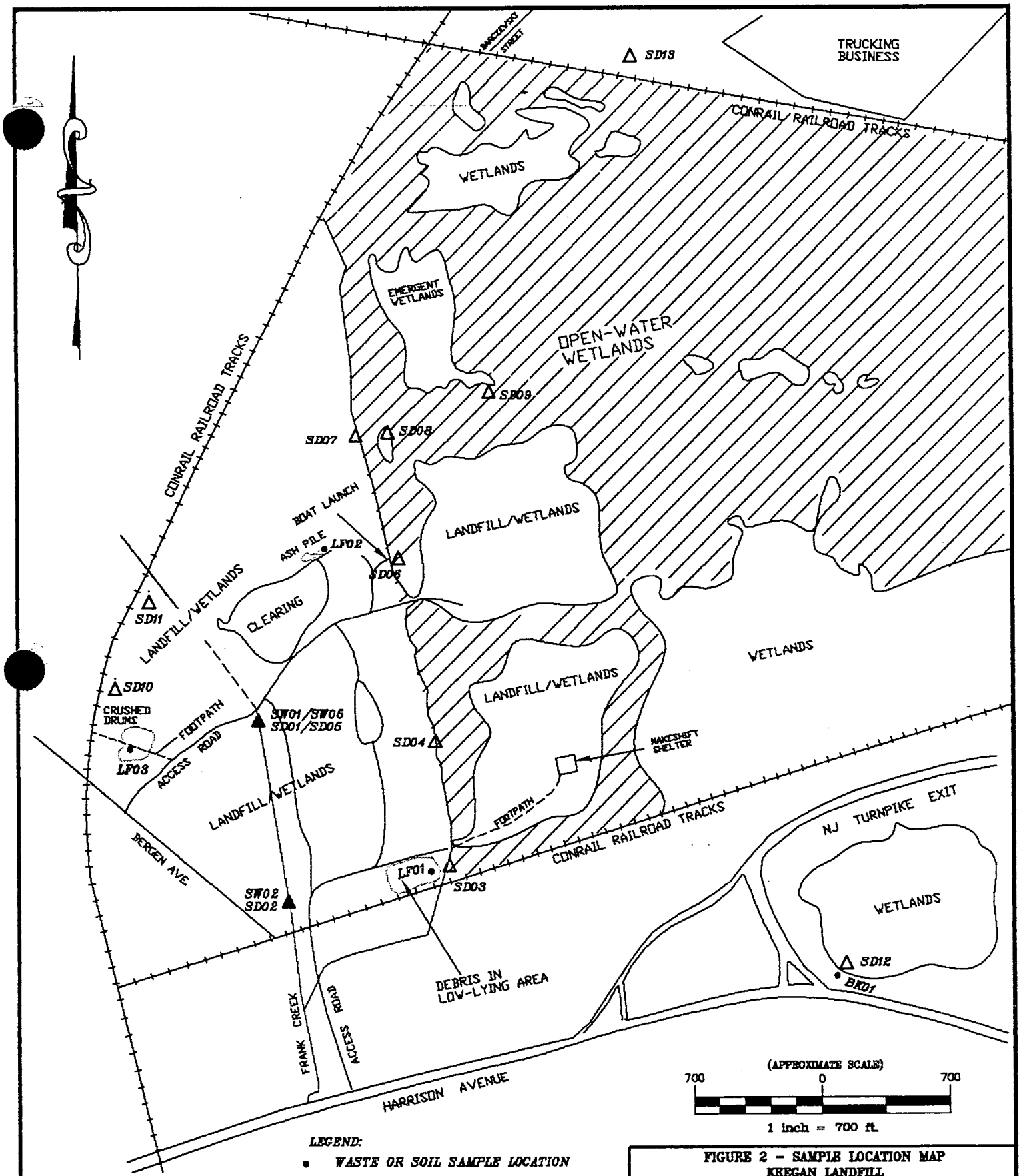
9. Report Approved by: W S Butterfield Date: 12/4/97
W. S. Butterfield, CHMM



Roy F. Weston, Inc.
FEDERAL PROGRAMS DIVISION

EPA PM	FIGURE 1 SITE LOCATION MAP
MOYIK	
START PM	KEEGAN LANDFILL KEARNY, NJ
CAMPBELL	

IN ASSOCIATION WITH RESOURCE APPLICATION, Inc.
C.C. JOHNSON & MALHOTRA, P.C., R.E. SARRIERA ASSOCIATES,
PRC ENVIRONMENTAL MANAGEMENT, AND GRB ENVIRONMENTAL SERVICES, INC.



LEGEND:

- ● *WASTE OR SOIL SAMPLE LOCATION*
- ▲ *SURFACE WATER/SEDIMENT SAMPLE LOCATION*
- △ *SEDIMENT SAMPLE LOCATION*

FIGURE 2 - SAMPLE LOCATION MAP
KEEGAN LANDFILL
KEARNY, NEW JERSEY
JULY 1997

US ENVIRONMENTAL PROTECTION AGENCY
SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM
CONTRACT# 68-W5-0018

WESTON
Roy F. Weston, Inc.
FEDERAL PROGRAMS DIVISION

IN ASSOCIATION WITH PRC ENVIRONMENTAL MANAGEMENT, INC., C.C. JOHNSON & MALHOTRA, P.C., RESOURCE APPLICATIONS, INC., R.E. SARRIERA ASSOCIATES, AND GRB ENVIRONMENTAL SERVICES, INC.

DRAWN BY: J. HAMPTON JR.
EPA TASK MONITOR: C. MOYIK
START PROJECT MANAGER: K. CAMPBELL

13FIG3.PLT - C:\BITMAP\13000A.DWG

TABLE 1
SAMPLE DESCRIPTIONS
KEEGAN LANDFILL SITE
KEARNY, NEW JERSEY

SAMPLE NUMBER	ORGANIC CLP NO.	INORGANIC CLP NO.	DATE	TIME	COMMENTS
FB-01	BSE 41	MBQK 46	7/30/97	0935	Field Blank collected from bowl, trowel and dredge for surface and subsurface collection.
FB-02	BSE 42	MBQK 47	7/31/97	0935	Field Blank collected from bowl and trowel.
SD 01	BSE 27	MBQK 34	7/30/97	1205	Sediment at head of Frank Creek.
SD 05	BSE 31	MBQK 38	7/30/97	1205	Duplicate of SD 01 for QA/QC purposes.
SW 01	BSE 22	MBQK 29	7/30/97	1145	Surface water/leachate at head of Frank Creek.
SW 05	BSE 26	MBQK 33	7/30/97	1145	Duplicate of SW 01 for QA/QC purposes.
SD 02	BSE 28	MBQK 35	7/30/97	1255	Frank Creek, downstream edge of site. MS/MSD.
SW 02	BSE 23	MBQK 30	7/30/97	1240	Frank Creek, downstream edge of site. MS/MSD.
LF 01	BSE 37	MBQK 44	7/30/97	1500	Landfill waste sample - debris.
LF 02	BSE 38	MBQK 45	7/30/97	1545	Landfill waste sample - ash pile.
LF 03	BSE 43	MBQK 48	7/30/97	1645	Landfill waste sample - crushed drums.
TB01	BSE 39	----	7/30/97	0930	Trip Blank
SD 06	BSE 32	MBQK 39	7/31/97	1125	Wetland sediment sample.
SD 03	BSE 29	MBQK 36	7/31/97	1055	Wetland sediment sample.
SD 04	BSE 30	MBQK 37	7/31/97	1140	Wetland sediment sample.
SD 10	BSE 36	MBQK 43	7/31/97	1335	Wetland sediment sample.
SD 11	BSE 46	MBQK 66	7/31/97	1315	Wetland sediment sample.
SD 08	BSE 34	MBQK 41	7/31/97	1310	Wetland sediment sample.
SD 09	BSE 35	MBQK 42	7/31/97	1338	Wetland sediment sample.
SD 07	BSE 33	MBQK 40	7/31/97	1253	Wetland sediment sample.
BK 01	BSE 44	MBQK 49	7/31/97	1555	Off-site background soil sample.
SD 12	BSE 47	MBQK 67	7/31/97	1540	Off-site, background wetland sediment sample.
SD 13	BSE 48	MBQK 68	7/31/97	1700	Off-site, background wetland sediment sample.

ATTACHMENT

TRAFFIC REPORTS/CHAIN OF CUSTODY RECORDS

United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 25601

1. Project Code	Account Code	2. Region No.	Sampling Co.	4. Date Shipped	Carrier
		2	Weston START	7/30/97	FedEx

Regional Information

Sampler (Name): J. Leahy

Airbill Number: 1550042561

Non-Superfund Program

Sampler Signature: Jennifer Leahy

5. Ship To: Southwest Labs of Oklahoma, 1708 West Albany, Suite C, Broken Arrow, OK 74012
ATTN: Chuck Hoover

Site Name: Keegan Landfill

3. Purpose*
Load: SF, PRP, ST, FED
Early Action: CLEM, PA, REM, RI, SI (X), ESI
Long-Term Action: FS, RD, RA, O&M, NPLD

City/State: Kearny NJ

Site Spill ID: ZZ

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
BSE41	H	L	C	1,5	X	X	X		TAG#002-006	FB01	7/30/97 0935	MBQK46	JL	B
BSE27	5	L	G	5	X	X	X		TAG#015-017	SD01	7/30/97 1205	MBQK34	JL	
BSE31	5	L	G	5	X	X	X		TAG#026-028	SD05	7/30/97 1205	MBQK38	JL	D
BSE22	1	L	G	1,5	X	X	X		TAG#008-013	SW01	7/30/97 1145	MBQK29	JL	
BSE26	1	L	G	1,5	X	X	X		TAG#019-024 VOA missing	SW05	7/30/97 1145	MBQK33	JL	D
BSE28	5	L	G	5	X	X	X		TAG#030-033	SD02	7/30/97 1255	MBQK35	JL	MS/MSD
BSE23	1	L	G	1,5	X	X	X		TAG#034-051	SW02	7/30 1240	MBQK30	JL	MS/MSD
BSE39	5	L	G	5	X	X	X		TAG#055-057	LF01	7/30 1500	MBQK44	JL	
BSE38	5	L	G	5	X	X	X		TAG#059-061	LF02	7/30 1545	MBQK45	JL	
BSE43	5	L	G	5	X	X	X		TAG#063-065	LF03	7/30 1615	MBQK48	JL	

Shipment for Case Complete? (Y/N): N

Page 1 of 2

Sample(s) to be Used for Laboratory QC: BSE28 + BSE23

Additional Sampler Signatures:

Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jennifer Leahy	7/30/97 1730				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: Is custody seal intact? Y/N/none	

A21-012-15 REV.

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

372307

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 25601

1. Project Code:
Account Code:
2. Region No.: 2
Sampling Co.: WESTON START
4. Date Shipped: 7/31/97
Carrier: Fed Exp

Regional Information:
Sampler (Name): Jennifer Leahy
Airbill Number: 4180 1550042 550

Non-Superfund Program:
Sampler Signature: Jennifer Leahy
5. Ship To: Southwest Labs of Oklahoma, 1700 W Albany, Suite C, Broken Arrow, OK 74012
ATTN: Chuck Hawker

Site Name: Keegan Landfill
City, State: Keegan NJ
Site Spill ID: ZZ

3. Purpose*
Lead: SF, PRP, ST, FED
Early Action: CLEM, PA, REM, RI, SI (X), ESI
Long Term Action: FS, RD, RA, O&M, NPLD

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaHSO4 4. H2SO4 5. Ice only 6. Other (Specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis: VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
BSE42	4	L	C	1.5	X	X	X		TAG# 069-074	FB02	7/31/97 0935	MBQK48	JL	B
BSE32	5	L	G	5	X	X	X		TAG# 076-078	SD06	7/31/97 1125	MBQK39	JL	
BSE29	5	L	G	5	X	X	X		TAG# 080-082	SD03	7/31/97 1055	MBQK36	JL	
BSE30	5	L	G	5	X	X	X		TAG# 084-086	SD04	7/31/97 1140	MBQK37	JL	
BSE36	5	L	G	5	X	X	X		TAG# 088-090	SD10	7/31/97 1335	MBQK43	JL	
BSE46	5	L	G	5	X	X	X		TAG# 092-094	SD11	7/31/97 1315	MBQK66	JL	
BSE34	5	L	G	5	X	X	X		TAG# 100-102	SD08	7/31/97 1310	MBQK41	JL	
BSE35	5	L	G	5	X	X	X		TAG# 104-106	SD09	7/31/97 1338	MBQK42	JL	
BSE33	5	L	G	5	X	X	X		TAG# 096-098	SD07	7/31/97 1253	MBQK40	JL	
BSE41	5	L	G	5	X	X	X		TAG# 108-110	BK01	7/31/97 1555	MBQK49	JL	

Shipment for Case Complete? (Y/N):
Page 1 of 2
Sample(s) to be Used for Laboratory QC:
Additional Sampler Signatures:
Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jennifer Leahy	7/31/97 1830				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

372309

EPA United States Environmental Protection Agency
Contract Laboratory Program

Organic Traffic Report & Chain of Custody Record
(For Organic CLP Analysis)

Case No. 25601

1. Project Code	Account Code	2. Region No. 2	Sampling Co. WESTON START	4. Date Shipped 7/31/97	Carrier FED EX
Regional Information		Sampler (Name) Jennifer		Airbill Number 1550042480	
Non-Superfund Program		Sampler Signature Jleaky		5. Ship To Southwest Labs of Oklahoma 1700 W Albany, Suite C Broken Arrow OK 74012 ATTN: Chuck Hoover	
Site Name Kleegam Landfill		3. Purpose* Lead: SF, PRP, ST, FED; Early Action: CLEM, PA, REM, RI, X SI, ESI; Long-Term Action: FS, RD, RA, O&M, NPLD			
City/State Kearny NJ	Site Spill ID ZZ				

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaHSO4
4. H2SO4
5. Ice only
6. Other (Specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc.: Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E RAS Analysis VOA	BNA	Pest/PCB	High only ARO/TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Inorganic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank S = Spike D = Duplicate R = Rinsate PE = Perform. Eval. — = Not a QC Sample)
BSE47	5	L	G	6	X	X	X		TAG # 112-114	SD12	7/31/97 1310	MBQK67	JC	
BSE48	5	L	G	6	X	X	X		TAG 116-118	SD13	7/31/97 1700	MBQK68	JC	
									TAG No 120-122	BK02	7/31/97			JC

Shipment for Case Complete? (Y/N)	Page 2 of 2	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jennifer Leaky	7/31/97 1830				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Blue - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-2

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-15 REV.

372313

United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 25601

1. Project Code:
Account Code:
2. Region No.: 2
Sampling Co.: Weston START
4. Date Shipped: 7/30/97
Carrier: Fed Ex

Regional Information:
Sampler (Name): Jennifer Leahy
Airbill Number: 1550042524

Non-Superfund Program:
Sampler Signature: Jennifer Leahy
5. Ship To: Sentinel, Inc
2800 Wallace Ave
Suite L3
Huntsville, AL 35805
ATTN: Beverly Kilgore

Site Name: Keegan Landfill
City, State: Kearny, NJ
Site Spill ID: ZZ

3. Purpose
Load: [ ] SF [ ] PRP [ ] ST [ ] FED
Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI
Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO_3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) / Other:	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) / Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., – = Not a QC Sample)
MBQK46	4	L	C	2		X						TAG # 001	FB 01	7/30/97 0935	BSE 41	JL	B
MBQK34	5	L	G	6		X						TAG # 018	SD 01	7/30/97 1205	BSE 27	JL	
MBQK38	5	L	G	6		X						TAG # 029	SD 05	7/30/97 1205	BSE 31	JL	D
MBQK29	~~5~~ 1	L	G	2		X						TAG # 014	SW 01	7/30/97 1145	BSE 22	JL	
MBQK33	~~5~~ 1	L	G	2		X						TAG # 025 VOA VIAL broken	SW 05	7/30/97 1145	BSE 26	JL	~~D~~ VOA broken
MBQK35	5	L	G	6 ~~2~~		X						TAG # 033	SD 02	7/30/97 0955	BSE 28	JL	MS/MSD
MBQK30	1	L	G	2		X						TAG #'S 052 - 054	SW 02	7/30/97 1240	BSE 23	JL	MS/MSD
MBQK44	5	L	G	6		X						TAG # 058	LF 01	7/30/97 1500	BSE 37	JL	
MBQK45	5	L	G	6		X						TAG # 062	LF 02	7/30/97 1545	BSE 38	JL	
MBQK48	~~5~~ 1	L	G	6		X						TAG # 066	LF 03	7/30/97 1605	BSE 43	JL	

Shipment for Case Complete? (Y/N): Y
Page: 1 of 1
Sample(s) to be Used for Laboratory QC: MBQK35 & MBQK30
Additional Sampler Signatures:
Chain of Custody Seal Number(s):

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jennifer Leahy	7/30/97 1730				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

A21-012-13 REV.

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

366934

United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 25601

1. Project Code	Account Code	2. Region No. 2	Sampling Co. START WEST	4. Date Shipped 7/31	Carrier Fed EX
Regional Information		Sampler (Name) J Leahy		Airbill Number 1550042513	
Non-Superfund Program		Sampler Signature Jennifer Leahy		5. Ship To Santinel, Inc 2800 Wallace Ave Suite L3 Huntville, AL 35805 ATTN: Beverly Kilgore	
Site Name Kearny LANDFILL		3. Purpose* Lead: [ ] SF [ ] PRP [ ] ST [ ] FED; Early Action: [ ] CLEM [ ] PA [ ] REM [ ] RI [X] SI [ ] ESI; Long-Term Action: [ ] FS [ ] RD [ ] RA [ ] O&M [ ] NPLD			
City, State Kearny NJ	Site Spill ID ZZ				

6. Matrix (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Field QC
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (specify in Column A)

7. Preservative (Enter in Column D)
1. HCl
2. HNO3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (specify in Column D)
N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/ Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., – = Not a QC Sample)
MBQK48	4	L	C	2		X						TAG# 075	FB02	7/31/97 0935	BSE 42	JL	B
MBQK39	5	L	G	6		X						TAG # 079	SD06	7/31/97 1125	BSE 32	JL	
MBQK36	5	L	G	6		X						TAG # 083	SD03	7/31/97 1055	BSE 29	JL	
MBQK37	5	L	G	6		X						TAG # 087	SD04	7/31/97 1140	BSE 30	JL	
MBQK43	5	L	G	6		X						TAG # 091	SD10	7/31/97 1335	BSE 36	JL	
MBQK46	5	L	G	6		X						TAG # 095	SD11	7/31/97 1315	BSE 46	JL	
MBQK40	5	L	G	6		X						TAG # 099	SD07	7/31/97 1253	BSE 33	JL	
MBQK41	5	L	G	6		X						TAG # 103	SD08	7/31/97 1310	BSE 34	JL	
MBQK42	5	L	G	6		X						TAG # 107	SD09	7/31/97 1330	BSE 35	JL	
MBQK49	5	L	G	6		X						TAG # 111	BK01	7/31/97 1555	BSE 44	JL	

Shipment for Case Complete? (Y/N)	Page	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)
	1 of 2			

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jennifer Leahy	7/31/97 1830				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

A21-012-13 REV.

366927

EPA United States Environmental Protection Agency
Contract Laboratory Program

Inorganic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

Case No. 25601

1. Project Code	Account Code	2. Region No. 0	Sampling Co. WESTON STAPT	4. Date Shipped 7/31/97	Carrier Fed Ex
Regional Information		Sampler (Name) J. LEAHY		Airbill Number 1550042 513	
Non-Superfund Program		Sampler Signature Jennifer Leahy		5. Ship To Sentinel Inc 2800 Wallace Ave Suite L3 Huntsville AL 35805 ATTN: B. Kilgore	
Site Name Keegan Landfill		3. Purpose* Lead: SF, PRP, ST, FED; Early Action: CLEM, PA, REM, RI, SI (X), ESI; Long-Term Action: FS, RD, RA, O&M, NPLD			
City/State Kearny NJ	Site Spill ID 22				

6. Matrix (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Field QC 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (specify in Column A)

7. Preservative (Enter in Column D): 1. HCl 2. HNO3 3. NaOH 4. H_2SO_4 5. $K_2CR_2O_7$ 6. Ice only 7. Other (specify in Column D) N. Not preserved

CLP Sample Numbers (from labels)	A Matrix (from Box 6) Other:	B Conc. Low Med High	C Sample Type: Comp./Grab	D Preservative (from Box 7) Other:	E – RAS Analysis: Diss. Metals	Total Metals	Cyanide	Low only: NO_2/NO_3	Fluoride	High only: pH	Conduct.	F Regional Specific Tracking Number or Tag Numbers	G Station Location Identifier	H Mo/Day/Year/Time Sample Collection	I Corresponding CLP Organic Sample No.	J Sampler Initials	K Field QC Qualifier (B = Blank, S = Spike, D = Duplicate, R = Rinsate, PE = Perform. Eval., — = Not a QC Sample)
MBQK67	5	L	G	6		X						TAG No. 115	SD12	7/31/97 1545	BSE 47	JL	
MBQK68	5	L	G	6		X						TAG NO 119	SD13	7/31/97 1700	BSE 48	JL	
MBQK65	5	L	G	6		X						TAG NO 123	BK02	7/31/97	BSE 45	JL	JL

Shipment for Case Complete? (Y/N)	Page 2 of 2	Sample(s) to be Used for Laboratory QC	Additional Sampler Signatures	Chain of Custody Seal Number(s)

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Jennifer Leahy	7/31/97 1830				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

A21-012-13 REV.

DISTRIBUTION: Green - Region Copy; White - Lab Copy for Return to Region; Pink - CLASS Copy; Yellow - Lab Copy for Return to CLASS

EPA Form 9110-1

SEE REVERSE FOR ADDITIONAL STANDARD INSTRUCTIONS
*SEE REVERSE FOR PURPOSE CODE DEFINITIONS

366928

U.S. EPA CLP
DATA PACKAGE -
TARGET COMPOUND LIST

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/Kg)

Volatiles Low Concentration	Method Detection Limit	Soil BSE46RE 30412.10RA		Soil BSE47 30412.11		Soil BSE48 30412.12		Soil BSE27 30388.04		Soil BSE28 30388.05		Soil BSE29 30412.01	
Percent Moisture		66		64		76		52		48		32	
Dilution Factor		1.0		1.0		1.0		1.0		1.0		1.0	
Chloromethane	10	U	J	U	J	U	J	U	J	16	J	U	J
Bromomethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Vinyl Chloride	10	U	J	U	J	U	J	U	J	U	J	U	J
Chloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Methylene Chloride	10	U	J	U	J	U	J	U	J	U	J	U	J
Acetone	10	U	J	U	J	76 U	J	100	J	U	J	U	J
Carbon Disulfide	10	U	J	U	J	U	J	U	J	U	J	U	J
1,1-Dichloroethene	10	U	J	U	J	U	J	U	J	U	J	U	J
1,1-Dichloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
1,2-Dichloroethene (total)	10	U	J	U	J	U	J	U	J	U	J	U	J
Chloroform	10	U	J	U	J	U	J	U	J	U	J	U	J
1,2-Dichloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
2-Butanone	10	U	J	U	J	30	J	28	J	U	J	U	J
1,1,1-Trichloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Carbon Tetrachloride	10	U	J	U	J	U	J	U	J	U	J	U	J
Bromodichloromethane	10	U	J	U	J	U	J	U	J	U	J	U	J
1,2-Dichloropropane	10	U	J	U	J	U	J	U	J	U	J	U	J
cis-1,3-Dichloropropene	10	U	J	U	J	U	J	U	J	U	J	U	J
Trichloroethene	10	U	J	U	J	U	J	U	J	U	J	U	J
Dibromochloromethane	10	U	J	U	J	U	J	U	J	U	J	U	J
1,1,2-Trichloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Benzene	10	U	J	U	J	U	J	U	J	U	J	U	J
trans-1,3-Dichloropropene	10	U	J	U	J	U	J	U	J	U	J	U	J
Bromoform	10	U	J	U	J	U	J	U	J	U	J	U	J
4-Methyl-2-Pentanone	10	R		U	J	U	J	U	J	U	J	U	J
2-Hexanone	10	U	J	U	J	U	J	U	J	U	J	U	J
Tetrachloroethene	10	U	J	U	J	U	J	U	J	U	J	U	J
1,1,2,2-Tetrachloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Toluene	10	U	J	U	J	U	J	U	J	8	J	U	J
Chlorobenzene	10	U	J	U	J	U	J	U	J	U	J	U	J
Ethylbenzene	10	U	J	U	J	U	J	U	J	U	J	U	J
Styrene	10	U	J	U	J	U	J	U	J	3	J	U	J
Total Xylenes	10	U	J	U	J	U	J	U	J	4	J	U	J

U - non-detected compound
B - compound detected in the associated Method Blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/Kg)

Volatiles Low Concentration	Method Detection Limit	Soil BSE30 30412.02		Soil BSE31 30388.06		Soil BSE32 30412.03		Soil BSE33 30412.04		Soil BSE34 30412.05		Soil BSE35 30412.06	
Percent Moisture		60		59		24		77		90		88	
Dilution Factor		1.0		1.0		1.0		1.0		1.0		1.0	
Chloromethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Bromomethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Vinyl Chloride	10	U	J	U	J	U	J	U	J	U	J	U	J
Chloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Methylene Chloride	10	3	J	U	J	U	J	U	J	10	J	8	J
Acetone	10	U	J	81	J	130	J	U	J	660	J	230 U	J
Carbon Disulfide	10	U	J	U	J	U	J	U	J	19	J	U	J
1,1-Dichloroethene	10	U	J	U	J	U	J	U	J	U	J	U	J
1,1-Dichloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
1,2-Dichloroethene (total)	10	U	J	U	J	U	J	U	J	U	J	U	J
Chloroform	10	U	J	U	J	U	J	U	J	U	J	U	J
1,2-Dichloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
2-Butanone	10	U	J	U	J	41	J	U	J	200	J	U	J
1,1,1-Trichloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Carbon Tetrachloride	10	U	J	U	J	U	J	U	J	U	J	U	J
Bromodichloromethane	10	U	J	U	J	U	J	U	J	U	J	U	J
1,2-Dichloropropane	10	U	J	U	J	U	J	U	J	U	J	U	J
cis-1,3-Dichloropropene	10	U	J	U	J	U	J	U	J	U	J	U	J
Trichloroethene	10	U	J	U	J	U	J	U	J	U	J	U	J
Dibromochloromethane	10	U	J	U	J	U	J	U	J	U	J	U	J
1,1,2-Trichloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Benzene	10	U	J	U	J	U	J	U	J	U	J	U	J
trans-1,3-Dichloropropene	10	U	J	U	J	U	J	U	J	U	J	U	J
Bromoform	10	U	J	U	J	U	J	U	J	U	J	U	J
4-Methyl-2-Pentanone	10	U	J	U	J	U	J	U	J	U	J	U	J
2-Hexanone	10	U	J	U	J	U	J	U	J	U	J	U	J
Tetrachloroethene	10	U	J	U	J	U	J	U	J	U	J	12	J
1,1,2,2-Tetrachloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Toluene	10	4	J	U	J	U	J	U	J	140	J	U	J
Chlorobenzene	10	U	J	U	J	U	J	U	J	U	J	U	J
Ethylbenzene	10	U	J	U	J	U	J	U	J	U	J	U	J
Styrene	10	U	J	U	J	U	J	U	J	U	J	U	J
Total Xylenes	10	U	J	U	J	U	J	U	J	U	J	U	J

U - non-detected compound
B - compound detected in the associated Method Blank
J - estimated value
JN - presumptive evidence of a compound
at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/Kg)

Volatiles Low Concentration	Method Detection Limit	Soil BSE36RE 30412.07RA		Soil BSE37 30388.07		Soil BSE38 30388.08	Soil BSE43RE 30388.11RA		Soil BSE44RE 30412.09RA		
Percent Moisture		60		40		53	21		21		
Dilution Factor		1.0		1.0		1.0	1.0		1.0		
Chloromethane	10	U	J	U	J	R	U	J	U	J	
Bromomethane	10	U	J	U	J	R	U	J	U	J	
Vinyl Chloride	10	U	J	U	J	R	U	J	U	J	
Chloroethane	10	U	J	U	J	R	U	J	U	J	
Methylene Chloride	10	U	J	U	J	R	U	J	U	J	
Acetone	10	29 U	J	U	J	R	U	J	U	J	
Carbon Disulfide	10	U	J	U	J	R	U	J	U	J	
1,1-Dichloroethene	10	U	J	U	J	R	U	J	U	J	
1,1-Dichloroethane	10	U	J	U	J	R	U	J	U	J	
1,2-Dichloroethene (total)	10	U	J	U	J	R	U	J	U	J	
Chloroform	10	U	J	U	J	R	U	J	U	J	
1,2-Dichloroethane	10	U	J	U	J	R	U	J	U	J	
2-Butanone	10	U	J	U	J	R	U	J	U	J	
1,1,1-Trichloroethane	10	U	J	U	J	R	U	J	U	J	
Carbon Tetrachloride	10	U	J	U	J	R	U	J	U	J	
Bromodichloromethane	10	U	J	U	J	R	U	J	U	J	
1,2-Dichloropropane	10	U	J	U	J	R	U	J	U	J	
cis-1,3-Dichloropropene	10	U	J	U	J	R	U	J	U	J	
Trichloroethene	10	U	J	U	J	R	U	J	U	J	
Dibromochloromethane	10	U	J	U	J	R	U	J	U	J	
1,1,2-Trichloroethane	10	U	J	U	J	R	U	J	U	J	
Benzene	10	U	J	U	J	R	U	J	U	J	
trans-1,3-Dichloropropene	10	U	J	U	J	R	U	J	U	J	
Bromoform	10	U	J	U	J	R	U	J	U	J	
4-Methyl-2-Pentanone	10	U	J	U	J	R	U	J	U	J	
2-Hexanone	10	U	J	U	J	R	U	J	U	J	
Tetrachloroethene	10	U	J	U	J	R	U	J	U	J	
1,1,2,2-Tetrachloroethane	10	U	J	U	J	R	U	J	U	J	
Toluene	10	U	J	U	J	R	7	J	U	J	
Chlorobenzene	10	U	J	U	J	R	U	J	U	J	
Ethylbenzene	10	U	J	U	J	R	U	J	U	J	
Styrene	10	U	J	U	J	R	U	J	U	J	
Total Xylenes	10	U	J	U	J	R	U	J	U	J	

U - non-detected compound
B - compound detected in the associated Method Blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/L)

Volatiles Low Concentration	Method Detection Limit	Water BSE22 30388.01		Water BSE23 30388.02		Water BSE26 30388.03		Water BSE39 30388.09		Water BSE41 30388.10		Water BSE42 30412.08	
Percent Moisture		-		-		-		-		-		-	
Dilution Factor		1.0		1.0		1.0		1.0		1.0		1.0	
Chloromethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Bromomethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Vinyl Chloride	10	U	J	U	J	U	J	U	J	U	J	U	J
Chloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Methylene Chloride	10	U	J	U	J	U	J	10	J	10	J	U	J
Acetone	10	U	J	U	J	U	J	U	J	3	J	5	J
Carbon Disulfide	10	U	J	U	J	U	J	U	J	U	J	U	J
1,1-Dichloroethene	10	U	J	U	J	U	J	U	J	U	J	U	J
1,1-Dichloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Cis-1,2-Dichloroethene	10	U	J	U	J	U	J	U	J	U	J	U	J
trans 1,2-Dichloroethene	10	U	J	U	J	U	J	U	J	U	J	U	J
Chloroform	10	U	J	U	J	U	J	3	J	3	J	U	J
1,2-Dichloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
2-Butanone	10	U	J	U	J	U	J	U	J	U	J	U	J
1,1,1-Trichloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Carbon Tetrachloride	10	U	J	U	J	U	J	U	J	U	J	U	J
Bromodichloromethane	10	U	J	U	J	U	J	U	J	U	J	U	J
1,2-Dichloropropane	10	U	J	U	J	U	J	U	J	U	J	U	J
cis-1,3-Dichloropropene	10	U	J	U	J	U	J	U	J	U	J	U	J
Trichloroethene	10	U	J	U	J	U	J	2	J	U	J	U	J
Dibromochloromethane	10	U	J	U	J	U	J	U	J	U	J	U	J
1,1,2-Trichloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Benzene	10	U	J	U	J	U	J	U	J	U	J	U	J
trans-1,3-Dichloropropene	10	U	J	U	J	U	J	U	J	U	J	U	J
Bromoform	10	U	J	U	J	U	J	U	J	U	J	U	J
4-Methyl-2-Pentanone	10	U	J	U	J	U	J	U	J	U	J	U	J
2-Hexanone	10	U	J	U	J	U	J	U	J	U	J	U	J
Tetrachloroethene	10	U	J	U	J	U	J	U	J	U	J	U	J
1,1,2,2-Tetrachloroethane	10	U	J	U	J	U	J	U	J	U	J	U	J
Toluene	10	U	J	U	J	U	J	U	J	U	J	U	J
Chlorobenzene	10	U	J	U	J	U	J	U	J	U	J	U	J
Ethylbenzene	10	U	J	U	J	U	J	U	J	U	J	U	J
Styrene	10	U	J	U	J	U	J	U	J	U	J	U	J
Total Xylenes	10	U	J	U	J	U	J	U	J	U	J	U	J

E - Concentration exceed the calibration range
U - non-detected compound
B - compound detected in the associated Method Blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/Kg)

Semi-Volatiles Low Concentration	Method Detection Limit	Soil BSE46 30412.10		Soil BSE47 30412.11		Soil BSE48 30412.12		Soil BSE27 30388.04		Soil BSE28 30388.05		Soil BSE29 30412.01	
Percent Moisture		66		64		76		52		48		32	
Dilution Factor		1.0		1.0		1.0		1.0		1.0		1.0	
Phenol	330	U	J	U	J	U	J	U	J	U	J	520	J
bis(2-Chloroethyl)ether	330	U	J	U	J	U	J	U	J	U	J	U	J
2-Chlorophenol	330	U	J	U	J	U	J	U	J	U	J	U	J
1,3-Dichlorobenzene	330	U	J	U	J	U	J	U	J	U	J	U	J
1,4-Dichlorobenzene	330	U	J	U	J	U	J	U	J	U	J	U	J
1,2-Dichlorobenzene	330	U	J	U	J	U	J	U	J	U	J	U	J
2-Methylphenol	330	U	J	U	J	U	J	U	J	U	J	U	J
2,2'-oxybis(1-Chloropropane)	330	U	J	U	J	U	J	U	J	U	J	U	J
4-Methylphenol	330	U	J	U	J	U	J	U	J	U	J	U	J
N-Nitroso-di-n-propylamine	330	U	J	U	J	U	J	U	J	U	J	U	J
Hexachloroethane	330	U	J	U	J	U	J	U	J	U	J	U	J
Nitrobenzene	330	U	J	U	J	U	J	U	J	U	J	U	J
Isophorone	330	U	J	U	J	U	J	U	J	U	J	U	J
2-Nitrophenol	330	U	J	U	J	U	J	U	J	U	J	U	J
2,4-Dimethylphenol	330	U	J	U	J	U	J	U	J	U	J	U	J
bis(2-Chloroethoxy)methane	330	U	J	U	J	U	J	U	J	U	J	U	J
2,4-Dichlorophenol	330	U	J	U	J	U	J	U	J	U	J	U	J
1,2,4-Trichlorobenzene	330	U	J	U	J	U	J	U	J	U	J	U	J
Naphthalene	330	U	J	U	J	U	J	U	J	U	J	U	J
4-Chloroaniline	330	U	J	U	J	U	J	U	J	U	J	U	J
Hexachlorobutadiene	330	U	J	U	J	U	J	U	J	U	J	U	J
4-Chloro-3-methylphenol	330	U	J	U	J	U	J	U	J	U	J	U	J
2-Methylnaphthalene	330	58	J	U	J	U	J	42	J	U	J	U	J
Hexachlorocyclopentadiene	330	U	J	U	J	U	J	U	J	U	J	U	J
2,4,6-Trichlorophenol	330	U	J	U	J	U	J	U	J	U	J	U	J
2,4,5-Trichlorophenol	830	U	J	U	J	U	J	U	J	U	J	U	J
2-Chloronaphthalene	330	U	J	U	J	U	J	U	J	U	J	U	J
2-Nitroaniline	830	U	J	U	J	U	J	U	J	U	J	U	J
Dimethylphthalate	330	U	J	U	J	U	J	U	J	U	J	U	J
Acenaphthylene	330	200	J	U	J	U	J	U	J	97	J	U	J
2,6-Dinitrotoluene	330	U	J	U	J	U	J	U	J	U	J	U	J
3-Nitroaniline	830	U	J	U	J	U	J	U	J	U	J	U	J
Acenaphthene	330	210	J	U	J	U	J	85	J	130	J	U	J
2,4-Dinitrophenol	830	U	J	U	J	U	J	U	J	U	J	U	J
4-Nitrophenol	830	U	J	U	J	U	J	U	J	U	J	U	J
Dibenzofuran	330	100	J	U	J	U	J	U	J	44	J	U	J
2,4-Dinitrotoluene	330	U	J	U	J	U	J	U	J	U	J	U	J
Diethylphthalate	330	U	J	U	J	U	J	U	J	U	J	U	J
4-Chlorophenyl-phenylether	330	U	J	U	J	U	J	U	J	U	J	U	J

* - values transferred from the dilution analysis
U - non-detected compound
B - detected in the corresponding method blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/Kg)

Semi-Volatiles Low Concentration	Method Detection Limit	Soil BSE46 30412.10		Soil BSE47 30412.11		Soil BSE48 30412.12		Soil BSE27 30388.04		Soil BSE28 30388.05		Soil BSE29 30412.01	
Percent Moisture		66		64		76		52		48		32	
Dilution Factor		1.0		1.0		1.0		1.0		1.0		1.0	
Fluorene	330	230	J	47	J	U	J	92	J	79	J	U	J
4-Nitroaniline	830	U	J	U	J	U	J	U	J	U	J	U	J
4,6-Dinitro-2-methylphenol	830	U	J	U	J	U	J	U	J	U	J	U	J
N-Nitrosodiphenylamine	330	U	J	U	J	U	J	U	J	U	J	U	J
4-Bromophenyl-phenylether	330	U	J	U	J	U	J	U	J	U	J	U	J
Hexachlorobenzene	330	U	J	U	J	U	J	U	J	U	J	U	J
Pentachlorophenol	830	U	J	U	J	U	J	U	J	U	J	U	J
Phenanthrene	330	3100	J	610	J	U	J	1200	J	840	J	340	J
Anthracene	330	750	J	170	J	U	J	240	J	230	J	100	J
Carbazole	330	430	J	U	J	U	J	150	J	150	J	U	J
Di-n-butylphthalate	330	580	J	U	J	U	J	730	J	150	J	160	J
Fluoranthene	330	5800	J	1100	J	390	J	2000	J	1700	J	600	J
Pyrene	330	6000	J	1100	J	380	J	2200	J	1800	J	820	J
Butylbenzylphthalate	330	1900	J	230	J	120	J	U	J	700	J	580	J
3,3-Dichlorobenzidine	330	U	J	U	J	U	J	U	J	U	J	U	J
Benzo(a)anthracene	330	3200	J	590	J	220	J	1100	J	940	J	400	J
Chrysene	330	3700	J	660	J	280	J	1200	J	1200	J	420	J
bis(2-Ethylhexyl)phthalate	330	6900	BJ	U	J	U	J	490		*9200	J	1400 U	J
Di-n-octylphthalate	330	220		U	J	U	J	U	J	110	J	U	J
Benzo(b)fluoranthene	330	3200		570	J	250	J	1000	J	1100	J	320	J
Benzo(k)fluoranthene	330	2800	J	470	J	190	J	930	J	1100	J	320	J
Benzo(a)pyrene	330	3300	J	640	J	260	J	1000	J	1200	J	420	J
Indeno(1,2,3-cd)pyrene	330	2400	J	440	J	180	J	780	J	920	J	300	J
Dibenz(a,h)anthracene	330	960	J	150	J	U	J	250	J	370	J	130	J
Benzo(g,h,i)perylene	330	3000	J	550	J	230	J	880	J	1200	J	330	J

* - values transferred from the dilution analysis
U - non-detected compound
B - detected in the corresponding method blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/Kg)

Semi-Volatiles Low-Concentration	Method Detection Limit	Soil BSE30 30412.02		Soil BSE31 30388.06		Soil BSE32 30412.03		Soil BSE33 30412.04		Soil BSE34 30412.05		Soil BSE35 30412.06	
Percent Moisture		60		59		24		77		90		88	
Dilution Factor		1.0		1.0		1.0		1.0		1.0		1.0	
Phenol	330	U	J	U	J	U	J	U	J	U	J	U	J
bis(2-Chloroethyl)ether	330	U	J	U	J	U	J	U	J	U	J	U	J
2-Chlorophenol	330	U	J	U	J	U	J	U	J	U	J	U	J
1,3-Dichlorobenzene	330	U	J	U	J	U	J	U	J	U	J	U	J
1,4-Dichlorobenzene	330	U	J	U	J	U	J	88	J	U	J	U	J
1,2-Dichlorobenzene	330	U	J	U	J	U	J	U	J	U	J	U	J
2-Methylphenol	330	U	J	U	J	U	J	U	J	U	J	U	J
2,2'-oxybis(1-Chloropropane)	330	U	J	U	J	U	J	U	J	U	J	U	J
4-Methylphenol	330	U	J	U	J	U	J	U	J	U	J	U	J
N-Nitroso-di-n-propylamine	330	U	J	U	J	U	J	U	J	U	J	U	J
Hexachloroethane	330	U	J	U	J	U	J	U	J	U	J	U	J
Nitrobenzene	330	U	J	U	J	U	J	U	J	U	J	U	J
Isophorone	330	U	J	U	J	U	J	U	J	U	J	U	J
2-Nitrophenol	330	U	J	U	J	U	J	U	J	U	J	U	J
2,4-Dimethylphenol	330	U	J	U	J	U	J	U	J	U	J	U	J
bis(2-Chloroethoxy)methane	330	U	J	U	J	U	J	U	J	U	J	U	J
2,4-Dichlorophenol	330	U	J	U	J	U	J	U	J	U	J	U	J
1,2,4-Trichlorobenzene	330	U	J	U	J	U	J	U	J	U	J	U	J
Naphthalene	330	U	J	U	J	U	J	600	J	U	J	U	J
4-Chloroaniline	330	U	J	U	J	U	J	U	J	U	J	U	J
Hexachlorobutadiene	330	U	J	U	J	U	J	U	J	U	J	U	J
4-Chloro-3-methylphenol	330	U	J	U	J	U	J	U	J	U	J	U	J
2-Methylnaphthalene	330	U	J	70	J	U	J	230	J	U	J	U	J
Hexachlorocyclopentadiene	330	U	J	U	J	U	J	U	J	U	J	U	J
2,4,6-Trichlorophenol	330	U	J	U	J	U	J	U	J	U	J	U	J
2,4,5-Trichlorophenol	830	U	J	U	J	U	J	U	J	U	J	U	J
2-Chloronaphthalene	330	U	J	U	J	U	J	U	J	U	J	U	J
2-Nitroaniline	830	U	J	U	J	U	J	U	J	U	J	U	J
Dimethylphthalate	330	U	J	U	J	U	J	U	J	U	J	U	J
Acenaphthylene	330	110	J	U	J	U	J	420	J	U	J	U	J
2,6-Dinitrotoluene	330	U	J	U	J	U	J	U	J	U	J	U	J
3-Nitroaniline	830	U	J	U	J	U	J	U	J	U	J	U	J
Acenaphthene	330	100	J	160	J	U	J	790	J	U	J	U	J
2,4-Dinitrophenol	830	U	J	U	J	U	J	U	J	U	J	U	J
4-Nitrophenol	830	U	J	U	J	U	J	U	J	U	J	U	J
Dibenzofuran	330	80	J	U	J	U	J	520	J	U	J	U	J
2,4-Dinitrotoluene	330	U	J	U	J	U	J	U	J	U	J	U	J
Diethylphthalate	330	U	J	U	J	U	J	1400	JB	U	J	U	J
4-Chlorophenyl-phenylether	330	U	J	U	J	U	J	U	J	U	J	U	J

* - values transferred from the dilution analysis
U - non-detected compound
B - detected in the corresponding method blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/Kg)

Semi-Volatiles Low Concentration	Method Detection Limit	Soil BSE30 30412.02		Soil BSE31 30388.06		Soil BSE32 30412.03		Soil BSE33 30412.04		Soil BSE34 30412.05		Soil BSE35 30412.06	
Percent Moisture		60		59		24		77		90		88	
Dilution Factor		1.0		1.0		1.0		1.0		1.0		1.0	
Fluorene	330	140	J	150	J	U	J	880	J	U	J	U	J
4-Nitroaniline	830	U	J	U	J	U	J	U	J	U	J	U	J
4,6-Dinitro-2-methylphenol	830	U	J	U	J	U	J	U	J	U	J	U	J
N-Nitrosodiphenylamine	330	U	J	U	J	U	J	U	J	U	J	U	J
4-Bromophenyl-phenylether	330	U	J	U	J	U	J	U	J	U	J	U	J
Hexachlorobenzene	330	U	J	U	J	U	J	U	J	U	J	U	J
Pentachlorophenol	830	U	J	U	J	U	J	U	J	U	J	U	J
Phenanthrene	330	1600	J	2000	J	U	J	8000	J	U	J	U	J
Anthracene	330	400	J	420	J	U	J	2300	J	U	J	U	J
Carbazole	330	160	J	270	J	U	J	1000	J	U	J	U	J
Di-n-butylphthalate	330	U	J	1100	J	U	J	*14000	J	U	J	U	J
Fluoranthene	330	2100	J	2900	J	U	J	*14000	J	U	J	U	J
Pyrene	330	2200	J	3000	J	U	J	*13000	J	U	J	U	J
Butylbenzylphthalate	330	2600	J	U	J	U	J	7800	J	U	J	180	J
3,3-Dichlorobenzidine	330	U	J	U	J	U	J	U	J	U	J	U	J
Benzo(a)anthracene	330	1100	J	1600	J	U	J	6800	J	U	J	U	J
Chrysene	330	1100	J	1800	J	U	J	6900	J	U	J	U	J
bis(2-Ethylhexyl)phthalate	330	*15000	J	660	J	U	J	*28000	J	U	J	3800 U	J
Di-n-octylphthalate	330	U	J	U	J	U	J	260	J	U	J	U	J
Benzo(b)fluoranthene	330	790	J	1600	J	U	J	5300	J	U	J	U	J
Benzo(k)fluoranthene	330	800	J	1300	J	U	J	6600	J	U	J	U	J
Benzo(a)pyrene	330	1000	J	1600	J	190	J	7400	J	U	J	210	J
Indeno(1,2,3-cd)pyrene	330	580	J	1200	J	U	J	4800	J	U	J	U	J
Dibenz(a,h)anthracene	330	290	J	600	J	U	J	1900	J	U	J	U	J
Benzo(g,h,i)perylene	330	670	J	1400	J	U	J	5500	J	U	J	U	J

* - values transferred from the dilution analysis
U - non-detected compound
B - detected in the corresponding method blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/Kg)

Semi-Volatiles Low Concentration	Method Detection Limit	Soil BSE36 30412.07		Soil BSE37 30388.07		Soil BSE38 30388.08		Soil BSE43 30388.11		Soil BSE44 30412.09		
Percent Moisture		60		40		53		21		21		
Dilution Factor		10.0		1.0		1.0		1.0		1.0		
Phenol	330	U	J	U	J	U	J	280	J	U	J	
bis(2-Chloroethyl)ether	330	U	J	U	J	U	J	U	J	U	J	
2-Chlorophenol	330	U	J	U	J	U	J	U	J	U	J	
1,3-Dichlorobenzene	330	U	J	U	J	U	J	U	J	U	J	
1,4-Dichlorobenzene	330	U	J	U	J	U	J	U	J	U	J	
1,2-Dichlorobenzene	330	U	J	U	J	U	J	U	J	U	J	
2-Methylphenol	330	U	J	U	J	U	J	U	J	38	J	
2,2'-oxybis(1-Chloropropane)	330	U	J	U	J	U	J	U	J	U	J	
4-Methylphenol	330	U	J	U	J	U	J	U	J	46	J	
N-Nitroso-di-n-propylamine	330	U	J	U	J	U	J	U	J	U	J	
Hexachloroethane	330	U	J	U	J	U	J	U	J	U	J	
Nitrobenzene	330	U	J	U	J	U	J	U	J	U	J	
Isophorone	330	U	J	U	J	U	J	U	J	U	J	
2-Nitrophenol	330	U	J	U	J	U	J	U	J	U	J	
2,4-Dimethylphenol	330	U	J	U	J	U	J	U	J	U	J	
bis(2-Chloroethoxy)methane	330	U	J	U	J	U	J	U	J	U	J	
2,4-Dichlorophenol	330	U	J	U	J	U	J	U	J	U	J	
1,2,4-Trichlorobenzene	330	U	J	U	J	U	J	U	J	U	J	
Naphthalene	330	U	J	U	J	U	J	U	J	U	J	
4-Chloroaniline	330	U	J	U	J	U	J	U	J	U	J	
Hexachlorobutadiene	330	U	J	U	J	U	J	U	J	U	J	
4-Chloro-3-methylphenol	330	U	J	U	J	U	J	U	J	U	J	
2-Methylnaphthalene	330	U	J	54	J	50	J	54	J	42	J	
Hexachlorocyclopentadiene	330	U	J	U	J	U	J	U	J	U	J	
2,4,6-Trichlorophenol	330	U	J	U	J	U	J	U	J	U	J	
2,4,5-Trichlorophenol	830	U	J	U	J	U	J	U	J	U	J	
2-Chloronaphthalene	330	U	J	U	J	U	J	U	J	U	J	
2-Nitroaniline	830	U	J	U	J	U	J	U	J	U	J	
Dimethylphthalate	330	U	J	U	J	U	J	U	J	U	J	
Acenaphthylene	330	U	J	U	J	U	J	140	J	120	J	
2,6-Dinitrotoluene	330	U	J	U	J	U	J	U	J	U	J	
3-Nitroaniline	830	U	J	U	J	U	J	U	J	U	J	
Acenaphthene	330	U	J	560	J	U	J	U	J	91	J	
2,4-Dinitrophenol	830	U	J	U	J	U	J	U	J	U	J	
4-Nitrophenol	830	U	J	U	J	U	J	U	J	U	J	
Dibenzofuran	330	U	J	240	J	U	J	U	J	52	J	
2,4-Dinitrotoluene	330	U	J	U	J	U	J	U	J	U	J	
Diethylphthalate	330	U	J	U	J	U	J	1600	J	U	J	
4-Chlorophenyl-phenylether	330	U	J	U	J	U	J	U	J	U	J	

* - values transferred from the dilution analysis
U - non-detected compound
B - detected in the corresponding method blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/Kg)

Semi-Volatiles Low Concentration	Method Detection Limit	Soil BSE36 30412.07		Soil BSE37 30388.07		Soil BSE38 30388.08		Soil BSE43 30388.11		Soil BSE44 30412.09	
Percent Moisture		60		40		53		21		21	
Dilution Factor		10.0		1.0		1.0		1.0		1.0	
Fluorene	330	U	J	440	J	39	J	U	J	74	J
4-Nitroaniline	830	U	J	U	J	U	J	U	J	U	J
4,6-Dinitro-2-methylphenol	830	U	J	U	J	U	J	U	J	U	J
N-Nitrosodiphenylamine	330	U	J	U	J	U	J	1200	J	U	J
4-Bromophenyl-phenylether	330	U	J	U	J	U	J	U	J	U	J
Hexachlorobenzene	330	U	J	U	J	U	J	U	J	U	J
Pentachlorophenol	830	U	J	U	J	U	J	U	J	U	J
Phenanthrene	330	4200	J	3400	J	380	J	260	J	1200	J
Anthracene	330	1000	J	870	J	87	J	120	J	380	J
Carbazole	330	U	J	420	J	U	J	U	J	110	J
Di-n-butylphthalate	330	U	J	U	J	U	J	200	J	70	J
Fluoranthene	330	5400	J	*2900	J	580	J	410	J	1800	J
Pyrene	330	5400	J	4100	J	630	J	620	J	2200	J
Butylbenzylphthalate	330	2800	J	190	J	U	J	*5300	J	U	J
3,3-Dichlorobenzidine	330	U	J	U	J	U	J	U	J	U	J
Benzo(a)anthracene	330	2800	J	2300	J	260	J	350	J	1300	J
Chrysene	330	3100	J	2200	J	300	J	440	J	1400	J
bis(2-Ethylhexyl)phthalate	330	*230000	J	1600	J	480	J	2000	J	1700	BJ
Di-n-octylphthalate	330	7700	J	U	J	U	J	150	J	U	J
Benzo(b)fluoranthene	330	2200	J	1800	J	260	J	470	J	1100	J
Benzo(k)fluoranthene	330	2600	J	1600	J	200	J	340	J	1100	J
Benzo(a)pyrene	330	3000	J	2000	J	240	J	420	J	1300	J
Indeno(1,2,3-cd)pyrene	330	1800	J	1200	J	160	J	360	J	850	J
Dibenz(a,h)anthracene	330	U	J	520	J	U	J	130	J	350	J
Benzo(g,h,i)perylene	330	2000	J	1300	J	200	J	540	J	980	J

* - values transferred from the dilution analysis
U - non-detected compound
B - detected in the corresponding method blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/L)

Semi-Volatiles Low Concentration	Method Detection Limit	Water BSE22 30388.01		Water BSE23 30388.02		Water BSE26 30388.03		Water BSE41 30388.10		Water BSE42 30412.08		
Percent Moisture		–		–		–		–		–		
Dilution Factor		1.0		1.0		1.0		1.0		1.0		
Phenol	10	U	J	U	J	U	J	U	J	U	J	
bis(2-Chloroethyl)ether	10	U	J	U	J	U	J	U	J	U	J	
2-Chlorophenol	10	U	J	U	J	U	J	U	J	U	J	
1,3-Dichlorobenzene	10	U	J	U	J	U	J	U	J	U	J	
1,4-Dichlorobenzene	10	U	J	U	J	U	J	U	J	U	J	
1,2-Dichlorobenzene	10	U	J	U	J	U	J	U	J	U	J	
2-Methylphenol	10	U	J	U	J	U	J	U	J	U	J	
2,2'-oxybis(1-Chloropropane)	10	U	J	U	J	U	J	U	J	U	J	
4-Methylphenol	10	0.5	J	0.8	J	U	J	U	J	U	J	
N-Nitroso-di-n-propylamine	10	U	J	U	J	U	J	U	J	U	J	
Hexachloroethane	10	U	J	U	J	U	J	U	J	U	J	
Nitrobenzene	10	U	J	U	J	U	J	U	J	U	J	
Isophorone	10	U	J	U	J	U	J	U	J	U	J	
2-Nitrophenol	10	U	J	U	J	U	J	U	J	U	J	
2,4-Dimethylphenol	10	U	J	U	J	U	J	U	J	U	J	
bis(2-Chloroethoxy)methane	10	U	J	U	J	U	J	U	J	U	J	
2,4-Dichlorophenol	10	U	J	U	J	U	J	U	J	U	J	
1,2,4-Trichlorobenzene	10	U	J	U	J	U	J	U	J	U	J	
Naphthalene	10	U	J	U	J	U	J	U	J	U	J	
4-Chloroaniline	10	U	J	U	J	U	J	U	J	U	J	
Hexachlorobutadiene	10	U	J	U	J	U	J	U	J	U	J	
4-Chloro-3-methylphenol	10	U	J	U	J	U	J	U	J	U	J	
2-Methylnaphthalene	10	U	J	U	J	U	J	U	J	U	J	
Hexachlorocyclopentadiene	10	U	J	U	J	U	J	U	J	U	J	
2,4,6-Trichlorophenol	10	U	J	U	J	U	J	U	J	U	J	
2,4,5-Trichlorophenol	25	U	J	U	J	U	J	U	J	U	J	
2-Chloronaphthalene	10	U	J	U	J	U	J	U	J	U	J	
2-Nitroaniline	25	U	J	U	J	U	J	U	J	U	J	
Dimethylphthalate	10	U	J	U	J	U	J	U	J	U	J	
Acenaphthylene	10	U	J	U	J	U	J	U	J	U	J	
2,6-Dinitrotoluene	10	U	J	U	J	U	J	U	J	U	J	
3-Nitroaniline	25	U	J	U	J	U	J	U	J	U	J	
Acenaphthene	10	U	J	U	J	U	J	U	J	U	J	
2,4-Dinitrophenol	25	U	J	U	J	U	J	U	J	U	J	
4-Nitrophenol	25	U	J	U	J	U	J	U	J	U	J	
Dibenzofuran	10	U	J	U	J	U	J	U	J	U	J	
2,4-Dinitrotoluene	10	U	J	U	J	U	J	U	J	U	J	
Diethylphthalate	10	U	J	U	J	U	J	U	J	U	J	
4-Chlorophenyl-phenylether	10	U	J	U	J	U	J	U	J	U	J	

DL- Dilution Analyses
U - non-detected compound
B - detected in the corresponding method blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/L)

Semi-Volatiles Low Concentration	Method Detection Limit	Water BSE22 30388.01		Water BSE23 30388.02		Water BSE26 30388.03		Water BSE41 30388.10		Water BSE42 30412.08		
Percent Moisture		--		--		--		--		--		
Dilution Factor		1.0		1.0		1.0		1.0		1.0		
Fluorene	10	U	J	U	J	U	J	U	J	U	J	
4-Nitroaniline	25	U	J	U	J	U	J	U	J	U	J	
4,6-Dinitro-2-methylphenol	25	U	J	U	J	U	J	U	J	U	J	
N-Nitrosodiphenylamine	10	U	J	U	J	U	J	U	J	U	J	
4-Bromophenyl-phenylether	10	U	J	U	J	U	J	U	J	U	J	
Hexachlorobenzene	10	U	J	U	J	U	J	U	J	U	J	
Pentachlorophenol	25	U	J	U	J	U	J	U	J	U	J	
Phenanthrene	10	2	J	1	J	U	J	U	J	U	J	
Anthracene	10	U	J	U	J	U	J	U	J	U	J	
Carbazole	10	U	J	U	J	U	J	U	J	U	J	
Di-n-butylphthalate	10	U	J	U	J	U	J	U	J	U	J	
Fluoranthene	10	3	J	2	J	0.9	J	U	J	U	J	
Pyrene	10	3	J	3	J	0.8	J	U	J	U	J	
Butylbenzylphthalate	10	U	J	1	J	U	J	U	J	U	J	
3,3-Dichlorobenzidine	10	U	J	U	J	U	J	U	J	U	J	
Benzo(a)anthracene	10	1	J	1	J	U	J	U	J	U	J	
Chrysene	10	2	J	2	J	U	J	U	J	U	J	
bis(2-Ethylhexyl)phthalate	10	3	J	3	J	1	J	0.5	J	12	BJ	
Di-n-octylphthalate	10	U	J	U	J	U	J	U	J	U	J	
Benzo(b)fluoranthene	10	2	J	2	J	U	J	U	J	U	J	
Benzo(k)fluoranthene	10	1	J	2	J	U	J	U	J	U	J	
Benzo(a)pyrene	10	1	J	1	J	U	J	U	J	U	J	
Indeno(1,2,3-cd)pyrene	10	0.6	J	0.8	J	U	J	U	J	U	J	
Dibenz(a,h)anthracene	10	U	J	U	J	U	J	U	J	U	J	
Benzo(g,h,i)perylene	10	U	J	0.9	J	U	J	U	J	U	J	

DL- Dilution Analyses
U - non-detected compound
B - detected in the corresponding method blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/Kg)

Pesticides Low Concentration	Method Detection Limit	Soil BSE46 30412.10		Soil BSE47 30412.11		Soil BSE48 30412.12		Soil BSE27 30388.04		Soil BSE28DL 30388.05DL		Soil BSE29 30412.01		Soil BSE30 30412.02	
Percent Moisture		66		64		76		52		48		32		60	
Dilution Factor		1.0		1.0		1.0		1.0		10.0		1.0		1.0	
alpha-BHC	1.7	U	J	U	J	U	J	U	J	U	J	U	J	U	J
beta-BHC	1.7	U	J	U	J	U	J	U	J	U	J	U	J	U	J
delta-BHC	1.7	U	J	U	J	U	J	U	J	U	J	U	J	U	J
gamma-BHC (Lindane)	1.7	U	J	U	J	U	J	U	J	U	J	U	J	12	J
Heptachlor	1.7	U	J	U	J	16	JN	U	J	U	J	U	J	R	
Aldrin	1.7	U	J	U	J	U	J	U	J	U	J	4.9	J	31	JN
Heptachlor Epoxide	1.7	23	JN	U	J	U	J	U	J	U	J	3.5	J	U	J
Endosulfan I	1.7	**180	EJ	U	J	U	J	U	J	U	J	26	J	17	JN
Dieldrin	3.3	50	J	U	J	U	J	R		100	DJ	14	JN	25	J
4,4'-DDE	3.3	*140	J	U	J	20	JN	16	JN	U	J	29	JN	54	J
Endrin	3.3	R		U	J	U	J	48	J	U	J	U	J	U	J
Endosulfan II	3.3	69	J	U	J	26	JN	U	J	U	J	U	J	U	J
4,4'-DDD	3.3	*1900	J	U	J	U	J	73	JN	240	DJ	26	J	78	J
Endosulfan Sulfate	3.3	U	J	U	J	U	J	19	JN	U	J	U	J	U	J
4,4'-DDT	3.3	*530	J	48	J	R		93	J	130	DJ	73	JN	100	J
Methoxychlor	17.0	U	J	U	J	U	J	130	J	U	J	U	J	R	
Endrin Ketone	3.3	U	J	U	J	U	J	U	J	U	J	U	J	10	J
Endrin Aldehyde	3.3	*260	J	72	J	U	J	U	J	U	J	31	JN	R	
alpha-Chlordane	1.7	*180	J	U	J	R		U	J	73	DJ	28	J	29	J
gamma-Chlordane	1.7	*170	JN	U	J	U	J	U	J	72	DJ	24	J	16	J
Toxaphene	170.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1016	33.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1221	67.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1232	33.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1242	33.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1248	33.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1254	33.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1260	33.0	690	J	320	J	350	J	530	J	450	DJ	520	J	600	J

* - Value transferred from dilution analysis.
** - Analyte not detected in dilution analysis, therefore value not transferred.
U - non-detected compound
B - detected in the corresponding method blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/Kg)

Pesticides Low Concentration	Method Detection Limit	Soil BSE31 30388.06		Soil BSE32 30412.03		Soil BSE33 30412.04		Soil BSE34 30412.05		Soil BSE35 30412.06		Soil BSE36 30412.07		Soil BSE37DL 30388.07DL	
Percent Moisture		59		24		77		90		88		60		40	
Dilution Factor		1.0		1.0		1.0		1.0		1.0		1.0		10.0	
alpha-BHC	1.7	U	J	U	J	U	J	U	J	U	J	U	J	U	J
beta-BHC	1.7	U	J	U	J	U	J	U	J	U	J	U	J	U	J
delta-BHC	1.7	U	J	U	J	78	J	U	J	U	J	U	J	U	J
gamma-BHC (Lindane)	1.7	U	J	U	J	58	J	U	J	U	J	U	J	U	J
Heptachlor	1.7	U	J	U	J	*140	JN	U	J	U	J	U	J	U	J
Aldrin	1.7	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Heptachlor Epoxide	1.7	U	J	U	J	*210	JN	U	J	U	J	U	J	U	J
Endosulfan I	1.7	U	J	22	J	*900	J	U	J	U	J	28	J	U	J
Dieldrin	3.3	U	J	U	J	**330	EJ	U	J	U	J	21	JN	R	
4,4'-DDE	3.3	U	J	U	J	*730	JN	U	J	U	J	23	J	56	DJ
Endrin	3.3	U	J	U	J	R		U	J	U	J	U	J	120	DJ
Endosulfan II	3.3	U	J	U	J	U	J	U	J	U	J	U	J	R	
4,4'-DDD	3.3	**130	EJ	U	J	*1300	J	U	J	81	J	39	J	42	DJ
Endosulfan Sulfate	3.3	U	J	U	J	16	J	U	J	U	J	U	J	U	J
4,4'-DDT	3.3	R		9.5	J	*780	JN	U	J	U	J	78	J	U	J
Methoxychlor	17.0	R		U	J	U	J	U	J	U	J	U	J	U	J
Endrin Ketone	3.3	U	J	U	J	47	J	U	J	U	J	U	J	U	J
Endrin Aldehyde	3.3	U	J	U	J	*810	JN	U	J	U	J	R		U	J
alpha-Chlordane	1.7	U	J	22	J	*900	J	U	J	U	J	25	J	83	DJ
gamma-Chlordane	1.7	U	J	20	JN	*870	J	U	J	U	J	26	J	63	JN
Toxaphene	170.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1016	33.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1221	67.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1232	33.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1242	33.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1248	33.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1254	33.0	U	J	U	J	U	J	U	J	U	J	U	J	U	J
Aroclor-1260	33.0	U	J	110	J	*8100	J	U	J	U	J	350	J	650	DJ

* - Value transferred from dilution analysis.
** - Analyte not detected in dilution analysis, therefore value not transferred.
U - non-detected compound
B - detected in the corresponding method blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/Kg)

Pesticides Low Concentration	Method Detection Limit	Soil BSE38 30388.08		Soil BSE43DL 30388.11DL		Soil BSE44DL 30412.09DL					
Percent Moisture		53		21		21					
Dilution Factor		1.0		10.0		10.0					
alpha-BHC	1.7	U	J	U	J	U	J				
beta-BHC	1.7	U	J	U	J	U	J				
delta-BHC	1.7	U	J	U	J	U	J				
gamma-BHC (Lindane)	1.7	U	J	U	J	U	J				
Heptachlor	1.7	U	J	U	J	U	J				
Aldrin	1.7	U	J	U	J	U	J				
Heptachlor Epoxide	1.7	U	J	U	J	U	J				
Endosulfan I	1.7	U	J	U	J	U	J				
Dieldrin	3.3	U	J	R		U	J				
4,4'-DDE	3.3	U	J	180	DJ	U	J				
Endrin	3.3	U	J	300 D	JN	U	J				
Endosulfan II	3.3	U	J	R		U	J				
4,4'-DDD	3.3	U	J	R		U	J				
Endosulfan Sulfate	3.3	U	J	U	J	U	J				
4,4'-DDT	3.3	R		600 D	JN	61 D	JN				
Methoxychlor	17.0	R		U	J	U	J				
Endrin Ketone	3.3	U	J	U	J	U	J				
Endrin Aldehyde	3.3	U	J	93	DJ	U	J				
alpha-Chlordane	1.7	U	J	190	DJ	U	J				
gamma-Chlordane	1.7	U	J	R		U	J				
Toxaphene	170.0	U	J	U	J	U	J				
Aroclor-1016	33.0	U	J	U	J	U	J				
Aroclor-1221	67.0	U	J	U	J	U	J				
Aroclor-1232	33.0	U	J	U	J	U	J				
Aroclor-1242	33.0	U	J	U	J	U	J				
Aroclor-1248	33.0	U	J	U	J	U	J				
Aroclor-1254	33.0	U	J	U	J	U	J				
Aroclor-1260	33.0	U	J	1800	DJ	810	DJ				

* - Value transferred from dilution analysis.
** - Analyte not detected in dilution analysis, therefore value not transferred.
U - non-detected compound
B - detected in the corresponding method blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (µg/L)

Pesticides Low Concentration	Method Detection Limit	Water BSE22 30388.01		Water BSE23 30388.02		Water BSE26 30388.03		Water BSE41 30388.10		Water BSE42 30388.08		
Percent Moisture		–		–		–		–		–		
Dilution Factor		1.0		1.0		1.0		1.0		1.0		
alpha-BHC	0.050	U	J	U	J	U	J	U	J	U	J	
beta-BHC	0.050	U	J	U	J	U	J	U	J	U	J	
delta-BHC	0.050	U	J	U	J	U	J	U	J	U	J	
gamma-BHC (Lindane)	0.050	U	J	U	J	U	J	U	J	U	J	
Heptachlor	0.050	U	J	U	J	U	J	U	J	U	J	
Aldrin	0.050	U	J	U	J	U	J	U	J	U	J	
Heptachlor Epoxide	0.050	U	J	U	J	U	J	U	J	U	J	
Endosulfan I	0.050	U	J	U	J	U	J	U	J	U	J	
Dieldrin	0.10	U	J	U	J	U	J	U	J	U	J	
4,4'-DDE	0.10	U	J	U	J	U	J	U	J	U	J	
Endrin	0.10	U	J	U	J	U	J	U	J	U	J	
Endosulfan II	0.10	U	J	U	J	U	J	U	J	U	J	
4,4'-DDD	0.10	U	J	U	J	U	J	U	J	U	J	
Endosulfan Sulfate	0.10	U	J	U	J	U	J	U	J	U	J	
4,4'-DDT	0.10	U	J	U	J	U	J	U	J	U	J	
Methoxychlor	0.50	U	J	U	J	U	J	U	J	U	J	
Endrin Ketone	0.10	U	J	U	J	U	J	U	J	U	J	
Endrin Aldehyde	0.10	U	J	U	J	U	J	U	J	U	J	
alpha-Chlordane	0.050	U	J	U	J	U	J	U	J	U	J	
gamma-Chlordane	0.050	U	J	U	J	U	J	U	J	U	J	
Toxaphene	5.0	U	J	U	J	U	J	U	J	U	J	
Aroclor-1016	1.0	U	J	U	J	U	J	U	J	U	J	
Aroclor-1221	2.0	U	J	U	J	U	J	U	J	U	J	
Aroclor-1232	1.0	U	J	U	J	U	J	U	J	U	J	
Aroclor-1242	1.0	U	J	U	J	U	J	U	J	U	J	
Aroclor-1248	1.0	U	J	U	J	U	J	U	J	U	J	
Aroclor-1254	1.0	U	J	U	J	U	J	U	J	U	J	
Aroclor-1260	1.0	U	J	U	J	U	J	U	J	U	J	

U - non-detected compound
B - detected in the corresponding method blank
J - estimated value
JN - presumptive evidence of a compound at an estimated value
R - rejected compound

RECORD OF COMMUNICATION

REGIONAL SAMPLE CONTROL CENTER

RECEIVED

OCT 0 9 1997

DATE: AUG. 29, 1997
SUBJECT: CLP Data Package for Quality Assurance Review
FROM: RSCC / ESAT
TO: George Karras, Hazardous Waste Support Section

Attached is the following ORGANIC Data Package to be reviewed for Quality Assurance

SITE KEEGAN LF

CASE# 25601

CONTRACTOR STARTW

PHASE SIP

LAB SWOK

#SAMPLES	MATRIX
17	SOIL
6	WATER

FRACTION FULL TCL

REGION II RSCC DATA TRANSFER LOG

Relinquished By Signature	Date/Time	Received By Signature	Date/Time
		John Bulich	8/21/97
John Bulich	8/29/97	George Vanderbilt	9/16/97
G. Vanderbilt	10/6/97	[illegible]	10/6/97
		G. Karras	10/7/97
G. Karras	10/8/97		

(over for instructions) revised 7/96

p. 30

SOP NO. HW-6

Revision #11

May 1996

CLP ORGANICS DATA REVIEW
AND PRELIMINARY REVIEW
(CLP/SOW OLMO 3.2)

By: George Karras Date: 6/12/96
George Karras, Work Assignment Manager/Chemist
Toxic and Hazardous Waste Section

By: Karen Taylor Date: 6/17/96
Karen Taylor, Chemist
Toxic and Hazardous Waste Section

CONCURRED BY: Kevin W. Kubik Date: 6/18/96
Kevin Kubik, Chief
Toxic and Hazardous Waste Section

APPROVED BY: Robert A. Runyon Date: 6/18/96
Robert Runyon, Chief
Monitoring Management Branch

TABLE OF CONTENTS

INTRODUCTION:

Scope and Applicability 1
Summary of Method 1
Reviewer Qualifications 1

DEFINITIONS:

Acronyms 2
Data Qualifiers 3

PACKAGE COMPLETENESS AND DELIVERABLES:

1.0 Chain of Custody and Sampling Trip Report 4
2.0 Data Completeness and Deliverables 4
3.0 Cover Letter SDG Narrative 5
4.0 Data Validation Checklist 6

PART A: VOA ANALYSES

1.0 Sample Conditions/Problems 7
2.0 Holding Times 7
3.0 System Monitoring Compound (SMC) Recovery (Form II VOA) 9
4.0 Matrix Spikes (Form III VOA) 11
5.0 Blanks (Form IV VOA) 11
6.0 Contamination 13
7.0 GC/MS Instrument Performance Check (Form V VOA) . . . 15
8.0 Target Compound List (TCL) Analytes (FORM I VOA) . . . 16
9.0 Tentatively Identified Compounds (TIC) 18
10.0 Compound Quantitation and Reported Detection Limits . 19
11.0 Standards Data (GC/MS) 20
12.0 GC/MS Initial Calibration (Form VI VOA) 20
13.0 GC/MS Continuing Calibration (Form VII VOA) 21
14.0 Internal Standard (Form VIII VOA) 23
15.0 Field Duplicates 24

PART B: BNA ANALYSES

1.0 Sample Conditions/Problems 25
2.0 Holding Times 25
3.0 Surrogate Recovery (Form II SV) 26
4.0 Matrix Spikes (Form II SV) 28
5.0 Blanks (Form IV SV) 29
6.0 Contamination 30
7.0 GC/MS Instrument Performance Check (Form V SV) 32
8.0 Target Compound List (TCL) Analytes (FORM I SV) . . . 33
9.0 Tentatively Identified Compounds (TIC) 35
10.0 Compound Quantitation and Reported Detection Limits . 36
11.0 Standards Data (GC/MS) 36
12.0 GC/MS Initial Calibration (Form VI SV) 37

13.0 GC/MS Continuing Calibration (Form VII SV) 38
14.0 Internal Standard (Form VIII SV) 39
15.0 Field Duplicates 41

PART C: PESTICIDE/PCB ANALYSIS

1.0 Sample Conditions/Problems 42
2.0 Holding Times 42
3.0 Surrogate Recovery (Form II PEST) 43
4.0 Matrix Spikes (Form III PEST) 45
5.0 Blanks (Form IV PEST) 46
6.0 Contamination 47
7.0 Calibration and GC performance 49
8.0 Analytical Sequence Check (Form VIII PEST) 55
9.0 Cleanup Efficiency Verification (Form IX PEST) 56
10.0 Pesticide/PCB Identification (Form X PEST) 57
11.0 Target Compound List (TCL) Analytes 59
12.0 Compound Quantitation and Reported Detection Limits . 60
13.0 Field Duplicates 62

CLP Data Assessment . . . . . Attachment 1

Organic Regional Data Assessment Summary Form . . . Attachment 2

Data Rejection Summary Form . . . . . Attachment 3

INTRODUCTION

Scope and Applicability

This SOP offers detailed guidance in evaluating laboratory data generated according to the methods in the "USEPA Contract Laboratory Program Statement of Work for Organics Analysis OLM03.2," August 1994. The validation methods and actions discussed in this document are based on the requirements set forth in the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994. This document attempts to cover technical as well as contractual problems specific to each fraction and sample matrix; however, situations may arise where data limitations must be assessed based on the reviewer's professional judgement.

In addition to technical requirements, contractual requirements are also covered in this document. While it is important that instances of contract non-compliance be addressed in the Data Assessment, the technical criteria are always used to qualify the analytical data.

Summary of Method

To ensure a thorough evaluation of each result in a data case, the reviewer must complete the checklist within this SOP, answering specific questions while performing the prescribed "ACTIONS" in each section. Qualifiers (or flags) are applied to questionable or unusable results as instructed. The data qualifiers discussed in this document are defined on page 4 of the National Functional Guidelines mentioned above.

The reviewer must prepare a detailed data assessment to be submitted along with the completed SOP checklist. The Data Assessment must list all data qualifications, reasons for qualifications, instances of missing data and contract non-compliance. This information is further summarized on the Organic Regional Data Assessment Summary and Data Rejection Summary forms (see attached).

CADRE reports, when available, are to be incorporated into the Data Assessment. To generate CADRE reports for a particular SDG, follow the SOP for Validating RAS/CLP Data Cases with MAGIC, CARD and CADRE (see attached).

Reviewer Qualifications

This SOP is intended for use by organic data validators who have successfully completed the USEPA Region II data validation training program. Data reviewers must possess a working knowledge of the USEPA Statement of Work and National Functional Guidelines mentioned above.

DEFINITIONS

Acronyms

BFB - bromofluorobenzene
BHC - benzene hexachloride
BNA - base neutral acid
CADRE - Computer Aided Data Review and Evaluation
CARD - CLP Analytical Results Database
CCS - contract compliance screening
CLASS - Contract Laboratory Analytical Services Support
CLP - Contract Laboratory Program
CRQL - Contract Required Quantitation Limit
%D - percent difference
DCB -decachlorobiphenyl
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenylethane
DDT - dichlorodiphenyltrichloroethane
GC - gas chromatography
GC/EC - gas chromatograph/electron capture detector
GC/MS - gas chromatograph/mass spectrometer
GPC - gel permeation chromatography
IS - internal standard
kg - kilogram
µg - microgram
MAGIC - Mainframe Access Graphical Interface with CARD
MS - matrix spike
MSD - matrix spike duplicate
ℓ - liter
mℓ - mililiter
PCB - polychlorinated biphenyl
PE - performance evaluation
PEM - Performance Evaluation Mixture
QC - quality control
RAS - Routine Analytical Services
RIC - reconstructed ion chromatogram
RPD - relative percent difference
RRF - relative response factor
$\overline{RRF}$ - average relative response factor (from initial calibration)
RRT - relative retention time
RSD - relative standard deviation
RT - retention time
RSCC - Regional Sample Control Center
SDG - sample delivery group
SMC - system monitoring compound
SOP - standard operating procedure
SOW - Statement of Work
SVOA - semivolatile organic acid
TCL - Target Compound List
TCLP - Toxicity Characteristics Leachate Procedure
TCX -tetrachloro-m-xylene
TIC - tentatively identified compound

Acronyms (cont'd.)

TPO - technical project officer
VOA - volatile organic acid
VTSR - validated time of sample receipt
WAM - EPA Work Assignment Manager

Data Qualifiers

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J - The analyte was positively dienrified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality contrrol criteria. The presence or absence of the analyte cannot be verified.

	YES	NO	N/A

PACKAGE COMPLETENESS AND DELIVERABLES

CASE NUMBER: 25601 LABORATORY: SWOK

SITE NAME: Keegan Landfill SDG Number(s): BSE22, 46

1.0 Chain of Custody and Sampling Trip Reports

	YES	NO	N/A
1.1 Are the Traffic Reports/Chain-of-Custody Records present for all samples?	✓		

ACTION: If no, contact RSCC, or contact the WAM to obtain replacement of missing or illegible copies from the lab.

	YES	NO	N/A
1.2 Is the Sampling Trip Report present for all samples and all fractions?	✓		

ACTION: If no, contact either RSCC or ask the WAM to obtain this information from the prime contractor.

2.0 Data Completeness and Deliverables

	YES	NO	N/A
2.1 Have any missing deliverables been received and added to the data package?	✓		

NOTE: The lab is required to submit data for only two analyses, for each fraction. (i.e., the original sample and one dilution, or the most concentrated dilution analyzed and one further dilution.)

ACTION: Contact the WAM to obtain an explanation or resubmittal of any missing deliverables from the lab. If lab cannot provide them, note the effect on the review of the package in the Contract Problems/Non-compliance section of the Data Assessment and the Organic Regional Data Assessment Summary form.

	YES	NO	N/A
2.2 Was CLASS CCS checklist included with package?	✓		
2.3 Are there any discrepancies between the Traffic Reports/Chain-of-Custody Records, Sampling Report and Sample Tags?		✓	

	YES	NO	N/A
ACTION: If yes, contact the WAM to obtain an explanation or resubmittal of any missing deliverables from the laboratory.			
3.0 Cover Letter SDG Narrative			
3.1 Is the Narrative or Cover Letter Present?	[✓]	___	___
3.2 Are case number, SDG number and contract number contained in the SDG Narrative or cover letter (see SOW, Exhibit B, section 2.6.1)?	[✓]	___	___
3.3 Does the narrative contain the following information:			
VOA: description of trap and columns used during sample analyses?	[✓]	___	___
BNA: description of columns used during sample analyses?	[✓]	___	___
Pest: description of columns used during sample analyses?	[✓]	___	___
NOTE: As per section 6.23.3.1 SOW/p. D-11/Pest, Packed columns are not permitted.			
3.4 Does the narrative, VOA and BNA sections, contain a list of all TICs identified as alkanes and their estimated concentrations?	[✓]	___	___
3.5 Does the narrative contain a record of all cooler temperatures? If the temperature of a cooler was exceeded, > 10° C, the lab must list by fraction and sample number, all affected samples.	[✓]	___	___
3.6 Does the narrative contain a list of the pH values determined for each water sample submitted for volatile analysis (SOW Exhibit B, section 2.6.1.2)?	[✓]	___	___
3.7 Does the Case Narrative contain the statement, "verbatim", as required in Section B of the SOW?	[✓]	___	___

ACTION: If "No", to any question in this section, contact the WAM to obtain all necessary resubmittals. If information is not available, document in the Data Assessment under Contract Problems/Non-Compliance section.

	YES	NO	N/A
4.0 Data Validation Checklist			
4.1 Check the package for the following discrepancies:			
a. Is the package paginated in ascending order starting from the SDG narrative?	[✓]		
b. Are all forms and copies legible?	[✓]		
c. Is each fraction assembled in the order set forth in the SOW?	[✓]		
d. Is a Sample Data Summary Package submitted immediately preceding the Sample Data Package?	[ ]	✓	

The following checklist is divided into three parts. Part A is for any VOA analyses, Part B is for BNAs and Part C is Pesticide/PCBs.

Does this package contain:		
VOA Data?	✓	
BNA Data?	✓	
Pesticide/PCB data?	✓	

ACTION: Complete corresponding parts of checklist.

YES NO N/A

PART A: VOA ANALYSES

1.0 Sample Conditions/Problems

1.1 Do the Traffic Reports/Chain-of-Custody Records, Sampling Report or Lab Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data? √ [ ] ___

Ar-1254 Contamination
Aq pH ≈ 6-7

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data should be flagged as estimated (J). If a soil sample other than TCLP contains more than 90% water, all data should be qualified as unusable (R).

ACTION: If samples were not iced or the ice was melted upon arrival at the laboratory and the cooler temperature was elevated (> 10° C), then flag all positive results with a "J" and all non-detects "UJ".

ACTION: If both VOA vials for a sample have air bubbles or the VOA vial analyzed had air bubbles, flag all positive results "J" and all non-detects "R".

ACTION: The smallest soil size permitted is 0.5g. If any soil sample is smaller than 0.5g, document in the Data Assessment under Contract Problems/Non-Compliance.

2.0 Holding Times

2.1 Have any VOA technical holding times, determined from date of collection to date of analysis, been exceeded? ___ [√] ___

Technical Holding Times: If unpreserved, aqueous samples, maintained at 4° C for aromatic hydrocarbons analysis must be analyzed within 7 days of collection. If preserved with HCl (pH < 2) and stored at 4° C, then aqueous samples must be analyzed within 14 days of collection. If uncertain about preservation, contact sampler to determine whether or not samples were preserved. The holding time for soils is 10 days from date of collection.

YES NO N/A

Table of Holding Time Violations
(See Chain-of-Custody Records)

Sample ID	Sample Matrix	Was Sample Preserved?	Date Sampled	Date Lab Received	Date Analyzed
22,23,26,39, Br	AQ	NO	7/30/97	8/1/97	8/8
4 Br	↓		↓		~~8/1~~ Br

ACTION: If technical holding times are exceeded, flag all positive results as estimated "J" and sample quantitation limits as estimated "UJ", and document in the Data Assessment that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on the sample results. At a minimum, all results must be qualified "J", but the reviewer may determine that non-detect data are unusable "R". If holding times are exceeded by more than 28 days, all non detect data are unusable "R".

NOTE: Contractual Holding Times: Analysis of water and soil/sediment samples must be completed within 10 days of Validated Time of Sample Receipt (VTSR). This requirement does not apply to Performance Evaluation (PE) samples.

ACTION: If contractual holding times are exceeded, document in the Data Assessment and on the Organic Regional Data Assessment Summary form.

NOTE: The data reviewer must note in the Data Assessment whether or not technical and contractual holding times were met.

	YES	NO	N/A
3.0 System Monitoring Compound (SMC) Recovery (Form II)			
3.1 Are the VOA SMC Recovery Summaries (Form II) present for each of the following matrices:			
a. Low Water?	[✓]		
b. Low Soil?	[✓]		
c. Med Soil?	[ ]		
3.2 Are all the VOA samples listed on the appropriate System Monitoring Compound Recovery Summary for each of the following matrices:			
a. Low Water?	[✓]		
b. Low Soil?	[✓]		
c. Med Soil?	[ ]		

ACTION: Contact the WAM to obtain an explanation or resubmittal of any missing deliverables from the laboratory. If missing deliverables are unavailable, document the effect in the Data Assessment.

3.3 Were outliers marked correctly with an asterisk?	[✓]		

ACTION: Circle all outliers with red pencil.

3.4 Was one or more VOA system monitoring compound recovery outside of contract specifications for any sample or method blank?	✓	[ ]	
If yes, were samples re-analyzed?	[✓]		
Were method blanks re-analyzed?	[ ]		✓

ACTION: If recoveries are ≥ 10%, but 1 or more compounds fail to meet SOW specifications:

1. All positive results are qualified as estimated "J".

2. Flag all non-detects as estimated detection limits "UJ" where recovery is less than the lower acceptance limit.

YES NO N/A

3. If SMC recoveries are above allowable levels, do not qualify non-detects.

If any system monitoring compound recovery is < 10%:

1. Flag all positive results as estimated "J".

2. Flag all non-detects as unusable "R".

Professional judgement should be used to qualify data that only have method blank SMC recoveries out of specification in both original and re-analyses. Check the internal standard areas.

NOTE: Contractual requirements state that if any SMC fails the acceptance criteria, the sample must be re-analyzed. If the affected sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance and in the Organic Regional Data Assessment Summary.

NOTE: The laboratory must submit the following data:

1. If SMC recoveries and internal standard responses meet the acceptance criteria in the re-analyzed sample, then the laboratory must submit only the re-analysis.

2. If an SMC recovery and/or internal standard response fails to meet the acceptance criteria upon re-analysis, then submit data from both analyses.

(Refer to section 11.4.3.2, page D-46/VOA of the SOW for more information.)

3.5 Are there any transcription/calculation errors between raw data and Form II? ___ [✓] ___

ACTION: If large errors exist, contact the WAM to obtain an explanation or resubmittal of corrected deliverables from the laboratory. Make any necessary corrections and note the effect in the Data Assessment.

	YES	NO	N/A

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present? [✓] ___ ___

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:

a. Low Water? [✓] ___ ___

b. Low Soil? [✓] ___ ___

c. Med Soil? [ ] ___ [✓]

ACTION: If any matrix spike data are missing, take the action specified in section 3.2 above.

4.3 How many VOA spike recoveries are outside QC limits?

Water	Soils
BSE22: 0 out of 10	0 out of 10
~~0~~	BSE46: ~~0~~

4.4 How many RPDs for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water	Soils
BSE22: 0 out of 5	0 out of 5
~~0~~	BSE46: ~~0~~

ACTION: No action is taken based upon MS/MSD data alone. However, using informed professional judgement, the MS/MSD results may be used in conjunction with other QC criteria to determine the need for qualification of the data.

ACTION: Circle all outliers with red pencil.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present? [✓] ___ ___

5.2 Frequency of Analysis: for the analysis of VOA TCL compounds, has a reagent/method blank been analyzed for each SDG or every 20 samples of similar matrix (low water, low soil or medium soil), whichever is more frequent? [✓] ___ ___

	YES	NO	N/A
5.3 Has a VOA method blank been analyzed at least once every twelve hours for each concentration level and GC/MS system used?	[✓]		
5.4 Was a VOA instrument blank analyzed after each sample/dilution which contained a target compound that exceeded the initial calibration range?	[✓]		
5.5 Was a VOA storage blank analyzed at the end of all samples for each SDG in a case?	[✓]		

ACTION: If any method/instrument blank data are missing, contact the WAM to obtain any missing deliverables from the laboratory. If method blank data are not available, reject "R" all associated positive data. However, using professional judgement, the data reviewer may substitute field blank or trip blank data for missing method blank data.

If any instrument blank analyzed after a sample with high concentration is missing, contact the WAM to obtain any missing deliverables from the laboratory. If the instrument blank was not analyzed or not available, inspect the chromatogram of the sample analyzed immediately after this analysis for possible carryover. Use professional judgement to determine if any contamination occurred and qualify analyte(s) accordingly.

If storage blank data is missing, contact the WAM to obtain any missing deliverables from the laboratory. If unavailable, note in the Contract Problems/Non-Compliance section of the Data Assessment.

5.6 The validator should verify that the correct identification scheme for the EPA Blank samples were used. See page B-33, section 3.3.7.3 of the SOW for further information.

	YES	NO	N/A
Was the correct identification scheme used for all VOA blanks?	[✓]		

ACTION: Contact the WAM to obtain missing deliverables from the lab, or make the required corrections on the forms. Document in the Data Assessment under Contract Problems/Non-compliance if corrections were made by the validator.

	YES	NO	N/A
5.7 Chromatography: review the blank raw data-chromatograms (RICs), quant. reports or data system printouts and spectra. Is the chromatographic performance (baseline stability) for each instrument acceptable for VOAs?	[✓]	___	___

ACTION: Use professional judgement to determine the effect on the data.

5.8 Are all detected hits for target compounds in method, instrument and storage blanks less than the CRQL for that analyte?	[✓]	___	___

Exception: Acetone and 2-butanone must be less than 5 times the CRQL, and methylene chloride must be less than 2.5 times its CRQL.

ACTION: If no, an explanation and laboratory's corrective actions must be addressed in the case narrative. If the narrative contains no explanation, then make a note in the Contract Problems/Non-Compliance section of the Data Assessment.

6.0 Contamination

NOTE: "Water blanks", "drill blanks", and "distilled water blanks" are validated like any other sample, and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

6.1 Do any method/instrument/reagent/storage blanks have positive results (TCL and/or TIC) for VOAs?	✓	[ ]	___

NOTE: When applied as directed in the table below, the contaminant concentration in these blanks are multiplied by the sample dilution factor and corrected for %moisture when necessary.

NOTE: A contaminated instrument blank is not allowable under this SOW. See page D-48/VOA, section 12.1.2.4 for additional information. Document in the Data Assessment under Contract Problems/Non-Compliance if contaminated instrument blank was submitted.

6.2 Do any field/trip/rinse blanks have positive VOA results (TCL and/or TIC)?	✓	[ ]	___

YES NO N/A

ACTION: Prepare a list of the samples associated with each of the contaminated blanks. (Attach a separate sheet.)

NOTE: All field blank results associated with a particular group of samples (may exceed one per case) must be used to qualify data. Trip blanks are used to qualify only those samples with which they were shipped and are not required for non-aqueous matrices. Blanks may not be qualified because of contamination in another blank. Field Blanks & Trip Blanks must be qualified for system monitoring compound, instrument performance criteria, spectral or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If any blanks are grossly contaminated, all associated data should be qualified as unusable "R".

For:	Flag sample result with a "U" when:	Report CRQL & qualify "U" when:	No qualification is needed when:
Methylene Chloride Acetone Toluene 2-Butanone	Sample conc. is > CRQL, but ≤ 10× blank value.	Sample conc. is < CRQL and ≤ 10× blank value.	Sample conc. is > CRQL and > 10× blank value.
Other Conta-minants	Sample conc. is > CRQL, but ≤ 5× blank value.	Sample conc. is < CRQL and ≤ 5× blank value.	Sample conc. is > CRQL and > 5× blank value.

NOTE: Analytes qualified "U" for blank contamination are still considered as "hits" when qualifying for calibration criteria.

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R".

	YES	NO	N/A
6.3 Are there field/rinse/equipment blanks associated with every sample?	[✓]	___	___

ACTION: For low level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For samples with high concentrations of suspected blank contaminants, use professional judgement to qualify these values and make a note in the Data Assessment.

Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 GC/MS Instrument Performance Check (Form V)

	YES	NO	N/A
7.1 Are the GC/MS Instrument Performance Check Forms (Form V) present for Bromofluorobenzene (BFB)?	[✓]	___	___
7.2 Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the BFB provided for each twelve hour shift?	[✓]	___	___
7.3 Has an instrument performance check been analyzed for every analytical sequence on each instrument?	[✓]	___	___

ACTION: List date, time, instrument ID, and sample numbers for which associated GC/MS tuning data are unavailable.

DATE	TIME	INSTRUMENT	SAMPLE NUMBERS

ACTION: Notify the WAM to obtain missing data, if possible. If the lab cannot provide the missing data, reject, "R", all data generated outside an acceptable twelve hour calibration interval.

	YES	NO	N/A
7.4 Have the ion abundances been normalized to m/z 95 as specified in Exhibit D, page D-56/VOA?	[✓]	___	___

NOTE: All ion abundance ratios must be normalized to m/z 96, the nominal base peak, even though the

	YES	NO	N/A
ion abundance of m/z 174 may be up to 120% that of m/z 95.			
ACTION: If mass assignment is in error, qualify all associated data as unusable "R".			
7.5 Have the ion abundance criteria been met for each instrument used?	[✓]		
ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).			
ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.			
7.6 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values, but if errors are found check more.)		[✓]	
7.7 Is the number of significant figures for the reported relative abundances consistent with the number given for each ion in the ion abundance criteria column?	[✓]		
ACTION: If large errors exist, take action as specified in section 3.5 above.			
7.8 Are the spectra of the mass calibration compound acceptable?	[✓]		
ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.			
8.0 Target Compound List (TCL) Analytes (FORM I VOA)			
8.1 Are the Organic Analysis Data Sheets (Form I VOA) present with required header information on each page, for each of the following:			
a. Samples and/or fractions as appropriate?	[✓]		
b. Matrix spikes and matrix spike duplicates?	[✓]		
c. Blanks?	[✓]		
8.2 Are the VOA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (quant. reports) included in the sample package for each of the			

	YES	NO	N/A
following:			
a. Samples and/or fractions as appropriate?	[✓]	___	___
b. Matrix spikes and matrix spike duplicates (mass spectra not required)?	[✓]	___	___
c. Blanks?	[✓]	___	___
ACTION: If any data are missing, take action specified in 3.2 above.			
8.3 Are the response factors shown in the quant. report?	[ ]	✓	___
8.4 Is chromatographic performance acceptable with respect to:			
a. Baseline stability?	[✓]	___	___
b. Resolution?	[✓]	___	___
c. Peak shape?	[✓]	___	___
d. Full-scale graph (attenuation)?	[✓]	___	___
e. Other: _____?	[ ]	___	___
ACTION: Use professional judgement to determine the acceptability of the data.			
8.5 Are the lab-generated standard mass spectra of the identified VOA compounds present for each sample?	[✓]	___	___
ACTION: If any mass spectra are missing, take action as specified in 3.2 above. If the lab does not generate its own standard spectra, document in the Contract Problems/Non-compliance section of the Data Assessment and the Organic Regional Data Assessment Summary.			
8.6 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	[✓]	___	___
8.7 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]	___	___

	YES	NO	N/A
8.8 Do sample and standard relative ion intensities agree within ±20%?	[✓]		

ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all such data should be rejected "R", flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected "U" at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.6, 8.7, and 8.8.

ACTION: When sample carry-over is suspected, use professional judgement determine if instrument cross-contamination has affected positive compound identifications.

9.0 Tentatively Identified Compounds (TIC)

	YES	NO	N/A
9.1 Are all Tentatively Identified Compound Forms (Form I Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier?	[✓]		
9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:			
a. Samples and/or fractions as appropriate?	[✓]		
b. Blanks?	[✓]		
c. Alkanes listed for each sample?	[✓]		

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "JN" qualifier to all chemically named TICs, if missing.

	YES	NO	N/A
9.3 Are any TCL compounds (from any fraction) listed as TIC compounds? (Example: 1,2- dimethylbenzene is xylene, a VOA TCL analyte, and should not be reported as a TIC.)		[✓]	

ACTION: Flag with "R" any TCL compound listed as a TIC.

9.4 Are all ions present in the reference mass

	YES	NO	N/A
spectrum with a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]		
9.5 Do TIC and "best match" standard relative ion intensities agree within ±20%?	[✓]		

ACTION: Use professional judgement to determine the acceptability of TIC identifications. If it is determined an incorrect identification was made, change the identification to "unknown," or to some less specific identification as appropriate. (Example: "C3 substituted benzene.")

Also, when a compound is not found in any blank, but is detected in a sample and is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable "R". (E.g., Common Lab Contaminants: CO_2 (M/E 44), siloxanes (M/E 73) hexane, aldol condensation products, solvent preservatives, and related by-products - see the National Functional Guidelines for further guidance.)

	YES	NO	N/A
9.6 Are TICs with responses < 10% of the internal standard (as determined by inspection of the peak areas or height) reported?		[✓]	

ACTION: If yes, cross out questionable TIC(s).

10.0 Compound Quantitation and Reported Detection Limits

	YES	NO	N/A
10.1 Are there any transcription/calculation errors in Form I results? (Check at least two positive values. Verify that the correct internal standards, quantitation ions, and RRF were used to calculate Form I results.)		[✓]	
10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture?	[✓]		

ACTION: If errors are large, take action as specified in section 3.5 above.

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample). Replace concentrations that exceeded the calibration range in the original analysis by crossing out

YES NO N/A

the "E" and its corresponding value on the original Form I and substituting the data from the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form Is not to be used, including any in the data summary package.

11.0 Standards Data (GC/MS)

11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (quant. reports) present for each initial and continuing calibration? [✓] ___ ___

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

12.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete at concentrations of 10, 20, 50, 100, 200ng for separate calibrations of low water/med soils (unheated purge) and low soils (heated purge)? [✓] ___ ___

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Were all low level soil standards, blanks and samples analyzed by heated purge? [✓] ___ ___

ACTION: If low level soil samples were not heated during purge, qualify positive hits "J" (estimated) and non-detects "R".

12.3 Are the % relative standard deviation (%RSD) values for VOAs ≤ 30% over the concentration range of the calibration? [N/A] ___ ✓ ___

NOTE: Although 11 VOA compounds have a contractual minimum RRF and no maximum %RSD, the technical acceptance criteria are the same for all analytes.

ACTION: Circle all outliers with red pencil.

ACTION: If %RSD is > 30.0%, qualify associated positive results for that analyte "J" (estimated) and non-detects using professional judgement. When %RSD is > 90%, flag all non-detects for that analyte "R" (unusable) and positive hits "J".

YES NO N/A

NOTE: Analytes previously qualified "U" for blank contamination are still considered as "hits" when qualifying for initial calibration criteria.

12.4 Are any average RRFs < 0.05? ___ [✓] ___

ACTION: Circle all outliers with red pencil.

ACTION: If the average RRF is < 0.05, then qualify associated non-detects with an "R" and flag associated positive data as estimated "J".

NOTE: Contract Requirement: The SOW allows up to two of the required analytes to fail contractual %RSD or RRF criteria, provided the %RSD is ≤ 40% and RRF is ≥ 0.010. (See Table 5, page D-59/VOA and analytes marked with a "*" on Form VI for required analytes and contractual criteria.) Technical criteria, however, are the same for all analytes.

ACTION: If more than two analytes failed %RSD or RRF criteria, document in the Data Assessment under Contract Problems/Non-Compliance and the Organic Regional Data Assessment Summary.

12.5 Are there any transcription/calculation errors in the reporting of average relative response factors (RRF) or %RSD? (Check at least 2 values, but if errors are found, check more.) ___ [✓] ___

ACTION: Circle errors with red pencil.

ACTION: If errors are large, contact the WAM to obtain an explanation/resubmittal from the lab, document in the Data Assessment under Contract Problems/Non-Compliance and in the Organic Regional Data Assessment Summary.

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for separate calibration of low water/med soil and low soil samples? [✓] ___ ___

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument? [✓] ___ ___

YES NO N/A

ACTION: If any forms are missing or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, contact the WAM to request an explanation/resubmittal from the lab. If continuing calibration data are not available, flag all associated sample data as unusable "R".

ACTION: List below all sample(s) that were not analyzed within twelve hours of the previous continuing calibration.

_____

_____

_____

13.3 Do any volatile compounds have a percent difference (%D) between the initial and continuing RRF which exceeds the ±25% criteria? ✓ [ ] ___

NOTE: Although 11 VOA compounds have a contractual minimum RRF and no maximum %D, the technical acceptance criteria are the same for all analytes.

ACTION: Circle all outliers with red pencil.

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated. When %D is > 90%, qualify all non-detects for that analyte unusable (R) and positive results estimated (J).

13.4 Are any continuing calibration RRFs < 0.05? ___ [✓] ___

ACTION: Circle all outliers with red pencil.

ACTION: If the RRF is < 0.05, qualify the associated non-detects as unusable "R" and the associated positive values "J".

NOTE: Contract Requirement: The SOW allows up to two of the required analytes to fail contractual %D and RRF criteria, provided that the %D is ≤ 40% and the RRF is ≥ 0.010. (See Table 5 pg. D-59/VOA or analytes marked with a "*" on Form VI for required analytes.) Technical criteria, however, are the same for all analytes.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Lab File ID (Standard): C25237.D Date Analyzed: 08/04/97

Instrument ID: C Time Analyzed: 1649

GC Column: DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	270230	9.89	1229449	10.89	993340	13.53
	UPPER LIMIT	540460	10.39	2458898	11.39	1986680	14.03
	LOWER LIMIT	135115	9.39	614724	10.39	496670	13.03
	EPA SAMPLE No.						
01	VBLK3	275793	9.90	1255234	10.91	990297	13.55
02	BSE27	200247	9.87	844241	10.89	507935	13.52
03	BSE31	232449	9.87	1072453	10.88	734422	13.51
04	BSE38	8030*	9.88	20127*	10.88	13622*	13.52
05	BSE43	86183*	9.87	293006*	10.87	158756*	13.51
06	BSE37	215247	9.88	997677	10.88	794859	13.51
07	BSE38RE	23210*	9.87	92981*	10.87	29787*	13.50
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Lab File ID (Standard): L27084.D Date Analyzed: 08/06/97

Instrument ID: L Time Analyzed: 1843

GC Column: DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	366771	9.08	1253506	10.27	1242418	13.53
	UPPER LIMIT	733542	9.58	2507012	10.77	2484836	14.03
	LOWER LIMIT	183386	8.58	626753	9.77	621209	13.03
	EPA SAMPLE No.						
01	VBLK5	438697	9.06	1391993	10.26	1407364	13.52
02	BSE29	325622	9.03	1006279	10.24	861627	13.51
03	BSE35RE	236793	9.02	626731*	10.23	442921*	13.50
04	BSE36RE	253616	9.03	730844	10.23	533978*	13.50
05	BSE44RE	223298	9.04	670557	10.23	466035*	13.50
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Lab File ID (Standard): L27084.D Date Analyzed: 08/06/97

Instrument ID: L Time Analyzed: 1843

GC Column:DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	366771	9.08	1253506	10.27	1242418	13.53
	UPPER LIMIT	733542	9.58	2507012	10.77	2484836	14.03
	LOWER LIMIT	183386	8.58	626753	9.77	621209	13.03
	EPA SAMPLE No.						
01	VBLK1	438697	9.06	1391993	10.26	1407364	13.52
02	BSE46	124367*	9.04	284849*	10.23	156850*	13.50
03	BSE47	249961	9.02	689142	10.23	455313*	13.49
04	BSE48	346830	9.02	1152751	10.23	819137	13.50
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

	YES	NO	N/A
ACTION: If more than two analyt failed %D and RRF, criteria document in th sesment under contract Problems/Non-C on the Organic Regional Data A mary form.			
13.5 Are there any transcripti errors in the reporting of RRF or %: continuing RRFs? (Check if errors are found, chec		✓	
ACTION: Circle errors with red			
ACTION: If errors are large, co an explanation/resubmit document in the Data As Problems/Non-Compliance			
14.0 Internal Standard (Form VIII)			
14.1 Are the internal standard every sample and blank wi limits (-50% to +100%) for calibration?		✓	
If no, was the sample re-			

ACTION: 1. Circle all outliers w

2. List all the outlier

Sample #	Internal Std.
05E38, 43, 38RE,	IS1-IS3
28, 28MS, 35,	
36, 44, 35RE,	
36RE, 44RE, 46, 46RE, 47MSD	

(Attach additional
or attach copi

ACTION: If any sample was not r
the Data Assessment und
Problems/Non-Compliance

ACTION: 1. If the internal standard ar is
outside the upper or lower lim with
all positive results quantitated with this

YES NO N/A

internal standard.

2. Do not qualify non-detects when associated IS area counts are > 100%.

3. If the IS area in the sample is below the "lower limit," < 50%, qualify all analytes associated with that IS estimated, "J". If the area counts are extremely low, < 25% of the area in the 12 hour standard, or if performance exhibits a major abrupt drop- off, flag all associated non-detects as unusable, "R", and positive hits estimated, "J".

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard? [✓] ___ ___

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

NOTE: Contractual requirements state that if any internal standard fails the acceptance criteria, the sample must be re-analyzed. If the affected sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

NOTE: See Notes in section 3.4, page 7 for a description of sample data the laboratory must submit.

15.0 <u>Field Duplicates</u>

15.1 Were any field duplicates submitted for VOA analysis? [✓] ___ ___

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Lab File ID (Standard): L26983.D Date Analyzed: 08/03/97

Instrument ID: L Time Analyzed: 2257

GC Column:DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	281029	9.12	945154	10.30	887009	13.58
	UPPER LIMIT	562058	9.62	1890308	10.80	1774018	14.08
	LOWER LIMIT	140514	8.62	472577	9.80	443504	13.08
	EPA SAMPLE No.						
01	VBLK2	315685	9.13	978302	10.32	980154	13.60
02	BSE28	160485	9.08	548356	10.29	363249*	13.57
03	BSE28MS	149689	9.13	432332*	10.34	354915*	13.60
04	BSE28MSD	204370	9.12	603526	10.32	456184	13.59
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Lab File ID (Standard): L27044.D Date Analyzed: 08/05/97

Instrument ID: L Time Analyzed: 1349

GC Column: DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	260484	9.08	847322	10.27	851314	13.54
	UPPER LIMIT	520968	9.58	1694644	10.77	1702628	14.04
	LOWER LIMIT	130242	8.58	423661	9.77	425657	13.04
	EPA SAMPLE No.						
01	VBLK4	241443	9.06	760949	10.25	752440	13.52
02	BSE43RE	165436	9.06	471106	10.26	369467*	13.54
03	BSE30	214828	9.05	602316	10.25	491013	13.52
04	BSE32	186629	9.05	647676	10.25	481963	13.51
05	BSE33	225106	9.05	796415	10.26	676895	13.54
06	BSE34	181173	9.05	698830	10.25	482352	13.52
07	BSE35	137367	9.05	424940	10.24	318712*	13.52
08	BSE36	109505*	9.05	327533*	10.25	197696*	13.52
09	BSE44	72732*	9.04	188341*	10.24	116262*	13.53
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Lab File ID (Standard): C25331.D Date Analyzed: 08/07/97

Instrument ID: C Time Analyzed: 0956

GC Column:DB-624 ID: 0.53 (mm) Heated Purge: (Y/N) Y

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(CBZ) AREA #	RT #
	12 HOUR STD	134594	9.77	649653	10.78	538347	13.42
	UPPER LIMIT	269188	10.27	1299306	11.28	1076694	13.92
	LOWER LIMIT	67297	9.27	324826	10.28	269174	12.92
	EPA SAMPLE No.						
01	VBLK2	140734	9.81	625977	10.81	515038	13.45
02	BSE46RE	51659*	9.79	202119*	10.80	75906*	13.41
03	BSE47MS	84528	9.77	387510	10.78	236195*	13.42
04	BSE47MSD	54380*	9.78	212344*	10.79	112245*	13.42
05	VHBLK1	119603	9.75	584950	10.77	469031	13.40
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

YES NO N/A

PART B: BNA ANALYSES

1.0 Sample Conditions/Problems

1.1 Do the Traffic Reports/Chain-of-Custody records or laboratory SDG Narrative indicate any problems with sample receipt, condition of samples, analytical problems or special notations affecting the quality of the data? ✓ [ ] ___

↑ Cooler temp.

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data should be flagged as estimated "J". If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable "R".

ACTION: If samples were not iced or if the ice was melted upon arrival at the laboratory and the temperature of the cooler was elevated (> 10° C), flag all positive results "J" and all non-detects "UJ".

2.0 Holding Times

2.1 Have any BNA technical holding times, determined from date of collection to date of extraction, been exceeded? ___ [✓] ___

Technical Holding Time: Continuous extraction of water samples for BNA analysis must be started within seven days of the date of collection. Soil/sediment samples must be extracted within 7 days of collection. Extracts must be analyzed within 40 days of the date of extraction.

Table of Holding Time Violations
(See Chain-of-Custody Records)

Sample Analyzed	Sample Matrix	Date Sampled	Date Lab Received	Date Extracted	Date Analyzed

YES NO N/A

ACTION: If technical holding times were exceeded, flag all positive results as estimated (J) and sample quantitation limits as estimated (UJ), and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon reanalysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of additional storage on sample results. At a minimum, all results should be qualified "J", but the reviewer may determine that non-detect data are unusable "R". If holding times were exceeded by more than 28 days, all non-detect data must be qualified "R", unusable.

NOTE: Contractual Holding Times: Extraction of water samples must be started within 5 days VTSR. Soil/sediment samples must be extracted within 10 days of VTSR. This requirement does not apply to Performance Evaluation (PE) samples. Water and soil/sediment extracts must be analyzed within 40 days following extraction.

ACTION: If contractual holding times are exceeded, document in the Data Assessment and on the Organic Regional Data Assessment Summary form.

NOTE: The data reviewer must note in the Data Assessment whether or not **technical and contractual** holding times were met.

3.0 Surrogate Recovery (Form II)

3.1 Are BNA Surrogate Recovery Summaries (Form II) present for each of the following matrices:

a. Low Water? [✓] ___ ___

b. Low Soil? [✓] ___ ___

c. Med Soil? [ ] ___ ✓

3.2 Are all the BNA samples listed on the appropriate Surrogate Recovery Summaries for each of the following matrices:

a. Low Water? [✓] ___ ___

b. Low Soil? [✓] ___ ___

	YES	NO	N/A
c. Med Soil?	[ ]		✓

ACTION: Contact the WAM to request an explanation or resubmittal of any missing deliverables from the laboratory. If missing deliverables are unavailable, document the effect in the Data Assessment.

3.3 Were outliers marked correctly with an asterisk?	[✓]		

ACTION: Circle all outliers with red pencil.

3.4 Were two or more base-neutral OR acid surrogate recoveries out of specification for any sample or method blank?		[✓]	
If yes, were samples reanalyzed?	[ ]		✓
Were method blanks reanalyzed?	[ ]		✓

ACTION: If all BNA surrogate recoveries are ≥ 10%, but two within the base-neutral or acid fraction do not meet SOW specifications, for the affected fraction only (i.e. acid or base-neutral compounds):

1. Flag all positive results as estimated (J).

2. Flag all non-detects as estimated detection limits ("UJ") when recoveries are less than the lower acceptance limit.

3. Do not qualify non-detects if recoveries are greater than the upper acceptance limit.

If any base-neutral or acid surrogate has a recovery of < 10%:

1. Qualify positive results for that fraction as estimated (J).

2. Qualify non-detects for that fraction as unusable (R).

Professional judgement should be used to qualify data that have method blank surrogate recoveries out of specification in both original and reanalyses. Check the internal standard areas.

	YES	NO	N/A

NOTE: Contractual requirements state that if any surrogate fails acceptance criteria, the sample must be re-analyzed. If sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

NOTE: The laboratory must submit the following data:

1. If surrogate recoveries and internal standard responses meet the acceptance criteria in the re-analyzed sample, then the laboratory must submit only the re-analysis.

2. If surrogate recoveries and/or internal standard responses fail to meet the acceptance criteria upon re-analysis, then submit data from both analyses.

3.5 Are there any transcription/calculation errors between raw data and Form II?	___	[✓]	___

ACTION: If large errors exist, contact the WAM to request an explanation or resubmittal of corrected deliverables from the laboratory. Make necessary corrections and note errors in the Data Assessment.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present?	[✓]	___	___
4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices:			
a. Low Water?	[✓]	___	___
b. Low Soil?	[✓]	___	___
c. Med Soil?	[ ]	___	[✓]

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

4.3 How many BNA spike recoveries are outside QC limits?

Water	Soils
BS522: 3 out of 22	0 out of 22
	BS546 0

YES NO N/A

4.4 How many RPDs for matrix spike and matrix spike duplicate recoveries are outside QC limits?

Water	Soils
BSE22: 3 out of 11	0 out of 11
	0

ACTION: No action is taken based upon MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

ACTION: Circle all outliers with red pencil.

5.0 Blanks (Form IV)

5.1 Is the Method Blank Summary (Form IV) present? [✓] ___ ___

5.2 Frequency of Analysis: Has a reagent/method blank analysis been reported per 20 samples of similar matrix, or concentration level, and for each extraction batch? [✓] ___ ___

5.3 Has a BNA method blank been analyzed for each GC/MS system used? (See SOW pg. D-54/SVOA, Section 12.1.2.) [✓] ___ ___

ACTION: If any method blank data are missing, contact the WAM to obtain an explanation/resubmittal from the lab. If resubmittals are unavailable, use professional judgement to determine if the associated sample data should be qualified.

5.4 The validator should verify that the correct identification scheme for the EPA Blank samples were used. See page B-33, sec. 3.3.7.3 of the SOW for further information.

Was the correct identification scheme used for all BNA blanks? [✓] ___ ___

ACTION: Contact the WAM to obtain resubmittals from the lab or make the required corrections on the forms. Document all corrections made by the validator in the Data Assessment under Contract Problems/Non-Compliance.

	YES	NO	N/A
5.5 Chromatography: review the blank raw data - chromatograms (RICs), quant. reports or data system printouts and spectra. Is the chromatographic performance (baseline stability) acceptable for each instrument?	[✓]	___	___

ACTION: Use professional judgement to determine the effect on the data.

5.6 Are all detected hits for target compounds less than the CRQL for that analyte in all method blanks?	[✓]	___	___

Exception: Phthalate esters must be less than five times (5×) the CRQL.

6.0 Contamination

NOTE: "Water blanks", "drill blanks" and "distilled water blanks" are validated like any other sample and are not used to qualify data. Do not confuse them with the other QC blanks discussed below.

6.1 Do any method/reagent blanks have positive results (TCL and/or TIC)?	✓	[ ]	___

NOTE: Water: When applied as directed in the table below (page 29), the contaminant concentration in method/instrument/reagent blanks is multiplied by the sample dilution factor, where necessary.

Soil: If the lab has not already done so, the contaminant concentration in soil blanks is multiplied by 33 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate (1 gram for medium level soils) are used to prepare the soil reagent/method blank as instructed on page D-54/SVOA, section 12.1.3. Contact the WAM to obtain resubmittals if the soil blanks are not reported in soil units (µg/kg).

6.2 Do any field/rinse blanks have positive BNA results (TCL and/or TIC)?	✓	[ ]	___

ACTION: Prepare a list of samples associated with each contaminated blank. (Attach a separate sheet.)

NOTE: All field blank results associated to a particular group of samples (may exceed one per case) must be

YES NO N/A

used to qualify sample data. Do not convert field blank results to account for the difference in soil CRQLs. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, spectral, instrument performance or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks. If gross contamination exists, all data in the associated samples should be qualified as unusable "R".

For:	Flag sample result with a "U" when:	Report CRQL & qualify "U" when:	No qualification is needed when:
Common Phthalate-Esters	Sample conc. is > CRQL, but ≤ 10× blank value.	Sample conc. is < CRQL and ≤ 10× blank value.	Sample conc. is > CRQL and > 10× blank value.
Other Conta-minants	Sample conc. is > CRQL, but ≤ 5× blank value.	Sample conc. is < CRQL and ≤ 5× blank value.	Sample conc. is > CRQL and > 5× blank value.

NOTE: Analytes qualified "U" for blank contamination are still treated as "hits" when qualifying for calibration criteria.

ACTION: For TIC compounds, if the concentration in the sample is less than five times the concentration in the most contaminated associated blank, flag the sample data "R" (unusable).

6.3 Are there field/rinse/equipment blanks associated with every sample? [ ] ✓ ___

ACTION: For low level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For analytes with high concentration, use professional judgement on qualification of these values and make a note in the Data Assessment.

Exception: samples taken from a drinking water tap do not have associated field blanks.

	YES	NO	N/A

7.0 GC/MS Instrument Performance Check

		YES	NO	N/A
7.1	Are the GC/MS Instrument Performance Check Forms (Form V) present for Decafluorotriphenylphosphine (DFTPP)?	[✓]		
7.2	Are the enhanced bar graph spectrum and mass/charge (m/z) listing for the DFTPP provided for each twelve hour shift?	[✓]		
7.3	Has an instrument performance check solution been analyzed for every twelve hours of sample analysis per instrument?	[✓]		

ACTION: List date, time, instrument ID, and sample number for which no associated GC/MS tuning data are valid.

SAMPLE NUMBERS	DATE	TIME	INSTRUMENT ID

ACTION: If the WAM cannot obtain missing data from the lab, reject "R" all data generated outside an acceptable twelve hour calibration interval.

		YES	NO	N/A
7.4	Have the ion abundances been normalized to m/z 198 (see SOW, page D-61/SVOA)?	[✓]		

NOTE: All ion abundance ratios must be normalized to m/z 198, the nominal base peak, even though the ion abundance of m/z 442 may up to 110% that of m/z 198.

ACTION: If mass assignment is in error, flag all associated sample data as unusable "R".

		YES	NO	N/A
7.5	Have the ion abundance criteria been met for each instrument used?	[✓]		

ACTION: List all data which do not meet ion abundance criteria (attach a separate sheet).

	YES	NO	N/A
ACTION: If ion abundance criteria are not met, the Region II TPO must be notified.			
7.6 Are there any transcription/calculation errors between mass lists and Form Vs? (Check at least two values, but if errors are found check more.)	___	[✓]	___
7.7 Is the number of significant figures for the reported relative abundances consistent with the number given for each ion in the ion abundance criteria column?	[✓]	___	___
ACTION: If large errors exist, take action as specified in section 3.5 above.			
7.8 Are the spectra of the mass calibration compound acceptable?	[✓]	___	___
ACTION: Use professional judgement to determine whether associated data should be accepted, qualified, or rejected.			

8.0 Target Compound List (TCL) Analytes (FORM I SV)

8.1 Are the Organic Analysis Data Sheets (Form I SV) present with required header information on each page, for each of the following:			
a. Samples and/or fractions as appropriate?	[✓]	___	___
b. Matrix spikes and matrix spike duplicates?	[✓]	___	___
c. Blanks?	[✓]	___	___
8.2 Has GPC cleanup been performed on all soil/sediment sample extracts?	[✓]	___	___
ACTION: If data suggests that GPC was not performed, use professional judgement. Make note in Contract Problems/Non-Compliance section of the Data Assessment and the Organic Regional Data Assessment Summary.			
8.3 Are the BNA Reconstructed Ion Chromatograms, the mass spectra for the identified compounds, and the data system printouts (quant. reports) included in the sample package for each of the following:			
a. Samples and/or fractions as appropriate?	[✓]	___	___

	YES	NO	N/A
b. Matrix spikes and matrix spike duplicates (mass spectra not required)?	[✓]		
c. Blanks?	[✓]		
ACTION: If any data are missing, take action specified in 3.2 above.			
8.4 Are the response factors shown in the quant. report?	[ ]	✓	
8.5 Is chromatographic performance acceptable with respect to:			
Baseline stability?	[✓]		
Resolution?	[✓]		
Peak shape?	[✓]		
Full-scale graph (attenuation)?	[✓]		
Other: _____?	[ ]		
ACTION: Use professional judgement to determine the acceptability of the data.			
8.6 Are lab-generated standard mass spectra of identified BNA compounds present for each sample?	[✓]		
ACTION: If any mass spectra are missing, take action specified in 3.2 above. Note under Contract Non-compliance if lab does not generate their own standard spectra. If spectra are missing, reject all positive data.			
8.7 Is the RRT of each reported compound within 0.06 RRT units of the standard RRT in the continuing calibration?	[✓]		
8.8 Are all ions present in the standard mass spectrum at a relative intensity greater than 10% also present in the sample mass spectrum?	[✓]		
8.9 Do sample and standard relative ion intensities agree within ±20%?	[✓]		
ACTION: Use professional judgement to determine acceptability of data. If it is determined that incorrect identifications were made, all			

YES NO N/A

such data should be rejected "R", flagged "N" (presumptive evidence of the presence of the compound) or changed to not detected "U" at the calculated detection limit. In order to be positively identified, the data must comply with the criteria listed in 8.7, 8.8, and 8.9.

ACTION: When sample carry-over is a possibility, professional judgement should be used to determine if instrument cross-contamination has affected any positive compound identification.

9.0 Tentatively Identified Compounds (TIC)

9.1 Are all Tentatively Identified Compound Forms (Form I, Part B) present; and do listed TICs include scan number or retention time, estimated concentration and "JN" qualifier? [✓] ___ ___

9.2 Are the mass spectra for the tentatively identified compounds and associated "best match" spectra included in the sample package for each of the following:

a. Samples and/or fractions as appropriate? [✓] ___ ___

b. Blanks? [✓] ___ ___

c. Alkanes listed for each sample? [✓] ___ ___

ACTION: If any TIC data are missing, take action specified in 3.2 above.

ACTION: Add "N" qualifier to all chemically named TICs, if missing.

9.3 Are any TCL compounds (from any fraction) listed as TIC compounds? (Example: 1,2-dimethylbenzene is xylene - a VOA TCL - and should not be reported as a TIC.) ___ [✓] ___

ACTION: Flag with "R" any TCL compound listed as a TIC.

9.4 Are all ions present in the reference mass spectrum with a relative intensity greater than 10% also present in the sample mass spectrum? [ ] [✓] ___

9.5 Do TIC and "best match" standard relative ion intensities agree within ±20%? [ ] [✓] ___

	YES	NO	N/A

ACTION: Use professional judgement to determine the acceptability of TIC identifications. If it is determined that an incorrect identification was made, change the identification to "unknown," or to some less specific identification (example: "C3 substituted benzene") as appropriate. Also, when a compound is not found in any blank, but is a suspected artifact of a common laboratory contaminant, the result should be qualified as unusable, "R".

9.6 Are any TICs with responses < 10% of the internal standard (as determined by inspection of the peak areas or height) reported? [✓]

ACTION: If yes, cross out questionable TIC(s).

10.0 Compound Quantitation and Reported Detection Limits

10.1 Are there any transcription/calculation errors in Form I results? (Check at least two positive values. Verify that the correct internal standard, quantitation ion, and RRF were used to calculate Form I result.) [✓]

10.2 Are the CRQLs adjusted to reflect sample dilutions and, for soils, sample moisture? [✓]

ACTION: If errors are large, take action as specified in section 3.5 above.

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQL data from the diluted sample analysis). Replace concentrations that exceed the calibration range in the original analysis by crossing out the "E" and its associated value on the original Form I and substituting the data from the analysis of the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form Is that should not be used, including any in the summary package.

11.0 Standards Data (GC/MS)

11.1 Are the Reconstructed Ion Chromatograms, and data system printouts (quant. reports) present for initial and continuing calibration? [✓]

	YES	NO	N/A

ACTION: If any calibration standard data are missing, take action specified in 3.2 above.

12.0 GC/MS Initial Calibration (Form VI)

12.1 Are the Initial Calibration Forms (Form VI) present and complete for the BNA fraction? [✓] ___ ___

ACTION: If any calibration standard forms are missing, take action specified in 3.2 above.

12.2 Are the % relative standard deviation (%RSD) values for BNAs ≤ 30% over the concentration range of the calibration? [ ] ✓ ___

ACTION: Circle all outliers with red pencil.

NOTE: Although 21 BNA compounds have a contractual minimum RRF and no maximum %RSD, the technical criteria are the same for all analytes.

NOTE: Eight BNA compounds do not require a 20ng standard. Refer to SOW section 7.2.4.5.1, page D-15/SVOA for a list of required compounds and contractual criteria.

ACTION: If the %RSD is > 30.0%, qualify positive results for that analyte "J" and non-detects using professional judgement. When %RSD is > 90%, flag all non-detect results for that analyte "R" (unusable) and all positive results "J" (estimated).

NOTE: Analytes previously qualified "U" due to blank contamination are still considered as "hits" when qualifying for calibration criteria.

12.3 Are any average RRFs < 0.05? ___ [✓] ___

ACTION: Circle all outliers with red pencil.

ACTION: If the average RRF is < 0.05 then:

1. "R" all non-detects.

2. "J" all positive results.

12.4 Are there any transcription/calculation errors in the reporting of RRFs and/or %RSDs? (Check at least two values; if errors are found check more.) ___ [✓] ___

YES NO N/A

ACTION: Circle errors with red pencil.

ACTION: If errors are large, take action as specified in section 3.5 above.

NOTE: Contract Requirement: The SOW allows up to four of the required analytes to fail contractual %RSD or RRF criteria provided the %RSD is ≤ 40% or RRF is ≥ 0.010. (See Table 5, page D-66/SVOA and analytes marked with a "*" on Form VI for a list of required analytes and contractual criteria.) Technical criteria, however, are the same for all analytes.

ACTION: If more than four analytes fail %RSD or RRF criteria, document in the Data Assessment under Contract Problems/Non-Compliance and on the Organic Regional Data Assessment Summary form.

13.0 GC/MS Continuing Calibration (Form VII)

13.1 Are the Continuing Calibration Forms (Form VII) present and complete for the BNA fraction? [✓] ___ ___

13.2 Has a continuing calibration standard been analyzed for every twelve hours of sample analysis per instrument? [✓] ___ ___

ACTION: List below all sample analyses that were not analyzed within twelve hours of a continuing calibration standard for each instrument used.

_____

_____

_____

ACTION: If any forms are missing, or no continuing calibration standard has been analyzed within twelve hours of every sample analysis, contact the WAM to obtain an explanation/resubmittal from the lab. If continuing calibration data are unavailable, flag all associated sample data as unusable "R".

13.3 Does any BNA compound have a percent difference (%D) between the initial and continuing calibration RRFs which exceeds the ±25.0% criteria? ✓ [ ] ___

YES NO N/A

ACTION: Circle all outliers with red pencil.

ACTION: Qualify both positive results and non-detects for the outlier compound(s) as estimated "J". When %D is > 90%, reject all non-detects for that analyte, "R", and qualify positive results "J" (estimated).

13.4 Are any continuing RRFs < 0.05? ___ [✓] ___

ACTION: Circle all outliers with red pencil.

ACTION: If the RRF is < 0.05, qualify as unusable (R) associated non-detects and "J" associated positive values.

NOTE: Contract Requirement: The SOW allows up to four of the required analytes to fail contractual %D and RRF criteria, provided that the %D is ≤ 40% and the RRF is ≥ 0.010. (See Table 5 page D-66/SVOA or analytes marked with a "*" on Form VI for a list of the required analytes.) Technical criteria, however, are the same for all analytes.

ACTION: If more than four analytes failed %D and RRF criteria, document in the Data Assessment under Contract Problems/Non-Compliance and on the Organic Regional Data Summary Form.

13.5 Are there any transcription/calculation errors in the reporting of average relative response factors (RRF) or %difference (%D) between initial and continuing RRFs? (Check at least two values, but if errors are found, check more.) ___ [✓] ___

ACTION: Circle errors with red pencil.

ACTION: If errors are large, take action as specified in section 3.5 above.

14.0 Internal Standards (Form VIII)

14.1 Are the internal standard areas (Form VIII) of every sample and blank within the upper and lower limits (-50% to +100%) for each continuing calibration? [✓] ___ ___

If no, was sample re-analyzed? [✓] ___ ___

YES NO N/A

ACTION: 1. Circle all outliers with red pencil.

2. List all the outliers below.

ACTION: If sample was not reanalyzed, document in Data Assessment in Contract Problems/Non-Compliance.

Sample #	Internal Std.	Area	Lower/Upper Limit
			/
			/
			/
			/

(Attach additional sheets if necessary.)
(or attach copies of Form VIIIs)

ACTION: 1. If the internal standard area count is outside the "upper" or "lower" limit, flag with "J" all positive results and non-detects quantitated with this internal standard.

2. Do not qualify non-detects associated with IS area > 100%.

3. If the IS area in the sample is < 50%, qualify all analytes associated with that IS estimated (J). If area counts are extremely low (< 25% of the area in the 12 hour standard), or if performance exhibits a major abrupt drop-off, flag all associated non-detects as unusable (R) and positive hits estimated (J).

14.2 Are the retention times of the internal standards within 30 seconds of the associated calibration standard? [✓] ___ ___

ACTION: Professional judgement should be used to qualify data if the retention times differ by more than 30 seconds.

NOTE: Contractual requirements state that if any internal standard fails the acceptance criteria, the sample must be re-analyzed. If the affected sample was not re-analyzed, document in the Data Assessment under Contract Problems/Non-Compliance.

YES NO N/A

NOTE: See Notes in section 3.4, page 24 for a description of sample data the laboratory must submit.

15.0 Field Duplicates

15.1 Were any field duplicates submitted for BNA analysis? [✓] ___ ___

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

YES NO N/A

PART C: PESTICIDE/PCB ANALYSIS

1.0 Sample Conditions/Problems

1.1 Do the Traffic Reports/Chain-of-Custody Records or SDG Narrative indicate any problems with sample receipt, condition of the samples, analytical problems or special circumstances affecting the quality of the data? ✓ [✓]

↑ cooler temp

ACTION: If any sample analyzed as a soil, other than TCLP, contains 50% - 90% water, all data should be qualified as estimated "J". If a soil sample, other than TCLP, contains more than 90% water, all data should be qualified as unusable "R".

ACTION: If samples were not iced, or if the ice was melted upon arrival at the laboratory, and the temperature of the cooler was elevated > 10^0 C, flag all positive results "J" and all non-detects "UJ".

ACTION: Check aqueous extraction log for sample pH, if adjustment was needed, it should have been noted in the SDG Narrative. If more information is needed, notify the WAM to contact the lab.

2.0 Holding Times

2.1 Have any PEST/PCB technical holding times, determined from date of collection to date of extraction, been exceeded? ✓ [ ]

NOTE: Technical Holding Times: Water and soil samples for PEST/PCB analysis must be extracted within 7 days of the date of collection. Extracts must be analyzed within 40 days of the date extraction.

ACTION: If technical holding times are exceeded, flag all positive results as estimated "J" and sample quantitation limits "UJ" and document in the narrative that holding times were exceeded. If analyses were done more than 14 days beyond holding time, either on the first analysis or upon re-analysis, the reviewer must use professional judgement to determine the reliability of the data and the effects of

YES NO N/A

additional storage on the sample results. At a minimum, all the data should at least be qualified "J", but the reviewer may determine that non-detects are unusable "R".

Table of Holding Time Violations
(See Chain-of-Custody Records)

Sample Analyzed	Sample Matrix	Date Sampled	Date Lab Received	Date Extracted	Date Analyzed
BSE 27,28,31	Soil	7/30/97	7/31/97	8/15/97	8/20/97
37,38,43	↓	↓	↓	↓	↓

NOTE: Contractual Holding Times: Extraction of water samples must be completed within 5 days VTSR. Soil/sediment samples must be extracted within 10 days of VTSR. This requirement does not apply to Performance Evaluation (PE) samples. Extracts of water and soil/sediment samples must be analyzed within 40 days following start of extraction.

ACTION: If contractual holding times are exceeded, document in the Data Assessment and Organic Regional Data Assessment Summary form.

NOTE: The data reviewer must note in the Data Assessment whether or not **technical and contractual** holding times were met.

3.0 Surrogate Recovery (Form II)

3.1 Are the PEST/PCB Surrogate Recovery Summaries (Form II) present for each of the following matrices:

a. Low Water? [✓] ___ ___

b. Soil? [✓] ___ ___

3.2 Are all the PEST/PCB samples listed on the appropriate Surrogate Recovery Summary for each of the following matrices:

	YES	NO	N/A
a. Low Water?	[✓]		
b. Soil?	[✓]		

ACTION: Contact the WAM to obtain an explanation or resubmittal of any missing deliverables from the laboratory. If missing deliverables are unavailable, document the effect in the Data Assessment.

3.3 Were outliers marked correctly with an asterisk?	[✓]		

ACTION: Circle all outliers with red pencil.

3.4 Were surrogate recoveries of TCX or DCB outside of the contract specification for any sample, method blank or sulfur clean-up blank (30-150%)?		[ ]	

ACTION: In the absence of matrix interference, qualification of the data is not required in the following three situations:

1. When surrogates on both columns are diluted out.

2. When one surrogate on one column was outside (either above or below) the contract limits but above 10%.

3. When the same surrogate on both columns is above the contract limit.

If the same surrogate on both columns is below the contract limit but above 10%, check chromatograms for interference. The reviewer may use professional judgement, and qualify only those analytes which elute in the region of the GC chromatogram where interference was observed.

If the same surrogate on both columns is below the contract limit but above 10% (with no interference), qualify non-detects and positive hits "J" (estimated).

If recoveries for both surrogates on both columns are below the contract limit but above 10%, flag positive results and non-detects for that sample "J".

YES NO N/A

If recoveries are above the contract limit for both surrogates on both columns, then qualify positive values "J".

If both surrogates on one column are below the contract limit but above 10%, then use the data from the other column, providing both surrogates on that column are within contract limits. The validator must check from which column the concentration is reported for each analyte. If the value is reported from the failed column, then cross it out and use the value from the other column. Document this change in the Data Assessment.

If recovery is below 10% for either surrogate on any column, qualify positive results "J" and flag non-detects "R".

3.5 Were surrogate retention times (RT) within the windows established during the initial 3-point analysis of Individual Standard Mixture A (see Form VI Pest-1)? [ ] [✓] ___

ACTION: If the RT limits are not met, positive results and non-detects for that sample may be qualified unusable, "R", based on professional judgement.

3.6 Are there any transcription/calculation errors between raw data and Form II? ___ [✓] ___

ACTION: If large errors exist, contact the WAM to obtain an explanation or resubmittal of corrected deliverables from the laboratory. Make any necessary corrections and document the effect in the Data Assessment.

4.0 Matrix Spikes (Form III)

4.1 Is the Matrix Spike/Matrix Spike Duplicate Recovery Form (Form III) present? [✓] ___ ___

4.2 Were matrix spikes analyzed at the required frequency for each of the following matrices (one MS/MSD must be performed for every 20 samples of similar matrix or concentration level):

a. Low Water? [✓] ___ ___

	YES	NO	N/A
b. Soil?	[✓]		

ACTION: If any matrix spike data are missing, take the action specified in 3.2 above.

ACTION: Circle all outliers with red pencil.

4.3 How many PEST/PCB spike recoveries are outside QC limits?

	Water	Soil
BSE22:	0 out of 12	7 out of 12
		0

4.4 How many RPDs for matrix spike and matrix spike duplicate recoveries are outside QC limits?

	Water	Soil
BSE22:	0 out of 6	3 out of 6
		0

ACTION: No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the matrix spike and matrix spike duplicate results in conjunction with other QC criteria and determine the need for some qualification of the data.

5.0 Blanks (Form IV)

5.1	Is the Method Blank Summary (Form IV) present?	[ ]		
5.2	Frequency of Analysis: Has a reagent/method blank been analyzed for each SDG, every 20 samples of similar matrix and concentration level or each extraction batch, whichever is more frequent?	[ ]		

ACTION: If any blank data are missing, take action as specified above in section 3.2. If blank data is not available, reject "R" all associated positive data. However, using professional judgement, the data reviewer may substitute field blank data for missing method blank data.

5.3 A separate Form IV should be present if part of an extraction batch required sulfur removal. In such cases some samples will be listed on two blank summary forms - once under the method

	YES	NO	N/A
blank, and once under the sulfur clean-up blank (PCBLK). Was this additional blank raw data and Form IV submitted when required?	[ ]	✓	

ACTION: If sulfur clean-up blank data and Form IV are missing, take action as specified in 3.2 above.

5.4 Has a PEST/PCB instrument blank been analyzed at the beginning of every 12 hr. period following the initial calibration sequence (minimum contract requirement)?	✓		

ACTION: If any blank data are missing, take action as specified in section 3.2 above.

5.5 Was the correct identification scheme used for all Pest/PCB blanks? (See page B-33, sec. 3.3.7.3 of the SOW for further information.)	✓		

ACTION: Contact the WAM to obtain resubmittals or make the required corrections on the forms. Document in the Data Assessment under Contract Problems/Non-Compliance all corrections made by the validator.

5.6 <u>Chromatography</u>: review the blank raw data - chromatograms, quant. reports and data system printouts. Is the chromatographic performance (baseline stability) for each instrument acceptable?	✓		

ACTION: Use professional judgement to determine the effect on the data.

6.0 Contamination

NOTE: "Water blanks", "distilled water blanks" and "drilling water blanks" are validated like any other sample and are <u>not</u> used to qualify the data. Do not confuse them with the other QC blanks discussed below.

6.1 Do any method/reagent, instrument, or cleanup blanks show positive hits for pest/PCBs?		✓	
6.2 If any method blanks and/or sulfur clean-up blanks contain "hits" for target compounds, are these hits greater than the CRQL for that			

	YES	NO	N/A
analyte?		✓	
6.3 In any instrument blanks, is the concentration of any target hit > 0.5 times CRQL for that analyte (see SOW, section 12.1.4.4.2, page D-77/PEST)?		✓	

NOTE: Most labs will report 0.5 times CRQLs on the instrument blank Form I instead of the actual method CRQLs. If the lab reported the actual CRQLs, then check if any detected hits are above 0.5 times the CRQLs reported on the Form I.

ACTION: If yes to any of the above questions: note in the Data Assessment under Contract Problems/Non-Compliance if any method or clean-up blanks contain hits > the CRQL, or of instrument blank contained hits > 0.5 times CRQL for that analyte.

6.4 Do any field/rinse blanks have positive pest/PCB results?		✓	

ACTION: Prepare a list of the samples associated with each contaminated blank. (Attach a separate sheet)

NOTE: All field blank results associated to a particular group of samples (may exceed one per case or one per day) may be used to qualify data. Do not convert <u>field blank</u> results to account for the difference in soil CRQLs. Blanks may not be qualified because of contamination in another blank. Field blanks must be qualified for surrogate, and/or calibration QC problems.

ACTION: Follow the directions in the table below to qualify TCL results due to contamination. Use the largest value from all the associated blanks.

NOTE: When applied as directed in the table below, the contaminant concentration in method/instrument/reagent/cleanup blanks is multiplied by the sample dilution factor, where necessary.

If the laboratory has not already done so, the contaminant concentration in <u>soil</u> blanks is multiplied by 33 times the sample dilution factor and corrected for %moisture (fraction of solid) where necessary. 30 grams of sodium sulfate are used to prepare each soil reagent/method blank as instructed on page D-72/PEST, section 12.1.2.3.1. Ask the WAM

YES NO N/A

to contact the laboratory if the soil blanks are not reported in soil units (µg/kg).

Flag sample result with a "U":	Report CRQL & qualify "U":	No qualification is needed:
Sample conc. > CRQL, but ≤ 5× blank.	Sample conc. < CRQL & is ≤ 5× blank value.	Sample conc. > CRQL & > 5× blank value.

NOTE: If gross blank contamination exists, all data in the associated samples should be qualified as "R", unusable.

6.5 Are there field/rinse/equipment blanks associated with every sample? [ ] ___ ___

ACTION: For low level samples, note in the Data Assessment that there is no associated field/rinse/equipment blank. For analytes with high concentrations, use professional judgement to qualify these values and document in the Data Assessment.

Exception: samples taken from a drinking water tap do not have associated field blanks.

7.0 Calibration and GC Performance

7.1 Are the following Gas Chromatograms and Data Systems Printouts for both columns present for all samples, blanks and MS/MSD:

a. Peak resolution check? [✓] ___ ___

b. Performance evaluation mixtures? [✓] ___ ___

c. Aroclor 1016/1260? [✓] ___ ___

d. Aroclors 1221, 1232, 1242, 1248, 1254? [✓] ___ ___

e. Toxaphene? [✓] ___ ___

f. Low points individual mixtures A & B? [✓] ___ ___

g. Med points individual mixtures A & B? [✓] ___ ___

h. High points individual mixtures A & B? [✓] ___ ___

	YES	NO	N/A
i. Instrument blanks?	[✓]		
j. Were the appropriate GC columns used as specified on pg. D-11/PEST, sections 6.23.3.1 to 6.23.3.7, in the SOW?	[✓]		
7.2 Do the chromatograms for all Individual Standard Mixtures and PEM analyses display single component analytes at > 10% but < 100% of full scale (see sections 9.3.5.8.1 thru 9.3.5.8.4, pages D-32 & 33/PEST)?	[✓]		
Have chromatograms for Individual Standard Mixtures and PEM analyses been replotted, showing scaling factor(s), to meet the above requirements when necessary?	[✓]		

NOTE: All standard chromatograms must clearly display all peaks at > 10% but < 100% of full scale, and replotted if necessary to accommodate peaks not properly scaled in the initial chromatogram(s). Both the initial and replotted chromatograms must be submitted with the data package.

ACTION: If all single component peaks are not clearly displayed on chromatograms for all Individual Standard Mixtures and PEM analyses, notify the WAM to obtain resubmittal of the necessary data.

	YES	NO	N/A
7.3 Are Forms VI PEST 1-7 present and complete for each column and each analytical sequence?	[✓]		

ACTION: If no, take action as specified in 3.2 above.

	YES	NO	N/A
7.4 Are there any transcription/ calculation errors between raw data and Forms VI?		[✓]	

ACTION: If large errors exist, take action as specified in section 3.6 above.

	YES	NO	N/A
7.5 Do all standard retention times, including each pesticide in each level of Individual Mixtures A & B, fall within the windows established during the Initial Calibration (see Form VI PEST-1)?	[ ]	[✓]	

ACTION: If no, all samples in the entire analytical sequence are potentially affected. Check to see if the chromatograms contain peaks within an expanded window surrounding the expected

YES NO N/A

retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised RT window, qualify all positive results "JN" and non-detects as unusable (R). For aroclors, the RT may be outside the window, but the aroclor may still be identified from its distinctive pattern.

7.6 Are the linearity criteria for the initial analyses of Individual Standards A & B within limits for both columns? (%RSD must be ≤ 25.0 for alpha and delta BHC, ≤ 30.0 for the two surrogates and ≤ 20% for all other analytes.) [ ] ✓ ___

NOTE: Contractual requirements allow up to two single component TCL compounds, but not surrogates, on each column to exceed the criteria provided the %RSD is ≤ 30%. (See page D-28/Pest, sec. 9.2.5.7 in the SOW.) Technical criteria, however, are the same for all analytes.

ACTION: If technical criteria were not met, qualify all associated positive results generated during the entire analytical sequence "J" and all non-detects "UJ". When %RSD > 90%, flag all non-detect results for that analyte "R" (unusable).

ACTION: If more than two analytes failed %RSD, document in the Data Assessment Contract Problems/Non-Compliance section and Organic Regional Data Assessment Summary form.

7.7 Is the resolution between each pair of adjacent peaks in the Resolution Check Mixture ≥ 60.0% for both columns? (See Form VI PEST-4.) [✓] ___ ___

ACTION: If no, qualify positive results for compounds that were not adequately resolved "J". Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable (R).

7.8 Is Form VI PEST-5 present and complete for each Performance Evaluation Mixture (PEM) standard used for <u>both initial and continuing</u> calibrations (see SOW section 3.12.4.4, page B-52)? [✓] ___ ___

	YES	NO	N/A
ACTION: If no, take action as specified in section 3.2 above.			
7.9 For each PEM standard, was the resolution between each pair of adjacent peaks ≥ 90.0% on both columns?	✓		
ACTION: Qualify positive results for compounds not adequately resolved estimated (J). Qualify non-detects based on professional judgement.			
7.10 Have Forms VI PEST-6 & PEST-7 been completed for all midpoint Individual Standards A and B used for initial calibration?	✓		
For each standard, was the resolution between each pair of adjacent peaks ≥ 90.0% on both columns?	✓		
ACTION: If no, qualify positive results for compounds that were not adequately resolved estimated (J). Use professional judgement to determine if non-detects which elute in areas affected by co-eluting peaks should be qualified "N" as presumptive evidence of presence or unusable "R".			
7.11 Is Form VII Pest-1 present and complete for each PEM standard analyzed during the analytical sequence for both columns?	✓		
Was the %Breakdown of DDT and Endrin calculated using the equations given on page D-26/PEST, sec. 9.2.4.8 in the SOW?	✓		
Were all pesticides and surrogates in each PEM standard within the RT windows established during the Initial Calibration?			
ACTION: If no, take action as specified in 3.2 above.			
7.12 Has the individual percent breakdown for DDT/Endrin exceeded 20.0% in any PEM on either column? (See Form VII PEST-1.)			
- for 4,4'-DDT?	✓		
- for Endrin?		✓	
Has the combined percent breakdown for DDT/Endrin			

YES NO N/A

exceeded 30.0% in any PEM on either column (required for all PEM analyses)? ✓ [ ] ___

ACTION: 1. If any percent breakdown has failed the QC criteria in either PEM in steps 2 and 17 in the initial calibration sequence (page D-28/Pest, sec. 9.2.5.6 in the SOW), qualify all samples in the entire analytical sequence as described in sections 2.a, b and c below.

2. If any percent breakdown failed the QC criteria in a PEM calibration verification analysis, review data beginning with the samples which followed the last in-control standard until the next acceptable PEM and qualify the data as described below.

a. 4,4'-DDT Breakdown: If DDT breakdown was > 20.0%:

i. Qualify all positive results for DDT with "J". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT unusable, "R".

ii. Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity "JN".

b. Endrin Breakdown: If endrin breakdown was > 20.0%:

i. Qualify all positive results for endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for Endrin as unusable "R".

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity "JN".

c. Combined Breakdown: If the combined 4,4'-DDT and endrin breakdown is greater than 30.0%:

i. Qualify all positive results for DDT and Endrin with "J". If endrin was not detected, but endrin aldehyde and endrin ketone are positive, then qualify the quantitation limit for endrin as unusable

YES NO N/A

"R". If DDT was not detected, but DDD and DDE are positive, then qualify the quantitation limit for DDT as unusable "R".

ii. Qualify positive results for endrin ketone and endrin aldehyde as presumptively present at an approximated quantity "JN". Qualify positive results for DDD and/or DDE as presumptively present at an approximated quantity "JN".

7.13 Are all percent difference (%D) values for PEM analytes and surrogates on both columns ≥ -25% and ≤ +25.0%? (See Form VII PEST-1.) [ ] [✓] ___

ACTION: If no, qualify all associated positive results generated during the analytical sequence "J" and sample quantitation limits "UJ".

NOTE: If the failing PEM is part of the initial calibration, all samples are potentially affected. If the offending standard is a calibration verification, the associated samples are those which followed the last in-control standard until the next passing standard.

7.14 Is Form VII Pest-2 present and complete for each INDA and INDB calibration verification analyzed? [✓] ___ ___

ACTION: If no, take action specified in 3.2 above.

7.15 Are there any transcription/calculation errors between raw data and Form VII Pest-2? ___ [✓] ___

ACTION: If large errors exists, take action as specified in section 3.6 above.

7.16 Do all standard retention times for each INDA and INDB calibration verification fall within the RT windows established during the initial calibration sequence? (See Form VII PEST-2.) [✓] ___ ___

ACTION: If no, beginning with the samples which followed the <u>last in-control standard</u>, check to see if the chromatograms contain peaks within an expanded window surrounding the expected retention times. If no peaks are found and the surrogates are visible, non-detects are valid. If peaks are present and cannot be identified through pattern recognition or using a revised

YES NO N/A

RT window, qualify all positive results and non-detects as unusable (R).

7.17 Are all %D values for INDA and INDB calibration verification compounds ≥ -25.0% and ≤ +25.0%? [ ] ✓ ___

ACTION: If the %D is outside the ±25.0% range for any compound(s), qualify associated positive results for that compound "J" and non-detects "UJ". The "associated samples" are those which followed the last in-control standard up to the next passing standard containing the analyte(s) in question. If the %D is > 90%, flag all non-detects for that analyte "R" (unusable).

8.0 Analytical Sequence Check (Form VIII-PEST)

8.1 Is Form VIII present and complete for each column and each period of analyses? [✓] ___ ___

ACTION: If no, take action specified in 3.2 above.

8.2 Was the proper analytical sequence followed for each initial calibration and subsequent analyses, and all standards analyzed at the required frequency for each GC/EC instrument used.? (See SOW pages D-23 & D-58/PEST.) [✓] ___ ___

ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly. Generally, the effect is negligible unless the sequence was grossly altered and/or the calibration was out of QC limits.

8.3 Were all samples analyzed within a 12 hour time period beginning with the injection of an instrument blank and bracketed by acceptable analyses of the proper standards? [✓] ___ ___

ACTION: If no, use professional judgement to determine the severity of the effect on the data and qualify accordingly. Document in the Data Assessment under Contract Problems/Non-Compliance and Organic Regional Data Assessment Summary.

8.4 If a multi-component analyte was detected in a sample, was a matching multi-component standard analyzed within 72 hours of the injection of the

	YES	NO	N/A
sample and within a valid 12 hour sequence?	[✓]		

NOTE: This additional standard is for identification purposes only. Positive results for Aroclors and Toxaphene are quantitated from the initial calibration.

ACTION: If no, document in the Data Assessment under Contract Problems/Non-Compliance and on the Organic Regional Data Assessment Summary form.

9.0 Cleanup Efficiency Verification (Form IX)

	YES	NO	N/A
9.1 Is Form IX PEST-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts.)	[✓]		
Are all samples listed on the Pesticide Florisil Cartridge Check Form?	[✓]		

ACTION: If no, take action specified in 3.2 above. If data suggests florisil clean-up was not performed, document in the Data Assessment under the Contract Non-compliance section.

	YES	NO	N/A
9.2 Are percent recoveries (%REC) of the pesticide and surrogate compounds used to check the efficiency of the florisil clean-up procedure within QC limits of 80 - 120%?	[✓]		

ACTION: Qualify only the analyte(s) which failed the recovery criteria as follows:

If %REC is < 80%, qualify positive results "J" and non-detects "UJ".

If any pesticide %REC was zero, flag non-detects "R" for that compound.

Use professional judgement to qualify positive results if any recoveries are > 120%.

NOTE: Sample data should be evaluated for potential interferences if recovery of 2,4,5-trichlorophenol was > 5% in the Florisil Cartridge Performance Check analysis. Document any problems found in the Data Assessment under the Contract Problems/Non-Compliance section.

	YES	NO	N/A
9.3 If GPC Cleanup was performed (mandatory for all soil sample extracts), is Form IX Pest-2 present?	[ ]	___	___
Are all soil samples listed on Form IX Pest-2?	[ ]	___	___

ACTION: If no, take action specified in 3.2 above. If data suggests GPC clean-up was not performed when required, document in the Data Assessment under the Contract Problems/Non-Compliance section and Organic Regional Data Assessment Summary.

Are the %REC values for all pesticides in the GPC calibration solution between 80 - 110%?	[ ]	___	___

ACTION: Qualify only those analytes which failed the recovery criteria as follows:

If %REC are < 80%, qualify positive results "J" and non-detects "UJ".

If any pesticide %REC was zero, flag non-detects "R" for that compound.

Use professional judgement to qualify positive results if any recoveries are > 110%.

NOTE: An Aroclor mixture containing Aroclors 1016 and 1260 is also analyzed during GPC calibration; however, Aroclor data is not listed on Form IX PEST-2. The raw GPC data for Aroclors 1016/1260 must be evaluated for pattern similarity with previously analyzed Aroclor standards.

9.4 The validator should verify that the correct identification scheme for the EPA Blank samples were used. See page B-35, sec. 3.3.7.8 and 3.3.7.9 of the SOW for further information.

Was the correct identification scheme used for GPC and Florisil blanks?	[ ]	___	___

10.0 Pesticide/PCB Identification

10.1 Is Form X complete for every sample in which a pesticide or PCB was detected?	[ ]	___	___

ACTION: If no, take action specified in 3.2 above.

	YES	NO	N/A
10.2 Are all sample chromatograms properly scaled, attenuated, etc. as required for proper identification of single and multi-component analytes? (Refer to SOW sections 11.3.7.1 thru 11.3.7.8, page D-70/Pest for specific details.)	[ ]	✓	

NOTE: Proper verification of Pest/PCB results depends on clear, legible presentation of the raw data. Single component pesticides and all peaks chosen for quantitation of multi-component analytes must appear at less than full scale. Toxaphene and PCB patterns must be clearly visible to enable comparison with standard chromatograms.

ACTION: If retention times or apex of peaks cannot be verified, or if multi-component peak patterns cannot be discerned, contact the WAM to obtain rescaled chromatograms from the lab.

10.3 Are there any transcription/calculation errors between raw data and Forms 10A and 10B?		[✓]	

ACTION: If large errors exist, take action as specified in section 3.6 above.

10.4 Are RTs of sample compounds within the established RT windows for analyses on both columns?	[✓]		
Was GC/MS confirmation provided when required (when compound concentration is > 10 ug/mℓ in the final extract)?	[ ]		✓

ACTION: Use professional judgement to qualify positive results which were not confirmed by GC/MS analysis. Qualify as unusable (R) all positive results which were not confirmed on a second GC column. Also qualify as unusable (R) all positive results which do not meet RT window criteria, unless associated standard compounds are similarly biased. Use professional judgement to assign an appropriate quantitation limit.

10.5 Is the percent difference (%D) calculated for the positive sample results on both columns > 25.0%?	✓	[ ]	

ACTION: If the reviewer finds neither column shows interference for the positive hits, the data should be flagged as follows:

YES NO N/A

% Difference	Qualifier
0 - 25%	None
25 - 70%	"J"
70 - 100%	"JN"
> 100%	"R"
100 - 200% (Interference detected)*	"JN"
> 50% (Pesticide value is < CRQL)**	"U"

* When the reported %D is 100 - 200%, but interference is detected on either column, qualify the data with "J".

** When the reported pesticide value is lower than the CRQL, and the %D is > 50%, raise the value to the CRQL and qualify "U", undetected.

NOTE: For Aroclors, if the %D is > 50%, but the pattern of GC peaks on both columns indicates a specific Aroclor is present, qualify that Aroclor "J".

NOTE: The lower of the two values is reported on Form I. If using professional judgement, the reviewer determines that the higher result was more acceptable, the reviewer should replace the value and indicate the reason for the change in the Data Assessment.

10.6 Check chromatograms for false negatives, especially the multiple-peak compounds (Toxaphene and the PCBs). Were there any false negatives? ___ [✓] ___

ACTION: Use professional judgement to decide if the compound should be reported. If the appropriate PCB standards were not analyzed within 72 hrs. of the sample(s) in question, qualify the data unusable "R".

Also note in Data Assessment under Contract Problems/Non-Compliance if the lab failed to analyze Aroclor standards when required.

11.0 Target Compound List (TCL) Analytes

11.1 Are the Organic Analysis Data Sheets (Form I Pest) present with required header information on each page, for each of the following:

a. Samples and/or fractions as appropriate? [✓] ___ ___

b. Matrix spikes and matrix spike duplicates? [✓] ___ ___

	YES	NO	N/A
c. Blanks?	[✓]		
d. Instrument Blanks (per column & analysis)?	[✓]		
11.2 Are the Pest chromatograms and quant. reports included in the sample data package for each of the following:			
a. Samples and/or fractions as appropriate?	[✓]		
b. Matrix spikes and matrix spike duplicates?	[✓]		
c. Blanks?	[✓]		
d. Instrument Blanks (per column & analysis)?	[✓]		
ACTION: If any data are missing, take action specified in 3.2 above.			
11.3 Are the calibration factors shown in the quant. reports?	[✓]	✓	
11.4 Is chromatographic performance acceptable with respect to:			
a. Baseline stability?	[✓]		
b. Resolution?	[✓]		
c. Peak shape?	[✓]		
d. Full-scale graph attenuation?	[✓]		
e. Other: _____?	[ ]		
11.5 Were any electropositive displacement (negative peaks) or unusual peaks seen?		[✓]	
ACTION: Use professional judgement to determine the acceptability of the data. Address comments under System Performance section of the Data Assessment.			

12.0 Compound Quantitation and Reported Detection Limits

	YES	NO	N/A
12.1 Are there any transcription/calculation errors in Form I results? Check at least two positive results. Were any errors found?		[✓]	

YES NO N/A

NOTE: Single-peak pesticide results can be checked for rough agreement between quantitative results obtained on the two GC columns. Use professional judgement to decide whether a large discrepancy indicates the presence of an interfering compound. If an interfering compound is visible on the chromatogram, the lower of the two values should be reported and qualified as presumptively present at an approximated quantity "JN". This necessitates a determination of an estimated concentration on the confirmation column. The narrative should indicate that the presence of interferences has interfered with the evaluation of the second column confirmation.

12.2 Are the CRQLs adjusted to reflect sample dilutions? [✓] ___ ___

ACTION: If large errors exist, take action as specified in section 3.6 above.

ACTION: When a sample is analyzed at more than one dilution, the lowest CRQLs are used (unless a QC exceedance dictates the use of the higher CRQLs from the diluted sample). Replace concentrations which exceed the calibration range in the original analysis by crossing out the "E" value on the original Form I and substituting it with the result from the diluted sample. Specify which Form I is to be used, then draw a red "X" across the entire page of all Form I's that should not be used, including those in the data summary package.

ACTION: Quantitation limits affected by large, off-scale peaks should be qualified as unusable (R). If the interference is on-scale, the reviewer may offer an approximated quantitation limit (UJ) for each affected compound.

NOTE: If a sample required greater than a 10 times dilution, then a 10 times more concentrated analysis must also be performed and submitted (see SOW, page D-60/PEST, section 10.2.3.5).

ACTION: If a more concentrated analysis is unavailable, document in the Contract Problems/Non-Compliance section of the Data Assessment. Use professional judgement to qualify non-detects and positive hits below the CRQL.

	YES	NO	N/A
13.0 Field Duplicates			
13.1 Were any field duplicates submitted?	✓		

ACTION: Compare the reported results for field duplicates and calculate the relative percent difference.

ACTION: Any gross variation between field duplicate results must be addressed in the reviewer narrative. However, if large differences exist, identification of field duplicates should be confirmed by contacting the sampler.

DPO: [x]ACTION [x]FYI REGION II

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE/SAS NO.: 25601 LABORATORY: SWOK

SDG NO.: BSE22 DATA USER: EPA Region II

SOW: OLM03.2 REVIEW COMPLETION DATE: 10/1/97

NO. OF SAMPLES: 6 WATER 14 SOIL ____ OTHER

REVIEWER: [ ] ESD [x] ESAT [ ] OTHER, CONTRACTOR _

QC ITEM	VOA	BNA	PEST		
HOLDING TIMES	O	O	O		
GC-MS PERFORMANCE	O	O	NA		
INITIAL CALIBRATIONS	O	O	O		
CONTINUING CALIBRATIONS	O	O	X		
FIELD BLANKS(F = N/A)	O	O	O		
LABORATORY BLANKS	O	O	O		
SURROGATES	O	O	O		
MATRIX SPIKE/DUPLICATES	O	O	O		
QC SAMPLES(LCS, PVS)	NA	NA	NA		
INTERNAL STANDARDS	Z	O	NA		
COMPOUND IDENTIFICATION	O	O	M		
COMPOUND QUANTITATION	O	O	O		
SYSTEM PERFORMANCE	O	O	O		
OVERALL ASSESSMENT	Z	O	M		

O = No problems or minor problems that do not affect data usability.
X = No more than about 5% of the data points are qualified as either estimated or unusable.
M = More than about 5% of the data points are qualified as either estimated or unusable.
Z = More than about 5% of the data points are qualified as unusable.

DPO ACTION ITEMS: VOA: 1) Sampling contractor should be questioned about failure to preserve acqueous volatile samples, while marking them as preserved on COC (see Data Assessment, Sec. 11). 2) It should be determined if the lab analyzed the VOA vial with the air bubble (see Traffic Report, page 40). Further rejection of data may be required.

<u>AREAS OF CONCERN</u> **BNA:** Excessive TICs found in method blanks. Many TICs in samples flagged "B" did not correspond to those found in associated method blanks. **PEST:** PCB contamination caused problems during sample analysis. All PCB hits in these samples should be regarded as suspect, especially if these are not analytes of concern based on previous site investigations.

DATA REJECTION SUMMARY

Type of Review: Organic Date: 10/1/97 Case/SDG No.: 25601/BSE22

Site Name: Keegan Landfill Lab Name: SWOK

Reviewer's Initials: [illegible] Number of Samples: 20

Analytes Rejected Due to Exceeding Review Criteria For:

No. of Compounds/No. of Fractions (Samples)

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Rejected/Total # in All Samples
VOA(33)						79		20	79 / 660 = 12 %
ACID(14)								19	0 / 266 = 0 %
B/N(50)								19	0 / 950 = 0 %
PEST(21)			6		14			19	20 / 399 = 5 %
PCB(7)								19	0 / 133 = 0 %

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITERIA.

P-103

Analytes Estimated Due to Exceeding Review Criteria For:

No. of Compounds/No. of Fractions (Samples)

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other *	Total # of Samples	Total # Estimated/Total # in All Samples
VOA(33)							581	20	581 / 660 = 88 %
ACID(14)							266	19	266 / 266 = 100 %
B/N(50)							950	19	950 / 950 = 100 %
PEST(21)					26		353	19	379 / 399 = 95 %
PCB(7)							133	19	133 / 133 = 100 %

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITERIA.

* Elevated cooler temperature.

DPO: [ ]ACTION [ ]FYI REGION II

ORGANIC REGIONAL DATA ASSESSMENT SUMMARY

CASE/SAS NO.: 25601 LABORATORY: SWOK

SDG NO.: BSE46 DATA USER: EPA Region II

SOW: OLM03.2 REVIEW COMPLETION DATE: 10/1/97

NO. OF SAMPLES: ____ WATER 3 SOIL ____ OTHER

REVIEWER: [ ] ESD [x] ESAT [ ] OTHER, CONTRACTOR _

QC ITEM	VOA	BNA	PEST		
HOLDING TIMES	O	O	O		
GC-MS PERFORMANCE	O	O	NA		
INITIAL CALIBRATIONS	O	O	O		
CONTINUING CALIBRATIONS	O	O	X		
FIELD BLANKS(F = N/A)	O	O	O		
LABORATORY BLANKS	O	O	O		
SURROGATES	O	O	O		
MATRIX SPIKE/DUPLICATES	O	O	O		
QC SAMPLES(LCS, PVS)	NA	NA	NA		
INTERNAL STANDARDS	Z	O	NA		
COMPOUND IDENTIFICATION	O	O	X		
COMPOUND QUANTITATION	O	O	O		
SYSTEM PERFORMANCE	O	O	O		
OVERALL ASSESSMENT	Z	M	M		

O - No problems or minor problems that do not affect data usability.
X - No more than about 5% of the data points are qualified as either estimated or unusable.
M - More than about 5% of the data points are qualified as either estimated or unusable.
Z - More than about 5% of the data points are qualified as unusable.

DPO ACTION ITEMS: -

AREAS OF CONCERN **BNA:** Excessive TICs found in method blanks. Many TICs in samples flagged "B" did not correspond to those found in associated method blanks. **PEST:** PCB contamination caused problems during sample analysis. All PCB hits in these samples should be regarded as suspect, especially if these are not analytes of concern based on previous site investigations.

DATA REJECTION SUMMARY

Type of Review: Organic Date: 10/1/97 Case/SDG No.: 25601/BSE46

Site Name: Keegan Landfill Lab Name: SWOK

Reviewer's Initials: GL Number of Samples: 3

Analytes Rejected Due to Exceeding Review Criteria For:

No. of Compounds/No. of Fractions (Samples)

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other	Total # of Samples	Total # Rejected/Total # in All Samples
VOA(33)						36		3	36 / 99 = 36 %
ACID(14)								3	0 / 42 = 0 %
B/N(50)								3	0 / 150 = 0 %
PEST(21)			1		2			3	3 / 63 = 5 %
PCB(7)								3	0 / 21 = 0 %

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITERIA.

Analytes Estimated Due to Exceeding Review Criteria For:

No. of Compounds/No. of Fractions (Samples)

	Surrogates	Holding Time	Calibration	Contamination	ID	Internal Standards	Other *	Total # of Samples	Total # Estimated/Total # in All Samples
VOA(33)							63	3	63 / 99 = 64 %
ACID(14)							42	3	42 / 42 = 100 %
B/N(50)							150	3	150 / 150 = 100 %
PEST(21)					5		55	3	60 / 63 = 95 %
PCB(7)							21	3	21 / 21 = 100 %

NOTE: ASTERISK (*) INDICATES ADDITIONAL EXCEEDANCES OF REVIEW CRITERIA.

* Elevated cooler temperature.

p.105

CLP DATA ASSESSMENT

Functional Guidelines for Evaluating Organic Analysis

CASE No.: 25601 SDG No.: BSE22, 46 LABORATORY: SWOK

SITE: Keegan Landfill

DATA ASSESSMENT

The current SOP HW-6 (Revision 11) June 1996, USEPA Region II Data Validation SOP for Statement of Work OLM03.2 for evaluating organic data have been applied.

All data are valid and acceptable except those analytes rejected "R" (unusable). Due to the detection of QC problems some analytes may have the "J" (estimated), "N" (presumptive evidence for the presence of the material at an estimated value) flag. All action is detailed on the attached sheets.

The "R" flag means that the associated value is unusable. In other words, significant data bias is evident and the reported analyte concentration is unreliable.

Reviewer's Signature: [signature] Date: 10/2/1997

Verified By: [signature] Date: 10/9/1997

CLP DATA ASSESSMENT

1. HOLDING TIME:

The amount of an analyte in a sample can change with time due to chemical instability, degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid. Those analytes detected in the samples whose holding time has been exceeded will be qualified as estimated, "J". The non-detects (sample quantitation limits) will be flagged as estimated, "J", or unusable, "R", if the holding times are grossly exceeded.

The following action was taken in the samples and analytes shown due to excessive holding time.

SDG BSE22

PEST:

See CADRE Holding Time Report.

2. SURROGATES:

All samples are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. If the measured surrogate concentrations were outside contract specifications, qualifications were applied to the samples and analytes as shown below.

BSE22

VOA, BNA: All hits and non-detects were previously qualified "J" for high percent moisture. No further qualification of the data was necessary.

PEST: See CADRE SMC/Surrogates Report.

BSE46

VOA, BNA, PEST: All hits and non-detects were previously qualified "J" for high percent moisture. No further qualification of the data was necessary.

2A

Holding Time Report

SDG NO: BSE22
CASE NO: 25601

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BSE22.OAS

HOLDING TIME CRITERIA

Volatile

Preserved	Primary	Expanded
Water	14	28
Soil	14	28

	---- Aromatic ----		-- Non-aromatic --	
Unpreserved	Primary	Expanded	Primary	Expanded
Water	7	28	14	28
Soil	10	28	10	28

Semivolatile

	--- Extraction ---		---- Analysis ----	
	Primary	Expanded	Primary	Expanded
Water	7	28	40	60
Soil	7	28	40	60

Pesticide

	--- Extraction ---		---- Analysis ----	
	Primary	Expanded	Primary	Expanded
Water	7	28	40	60
Soil	7	28	40	60

DC-163: The following pesticide soil samples are outside primary extraction holding time criteria and outside contract criteria. Hits are qualified "J" and non-detects are qualified "UJ".

BSE27, BSE27DL, BSE28, BSE28DL, BSE28DLMS, BSE28DLMSD
BSE28MS, BSE28MSD, BSE31, BSE31DL, BSE37, BSE37DL
BSE38, BSE38DL, BSE43, BSE43DL

Already "J" for cooler temp.

2B

SMC/Surrogate Report

SDG NO: BSE22/BSE46
CASE NO: 25601

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BSE22.OAS

DC-35: The following volatile samples have system monitoring compound recoveries above the upper limit of the criteria window. Hits are qualified "J" and non-detects are not flagged.

BSE46RE – No hits.
BSE38RE – ↓

DC-174: The following pesticide samples have surrogate percent recoveries which exceed the upper limit of the criteria window. If %R for both surrogates on both columns are > contract limit, hits are flagged "J".

BSE27, BSE27DL, BSE28, BSE28DL, BSE28MS, BSE28MSD
BSE31, BSE31DL, BSE32, BSE33DL, BSE34DL, BSE35DL
BSE36DL, BSE37, BSE37DL, BSE38, BSE43, BSE43DL
BSE44, BSE44DL, BSE46DL, BSE47DL, BSE48DL

All samples already qualified "J" for Cooler Temp.

DC-175: The following undiluted pesticide samples have surrogate percent recoveries of less than 10%. Hits are qualified "J" and non-detects are qualified "R".

BSE28, BSE37, BSE43, BSE44

DC-176: The following diluted pesticide samples have surrogate percent recoveries of less than 10%. Professional judgement is recommended. Hits and non-detects are not flagged.

BSE27DL, BSE28DL, BSE28DLMS, BSE28DLMSD, BSE31DL, BSE32DL
BSE37DL, BSE43DL, BSE47DLMSD

DC-178: The following pesticide samples are not fully qualified for surrogate RT because of missing RT information. Visual inspection of the data is required. Samples with surrogates falling outside the RT window should be qualified based on professional judgement.

BSE27DL, BSE28, BSE28DL, BSE28DLMS, BSE28DLMSD, BSE29
BSE29DL, BSE30, BSE30DL, BSE31DL, BSE32, BSE32DL
BSE33, BSE33DL, BSE34, BSE34DL, BSE35, BSE35DL
BSE36, BSE36DL, BSE37, BSE37DL, BSE43, BSE43DL
BSE44, BSE44DL, BSE47DLMSD

CLP DATA ASSESSMENT

3. MATRIX SPIKE/SPIKE DUPLICATE, MS/MSD:

The MS/MSD data are generated to determine the long term precision and accuracy of the analytical method in various matrices. The MS/MSD may be used in conjunction with other QC criteria for additional qualification of data.

No qualification necessary.

4. BLANK CONTAMINATION:

Quality assurance (QA) blanks, i.e., method, trip, field, or rinse blanks are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Trip blanks measure cross-contamination of samples during shipment. Field and rinse blanks measure cross-contamination of samples during field operations. If the concentration of the analyte is less than 5 times the blank contaminant level (10 times for common contaminants), the analytes are qualified as non-detects, "U". The following analytes in the sample shown were qualified with "U" for these reasons:

A) Method blank contamination:

<u>SDG BSE22</u>

BNA: BSE29, 32, 34, 35 - bis(2-ethylhexyl)phthalate.

One TIC each in the following samples was rejected: BSE23, 27, 30.

Two TICs each in the following samples were rejected: BSE37, 43, 29.

Four TICs were rejected in BSE32.

Five TICs were rejected in BSE38.

CLP DATA ASSESSMENT

SDG BSE46

BNA: BSE47, 48 - bis(2-ethylhexyl)phthalate.

One TIC was rejected in BSE46.

Two TICs each were rejected in BSE47 and 48.

B) **Field or rinse blank contamination:**

Note: The field blanks collected with this case are associated with the soil samples only.

SDG BSE22

BSE28, 33, 35, 36, 36RE - Acetone.

SDG BSE46

VOA:

BSE48 - Acetone.*

* This sample was qualified due to contamination in field blank BSE42, which was analyzed in SDG BSE22.

C) **Trip blank contamination:**

SDG BSE22

BSE26 - Methylene chloride..

D) **Storage blank contamination:**

SDG BSE22, BSE46

No problems.

CLP DATA ASSESSMENT

5. MASS SPECTROMETER TUNING:

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials. Therefore, these criteria should be met in all circumstances. The tuning standard for volatile organics is (BFB) Bromofluorobenzene and for semi-volatiles Decafluorotriphenylphosphine (DFTPP).

If the mass calibration is in error, all associated data will be classified as unusable "R".

No qualification necessary.

6. CALIBRATION:

Satisfactory instrument calibration is established to ensure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of giving acceptable performance at the beginning of an experimental sequence. The continuing calibration checks document that the instrument is giving satisfactory daily performance.

A) Response Factor GC/MS:

The response factor measures the instrument's response to specific chemical compounds. The response factor for the Target Compound List (TCL) must be ≥ 0.05 in both initial and continuing calibrations. A value < 0.05 indicates a serious detection and quantitation problem (poor sensitivity). Analytes detected in the sample will be qualified as estimated, "J". All non-detects for that compound will be rejected "R".

No problems.

CLP DATA ASSESSMENT

7. CALIBRATION:

B) Percent Relative Standard Deviation (%RSD) and Percent Difference (%D):

Percent RSD is calculated from the initial calibration and is used to indicate the stability of the specific compound response factor over increasing concentration. Percent D compares the response factor of the continuing calibration check to the mean response factor (RRF) from the initial calibration. Percent D is a measure of the instrument's daily performance. Percent RSD must be < 30% and %D must be < 25%. A value outside of these limits indicates potential detection and quantitation errors. For these reasons, all positive results are flagged as estimated, "J" and non-detects are flagged "UJ". If %RSD and %D grossly exceed QC criteria, non-detects data may be qualified "R".

For the PEST/PCB fraction, if %RSD exceeds 20% for all analytes except for the two surrogates (which must not exceed 30% RSD), qualify all associated positive results "J" and non-detects "UJ".

The following analytes in the sample shown were qualified for %RSD and %D:

SDG BSE22*

VOA: VBLK1 - Chloromethane, vinyl chloride, acetone and 2-hexanone were qualified "J" for %D.

VBLK4 - Chloromethane and 2-hexanone were qualified "J" for %D.

VBLK6 - Chloromethane and vinyl chloride were qualified "J" for %D.

VBLK7 - 2-Hexanone and 2-butanone were qualified "J" for %D.

VBLK8, VHBLK1 - Chloromethane was qualified "J" for %D.

BNA: SBLK2 - 2-Methylphenol, 2,2'-oxybis(1-chloropropane), hexachlorocyclopentadiene and fluorene were qualified "J" for %D.

PEST: BSE31, 38 - DDT was qualified "R" for % breakdown in the associated PEM standard; methoxychlor was qualified "R" for %D.

6A

Calibration Report

SDG NO: ~~BSE22~~/46
CASE NO: 25601

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BSE22.OAS

CALIBRATION CRITERIA

Volatile

	Primary	Expanded
Minimum RRF	0.05	0.05
Maximum %RSD (initial calibration)	30	90
Maximum %D (continuing calibration)	25	90
Calibration time period	12	

Semivolatile

	Primary	Expanded
Minimum RRF	0.05	0.05
Maximum %RSD (initial calibration)	30	90
Maximum %D (continuing calibration)	25	90
Calibration time period	12	

Pesticide

Maximum %RSD (initial calibration)	- TCL analytes	20
	- surrogates	30
Maximum RPD (continuing calibration)		25
INDA/INDB percent resolution		90
Continuing calibration sequence time		12

DC-23: The following volatile samples are associated with a continuing calibration percent difference (%D) outside primary criteria. Hits are qualified "J" and non-detects are qualified "UJ".

BSE46RE
Chloromethane, Carbon Disulfide

BSE47MS
Chloromethane, Carbon Disulfide

BSE47MSD
Chloromethane, Carbon Disulfide

already qualified for cooler temp.

VBLK2
Chloromethane, Carbon Disulfide

6 B

Calibration Report

SDG NO: BSE22 46
CASE NO: 25601

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BSE22.OAS

VHBLK1
Chloromethane, Carbon Disulfide

DC-100: The following semivolatile samples are associated with a continuing calibration percent difference (%D) outside primary criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

BSE46
Hexachlorocyclopentadiene, 2,4-Dinitrophenol

BSE47
Hexachlorocyclopentadiene, 2,4-Dinitrophenol

BSE47MS
2,4-Dinitrophenol, 4-Nitrophenol, 4,6-Dinitro-2-methylphenol

BSE47MSD
2,4-Dinitrophenol, 4-Nitrophenol, 4,6-Dinitro-2-methylphenol

BSE48
Hexachlorocyclopentadiene, 2,4-Dinitrophenol

already qualified for cooler temp.

SBLK1
4-Nitrophenol

SBLK2
2,4-Dinitrophenol, 4-Nitrophenol, 4,6-Dinitro-2-methylphenol

DC-188: The following pesticide samples are associated with an incorrect initial calibration sequence. Visual inspection is recommended.

BSE27, BSE27DL, BSE28, BSE28DL, BSE28DLMS, BSE28DLMSD
BSE28MS, BSE28MSD, BSE31, BSE31DL, BSE37, BSE37DL
BSE38, BSE38DL, BSE43, BSE43DL, PBLKSF

DC-193: The following pesticide samples are associated with an incorrect continuing calibration sequence. Use professional judgement to determine the effect on the data.

BSE27, BSE28, BSE28MS, BSE28MSD, BSE31, BSE37
BSE38, BSE43

?

DC-195: The RPD between the nominal and the calculated amount of an

CLP DATA ASSESSMENT

SDG BSE46*

VOA,BNA: See CADRE Calibration Report.

PEST: BSE48 - DDT was qualified "R" for % breakdown in the associated PEM standard.

* NOTE: All other results in all samples were previously qualified "J" for elevated cooler temperature. No further qualification of the data is necessary.

8. INTERNAL STANDARDS PERFO

Internal standards (IS) perfo GC/MS sensitivity and response are l run. The internal standard area than a factor of 2 (-50% to +10 tinuing calibration standard. The re andard must not vary more than ±30 s tinuing calibration standard. If the -50% to +100%) range of the associ positive results for compounds quanti fied as estimated, "J", and all non- here is a severe loss of sensitivity.

If an internal standard ret e than 30 seconds, the reviewer will us determine either partial or total rej hat sample fraction.

SDG BSE22*

VOA: BSE36 - Non-detects as ied "R."

BSE38, 38RE - Non-detects a 1, IS2 and IS3 were qualified "R."

BSE43 - Non-detects associat IS3 were qualified "R."

BSE44 - Non-detects associat and IS3 were qualified "R."

p.116

CLP DATA ASSESSMENT

BNA: BSE23MS - Non-detects associated with IS1 and IS2 were qualified "R."

SDG BSE46*

VOA: See CADRE Internal Standards Report.

* Note: All results for all samples in both SDGs were previously qualified "J" for elevated cooler temperature. Additional "J" qualification for internal standard criteria was not necessary.

9. COMPOUND IDENTIFICATION:

A) Volatile and Semi-Volatile Fractions:

TCL compounds are identified on the GC/MS by using the analyte's relative retention time (RRT) and by comparison to the ion spectra obtained from known standards. For the results to be a positive hit, the sample peak must be within ± 0.06 RRT units of the standard compound and have an ion spectra which has a ratio of the primary and secondary m/e intensities within 20% of that in the standard compound. For the tentatively identified compounds (TIC) the ion spectra must match accurately. In the cases where there is not an adequate ion spectrum match, the laboratory may have provided false positive identifications.

SDG BSE22

BNA: One TIC each in BSE23, 31, 36DL, 37, 37DL, 41, 43 and 43DL, labeled as a laboratory artifact, was qualified "R."

Two TICs each, determined to be laboratory artifacts, were qualified "R" in BSE27, 28, 28DL, 29, 30, 33, 33DL, 34, 35, 36, 38 and 44.

SDG BSE46

BNA: Two TICs each, determined to be laboratory artifacts, were qualified "R" in BSE46, 47 and 48.

8A

Toluene, Chlorobenzene, Ethylbenzene, Styrene
Xylene (total)

BSE47MS
4-Methyl-2-Pentanone, 2-Hexanone, Tetrachloroethene, 1,1,2,2-Tetrachloroethane
Toluene, Chlorobenzene, Ethylbenzene, Styrene
Xylene (total)

BSE47MSD
Chloromethane, Bromomethane, Vinyl Chloride, Chloroethane
Methylene Chloride, Acetone, Carbon Disulfide, 1,1-Dichloroethene
1,1-Dichloroethane, 1,2-Dichloroethene (total), Chloroform, 1,2-Dichloroethane
2-Butanone, 1,1,1-Trichloroethane, Carbon Tetrachloride, Bromodichloromethane
1,2-Dichloropropane, cis-1,3-Dichloropropene, Trichloroethene, Dibromochloromethane
1,1,2-Trichloroethane, Benzene, trans-1,3-Dichloropropene, Bromoform

already qualified for broken temp.

DC-44: The following volatile samples have internal standard area counts outside expanded criteria.
Hits are qualified "J" and non-detects are qualified "R".

BSE46
1,1,1-Trichloroethane, Carbon Tetrachloride, Bromodichloromethane, 1,2-Dichloropropane
cis-1,3-Dichloropropene, Trichloroethene, Dibromochloromethane, 1,1,2-Trichloroethane
Benzene, trans-1,3-Dichloropropene, Bromoform, 4-Methyl-2-Pentanone
2-Hexanone, Tetrachloroethene, 1,1,2,2-Tetrachloroethane, Toluene
Chlorobenzene, Ethylbenzene, Styrene, Xylene (total)

BSE46RE
4-Methyl-2-Pentanone, 2-Hexanone, Tetrachloroethene, 1,1,2,2-Tetrachloroethane
Toluene, Chlorobenzene, Ethylbenzene, Styrene
Xylene (total)

BSE47MSD
4-Methyl-2-Pentanone, 2-Hexanone, Tetrachloroethene, 1,1,2,2-Tetrachloroethane
Toluene, Chlorobenzene, Ethylbenzene, Styrene
Xylene (total)

CLP DATA ASSESSMENT

B) Pesticide Fraction:

The retention times of reported compounds must fall within the calculated retention time windows for the two chromatographic columns and a GC/MS confirmation is required if the concentration exceeds 10ng/ml in the final sample extract.

SDG BSE22, BSE46

See CADRE Quantitation Limit Report.

10. CONTRACT PROBLEMS NON-COMPLIANCE:

SDG BSE22

BNA:

a. Alkanes in samples BSE29, 32 (see pages 1051, 1302) were not reported separately in the SDG Narrative as required by SOW Section 2.6.1, page B-13.

b. SBLK1 - An alkyl halide TIC was improperly reported separately as an alkane (page 34). This caused problems during data review, since the same TIC, when found in the samples, was reported on Form 1F and flagged "B" (see example page 1810), instead of being reported separately as in the case of the method blank. Since the corresponding blank TIC could not be found on Form 1F, it was not possible to determine whether the sample concentrations were < 5 × the blank amount. The TIC concentration for the blank was manually calculated and entered on Form 1F (page 2214) so that the sample data could then be properly qualified.

c. The "B" flag was not properly applied to sample Forms 1F, as required by SOW Sec. 3.4.2.18, page B-39. The "B" flags for the number of TICs indicated for the following samples were crossed out, since these TICs did not match any retention times or spectra in the associated method blanks:

BSE23 - 1 TIC; 26 - 2 TICs; BSE27 - 1 TIC; BSE30 - 1 TIC; BSE31 - 2 TICs; BSE34 - 2 TICs; BSE35 - 1 TIC; BSE37 - 1 TIC; BSE38 - 4 TICs; BSE43 - 4 TICs.

Quantitation Limit Report

SDG NO: BSE22/46
CASE NO: 25601

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BSE22.OAS

Endosulfan II, Endosulfan sulfate, Aroclor-1260

BSE47DL
4,4'-DDT, Endrin aldehyde, Aroclor-1260

BSE47DLMS
gamma-BHC (Lindane), Heptachlor, Aldrin, Dieldrin
Endrin, 4,4'-DDD, 4,4'-DDT, Aroclor-1260

BSE47DLMSD
gamma-BHC (Lindane), Heptachlor, Aldrin, Dieldrin
Endrin, 4,4'-DDD, 4,4'-DDT, Endrin aldehyde
Aroclor-1260

BSE48DL
Heptachlor, alpha-Chlordane, Aroclor-1260

DC-422: The following pesticide samples have analytes for which the percent difference between column results exceeds primary criteria. Hits > CRQL are flagged "J." Or: if %D is > 50% and value is < CRQL, sample result is elevated to the CRQL and qualified "U."

BSE27
4,4'-DDT, Aroclor-1260 — J

BSE27DL
Aroclor-1260 — J

BSE28
4,4'-DDE, Endrin, 4,4'-DDD, 4,4'-DDT — J

BSE28DL
Dieldrin, 4,4'-DDT, alpha-Chlordane, gamma-Chlordane — J

BSE28DLMS
Dieldrin, Aroclor-1260 — J

BSE28DLMSD
Ar-1260, 4,4'-DDT, alpha-Chlordane, gamma-Chlordane — J

BSE28MS
alpha-Chlordane, Aroclor-1260 — J — J

BSE28MSD
Aldrin, 4,4'-DDE, 4,4'-DDD, Aroclor-1260 — J

9B

Quantitation Limit Report

SDG NO: BSE22/46
CASE NO: 25601

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BSE22.OAS

BSE29
Heptachlor epoxide, Aroclor-1260 — J J

BSE29DL
Heptachlor epoxide, Endosulfan I, 4,4'-DDE, alpha-Chlordane — U J J J
Aroclor-1260 — J

BSE30
Endrin ketone, Aroclor-1260 — J

BSE30DL
gamma-BHC (Lindane), Endosulfan I, 4,4'-DDT, Aroclor-1260 — J U J J

BSE32
4,4'-DDT, Aroclor-1260 — J

BSE32DL
alpha-Chlordane, gamma-Chlordane — J U

BSE33
delta-BHC, Endosulfan I — J

BSE33DL
gamma-BHC (Lindane), Heptachlor epoxide, alpha-Chlordane, gamma-Chlordane } — J
Aroclor-1260

BSE36
4,4'-DDE, 4,4'-DDD, 4,4'-DDT, alpha-Chlordane — J

BSE36DL
alpha-Chlordane, gamma-Chlordane — U J

BSE37
Methoxychlor, alpha-Chlordane — J

BSE37DL
Endrin, 4,4'-DDD — J

BSE43
Endrin — J

BSE43DL
alpha-Chlordane — J

BSE44
4,4'-DDE — J

Quantitation Limit Report

SDG NO: BSE22/46
CASE NO: 25601

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BSE22.OAS

BSE44DL
Aroclor-1260 — J

BSE46
Dieldrin, Endosulfan II, Aroclor-1260 — J

BSE46DL
Heptachlor epoxide, Dieldrin, Endosulfan II, Endrin aldehyde, alpha-Chlordane } J

BSE47
4,4'-DDT, Endrin aldehyde, Aroclor-1260 — J

BSE47DL
Endrin aldehyde, Aroclor-1260 — J

BSE47DLMSD
Dieldrin, Endrin, 4,4'-DDT — J

BSE47MS
Heptachlor, Dieldrin, 4,4'-DDD, 4,4'-DDT — J

BSE47MSD
Heptachlor, Dieldrin, Aroclor-1260 — J

BSE48DL
Aroclor-1260 — J

DC-423: The following pesticide samples have analytes for which the percent difference between column results exceeds expanded criteria. Hits > CRQL are flagged "NJ," or "R" when %D > 100; or "NJ" when %D is between 100 - 200 (interference detected). Hits < CRQL are elevated to the CRQL and qualified "U."

BSE27 — R, JN, JN, JN
Dieldrin, 4,4'-DDE, 4,4'-DDD, Endosulfan sulfate

BSE28 — R, JN, JN
Dieldrin, alpha-Chlordane, gamma-Chlordane

BSE28DLMS
4,4'-DDT, gamma-Chlordane — JN

BSE28MS — JN, R, R, JN
Aldrin, Dieldrin, Endosulfan II, 4,4'-DDD

9D

Quantitation Limit Report

SDG NO: BSE22/46
CASE NO: 25601

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BSE22.OAS

4,4'-DDT, gamma-Chlordane — JN

BSE28MSD
Dieldrin, Endrin, 4,4'-DDT, alpha-Chlordane } JN
gamma-Chlordane

BSE29
Dieldrin, 4,4'-DDE, 4,4'-DDT, Endrin aldehyde } — JN
alpha-Chlordane, gamma-Chlordane

BSE29DL — JN — U — U
4,4'-DDT, Endrin aldehyde, gamma-Chlordane

BSE30 — R — JN — JN — R
Heptachlor, Aldrin, Endosulfan I, Methoxychlor
Endrin aldehyde — R

BSE30DL — JN — ~~JN~~ U — R — ~~JN~~ U
Aldrin, Methoxychlor, Endrin aldehyde, alpha-Chlordane
gamma-Chlordane — ~~JN~~ U

BSE31DL
4,4'-DDD — U

BSE32
gamma-Chlordane — JN

BSE33 — JN — JN — R — R
Heptachlor, Heptachlor epoxide, Endrin, 4,4'-DDT
Endrin aldehyde, gamma-Chlordane, Aroclor-1260
JN JN J

BSE33DL — JN — JN — JN — R
Heptachlor, Aldrin, 4,4'-DDE, Endrin
4,4'-DDT, Endrin aldehyde
JN JN

BSE35DL
4,4'-DDD — U

BSE36 — JN — R
Dieldrin, Endrin aldehyde

BSE36DL
4,4'-DDE, Endrin aldehyde — U

BSE37
Dieldrin, Endosulfan II, gamma-Chlordane — R

Quantitation Limit Report

SDG NO: BSE22/46
CASE NO: 25601

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BSE22.OAS

BSE37DL
Dieldrin, Endosulfan II, gamma-Chlordane

BSE43
Dieldrin, Endosulfan II, 4,4'-DDD, 4,4'-DDT
gamma-Chlordane

BSE43DL
Dieldrin, Endrin, Endosulfan II, 4,4'-DDD
4,4'-DDT, gamma-Chlordane

BSE44
4,4'-DDT

BSE44DL
4,4'-DDT

BSE46
Heptachlor epoxide, Endrin, gamma-Chlordane

BSE46DL
Endosulfan I, Endrin, Endosulfan sulfate, gamma-Chlordane

BSE47MSD
4,4'-DDT

BSE48
Heptachlor, 4,4'-DDE, Endosulfan II, alpha-Chlordane

BSE48DL
Heptachlor, alpha-Chlordane

CLP DATA ASSESSMENT

PEST:

d. Samples BSE27, 28, 31, 37, 38 and 43 were re-extracted past the contract holding time due to Aroclor-1254 contamination from another sample.

e. PEMs PEM7J and PEM7K did not meet technical acceptance criteria; however, a new initial calibration and re-injection of the affected samples (see analytical sequence (pages 2730 and 2731) were not analyzed as required by SOW Sec. 9.3.6.4, page D-33/PEST.

SDG BSE46

BNA:

f. An alkanes in sample BSE48 (see page 367) was not reported separately in the SDG Narrative as required by SOW Sec. 2.6.1, page B-13. This caused confusion during data review, since the sample TIC was flagged "B", but the corresponding TIC in the associated blank was reported in the Narrative and not on Form 1F.

g. The "B" flag was not properly applied to sample Forms 1F, as required by SOW Sec. 3.4.2.18, page B-39. One "B" flag was crossed out in sample BSE48 (see page 367), since this TIC did not match any retention time or spectrum in the associated method blank.

?

h. PEMs PEM6E and PEM6F did not meet technical acceptance criteria; however, a new initial calibration and re-injection of the affected samples (see analytical sequence (page 731) were not analyzed as required by SOW Sec. 9.3.6.4, page D-33/PEST.

11. FIELD DOCUMENTATION:

SDG BSE22

VOA:

a. BSE22, 23, 26, 39, 41 - Traffic reports, pages 40 and 41, indicate that

these samples were preserved with HCl; however, the laboratory's pH log, page 37, indicates they were not.

b. BSE26 - Traffic report, page 40, indicates that the VOA vial had air bubbles. It could not be determined from the available documentation if more than one vial was delivered, and if this vial was used for analysis. The problem was not mentioned in the SDG narrative. No action was taken on the data; however, further rejection of data may be applicable, depending on whether the lab analyzed this vial.

12. OTHER PROBLEMS:

<u>SDG BSE22, 46</u>

VOA, BNA, PEST:

a. The temperature of the five shipping coolers ranged between 14 and 21° C upon receipt at the lab (see pages 3342 and 3343 of SDG BSE22). Positive results and non-detects for all samples in all fractions, including MS/MSD samples, were qualified "J."

<u>SDG BSE22</u>

VOA:

b. BSE22, 23, 26, 39, 41 - Traffic reports, pages 40 and 41, indicate that these samples were preserved with HCl. Of these, BSE22, 23 and 26 were analyzed past the seven-day holding time for aromatics. No action was required, however, since all samples were already qualified "J" for cooler temperature.

VOA, BNA:

c. The CADRE Percent Moisture Report did not list samples to be qualified for these two fractions; however, positive results and non-detects for all samples were already qualified for the high temperature of the shipping cooler (see 12.a, above).

CLP DATA ASSESSMENT

BNA:

d. There was excessive TIC contamination in the method blanks, including alkanes. However, many of the TICs flagged "B" in the samples did not correspond to any of those reported on Form 1F of the associated method blanks. (See example pages 1810 and 1811, where four "B" flags were deleted.)

It was later determined that some of these TICs did not appear on method blank Forms 1F because they were alkanes, which were reported separately in the SDG narrative (see pages 34 - 36). The lab failed to recognize that the corresponding sample TICs were also alkanes and reported them on Forms 1F (see example, page 1051), instead of separately as in the case of the method blanks. Still, other sample TICs are neither alkanes, nor are they found in the associated blank, yet they were flagged "B." This caused a great deal of confusion in reviewing the data, since sample TICs labeled "B" could not be located on the method blank TIC forms to determine whether the concentration was $< 5\times$ the blank contamination amount.

Also, the "A" flag was not always applied where necessary to designate laboratory artifacts (see example, page 1810).

PEST:

e. See CADRE Percent Moisture Report.*

f. Samples BSE27, 28, 31, 37, 38 and 43 were re-extracted past the holding time due to Aroclor-1254 contamination from another sample. (See SDG Narrative, page 6.) All PCB hits in these as well as all other samples in this SDG, although they are not Ar-1254 hits, should be regarded as suspect.

g. The following pesticide samples apparently did not require analysis: BSE27DL, 29DL, 30DL, 32DL, 34DL, 35DL, 36DL and 38DL. The chromatography of the undiluted samples is satisfactory, provided the proper scaling factor is used. For example, the chromatograms for BSE32, page 2492, are on scale and Form I, page 2489, shows no hits exceeding the linear range of the calibration. Only when a lower scaling factor is used, page 2493, do the peaks appear to be off scale. The PCB pattern is also clearly visible in the original sample (page 2494).

Percent Moisture Report

SDG NO: BSE22 146
CASE NO: 25601

LABORATORY: SWL-TULSA
AGENCY INPUT FILE: BSE22.OAS

PERCENT MOISTURE LIMITS

	Primary	Expanded
VOA	50%	90%
BNA	50%	90%
PES	49%	89%

DC-126: Percent moisture content of the following volatile soil samples exceeds primary criteria. Hits are qualified "J" and non-detects are qualified "UJ".

BSE46, BSE46RE, BSE47, BSE47MS, BSE47MSD, BSE48
27, 30, 31, 33, 34, 35, 35RE, 34, 36RE, 38, 38RE

Samples already qualified for elevated Carbon temperature

DC-128: Percent moisture content of the following semivolatile soil samples exceeds primary criteria. Hits are qualified "J" and non-detects are qualified "UJ".

BSE46, BSE47, BSE47MS, BSE47MSD, BSE48,

DC-184: Percent moisture content of the following pesticide soil samples exceeds primary criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

BSE27, BSE27DL, BSE30, BSE30DL, BSE31, BSE31DL, BSE34, BSE34DL
BSE33, BSE33DL, BSE35, BSE35DL, BSE36, BSE36DL
BSE38, BSE38DL, BSE46, BSE46DL, BSE47, BSE47DL
BSE47DLMS, BSE47DLMSD, BSE47MS, BSE47MSD, BSE48, BSE48DL

~~DC-185: Percent moisture content of the following pesticide soil samples exceeds expanded criteria.~~
~~Hits are qualified "J" and non-detects are qualified "R".~~

~~BSE34, BSE34DL~~ ~~% moisture was actually 90%~~

CLP DATA ASSESSMENT

SDG BSE46

VOA, BNA, PEST:

h. See CADRE Percent Moisture Report.*

* Note: All samples in all fractions were previously qualified for the high temperature of the shipping cooler upon receipt (see 12.a, above).

PEST:

i. BSE47DL, 47DLMS, 47DLMSD, 48DL - Analysis of this diluted sample was apparently not necessary. There were no hits in BSE47 or BSE48 exceeding the linear range of the calibration. See Sec. 12.f, above, for more details.

13. This package contains reextractions, reanalyses or dilutions. Upon reviewing the QA results, the following Form 1(s) are identified to be used.

SDG BSE22

VOA: BSE35, 36RE, 38, 43RE and 44RE

BNA: BSE28, 30, 36, 37and 43.

PEST: BSE27, 28DL, 28MS, 28MSD, 29, 30, 31, 32, 33, 34, 35, 36, 37DL, 38, 43DL and 44DL.

SDG BSE46

VOA: BSE46RE

PEST: BSE46, 47, 47MS, 47MSD, 48.

RECEIVED
AUG 2 1 1997

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A / Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE

August 13, 1997

CONTRACT NO.:	68-D5-0026
CASE NO.:	25601
SAMPLE NOS.:	BSE46, BSE46RE, BSE47,BSE47MS, BSE47MSD, BSE48
SDG NO.:	BSE46

VOLATILE FRACTION

Three soil samples were submitted for Volatile Organic Analysis. The samples were analyzed by GC/MS following the OLM03.2 CLP Statement of Work.

Alternate columns used for the analysis of volatile compounds by Method OLM03.2 are the Restek XTI-5 (bonded 5% phenyl-95% dimethyl polysiloxane), 30m, 0.25mm ID, 1um film thickness (Restek #12253) and the DB624, 75m, 0.53mmID Megabore, 3um film thickness (J&W 125-1374).

An alternate trap used for the analysis of volatile compounds by method OLM03.2 is the Vocarb 3000 (Carbopack B/Carboxen 1000 & 1001; Tekmar #2-1066).

The following samples in this SDG (labeled with an "RE") are considered billable since reanalysis was performed to verify internal standard areas: BSE46

No major problems occurred during the analyses of these samples

Blanks: VHBLK1 contained low level Methylene Chloride below the CRQL and one Tentatively Identified Compound (TIC) at an estimated concentration of 46ug/Kg.

Surrogates: Sample BSE46 contained internal standard areas outside QC Area Recovery Limits. It was reanalyzed and duplicated the original results, but also contained one surrogate out. Both analyses are being submitted.

Matrix Spikes: No problems.

Internal Standards: Sample BSE46 contained internal standard areas outside QC Area Recovery Limits. It was reanalyzed and duplicated the original results verifying a matrix effect. Both analyses have been submitted. Sample BSE47 also contained internal standard areas outside QC Area Recovery Limits. It used its corresponding matrix spike and duplicate (BSE47MS and BSE47MSD) for duplication and verification of matrix effect.

NOTE: All manual integrations in this data package for GC/MS Volatiles have been performed for one of the following reasons:

a. Data system missed peak during acquisition.
b. Data system improperly integrated peak.

If water samples are contained in this case, their pH data is included on the page accompanying this SDG narrative.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager, or his designee, as verified by the following signature.

Harry M. Borg

Harry M. Borg
Organic Program Manager

August 13, 1997

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A / Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE

August 13, 1997

CONTRACT NO.: 68-D5-0026

CASE NO.: 25601

SAMPLE NOS.: BSE46, BSE47, BSE47MS, BSE47MSD, BSE48

SDG NO.: BSE46

SEMIVOLATILE FRACTION

Three soil samples were submitted for Semivolatile Organic Analyses. The samples were analyzed by GC/MS following the OLM03.2 CLP Organic Statement of Work.

The following column is used for the semivolatile analysis: Restek XTI-5 (bonded 5% phenyl-95% dimethyl polysiloxane), 30m, 0.25mm ID, 0.25um film thickness (Restek #12223).

No major problems occurred during the analyses of these samples. Sample coolers arrived at 20 and 21 degrees Celsius.

The following samples had alkanes reported and the reports are included at the end of this SDG Narrative: BSE46, BSE47, BSE48, SBLK1, SBLK2

Blanks: SBLK1 had low level phthalate contamination below CRQL.

Surrogates: No problems.

Matrix Spikes: No problems.

Internal Standards: No problems.

NOTE: All manual integrations in this data package for GC/MS Volatiles/Semivolatiles have been performed for one of the following reasons:

a. Data system missed peak during acquisition.
b. Data system improperly integrated peak.

If water samples are contained in this case, their pH data is included on the page accompanying this SDG narrative.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager, or his designee, as verified by the following signature.

Harry M. Borg
Harry M. Borg
Organic Program Manager
hb

August 13, 1997

SDG Narrative

Case: 25601
SDG: BSE46
Contract: 68-D5-0026
Samples: BSE46, BSE47, BSE48.
Fraction: Pesticide/PCB

SDG BSE46 consisted of 3 soil samples plus dilutions which were analyzed for pesticide/PCBs. All samples, blanks and spikes were extracted and analyzed according to EPA SOW OLM03.2. The samples were analyzed on J&W Scientific dual analytical columns (30m x 0.32mm ID, 0.25µm film thickness, DB-17 and DB-1701). The DB-17 phase consists of (50%-Phenyl) Methylpolysiloxane and the DB-1701 phase consists of (14%-Cyanopropylphenyl) Methylpolysiloxane. These columns were specifically designed for pesticide/PCB separation as required by the EPA's SOW. All applicable manufacturer's instructions were followed for the analysis of pesticides/PCBs. Manufacturer provided information concerning the performance characteristics of the column are kept on site. Hydrogen was used as the carrier gas for instrument HP-15. Helium was used as the carrier gas for all other instruments.

Surrogate recoveries of all method blanks were within limits. Two compounds of twelve spiked were outside of control limits in the MS/MSD of sample BSE47.

It should be noted that when multi-responding compounds are present in a sample, false positives of single response compounds are common. The number of false positives may be reduced by employing a ratio technique in samples which are "clean", containing minimally more peaks than the multi-responder of interest, and do not contain environmentally altered multi-responders. However, "real-life" samples are typically not as previously described. Many times they exhibit highly complex chromatograms and environmentally altered multi-responders which are unable to be ratioed with a great deal of accuracy. Since ECD detection is not a definitive means of detection, single-response analytes in the presence of multi-responders will be reported (as per the method, if a peak is within a target analyte's retention time window on both columns, then it is reported as that target analyte). This alleviates the possibility that false negative results will be reported. However, this may lead to false positives. The end data user should be aware of the limitations of the method and take appropriate care.

All samples in this SDG caused extremely high breakdown of 4,4'-DDT, methoxychlor , and several other pesticides in the continuing standards following their injection. The continuing standards analyzed before these samples met OLM03.2 continuing calibration criteria. When diluted 10X (in order to achieve satisfactory chromatography as per D-59/PEST, 10.2.3.1), the samples met OLM03.2 acceptance criteria. A non-compliant undiluted analysis and a 10X compliant analysis was performed for these samples. Forms for the undiluted and the 10X data have been submitted.

All samples in this SDG, as noted above, required dilution. This was performed per D-59/PEST, 10.2.3.1, which states that all samples must be analyzed at the most concentrated level that is consistent with achieving satisfactory chromatography. These samples were diluted in order to allow for the continuing calibration to be compliant. Therefore, the dilutions are billable.

The following tables list the total nanograms injected on column for each calibration standard based upon amount injected on column, 0.5µL, 1µL, or 2µL:

RESOLUTION CHECK

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
gamma-Chlordane	0.005	0.01	0.02
Endosulfan I	0.005	0.01	0.02
4,4'-DDE	0.01	0.02	0.04
Dieldrin	0.01	0.02	0.04
Endosulfan Sulfate	0.01	0.02	0.04
Endrin Ketone	0.01	0.02	0.04
Methoxychlor	0.5	0.1	0.2
Tetrachloro-m-xylene	0.01	0.02	0.04
Decachlorobiphenyl	0.01	0.02	0.04

PERFORMANCE EVALUATION

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
gamma-BHC	0.005	0.01	0.02
alpha-BHC	0.005	0.01	0.02
4,4'-DDT	0.05	0.1	.02
beta-BHC	0.005	0.01	0.02
Endrin	0.025	0.05	0.1
Methoxychlor	0.125	0.25	0.5
Tetrachloro-m-xylene	0.01	0.02	0.04
Decachlorobiphenyl	0.01	0.02	0.04

INDIVIDUAL STANDARD MIXTURE A -- LOW

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
alpha-BHC	0.0025	0.005	0.01
Heptachlor	0.0025	0.005	0.01
gamma-BHC	0.0025	0.005	0.01
Endosulfan I	0.0025	0.005	0.01
Dieldrin	0.005	0.01	0.02
Endrin	0.005	0.01	0.02
4,4'-DDD	0.005	0.01	0.02
4,4'-DDT	0.005	0.01	0.02
Methoxychlor	0.025	0.05	0.1
Tetrachloro-m-xylene	0.0025	0.005	0.01
Decachlorobiphenyl	0.005	0.01	0.02

INDIVIDUAL STANDARD MIXTURE B -- LOW

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
beta-BHC	0.0025	0.005	0.01
delta-BHC	0.0025	0.005	0.01
Aldrin	0.0025	0.005	0.01
Heptachlor epoxide	0.0025	0.005	0.01
alpha-Chlordane	0.0025	0.005	0.01
gamma-Chlordane	0.0025	0.005	0.01
4,4'-DDE	0.005	0.01	0.02
Endosulfan sulfate	0.005	0.01	0.02
Endrin aldehyde	0.005	0.01	0.02
Endrin ketone	0.005	0.01	0.02
Endosulfan II	0.005	0.01	0.02
Tetrachloro-m-xylene	0.0025	0.005	0.01
Decachlorobiphenyl	0.005	0.01	0.02

INDIVIDUAL STANDARD MIXTURE A -- MEDIUM

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
alpha-BHC	0.01	0.02	0.04
Heptachlor	0.01	0.02	0.04
gamma-BHC	0.01	0.02	0.04
Endosulfan I	0.01	0.02	0.04
Dieldrin	0.02	0.04	0.08
Endrin	0.02	0.04	0.08
4,4'-DDD	0.02	0.04	0.08
4,4'-DDT	0.02	0.04	0.08
Methoxychlor	0.1	0.2	0.4
Tetrachloro-m-xylene	0.01	0.02	0.04
Decachlorobiphenyl	0.02	0.04	0.08

INDIVIDUAL STANDARD MIXTURE B -- MEDIUM

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
beta-BHC	0.01	0.02	0.04
delta-BHC	0.01	0.02	0.04
Aldrin	0.01	0.02	0.04
Heptachlor epoxide	0.01	0.02	0.04
alpha-Chlordane	0.01	0.02	0.04
gamma-Chlordane	0.01	0.02	0.04
4,4'-DDE	0.02	0.04	0.08

Endosulfan sulfate	0.02	0.04	0.08
Endrin aldehyde	0.02	0.04	0.08
Endrin ketone	0.02	0.04	0.08
Endosulfan II	0.02	0.04	0.08
Tetrachloro-m-xylene	0.01	0.02	0.04
Decachlorobiphenyl	0.02	0.04	0.08

INDIVIDUAL STANDARD MIXTURE A -- HIGH

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
alpha-BHC	0.04	0.08	0.16
Heptachlor	0.04	0.08	0.16
gamma-BHC	0.04	0.08	0.16
Endosulfan I	0.04	0.08	0.16
Dieldrin	0.08	0.16	0.32
Endrin	0.08	0.16	0.32
4,4'-DDD	0.08	0.16	0.32
4,4'-DDT	0.08	0.16	0.32
Methoxychlor	0.4	0.8	1.6
Tetrachloro-m-xylene	0.04	0.08	0.16
Decachlorobiphenyl	0.08	0.16	0.32

INDIVIDUAL STANDARD MIXTURE B -- HIGH

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
beta-BHC	0.04	0.08	0.16
delta-BHC	0.04	0.08	0.16
Aldrin	0.04	0.08	0.16
Heptachlor epoxide	0.04	0.08	0.16
alpha-Chlordane	0.04	0.08	0.16
gamma-Chlordane	0.04	0.08	0.16
4,4'-DDE	0.08	0.16	0.32
Endosulfan sulfate	0.08	0.16	0.32
Endrin aldehyde	0.08	0.16	0.32
Endrin ketone	0.08	0.16	0.32
Endosulfan II	0.08	0.16	0.32
Tetrachloro-m-xylene	0.04	0.08	0.16
Decachlorobiphenyl	0.08	0.16	0.32

MULTI-RESPONSE STANDARD MIXTURES

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
Aroclor-1016	0.05	0.1	0.2

Aroclor-1221	0.1	0.2	0.4
Aroclor-1232	0.05	0.1	0.2
Aroclor-1242	0.05	0.1	0.2
Aroclor-1248	0.05	0.1	0.2
Aroclor-1254	0.05	0.1	0.2
Aroclor-1260	0.05	0.1	0.2
Toxaphene	0.25	0.5	1.0

All manual integrations in this data package for GC/EC have been performed for one of the following reasons:

a. Data system missed a peak during processing.
b. Data system improperly integrated a peak.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Brett R Dees
GC Laboratory Supervisor
August 20, 1997

Alkane Report for Sample : BSE46

Data file : v18472.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	638-67-5	Tricosane	16.35	2474.65
2)	112-95-8	Eicosane	17.49	1448.08
3)	601-58-1	Stigmastane	17.55	1129.67
4)	36441-74-4	Baccharane	18.07	1018.07
5)	112-95-8	Eicosane	18.57	1989.11
6)	36728-72-0	28-Nor-17.beta.(H)-hopane	18.78	2326.63
7)	36728-72-0	28-Nor-17.beta.(H)-hopane	19.23	2215.49
8)	473-55-2	Bicyclo[3.1.1]heptane, 2,6,6-trimethyl-	21.88	1083.54

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : BSE47 Page: 1

Data file : v18477.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	921-47-1	Hexane, 2,3,4-trimethyl-	3.082	256.07
2)	2216-33-3	Octane, 3-methyl-	3.125	271.33
~~3)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro-~~	~~3.427~~	~~1041.01~~ 8-13-97
4)	2216-34-4	Octane, 4-methyl-	3.513	477.43
5)	565-75-3	Pentane, 2,3,4-trimethyl-	3.588	511.62
6)	17312-55-9	Decane, 3,8-dimethyl-	16.34	333.79
7)	629-94-7	Heneicosane	17.49	305.74
8)	13475-76-8	Docosane, 11-butyl-	18.55	519.51
9)	2146-39-6	Bicyclo[2.2.1]heptane, 2-ethenyl-	21.93	551.38

Concentration Units: Water: UG/L Soil: UG/KG

p.139

Data file : v18478.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	619-99-8	Hexane, 3-ethyl-	3.081	612.82
2)	2216-33-3	Octane, 3-methyl-	3.124	475.71
3)	16747-31-2	Hexane, 3,3,4-trimethyl-	3.587	847.41
4)	473-55-2	Bicyclo[3.1.1]heptane, 2,6,6-trimethyl-	10.32	725.64
5)	74764-47-9	Cyclopentane, 1-methyl-1-(2-methyl-2-pro	10.69	486.87
6)	1560-92-5	Hexadecane, 2-methyl-	16.34	520.73
7)	112-95-8	Eicosane	17.48	415.67
8)	630-01-3	Hexacosane	18.55	816.83
9)	69466-45-1	1,2-Dithiacyclotetradecane	20.50	651.84

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : SBLK1 Page: 1

Data file : v18387a.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	2216-33-3	Octane, 3-methyl-	2.953	329.51
2)	619-99-8	Hexane, 3-ethyl-	3.082	209.20
3)	2216-34-4	Octane, 4-methyl-	3.125	102.46
4)	2216-33-3	Octane, 3-methyl-	3.168	92.66
5)	760-21-4	Pentane, 3-methylene-	3.265	77.73
6)	61142-21-0	Cyclohexane, (1,2,2-trimethylbutyl)-	3.631	269.82
7)	590-66-9	Cyclohexane, 1,1-dimethyl-	3.663	407.90

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : SBLK~~1~~2 Page: 1

8/13/97 DK

Data file : v18424.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	2216-30-0	Heptane, 2,5-dimethyl-	2.933	170.28
2)	3074-71-3	Heptane, 2,3-dimethyl-	3.105	66.71
3)	2216-33-3	Octane, 3-methyl-	3.148	80.72
~~4)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro-~~	~~3.450~~	~~306.66~~ 8-12-
5)	16747-31-2	Hexane, 3,3,4-trimethyl-	3.611	124.61
6)	4291-79-6	Cyclohexane, 1-methyl-2-propyl-	3.643	143.34

Concentration Units: Water: UG/L Soil: UG/KG

SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVER SHEET

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA CONTRACT NO.: 68-D5-0026

LAB CODE: SWOK CASE NO.: 25601 SAS NO.: _____

FULL SAMPLE ANALYSIS PRICE IN CONTRACT: ___

SDG No./First Sample in SDG: BSE46 Sample Receipt Date: 08/01/97 (MM/DD/YY)
(Lowest EPA Sample Number in first shipment of samples received under SDG).

Last Sample in SDG: BSE48 Sample Receipt Date: 08/01/97 (MM/DD/YY)
(Highest EPA Sample Number in last shipment of samples received under SDG).

EPA Sample Numbers in the SDG (listed in alphanumeric order):

1) BSE46
2) BSE47
3) BSE48
4)
5)
6)
7)
8)
9)
10)
11)
12)
13)
14)
15)
16)
17)
18)
19)
20)

Note: There are a maximum of 20 field samples in a SDG.

Attach Traffic Reports to this form in alphanumeric order (i.e., the order listed on this form).

Harry M. Boy
Sample Custodian

8-6-97
Date

p.143

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE46RE

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.10RA

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C25341.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 66 Date Analyzed: 08/07/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	29	U
74-83-9	Bromomethane	29	U
75-01-4	Vinyl Chloride	29	U
75-00-3	Chloroethane	29	U
75-09-2	Methylene Chloride	29	U
67-64-1	Acetone	29	U
75-15-0	Carbon Disulfide	29	U
75-35-4	1,1-Dichloroethene	29	U
75-34-3	1,1-Dichloroethane	29	U
540-59-0	1,2-Dichloroethene (total)	29	U
67-66-3	Chloroform	29	U
107-06-2	1,2-Dichloroethane	29	U
78-93-3	2-Butanone	29	U
71-55-6	1,1,1-Trichloroethane	29	U
56-23-5	Carbon Tetrachloride	29	U
75-27-4	Bromodichloromethane	29	U
78-87-5	1,2-Dichloropropane	29	U
10061-01-5	cis-1,3-Dichloropropene	29	U
79-01-6	Trichloroethene	29	U
124-48-1	Dibromochloromethane	29	U
79-00-5	1,1,2-Trichloroethane	29	U
71-43-2	Benzene	29	U
10061-02-6	trans-1,3-Dichloropropene	29	U
75-25-2	Bromoform	29	U
108-10-1	4-Methyl-2-Pentanone	29	U
591-78-6	2-Hexanone	29	U
127-18-4	Tetrachloroethene	29	U
79-34-5	1,1,2,2-Tetrachloroethane	29	U
108-88-3	Toluene	29	U
108-90-7	Chlorobenzene	29	U
100-41-4	Ethylbenzene	29	U
100-42-5	Styrene	29	U
1330-20-7	Xylene (Total)	29	U

J

R

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE46RE

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.10RA

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C25341.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 66 Date Analyzed: 08/07/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 3

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Cyclotrisiloxane	12.542	31	J
2.	Cyclotetrasiloxane	14.729	32	J
3.	UNKNOWN	16.552	34	J
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

FORM I VOA-TIC OLM03.0

p.145

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE47

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.11

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27093.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 64 Date Analyzed: 08/06/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	28	U
74-83-9	Bromomethane	28	U
75-01-4	Vinyl Chloride	28	U
75-00-3	Chloroethane	28	U
75-09-2	Methylene Chloride	28	U
67-64-1	Acetone	28	U
75-15-0	Carbon Disulfide	28	U
75-35-4	1,1-Dichloroethene	28	U
75-34-3	1,1-Dichloroethane	28	U
540-59-0	1,2-Dichloroethene (total)	28	U
67-66-3	Chloroform	28	U
107-06-2	1,2-Dichloroethane	28	U
78-93-3	2-Butanone	28	U
71-55-6	1,1,1-Trichloroethane	28	U
56-23-5	Carbon Tetrachloride	28	U
75-27-4	Bromodichloromethane	28	U
78-87-5	1,2-Dichloropropane	28	U
10061-01-5	cis-1,3-Dichloropropene	28	U
79-01-6	Trichloroethene	28	U
124-48-1	Dibromochloromethane	28	U
79-00-5	1,1,2-Trichloroethane	28	U
71-43-2	Benzene	28	U
10061-02-6	trans-1,3-Dichloropropene	28	U
75-25-2	Bromoform	28	U
108-10-1	4-Methyl-2-Pentanone	28	U
591-78-6	2-Hexanone	28	U
127-18-4	Tetrachloroethene	28	U
79-34-5	1,1,2,2-Tetrachloroethane	28	U
108-88-3	Toluene	28	U
108-90-7	Chlorobenzene	28	U
100-41-4	Ethylbenzene	28	U
100-42-5	Styrene	28	U
1330-20-7	Xylene (Total)	28	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE47

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.11

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27093.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 64 Date Analyzed: 08/06/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NUMBER	COMPOUND	EST. CONC.	Q
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
23.			
24.			
25.			
26.			
27.			
28.			
29.			
30.			

FORM I VOA-TIC OLM03.0

p.147

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE48

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.12

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27094.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 76 Date Analyzed: 08/06/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	42	U
74-83-9	Bromomethane	42	U
75-01-4	Vinyl Chloride	42	U
75-00-3	Chloroethane	42	U
75-09-2	Methylene Chloride	42	U
67-64-1	Acetone	76	U
75-15-0	Carbon Disulfide	42	U
75-35-4	1,1-Dichloroethene	42	U
75-34-3	1,1-Dichloroethane	42	U
540-59-0	1,2-Dichloroethene (total)	42	U
67-66-3	Chloroform	42	U
107-06-2	1,2-Dichloroethane	42	U
78-93-3	2-Butanone	30	J
71-55-6	1,1,1-Trichloroethane	42	U
56-23-5	Carbon Tetrachloride	42	U
75-27-4	Bromodichloromethane	42	U
78-87-5	1,2-Dichloropropane	42	U
10061-01-5	cis-1,3-Dichloropropene	42	U
79-01-6	Trichloroethene	42	U
124-48-1	Dibromochloromethane	42	U
79-00-5	1,1,2-Trichloroethane	42	U
71-43-2	Benzene	42	U
10061-02-6	trans-1,3-Dichloropropene	42	U
75-25-2	Bromoform	42	U
108-10-1	4-Methyl-2-Pentanone	42	U
591-78-6	2-Hexanone	42	U
127-18-4	Tetrachloroethene	42	U
79-34-5	1,1,2,2-Tetrachloroethane	42	U
108-88-3	Toluene	42	U
108-90-7	Chlorobenzene	42	U
100-41-4	Ethylbenzene	42	U
100-42-5	Styrene	42	U
1330-20-7	Xylene (Total)	42	U

J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE48

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.12

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27094.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 76 Date Analyzed: 08/06/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE46

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.10

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18472.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 66 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/12/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	970	U
111-44-4	bis(2-Chloroethyl)Ether	970	U
95-57-8	2-Chlorophenol	970	U
541-73-1	1,3-Dichlorobenzene	970	U
106-46-7	1,4-Dichlorobenzene	970	U
95-50-1	1,2-Dichlorobenzene	970	U
95-48-7	2-Methylphenol	970	U
108-60-1	2,2'-oxybis(1-Chloropropane)	970	U
106-44-5	4-Methylphenol	970	U
621-64-7	N-Nitroso-di-n-propylamine	970	U
67-72-1	Hexachloroethane	970	U
98-95-3	Nitrobenzene	970	U
78-59-1	Isophorone	970	U
88-75-5	2-Nitrophenol	970	U
105-67-9	2,4-Dimethylphenol	970	U
111-91-1	bis(2-Chloroethoxy)methane	970	U
120-83-2	2,4-Dichlorophenol	970	U
120-82-1	1,2,4-Trichlorobenzene	970	U
91-20-3	Naphthalene	970	U
106-47-8	4-Chloroaniline	970	U
87-68-3	Hexachlorobutadiene	970	U
59-50-7	4-Chloro-3-Methylphenol	970	U
91-57-6	2-Methylnaphthalene	58	J
77-47-4	Hexachlorocyclopentadiene	970	U
88-06-2	2,4,6-Trichlorophenol	970	U
95-95-4	2,4,5-Trichlorophenol	2400	U
91-58-7	2-Chloronaphthalene	970	U
88-74-4	2-Nitroaniline	2400	U
131-11-3	Dimethylphthalate	970	U
208-96-8	Acenaphthylene	200	J
606-20-2	2,6-Dinitrotoluene	970	U
99-09-2	3-Nitroaniline	2400	U
83-32-9	Acenaphthene	210	J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE46

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.10

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18472.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 66 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/12/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	2400	U
100-02-7	4-Nitrophenol	2400	U
132-64-9	Dibenzofuran	100	~~J~~
121-14-2	2,4-Dinitrotoluene	970	U
84-66-2	Diethylphthalate	970	U
7005-72-3	4-Chlorophenyl-phenylether	970	U
86-73-7	Fluorene	230	J
100-01-6	4-Nitroaniline	2400	U
534-52-1	4,6-Dinitro-2-methylphenol	2400	U
86-30-6	N-Nitrosodiphenylamine (1)	970	U
101-55-3	4-Bromophenyl-phenylether	970	U
118-74-1	Hexachlorobenzene	970	U
87-86-5	Pentachlorophenol	2400	U
85-01-8	Phenanthrene	3100	
120-12-7	Anthracene	750	~~J~~
86-74-8	Carbazole	430	~~J~~
84-74-2	Di-n-butylphthalate	580	~~J~~
206-44-0	Fluoranthene	5800	
129-00-0	Pyrene	6000	
85-68-7	Butylbenzylphthalate	1900	
91-94-1	3,3'-Dichlorobenzidine	970	U
56-55-3	Benzo(a)anthracene	3200	
218-01-9	Chrysene	3700	
117-81-7	bis(2-Ethylhexyl)phthalate	6900	B
117-84-0	Di-n-octylphthalate	220	~~J~~
205-99-2	Benzo(b)fluoranthene	3200	
207-08-9	Benzo(k)fluoranthene	2800	
50-32-8	Benzo(a)pyrene	3300	
193-39-5	Indeno(1,2,3-cd)pyrene	2400	
53-70-3	Dibenz(a,h)anthracene	960	~~J~~
191-24-2	Benzo(g,h,i)perylene	3000	

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE46

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.10

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18472.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 66 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/12/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	141-79-7	3-Penten-2-one, 4-methyl-	2.728	~~4400~~	~~NJAB~~	R
2.	123-42-2	2-Pentanone, 4-hydroxy-4-met	2.986	~~7300~~	~~NJAB~~	R
3.		-Anhydro-.beta.-D-glucopyran	7.463	2400	J	
4.		UNKNOWN ORGANIC ACID	10.337	1600	J	
5.		UNKNOWN ORGANIC ACID	10.692	980	J	
6.		UNKNOWN PAH	11.349	1100	J	
7.		UNKNOWN	12.425	1400	J	
8.		UNKNOWN	13.060	1500	J	
9.	72-54-8	1,1-Dichloro-2,2-bis(p-chlor	13.921	1300	NJ	
10.		UNKNOWN AMIDE	14.362	~~11000~~	~~JB~~	R
11.	50-29-3	Chlorophenothane	14.491	1400	NJ	
12.		UNKNOWN	15.072	1600	J	
13.		UNKNOWN	15.675	2200	J	
14.		UNKNOWN	15.750	1800	J	
15.		UNKNOWN	15.826	1700	J	
16.		UNKNOWN	15.923	1500	J	
17.		-Dodecatrien--ol, -trimethy	17.193	1100	J	
18.		UNKNOWN PAH	17.763	1600	J	
19.	0-00-0	1-Methyl-2,6-diphenyl-4,4-pe	18.021	960	NJ	
20.		UNKNOWN	18.301	1100	J	
21.		UNKNOWN	18.409	1300	J	
22.		UNKNOWN	18.656	1600	J	
23.		UNKNOWN	18.828	1900	J	
24.		UNKNOWN	19.054	1400	J	
25.		UNKNOWN	19.668	1300	J	
26.		UNKNOWN	19.786	1800	J	
27.		UNKNOWN PAH	19.851	1800	J	
28.		UNKNOWN PAH	19.926	900	J	
29.		UNKNOWN	20.185	1800	J	
30.		UNKNOWN	20.249	2000	J	

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE46

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.10

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18472.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 66 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/12/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	20.357	800	J
2.		UNKNOWN	20.658	1200	J
3.		UNKNOWN	20.863	2200	J
4.		UNKNOWN	21.089	1000	J
5.		UNKNOWN	22.412	1400	J
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE47

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.11

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18477.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 64 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/12/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	910	U
111-44-4	bis(2-Chloroethyl)Ether	910	U
95-57-8	2-Chlorophenol	910	U
541-73-1	1,3-Dichlorobenzene	910	U
106-46-7	1,4-Dichlorobenzene	910	U
95-50-1	1,2-Dichlorobenzene	910	U
95-48-7	2-Methylphenol	910	U
108-60-1	2,2'-oxybis(1-Chloropropane)	910	U
106-44-5	4-Methylphenol	910	U
621-64-7	N-Nitroso-di-n-propylamine	910	U
67-72-1	Hexachloroethane	910	U
98-95-3	Nitrobenzene	910	U
78-59-1	Isophorone	910	U
88-75-5	2-Nitrophenol	910	U
105-67-9	2,4-Dimethylphenol	910	U
111-91-1	bis(2-Chloroethoxy)methane	910	U
120-83-2	2,4-Dichlorophenol	910	U
120-82-1	1,2,4-Trichlorobenzene	910	U
91-20-3	Naphthalene	910	U
106-47-8	4-Chloroaniline	910	U
87-68-3	Hexachlorobutadiene	910	U
59-50-7	4-Chloro-3-Methylphenol	910	U
91-57-6	2-Methylnaphthalene	910	U
77-47-4	Hexachlorocyclopentadiene	910	U
88-06-2	2,4,6-Trichlorophenol	910	U
95-95-4	2,4,5-Trichlorophenol	2300	U
91-58-7	2-Chloronaphthalene	910	U
88-74-4	2-Nitroaniline	2300	U
131-11-3	Dimethylphthalate	910	U
208-96-8	Acenaphthylene	910	U
606-20-2	2,6-Dinitrotoluene	910	U
99-09-2	3-Nitroaniline	2300	U
83-32-9	Acenaphthene	910	U

J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE47

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.11

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18477.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 64 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/12/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	2300	U
100-02-7	4-Nitrophenol	2300	U
132-64-9	Dibenzofuran	910	U
121-14-2	2,4-Dinitrotoluene	910	U
84-66-2	Diethylphthalate	910	U
7005-72-3	4-Chlorophenyl-phenylether	910	U
86-73-7	Fluorene	47	J
100-01-6	4-Nitroaniline	2300	U
534-52-1	4,6-Dinitro-2-methylphenol	2300	U
86-30-6	N-Nitrosodiphenylamine (1)	910	U
101-55-3	4-Bromophenyl-phenylether	910	U
118-74-1	Hexachlorobenzene	910	U
87-86-5	Pentachlorophenol	2300	U
85-01-8	Phenanthrene	610	J
120-12-7	Anthracene	170	J
86-74-8	Carbazole	910	U
84-74-2	Di-n-butylphthalate	910	U
206-44-0	Fluoranthene	1100	
129-00-0	Pyrene	1100	
85-68-7	Butylbenzylphthalate	230	J
91-94-1	3,3'-Dichlorobenzidine	910	U
56-55-3	Benzo(a)anthracene	590	J
218-01-9	Chrysene	660	J
117-81-7	bis(2-Ethylhexyl)phthalate	910 ~~540~~	U ~~JB~~
117-84-0	Di-n-octylphthalate	910	U
205-99-2	Benzo(b)fluoranthene	570	J
207-08-9	Benzo(k)fluoranthene	470	J
50-32-8	Benzo(a)pyrene	640	J
193-39-5	Indeno(1,2,3-cd)pyrene	440	J
53-70-3	Dibenz(a,h)anthracene	150	J
191-24-2	Benzo(g,h,i)perylene	550	J

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE47

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.11

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18477.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 64 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/12/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

Number TICs found: 33

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.		UNKNOWN	2.695	4400	J	
2.	10574-37-5	2-Pentene, 2,3-dimethyl-	2.717	~~6700~~	~~NJA~~	R
3.		UNKNOWN	2.781	1400	JB	
4.		UNKNOWN	2.878	3400	JB	
5.	123-42-2	2-Pentanone, 4-hydroxy-4-met	2.986	~~4600~~	~~NJAB~~	R
6.		UNKNOWN	3.040	830	J	
7.		UNKNOWN	3.621	990	JB	
8.		UNKNOWN	4.245	330	J	
9.		UNKNOWN	10.326	230	J	
10.		UNKNOWN PAH	11.348	200	J	
11.		11H-Benzo[]fluorene	13.598	260	J	
12.		UNKNOWN AMIDE	14.351	~~760~~	~~JB~~	R
13.		UNKNOWN AMIDE	16.955	~~430~~	~~JB~~	R
14.		-Octadien--ol, -dimethyl-, a	17.181	540	J	
15.	192-97-2	Benzo[e]pyrene	17.752	450	NJ	
16.		UNKNOWN	18.301	300	J	
17.		UNKNOWN	18.677	270	J	
18.		UNKNOWN	18.785	600	J	
19.		UNKNOWN	19.054	520	J	
20.		UNKNOWN	19.356	300	J	
21.		UNKNOWN	19.420	250	J	
22.		UNKNOWN	19.775	290	J	
23.		UNKNOWN PAH	19.829	300	J	
24.		UNKNOWN	20.163	680	J	
25.		UNKNOWN	20.238	310	J	
26.		UNKNOWN	20.378	240	J	
27.		UNKNOWN	20.507	420	J	
28.		UNKNOWN	20.625	250	J	
29.		UNKNOWN	20.647	260	J	
30.		UNKNOWN	20.895	530	J	

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE47

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.11

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18477.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 64 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/12/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

Number TICs found: 33

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	21.078	510	J
2.		UNKNOWN	21.121	220	J
3.		UNKNOWN PAH	21.971	330	J
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE48

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18478.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 76 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/12/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1400	U
111-44-4	bis(2-Chloroethyl)Ether	1400	U
95-57-8	2-Chlorophenol	1400	U
541-73-1	1,3-Dichlorobenzene	1400	U
106-46-7	1,4-Dichlorobenzene	1400	U
95-50-1	1,2-Dichlorobenzene	1400	U
95-48-7	2-Methylphenol	1400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1400	U
106-44-5	4-Methylphenol	1400	U
621-64-7	N-Nitroso-di-n-propylamine	1400	U
67-72-1	Hexachloroethane	1400	U
98-95-3	Nitrobenzene	1400	U
78-59-1	Isophorone	1400	U
88-75-5	2-Nitrophenol	1400	U
105-67-9	2,4-Dimethylphenol	1400	U
111-91-1	bis(2-Chloroethoxy)methane	1400	U
120-83-2	2,4-Dichlorophenol	1400	U
120-82-1	1,2,4-Trichlorobenzene	1400	U
91-20-3	Naphthalene	1400	U
106-47-8	4-Chloroaniline	1400	U
87-68-3	Hexachlorobutadiene	1400	U
59-50-7	4-Chloro-3-Methylphenol	1400	U
91-57-6	2-Methylnaphthalene	1400	U
77-47-4	Hexachlorocyclopentadiene	1400	U
88-06-2	2,4,6-Trichlorophenol	1400	U
95-95-4	2,4,5-Trichlorophenol	3400	U
91-58-7	2-Chloronaphthalene	1400	U
88-74-4	2-Nitroaniline	3400	U
131-11-3	Dimethylphthalate	1400	U
208-96-8	Acenaphthylene	1400	U
606-20-2	2,6-Dinitrotoluene	1400	U
99-09-2	3-Nitroaniline	3400	U
83-32-9	Acenaphthene	1400	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE48

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18478.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 76 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/12/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	3400	U
100-02-7	4-Nitrophenol	3400	U
132-64-9	Dibenzofuran	1400	U
121-14-2	2,4-Dinitrotoluene	1400	U
84-66-2	Diethylphthalate	1400	U
7005-72-3	4-Chlorophenyl-phenylether	1400	U
86-73-7	Fluorene	1400	U
100-01-6	4-Nitroaniline	3400	U
534-52-1	4,6-Dinitro-2-methylphenol	3400	U
86-30-6	N-Nitrosodiphenylamine (1)	1400	U
101-55-3	4-Bromophenyl-phenylether	1400	U
118-74-1	Hexachlorobenzene	1400	U
87-86-5	Pentachlorophenol	3400	U
85-01-8	Phenanthrene	1400	U
120-12-7	Anthracene	1400	U
86-74-8	Carbazole	1400	U
84-74-2	Di-n-butylphthalate	1400	U
206-44-0	Fluoranthene	390	J
129-00-0	Pyrene	380	J
85-68-7	Butylbenzylphthalate	120	J
91-94-1	3,3'-Dichlorobenzidine	1400	U
56-55-3	Benzo(a)anthracene	220	J
218-01-9	Chrysene	280	J
117-81-7	bis(2-Ethylhexyl)phthalate	1400 ~~1100~~	U ~~JB~~
117-84-0	Di-n-octylphthalate	1400	U
205-99-2	Benzo(b)fluoranthene	250	J
207-08-9	Benzo(k)fluoranthene	190	J
50-32-8	Benzo(a)pyrene	260	J
193-39-5	Indeno(1,2,3-cd)pyrene	180	J
53-70-3	Dibenz(a,h)anthracene	1400	U
191-24-2	Benzo(g,h,i)perylene	230	J

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 OLM03.0

p.159

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE48

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18478.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 76 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/12/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

Number TICs found: 33 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 141-79-7	3-Penten-2-one, 4-methyl-	2.727	~~11000~~	~~NJAB~~ R
2.	UNKNOWN	2.791	2300	JB
3.	UNKNOWN	2.888	5700	JB
4. 123-42-2	2-Pentanone, 4-hydroxy-4-met	2.996	~~7700~~	~~NJAB~~ R
5.	UNKNOWN	3.049	1300	J
6.	UNKNOWN	3.426	~~1300~~	~~JB~~ R
7.	UNKNOWN	3.512	750	JB
8.	UNKNOWN Alkane	3.631	1700	JB
9.	UNKNOWN	4.244	580	J
10.	UNKNOWN ORGANIC ACID	8.366	420	J
11.	UNKNOWN	10.529	340	J
12. 57-10-3	Hexadecanoic acid	11.337	430	NJ
13.	UNKNOWN AMIDE	14.350	~~550~~	~~JB~~ R
14.	UNKNOWN	15.426	320	J
15.	UNKNOWN	15.642	540	J
16.	UNKNOWN	16.944	490	J
17.	-Dodecatrien--ol,-trimethy	17.181	1000	J
18.	UNKNOWN	18.203	370	J
19.	UNKNOWN	18.300	370	J
20.	UNKNOWN	18.784	510	J
21.	UNKNOWN	18.892	670	J
22.	UNKNOWN	19.043	1100	J
23.	UNKNOWN	19.226	370	J
24.	UNKNOWN	19.817	380	J
25.	UNKNOWN	19.904	390	J
26.	UNKNOWN	20.173	870	J
27.	UNKNOWN	20.226	460	J
28.	UNKNOWN	20.646	630	J
29.	UNKNOWN	20.851	410	J
30.	UNKNOWN	21.077	780	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE48

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18478.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 76 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/12/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

Number TICs found: 33

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	21.453	560	J
2.	UNKNOWN	21.862	4600	J
3.	UNKNOWN	23.326	540	J
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE46

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.10

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 66 decanted: (Y/N) N Date Received: 08/01/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/17/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	5.0	U
319-85-7	beta-BHC	5.0	U
319-86-8	delta-BHC	5.0	U
58-89-9	gamma-BHC (Lindane)	5.0	U
76-44-8	Heptachlor	5.0	U
309-00-2	Aldrin	5.0	U
1024-57-3	Heptachlor epoxide	23	~~P~~ N
959-98-8	Endosulfan I	180 **	E
60-57-1	Dieldrin	50	~~P~~
72-55-9	4,4'-DDE	140* ~~160~~	~~E~~
72-20-8	Endrin	~~110~~	~~P~~ R
33213-65-9	Endosulfan II	69	~~P~~
72-54-8	4,4'-DDD	1900* ~~1700~~	~~E~~
1031-07-8	Endosulfan sulfate	9.7	U
50-29-3	4,4'-DDT	530* ~~430~~	~~E~~
72-43-5	Methoxychlor	50	U
53494-70-5	Endrin ketone	9.7	U
7421-93-4	Endrin aldehyde	200* ~~240~~	~~E~~
5103-71-9	alpha-Chlordane	180* ~~200~~	~~E~~
5103-74-2	gamma-Chlordane	170* ~~170~~	~~P~~ E N
8001-35-2	Toxaphene	500	U
12674-11-2	Aroclor-1016	97	U
11104-28-2	Aroclor-1221	200	U
11141-16-5	Aroclor-1232	97	U
53469-21-9	Aroclor-1242	97	U
12672-29-6	Aroclor-1248	97	U
11097-69-1	Aroclor-1254	97	U
11096-82-5	Aroclor-1260	690	~~P~~

J

* Result from BSE46DL.

** Analyte not detected in BSE46DL

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE47

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 64 decanted: (Y/N) N Date Received: 08/01/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/17/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	4.7	U
319-85-7	beta-BHC	4.7	U
319-86-8	delta-BHC	4.7	U
58-89-9	gamma-BHC (Lindane)	4.7	U
76-44-8	Heptachlor	4.7	U
309-00-2	Aldrin	4.7	U
1024-57-3	Heptachlor epoxide	4.7	U
959-98-8	Endosulfan I	4.7	U
60-57-1	Dieldrin	9.2	U
72-55-9	4,4'-DDE	9.2	U
72-20-8	Endrin	9.2	U
33213-65-9	Endosulfan II	9.2	U
72-54-8	4,4'-DDD	9.2	U
1031-07-8	Endosulfan sulfate	9.2	U
50-29-3	4,4'-DDT	48	~~P~~
72-43-5	Methoxychlor	47	U
53494-70-5	Endrin ketone	9.2	U
7421-93-4	Endrin aldehyde	72	~~P~~
5103-71-9	alpha-Chlordane	4.7	U
5103-74-2	gamma-Chlordane	4.7	U
8001-35-2	Toxaphene	470	U
12674-11-2	Aroclor-1016	92	U
11104-28-2	Aroclor-1221	190	U
11141-16-5	Aroclor-1232	92	U
53469-21-9	Aroclor-1242	92	U
12672-29-6	Aroclor-1248	92	U
11097-69-1	Aroclor-1254	92	U
11096-82-5	Aroclor-1260	320	~~P~~

650

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE48

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE46

Matrix: (soil/water) SOIL Lab Sample ID: 30412.12

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 76 decanted: (Y/N) N Date Received: 08/01/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/17/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	7.1	U
319-85-7	beta-BHC	7.1	U
319-86-8	delta-BHC	7.1	U
58-89-9	gamma-BHC (Lindane)	7.1	U
76-44-8	Heptachlor	16	~~P~~ N
309-00-2	Aldrin	7.1	U
1024-57-3	Heptachlor epoxide	7.1	U
959-98-8	Endosulfan I	7.1	U
60-57-1	Dieldrin	14	U
72-55-9	4,4'-DDE	20	~~P~~ N
72-20-8	Endrin	14	U
33213-65-9	Endosulfan II	26	~~P~~ N
72-54-8	4,4'-DDD	14	U
1031-07-8	Endosulfan sulfate	14	U
50-29-3	4,4'-DDT	~~14~~	~~U~~
72-43-5	Methoxychlor	71	U
53494-70-5	Endrin ketone	14	U
7421-93-4	Endrin aldehyde	14	U
5103-71-9	alpha-Chlordane	~~26~~	~~P~~
5103-74-2	gamma-Chlordane	7.1	U
8001-35-2	Toxaphene	710	U
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	280	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	350	

677

RECEIVED

AUG 2 7 1997

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A / Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE

August 13, 1997

CONTRACT NO.: 68-D5-0026

CASE NO.: 25601

SAMPLE NOS.: BSE22, BSE23, BSE [illegible] BSE23MSD, BSE26, BSE27, BSE28, BSE28MS, BSE28MSD, BSE31 [illegible] BSE38RE, BSE39, BSE41, BSE43, BSE43RE, BSE29, [illegible] BSE34, BSE35, BSE35RE, BSE36, BSE36RE, [illegible]

SDG NO.: BSE22

VOLATILE FRACTION

Fourteen soil samples and six water samples w[illegible] analysis. The samples were analyzed by GC/MS following the OLM0[illegible]

Alternate columns used for the analysis of vola[illegible] the Res[illegible] XTI-5 (bonded 5% phenyl-95% dimethyl polysiloxane [illegible] 2253) and the DB624, 75m, 0.53mmID Megabore, 3[illegible]

An alternate trap used for the analysis of volati[illegible] 3000 (Carbopack B/Carboxen 1000 & 1001; Tekma[illegible]

The following samples in this SDG (labeled wi[illegible] was performed to verify internal standard areas: B[illegible]

No major problems occurred during the analys[illegible]

Blanks: VBLK6 contained low level Xylene(Total) and Styrene [illegible] Tentatively Identified Compounds (TIC's) at e[illegible] VHBLK1 contained low level Methylene Chlo[illegible]

Surrogates: Sample BSE36 contained one sur[illegible] contained all surrogates within limits, but both [illegible] Area Recovery Limits requiring both analyses [illegible] standard areas outside QC Area Recovery Lim[illegible] but also contained one surrogate out. Both an[illegible]

Matrix Spikes: No problems.

Internal Standards: Samples BSE38, BSE43, [illegible] internal standard areas outside QC Area Recovery Limits. They [illegible] nal results verifying a matrix effect. Both analyses have [illegible] ned internal standard areas outside QC Area Recovery Lim[illegible] (BSE28MS) for duplication and verification of matrix effect.

NOTE: All manual integrations in this data package for GC/MS Volatiles have been performed for one of the following reasons:

a. Data system missed peak during acquisition.
b. Data system improperly integrated peak.

If water samples are contained in this case, their pH data is included on the page accompanying this SDG narrative.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager, or his designee, as verified by the following signature.

Harry M. Borg

Harry M. Borg
Organic Program Manager

August 13, 1997

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A / Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE

August 13, 1997

CONTRACT NO.: 68-D5-0026

CASE NO.: 25601

SAMPLE NOS.: BSE22, BSE23, BSE23MS, BSE23MSD, BSE26, BSE27, BSE28, BSE28DL, BSE28MS, BSE28MSD, BSE29, BSE30, BSE30DL, BSE31, BSE32, BSE33, BSE33DL, BSE34, BSE35, BSE36, BSE36DL, BSE37, BSE37DL, BSE38, BSE41, BSE42, BSE43, BSE43DL, BSE44

SDG NO.: BSE22

SEMIVOLATILE FRACTION

Fourteen soil and five water samples were submitted for Semivolatile Organic Analyses. The samples were analyzed by GC/MS following the OLM03.2 CLP Organic Statement of Work.

The following column is used for the semivolatile analysis: Restek XTI-5 (bonded 5% phenyl-95% dimethyl polysiloxane), 30m, 0.25mm ID, 0.25um film thickness (Restek #12223).

The following samples in this SDG (labeled with a DL) are considered billable since these samples were diluted to bring target analytes within linear range. BSE28DL, BSE30DL, BSE33DL, BSE36DL, BSE37DL, BSE43DL

No major problems occurred during the analyses of these samples. Sample coolers arrived at 14, 15, 19, 20 and 21 degrees Celsius. The following samples had secondary dilutions analyzed for target compounds above linear range: BSE28, BSE30, BSE33, BSE36, BSE37, BSE43.

The following samples had alkanes reported and the reports are included at the end of this SDG Narrative: BSE22, BSE23, BSE26, BSE27, BSE28, BSE28DL, BSE29, BSE30, BSE30DL, BSE31, BSE32, BSE33, BSE33DL, BSE34, BSE35, BSE36, BSE37, BSE37DL, BSE38, BSE41, BSE42, BSE43, BSE43DL, BSE44, SBLK1, SBLK2,SBKL3

Blanks: SBLK3 had low level phthalate contamination below CRQL. SBLK4 had low level phthalate contamination above CRQL but below 5X CRQL..

Surrogates: BSE26, BSE22, BSE23, BSE23MS, and BSE23MSD had low recovery of Terphenyl-d14 at 25%, 25%, 26%, 22%, and 30%, respectively. BSE23MS had low recovery of 2-fluorobiphenyl at 39%.

Matrix Spikes: BSE23MS had low recovery of 1,2,4-trichlorobenzene at 36% and high recovery of 4-nitrophenol at 100%. BSE23MSD had low recovery of N-nitroso-di-n-propylamine at 32%. BSE23MS/MSD had high RPDs for 4-chloro-3-methylphenol at 46%, 4-nitrophenol at 63%, and 2,4-dinitrotoluene at 40%.

Internal Standards: BSE23MS and BSE23MSD had low recovery of internal standard areas.

NOTE: All manual integrations in this data package for GC/MS Volatiles/Semivolatiles have been performed for one of the following reasons:

a. Data system missed peak during acquisition.
b. Data system improperly integrated peak.

If water samples are contained in this case, their pH data is included on the page accompanying this SDG narrative.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager, or his designee, as verified by the following signature.

Harry M. Borg

Harry M. Borg

Organic Program Manager
hb

August 13, 1997

SDG Narrative

Case: 25601
SDG: BSE22
Contract: 68-D5-0026
Samples: BSE22, BSE23, BSE26, BSE27, BSE28, BSE31, BSE37, BSE38, BSE41, BSE43, BSE29, BSE30, BSE32, BSE33, BSE34, BSE35, BSE36, BSE42, BSE44.
Fraction: Pesticide/PCB

SDG BSE22 consisted of 14 soil samples and 5 water samples plus dilutions and re-extracts which were analyzed for pesticide/PCBs. All samples, blanks and spikes were extracted and analyzed according to EPA SOW OLM03.2. The samples were analyzed on J&W Scientific dual analytical columns (30m x 0.32mm ID, 0.25µm film thickness, DB-17 or DB-17MS and DB-1701 or DB-XLB). The DB-17 phase consists of (50%-Phenyl) Methylpolysiloxane and the DB-1701 phase consists of (14%-Cyanopropylphenyl) Methylpolysiloxane. The DB-XLB is a proprietary phase pesticide column. These columns were specifically designed for pesticide/PCB separation as required by the EPA's SOW. All applicable manufacturer's instructions were followed for the analysis of pesticides/PCBs. Manufacturer provided information concerning the performance characteristics of the column are kept on site. Hydrogen was used as the carrier gas for instruments HP-7 and HP-15. Helium was used as the carrier gas for all other instruments. Three major problems occurred during the analysis of samples in this case. They are described in the following paragraphs.

Surrogate recoveries of all method blanks were within control limits. Percent recoveries for the water MS/MSD were within control limits. The soil MS/MSD exhibited erratic recoveries due to matrix effect.

It should be noted that when multi-responding compounds are present in a sample, false positives of single response compounds are common. The number of false positives may be reduced by employing a ratio technique in samples which are "clean", containing minimally more peaks than the multi-responder of interest, and do not contain environmentally altered multi-responders. However, "real-life" samples are typically not as previously described. Many times they exhibit highly complex chromatograms and environmentally altered multi-responders which are unable to be ratioed with a great deal of accuracy. Since ECD detection is not a definitive means of detection, single-response analytes in the presence of multi-responders will be reported (as per the method, if a peak is within a target analyte's retention time window on both columns, then it is reported as that target analyte). This alleviates the possibility that false negative results will be reported. However, this may lead to false positives. The end data user should be aware of the limitations of the method and take appropriate care.

All soil samples in this SDG caused extremely high breakdown of 4,4'-DDT, methoxychlor , and several other pesticides in the continuing standards following their injection. The continuing standards analyzed before these samples met OLM03.2 continuing calibration criteria. When diluted 10X (in order to achieve satisfactory chromatography as per D-59/PEST, 10.2.3.1), the samples met OLM03.2 acceptance criteria except for 4,4'-DDT on the DB-17 column (samples affected the calibration verification to a lesser degree because of dilution, but affected them nonetheless). An undiluted analysis and a 10X analysis was performed for these samples. Forms for the undiluted and the 10X data have been submitted.

All samples in this SDG, as noted above, required dilution. This was performed per D-59/PEST, 10.2.3.1, which states that all samples must be analyzed at the most concentrated level that is consistent with achieving satisfactory chromatography. These samples were diluted in order to allow for the continuing calibration to be compliant. Therefore, the dilutions are billable.

The original extracts of soil samples BSE27, BSE28, BSE31, BSE37, BSE38, and BSE43 and their accompanying method blanks and MS/MSDs exhibited Aroclor 1254 contamination. This contamination was traced to another client's sample. This sample was shipped to the lab for OLM03.2 analysis with no warning that it may contain high levels of target analyte. In fact, this sample was pure Aroclor 1254. Since pure PCBs are "sticky", normal glassware washing procedures were not adequate, and thus the contamination. For this reason, the samples and MS/MSDs were re-extracted (outside hold time). The re-extracts are reported on forms for the undiluted and 10X analyses and the original extracts accompany the data package in the extra data section. The high-level Aroclor contamination also contributed to the lateness of this case.

Upon final review of the re-extracted samples, it was noted that one column on instrument HP-7 was not resolved (endosulfan sulfate and methoxychlor). Due to the unusually dirty nature of the samples, they were not re-analyzed. The forms generation software did not work properly for the resolution check and PEMs for instrument HP-7. The data integrator was not able to separate endosulfan sulfate and methoxychlor which kept the form from printing properly. The PEMs would not print properly because the sample caused high breakdown and the 4,4'-DDT and methoxychlor peaks were no longer present to calculate a resolution.

The following tables list the total nanograms injected on column for each calibration standard based upon amount injected on column, 0.5µL, 1µL, or 2µL:

RESOLUTION CHECK

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
gamma-Chlordane	0.005	0.01	0.02
Endosulfan I	0.005	0.01	0.02
4,4'-DDE	0.01	0.02	0.04
Dieldrin	0.01	0.02	0.04
Endosulfan Sulfate	0.01	0.02	0.04
Endrin Ketone	0.01	0.02	0.04
Methoxychlor	0.5	0.1	0.2
Tetrachloro-m-xylene	0.01	0.02	0.04
Decachlorobiphenyl	0.01	0.02	0.04

PERFORMANCE EVALUATION

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
gamma-BHC	0.005	0.01	0.02
alpha-BHC	0.005	0.01	0.02
4,4'-DDT	0.05	0.1	.02
beta-BHC	0.005	0.01	0.02
Endrin	0.025	0.05	0.1
Methoxychlor	0.125	0.25	0.5
Tetrachloro-m-xylene	0.01	0.02	0.04
Decachlorobiphenyl	0.01	0.02	0.04

INDIVIDUAL STANDARD MIXTURE A -- LOW

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
alpha-BHC	0.0025	0.005	0.01
Heptachlor	0.0025	0.005	0.01
gamma-BHC	0.0025	0.005	0.01
Endosulfan I	0.0025	0.005	0.01
Dieldrin	0.005	0.01	0.02
Endrin	0.005	0.01	0.02
4,4'-DDD	0.005	0.01	0.02
4,4'-DDT	0.005	0.01	0.02
Methoxychlor	0.025	0.05	0.1
Tetrachloro-m-xylene	0.0025	0.005	0.01
Decachlorobiphenyl	0.005	0.01	0.02

INDIVIDUAL STANDARD MIXTURE B -- LOW

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
beta-BHC	0.0025	0.005	0.01
delta-BHC	0.0025	0.005	0.01
Aldrin	0.0025	0.005	0.01
Heptachlor epoxide	0.0025	0.005	0.01
alpha-Chlordane	0.0025	0.005	0.01
gamma-Chlordane	0.0025	0.005	0.01
4,4'-DDE	0.005	0.01	0.02
Endosulfan sulfate	0.005	0.01	0.02
Endrin aldehyde	0.005	0.01	0.02
Endrin ketone	0.005	0.01	0.02
Endosulfan II	0.005	0.01	0.02
Tetrachloro-m-xylene	0.0025	0.005	0.01

Decachlorobiphenyl	0.005	0.01	0.02

INDIVIDUAL STANDARD MIXTURE A -- MEDIUM

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
alpha-BHC	0.01	0.02	0.04
Heptachlor	0.01	0.02	0.04
gamma-BHC	0.01	0.02	0.04
Endosulfan I	0.01	0.02	0.04
Dieldrin	0.02	0.04	0.08
Endrin	0.02	0.04	0.08
4,4'-DDD	0.02	0.04	0.08
4,4'-DDT	0.02	0.04	0.08
Methoxychlor	0.1	0.2	0.4
Tetrachloro-m-xylene	0.01	0.02	0.04
Decachlorobiphenyl	0.02	0.04	0.08

INDIVIDUAL STANDARD MIXTURE B -- MEDIUM

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
beta-BHC	0.01	0.02	0.04
delta-BHC	0.01	0.02	0.04
Aldrin	0.01	0.02	0.04
Heptachlor epoxide	0.01	0.02	0.04
alpha-Chlordane	0.01	0.02	0.04
gamma-Chlordane	0.01	0.02	0.04
4,4'-DDE	0.02	0.04	0.08
Endosulfan sulfate	0.02	0.04	0.08
Endrin aldehyde	0.02	0.04	0.08
Endrin ketone	0.02	0.04	0.08
Endosulfan II	0.02	0.04	0.08
Tetrachloro-m-xylene	0.01	0.02	0.04
Decachlorobiphenyl	0.02	0.04	0.08

INDIVIDUAL STANDARD MIXTURE A -- HIGH

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
alpha-BHC	0.04	0.08	0.16
Heptachlor	0.04	0.08	0.16
gamma-BHC	0.04	0.08	0.16
Endosulfan I	0.04	0.08	0.16
Dieldrin	0.08	0.16	0.32
Endrin	0.08	0.16	0.32

4,4'-DDD	0.08	0.16	0.32
4,4'-DDT	0.08	0.16	0.32
Methoxychlor	0.4	0.8	1.6
Tetrachloro-m-xylene	0.04	0.08	0.16
Decachlorobiphenyl	0.08	0.16	0.32

INDIVIDUAL STANDARD MIXTURE B -- HIGH

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
beta-BHC	0.04	0.08	0.16
delta-BHC	0.04	0.08	0.16
Aldrin	0.04	0.08	0.16
Heptachlor epoxide	0.04	0.08	0.16
alpha-Chlordane	0.04	0.08	0.16
gamma-Chlordane	0.04	0.08	0.16
4,4'-DDE	0.08	0.16	0.32
Endosulfan sulfate	0.08	0.16	0.32
Endrin aldehyde	0.08	0.16	0.32
Endrin ketone	0.08	0.16	0.32
Endosulfan II	0.08	0.16	0.32
Tetrachloro-m-xylene	0.04	0.08	0.16
Decachlorobiphenyl	0.08	0.16	0.32

MULTI-RESPONSE STANDARD MIXTURES

Compounds	Total nanograms (0.5µL)	Total nanograms (1µL)	Total nanograms (2µL)
Aroclor-1016	0.05	0.1	0.2
Aroclor-1221	0.1	0.2	0.4
Aroclor-1232	0.05	0.1	0.2
Aroclor-1242	0.05	0.1	0.2
Aroclor-1248	0.05	0.1	0.2
Aroclor-1254	0.05	0.1	0.2
Aroclor-1260	0.05	0.1	0.2
Toxaphene	0.25	0.5	1.0

All manual integrations in this data package for GC/EC have been performed for one of the following reasons:

a. Data system missed a peak during processing.
b. Data system improperly integrated a peak.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on

diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Brett R Dees
GC Laboratory Supervisor
August 26, 1997

Alkane Report for Sample : BSE22 Page: 1

Data file : t22951.d Matrix : WATER

	CAS #	Compound	R.T.	Estimated Conc.
1)	4127-45-1	Cyclopropane, 1,1,2-trimethyl-	3.879	10.31
2)	16747-31-2	Hexane, 3,3,4-trimethyl-	3.975	2.70
3)	49622-18-6	Decane, 3,3,4-trimethyl-	4.115	2.68
4)	594-36-5	Butane, 2-chloro-2-methyl-	5.231	2.08
5)	544-76-3	Hexadecane	7.378	2.85
6)	629-78-7	Heptadecane	8.215	2.14
7)	629-78-7	Heptadecane	9.074	2.74
8)	17453-94-0	Undecane, 5-ethyl-	9.492	3.22
9)	629-50-5	Tridecane	9.932	2.29
10)	62238-11-3	Decane, 2,3,5-trimethyl-	10.79	3.00
11)	112-95-8	Eicosane	11.61	2.26
12)	286-45-3	8-Oxabicyclo[5.1.0]octane	13.58	37.33
13)	112-95-8	Eicosane	13.92	3.88
14)	7098-22-8	Tetratetracontane	14.18	3.18
15)	112-95-8	Eicosane	14.63	4.72
16)	112-40-3	Dodecane	15.32	4.36
17)	629-92-5	Nonadecane	15.97	8.39
18)	638-68-6	Triacontane	16.60	9.27
19)	593-45-3	Octadecane	16.97	3.06
20)	638-68-6	Triacontane	17.22	10.43
21)	295-17-0	Cyclotetradecane	17.66	14.63
22)	638-68-6	Triacontane	17.81	12.41
23)	112-95-8	Eicosane	18.37	20.54
24)	295-17-0	Cyclotetradecane	18.78	28.07
25)	7098-22-8	Tetratetracontane	18.93	7.22
26)	295-48-7	Cyclopentadecane	19.32	8.38
27)	629-99-2	Pentacosane	19.47	14.31
28)	68779-14-6	Cyclohexane, 1,5-diethenyl-2,3-dimethyl-	19.76	4.71
29)	295-65-8	Cyclohexadecane	19.83	16.41
30)	630-07-9	Pentatriacontane	19.98	5.22
31)	28981-49-9	Cyclododecane, ethyl-	20.83	5.79

Concentration Units: Water: UG/L Soil: UG/KG

p.175

Alkane Report for Sample : BSE23 Page: 1

Data file : t22952.d Matrix : WATER

	CAS #	Compound	R.T.	Estimated Conc.
~~1)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro-~~	~~3.865~~	~~58.54~~ 8-11-97
2)	584-94-1	Hexane, 2,3-dimethyl-	4.112	4.61
3)	54125-39-2	trans-2,3-Epoxydecane	4.906	37.49
4)	3074-71-3	Heptane, 2,3-dimethyl-	5.121	2.62
5)	2425-66-3	Propane, 1-chloro-2-nitro-	5.228	3.73
~~6)~~	~~354-21-2~~	~~Ethane, 1,2,2-trichloro-1,1-difluoro-~~	~~6.870~~	~~43.56~~ 8-11-97
7)	1120-21-4	Undecane	9.940	2.36
8)	544-76-3	Hexadecane	17.21	3.18
9)	295-17-0	Cyclotetradecane	17.65	31.89
10)	295-48-7	Cyclopentadecane	18.23	15.76
11)	630-07-9	Pentatriacontane	18.38	10.60
12)	295-48-7	Cyclopentadecane	19.32	23.23
13)	630-07-9	Pentatriacontane	19.47	16.42
14)	295-65-8	Cyclohexadecane	19.84	48.85
15)	54832-82-5	Tricyclo[4.3.0.07,9]nonane, 2,2,5,5,8,8-	20.06	6.48
16)	295-65-8	Cyclohexadecane	20.84	26.54

Concentration Units: Water: UG/L Soil: UG/KG

p.176

Alkane Report for Sample : BSE26 Page: 1

Data file : t22950.d Matrix : WATER

	CAS #	Compound	R.T.	Estimated Conc.
~~1)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro~~	~~3.856~~	~~55.88~~ 8-11-5 DM
2)	594-36-5	Butane, 2-chloro-2-methyl-	5.230	2.11
3)	1120-21-4	Undecane	7.376	2.76
~~4)~~	~~359-28-4~~	~~Ethane, 1,1,2-trichloro-2-fluoro-~~	~~9.061~~	~~2.81~~ 8-11-5 DM
5)	124-18-5	Decane	17.79	3.30
6)	544-85-4	Dotriacontane	18.37	3.87
7)	629-94-7	Heneicosane	19.46	3.94

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : BSE27 Page: 1

Data file : v18355.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	107-81-3	Pentane, 2-bromo-	3.461	767.40
~~2)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro-~~	~~3.493~~	~~1116.17~~
3)	544-85-4	Dotriacontane	15.21	498.29
4)	629-78-7	Heptadecane	16.44	882.26
5)	630-06-8	Hexatriacontane	17.58	2039.34
6)	112-40-3	Dodecane	18.63	2896.32
7)	53584-60-4	28-Nor-17.alpha.(H)-hopane	18.88	514.70

Concentration Units: Water: UG/L Soil: UG/KG

p.178

Alkane Report for Sample : BSE28 Page: 1

Data file : v18356.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
~~1)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro-~~	~~3.494~~	947.19
2)	112-40-3	Dodecane	7.196	600.95
3)	75163-97-2	Octadecane, 2,6-dimethyl-	9.273	625.43
4)	593-49-7	Heptacosane	17.58	505.20
5)	6248-88-0	Bicyclo[2.2.1]heptane, 1,3,3-trimethyl-	17.77	449.71
6)	112-95-8	Eicosane	18.65	421.26
7)	6079-19-2	Cholestane, 4,5-epoxy-, (4.alpha.,5.alph	19.15	1052.38

Concentration Units: Water: UG/L Soil: UG/KG

p. 179

Alkane Report for Sample : BSE28DL Page: 1

Data file : v18364.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
~~1)~~	~~1111-74-6~~	~~Silane, dimethyl~~	~~3.102~~	~~734.46~~
2)	111-01-3	Squalane	8.795	578.18
3)	3386-33-2	Octadecane, 1-chloro-	9.237	487.92
4)	1921-70-6	Pentadecane, 2,6,10,14-tetramethyl-	9.280	589.16
5)	36728-72-0	28-Nor-17.beta.(H)-hopane	18.88	1571.72
6)	295-17-0	Cyclotetradecane	19.03	1369.65

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : BSE29 Page: 1

Data file : v18399.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	20637-47-2	Heptane, 4-methoxy-3-(methoxymethyl)-	2.834	810.35
2)	2216-30-0	Heptane, 2,5-dimethyl-	2.952	493.01
~~3)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro-~~	~~3.469~~	~~569.26~~ 8-13-97
4)	74421-17-3	Hexane, 1-(hexyloxy)-2-methyl-	3.555	385.30
5)	62108-21-8	Decane, 6-ethyl-2-methyl-	15.18	321.74
6)	630-06-8	Hexatriacontane	17.55	807.15
7)	112-40-3	Dodecane	18.63	297.54
8)	0-00-0	2,2-Bis(4-trifluoroacetoxyphenyl)propane	22.79	335.77

Concentration Units: Water: UG/L Soil: UG/KG

p.181

Alkane Report for Sample : BSE30 Page: 1

Data file : v18400.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	2216-30-0	Heptane, 2,5-dimethyl-	2.955	458.90
~~2)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro-~~	~~3.471~~	~~555.12~~ 8-13-4
3)	59958-46-2	trans-2-Oxabicyclo[4.4.0]decane	3.665	444.35
4)	629-78-7	Heptadecane	16.41	308.05
5)	629-92-5	Nonadecane	17.55	805.94
6)	112-95-8	Eicosane	18.63	352.64

Concentration Units: Water: UG/L Soil: UG/KG

p.182

Data file : v18439.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	20637-29-0	Hexane, 1,2,3-trimethoxy-	2.814	1696.46
2)	2216-33-3	Octane, 3-methyl-	2.933	954.51
3)	1713-33-3	7-Oxabicyclo[4.1.0]heptane, 1-methyl-	3.654	868.02
4)	630-01-3	Hexacosane	17.51	805.45

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : BSE31 Page: 1

Data file : v18359.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
~~1)~~	~~1111-74-6~~	~~Silane, dimethyl-~~	~~3.095~~	~~719.82~~
~~2)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro-~~	~~3.493~~	~~763.99~~
~~3)~~	~~354-21-2~~	~~Ethane, 1,2,2-trichloro-1,1-difluoro-~~	~~6.216~~	~~599.25~~
4)	629-78-7	Heptadecane	16.44	893.49
5)	593-45-3	Octadecane	17.58	1361.14
6)	17312-57-1	Dodecane, 3-methyl-	18.64	1206.68
7)	52474-84-7	Cholestane, 14-methyl-	19.15	943.37

Concentration Units: Water: UG/L Soil: UG/KG

p. 184

Alkane Report for Sample : BSE32 Page: 1

Data file : v18401.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	95057-12-8	1,1,3,4-Tetramethylcyclohexane	2.737	150.95
2)	2216-33-3	Octane, 3-methyl-	2.953	225.34
3)	2216-33-3	Octane, 3-methyl-	3.168	117.24
~~4)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro-~~	~~3.469~~	~~286.29~~
5)	61142-21-0	Cyclohexane, (1,2,2-trimethylbutyl)-	3.631	121.43
6)	630-03-5	Nonacosane	12.42	88.20
7)	0-00-0	10-Methylnonadecane	13.85	303.97
8)	3386-33-2	Octadecane, 1-chloro-	15.19	548.42
9)	54833-23-7	Eicosane, 10-methyl-	16.41	150.30
10)	7098-22-8	Tetratetracontane	17.55	300.28
11)	1560-88-9	Octadecane, 2-methyl-	18.63	342.87

Concentration Units: Water: UG/L Soil: UG/KG

p.185

Alkane Report for Sample : BSE33 Page: 1

Data file : v18402.d Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
1) 53584-60-4	28-Nor-17.alpha.(H)-hopane	18.86	1067.66

Concentration Units: Water: UG/L Soil: UG/KG

p.186

Data file : v18440.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	20637-29-0	Hexane, 1,2,3-trimethoxy-	2.816	3096.60
2)	628-17-1	Pentane, 1-iodo-	8.402	29960.66
3)	54105-77-0	(2-Methylbutyl)cyclohexane	14.89	2120.72

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : BSE34

Data file : v18403.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	630-06-8	Hexatriacontane	13.85	6672.16
2)	3386-33-2	Octadecane, 1-chloro-	15.18	13937.09
3)	630-03-5	Nonacosane	17.55	11321.86
4)	638-67-5	Tricosane	18.63	12681.56
5)	62337-97-7	Cyclohexane, 1,1,2-trimethyl-3,5-bis(1-m	19.40	9832.28

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : BSE35 Page: 1

Data file : v18404.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	629-99-2	Pentacosane	15.18	7610.57
2)	646-31-1	Tetracosane	17.55	5251.51
3)	629-94-7	Heneicosane	18.63	8197.83
4)	14739-72-1	Heneicosane, 11-pentyl-	19.42	5201.86

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : BSE36 Page: 1

Data file : v18405.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	629-78-7	Heptadecane	16.41	4298.92
2)	629-92-5	Nonadecane	17.55	4070.89
3)	24635-97-0	1,3,2-Dioxarsenane, 2-methyl-	17.65	4305.14
4)	593-45-3	Octadecane	18.63	4933.02

Concentration Units: Water: UG/L Soil: UG/KG

p.190

Alkane Report for Sample : BSE37 Page: 1

Data file : v18360.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
~~1)~~	~~79-34-5~~	~~Ethane, 1,1,2,2 tetrachloro~~	~~3.492~~	~~875.21~~
2)	629-62-9	Pentadecane	16.43	739.92
3)	112-95-8	Eicosane	17.58	1185.04
4)	112-95-8	Eicosane	18.65	639.93

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : BSE37 D2 Page: 1

Data file : v18365.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
~~1)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro-~~	~~3.490~~	~~493.65~~ 8-11-97
2)	629-78-7	Heptadecane	16.43	322.92
3)	544-76-3	Hexadecane	17.01	332.42
4)	593-45-3	Octadecane	17.57	877.14
5)	593-45-3	Octadecane	18.64	437.88
~~6)~~	~~4534-65-0~~	~~Pentadecane, 3-phenyl-~~	~~20.85~~	~~301.31~~ 8-11-97

Concentration Units: Water: UG/L Soil: UG/KG

p.192

Alkane Report for Sample : BSE38 Page: 1

Data file : v18361.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
~~1)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro~~	~~3.489~~	~~1414.53~~ 8-7-2-5
2)	49622-18-6	Decane, 3,3,4-trimethyl-	3.661	356.12
3)	590-66-9	Cyclohexane, 1,1-dimethyl-	3.683	381.30
4)	7225-67-4	Heptane, 2,2,3,3,5,6,6-heptamethyl-	17.01	179.53
5)	112-95-8	Eicosane	17.58	217.43
6)	544-76-3	Hexadecane	18.65	273.99
7)	55282-29-6	Hexadecane, 8-hexyl-8-pentyl-	19.15	340.53

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : BSE41

Data file : t22948.d

Matrix : WATER

	CAS #	Compound	R.T.	Estimated Conc.
1)	760-21-4	Pentane, 3-methylene-	3.535	5.14
2)	49622-18-6	Decane, 3,3,4-trimethyl-	4.114	9.03

Concentration Units: Water: UG/L Soil: UG/KG

Data file : v18428.d Matrix : WATER

	CAS #	Compound	R.T.	Estimated Conc.
1)	111-65-9	Octane	3.311	2.12

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : BSE43 Page: 1

Data file : v18362.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
~~1)~~	~~79-34-5~~	~~Ethane, 1,1,2,2-tetrachloro~~	~~3.493~~	~~532.50~~ 8-12-
2)	112-95-8	Eicosane	17.58	626.98
3)	111-65-9	Octane	18.13	346.56
4)	629-99-2	Pentacosane	18.65	983.35
5)	629-62-9	Pentadecane	19.16	508.63

Concentration Units: Water: UG/L Soil: UG/KG

p.196

Alkane Report for Sample : BSE43 DL Page: 1

Data file : v18363.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	41977-43-9	Cyclopropane, 1,1,2-trimethyl-3-(2-methy	3.492	505.51
2)	629-78-7	Heptadecane	16.44	457.90
3)	593-49-7	Heptacosane	17.58	747.92
4)	593-45-3	Octadecane	18.64	1290.63
5)	629-97-0	Docosane	19.67	719.08
6)	541-05-9	Cyclotrisiloxane, hexamethyl-	19.83	353.91
7)	97-94-9	Borane, triethyl-	19.88	1012.03
8)	0-00-0	Silaspiro[5.5]undecane, 1,2,4,5,6,7,9,10	21.11	3098.71

Concentration Units: Water: UG/L Soil: UG/KG

p. 197

Alkane Report for Sample : BSE44 Page: 1

Data file : v18442.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	54833-48-6	Heptadecane, 2,6,10,15-tetramethyl-	16.38	536.83
2)	0-00-0	Decane, 5,6-bis(2,2-dimethylpropylidene)	16.47	945.52
3)	629-94-7	Heneicosane	17.52	857.70

Concentration Units: Water: UG/L Soil: UG/KG

p. 198

Alkane Report for Sample : SBLK1 Page: 1

Data file : v18325.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	54699-28-4	Butane, 2,2'-[methylenebis(oxy)]bis[2-me	2.778	89.14
2)	2216-30-0	Heptane, 2,5-dimethyl-	2.994	160.66
~~3)~~	~~2404-35-5~~	~~Cycloheptane, bromo-~~	~~3.704~~	~~322.56~~

Concentration Units: Water: UG/L Soil: UG/KG

Alkyl halide

p.199

Pc 34

Alkane Report for Sample : SBLK2 Page: 1

Data file : t23013.d Matrix : WATER

	CAS #	Compound	R.T.	Estimated Conc.
1)	565-75-3	Pentane, 2,3,4-trimethyl-	4.070	9.72

Concentration Units: Water: UG/L Soil: UG/KG

Alkane Report for Sample : SBLK3 Page: 1

Data file : v18387a.d Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1)	2216-33-3	Octane, 3-methyl-	2.953	329.51
2)	619-99-8	Hexane, 3-ethyl-	3.082	209.20
3)	2216-34-4	Octane, 4-methyl-	3.125	102.46
4)	2216-33-3	Octane, 3-methyl-	3.168	92.66
5)	760-21-4	Pentane, 3-methylene-	3.265	77.73
6)	61142-21-0	Cyclohexane, (1,2,2-trimethylbutyl)-	3.631	269.82
7)	590-66-9	Cyclohexane, 1,1-dimethyl-	3.663	407.90

Concentration Units: Water: UG/L Soil: UG/KG

p.201

VOLATILES
GC/MS pH LOG

CASE 25601 SDG# BSE22

AATS/SWLO ID	EPA SAMPLE ID	pH	ANALYST	DATE TESTED
30388.01	BSE22	6	HJ	8/08/97
.02	BSE23	6		
.03	BSE26	7		
.09	BSE39	6		
.10	BSE41	6		

COMMENTS:

p.202

SOUTHWEST LABORATORY OF OKLAHOMA, INC./AMERICAN ANALYTICAL & TECHNICAL SERVICES, INC.
1700 W. ALBANY • BROKEN ARROW, OKLAHOMA 74012 • OFFICE (918) 251-2858 • FAX (918) 251-2599

VOLATILES
GC/MS pH LOG

CASE 25601 SDG# BSE22

AATS/SWLO ID	EPA SAMPLE ID	pH	ANALYST	DATE TESTED
30412.08	BSE42	<2	[illegible]	8/08/97

COMMENTS:

p. 203

SOUTHWEST LABORATORY OF OKLAHOMA, INC./AMERICAN ANALYTICAL & TECHNICAL SERVICES, INC.
1700 W. ALBANY • BROKEN ARROW, OKLAHOMA 74012 • OFFICE (918) 251-2858 • FAX (918) 251-2599

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE22

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.01

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C25381.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. _____ Date Analyzed: 08/08/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chlorometha	10	U
74-83-9	Bromomethan	10	U
75-01-4	Vinyl Chlor	10	U
75-00-3	Chloroethan	10	U
75-09-2	Methylene C ride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disu ide	10	U
75-35-4	1,1-Dichlor ethene	10	U
75-34-3	1,1-Dichlor ethane	10	U
540-59-0	1,2-Dichlor ethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichlor	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trich ne	10	U
56-23-5	Carbon Tetr e	10	U
75-27-4	Bromodichlo e	10	U
78-87-5	1,2-Dichlor	10	U
10061-01-5	cis-1,3-Dic propene	10	U
79-01-6	Trichloroet	10	U
124-48-1	Dibromochlo e	10	U
79-00-5	1,1,2-Trich ne	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-D propene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2- ne	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloro	10	U
79-34-5	1,1,2,2-Tet roethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenze	10	U
100-41-4	Ethylbenzen	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Tot	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE22

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.01

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C25381.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. _____ Date Analyzed: 08/08/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 7

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	14.356	6	J
2.	Naphthalene, methyl-	19.019	140	J
3.	Naphthalene, methyl-	19.212	56	J
4.	Naphthalene, ethenyl-	19.769	17	J
5.	Naphthalene, -ethyl-	19.971	9	J
6.	Naphthalene, dimethyl-	20.086	12	J
7.	Naphthalene, dimethyl-	20.259	13	J
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE23

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.02

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C25382.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. _____ Date Analyzed: 08/08/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE23

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.02

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C25382.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. _____ Date Analyzed: 08/08/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 5

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		Naphthalene, methyl-	19.018	52	J
2.		Naphthalene, methyl-	19.201	23	J
3.		Naphthalene, ethenyl-	19.767	13	J
4.		Naphthalene, dimethyl-	20.075	8	J
5.		Naphthalene, dimethyl-	20.267	10	J
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

FORM I VOA-TIC OLM03.0

p. 207

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE26

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.03

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C25385.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. _____ Date Analyzed: 08/08/97

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10 ~~3~~	U ~~J~~
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE26

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.03

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C25385.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. _____ Date Analyzed: 08/08/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE27

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C25242.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. 52 Date Analyzed: 08/04/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	21	U
74-83-9	Bromomethane	21	U
75-01-4	Vinyl Chloride	21	U
75-00-3	Chloroethane	21	U
75-09-2	Methylene Chloride	21	U
67-64-1	Acetone	100	
75-15-0	Carbon Disulfide	21	U
75-35-4	1,1-Dichloroethene	21	U
75-34-3	1,1-Dichloroethane	21	U
540-59-0	1,2-Dichloroethene (total)	21	U
67-66-3	Chloroform	21	U
107-06-2	1,2-Dichloroethane	21	U
78-93-3	2-Butanone	28	
71-55-6	1,1,1-Trichloroethane	21	U
56-23-5	Carbon Tetrachloride	21	U
75-27-4	Bromodichloromethane	21	U
78-87-5	1,2-Dichloropropane	21	U
10061-01-5	cis-1,3-Dichloropropene	21	U
79-01-6	Trichloroethene	21	U
124-48-1	Dibromochloromethane	21	U
79-00-5	1,1,2-Trichloroethane	21	U
71-43-2	Benzene	21	U
10061-02-6	trans-1,3-Dichloropropene	21	U
75-25-2	Bromoform	21	U
108-10-1	4-Methyl-2-Pentanone	21	U
591-78-6	2-Hexanone	21	U
127-18-4	Tetrachloroethene	21	U
79-34-5	1,1,2,2-Tetrachloroethane	21	U
108-88-3	Toluene	21	U
108-90-7	Chlorobenzene	21	U
100-41-4	Ethylbenzene	21	U
100-42-5	Styrene	21	U
1330-20-7	Xylene (Total)	21	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE27

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C25242.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. 52 Date Analyzed: 08/04/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE28

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.05

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L26997.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. 48 Date Analyzed: 08/04/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	16	J
74-83-9	Bromomethane	19	U
75-01-4	Vinyl Chloride	19	U
75-00-3	Chloroethane	19	U
75-09-2	Methylene Chloride	19	U
67-64-1	Acetone	19 ~~11~~	U ~~J~~
75-15-0	Carbon Disulfide	19	U
75-35-4	1,1-Dichloroethene	19	U
75-34-3	1,1-Dichloroethane	19	U
540-59-0	1,2-Dichloroethene (total)	19	U
67-66-3	Chloroform	19	U
107-06-2	1,2-Dichloroethane	19	U
78-93-3	2-Butanone	19	U
71-55-6	1,1,1-Trichloroethane	19	U
56-23-5	Carbon Tetrachloride	19	U
75-27-4	Bromodichloromethane	19	U
78-87-5	1,2-Dichloropropane	19	U
10061-01-5	cis-1,3-Dichloropropene	19	U
79-01-6	Trichloroethene	19	U
124-48-1	Dibromochloromethane	19	U
79-00-5	1,1,2-Trichloroethane	19	U
71-43-2	Benzene	19	U
10061-02-6	trans-1,3-Dichloropropene	19	U
75-25-2	Bromoform	19	U
108-10-1	4-Methyl-2-Pentanone	19	U
591-78-6	2-Hexanone	19	U
127-18-4	Tetrachloroethene	19	U
79-34-5	1,1,2,2-Tetrachloroethane	19	U
108-88-3	Toluene	8	J
108-90-7	Chlorobenzene	19	U
100-41-4	Ethylbenzene	19	U
100-42-5	Styrene	3	J
1330-20-7	Xylene (Total)	4	J

J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE28

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.05

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L26997.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. 48 Date Analyzed: 08/04/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 6

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	75-18-3	Dimethyl sulfide	6.214	23	NJ
2.		UNKNOWN	15.391	10	J
3.		UNKNOWN	16.954	13	J
4.		UNKNOWN HYDROCARBON	17.080	12	J
5.		UNKNOWN	17.970	20	J
6.		UNKNOWN HYDROCARBON	18.124	140	J
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE29

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27088.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 32 Date Analyzed: 08/06/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	15	U
74-83-9	Bromomethane	15	U
75-01-4	Vinyl Chloride	15	U
75-00-3	Chloroethane	15	U
75-09-2	Methylene Chloride	15	U
67-64-1	Acetone	15	U
75-15-0	Carbon Disulfide	15	U
75-35-4	1,1-Dichloroethene	15	U
75-34-3	1,1-Dichloroethane	15	U
540-59-0	1,2-Dichloroethene (total)	15	U
67-66-3	Chloroform	15	U
107-06-2	1,2-Dichloroethane	15	U
78-93-3	2-Butanone	15	U
71-55-6	1,1,1-Trichloroethane	15	U
56-23-5	Carbon Tetrachloride	15	U
75-27-4	Bromodichloromethane	15	U
78-87-5	1,2-Dichloropropane	15	U
10061-01-5	cis-1,3-Dichloropropene	15	U
79-01-6	Trichloroethene	15	U
124-48-1	Dibromochloromethane	15	U
79-00-5	1,1,2-Trichloroethane	15	U
71-43-2	Benzene	15	U
10061-02-6	trans-1,3-Dichloropropene	15	U
75-25-2	Bromoform	15	U
108-10-1	4-Methyl-2-Pentanone	15	U
591-78-6	2-Hexanone	15	U
127-18-4	Tetrachloroethene	15	U
79-34-5	1,1,2,2-Tetrachloroethane	15	U
108-88-3	Toluene	15	U
108-90-7	Chlorobenzene	15	U
100-41-4	Ethylbenzene	15	U
100-42-5	Styrene	15	U
1330-20-7	Xylene (Total)	15	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE29

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.01

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27088.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 32 Date Analyzed: 08/06/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	17.129	45	J
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE30

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27057.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 60 Date Analyzed: 08/05/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	25	U
74-83-9	Bromomethane	25	U
75-01-4	Vinyl Chloride	25	U
75-00-3	Chloroethane	25	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	25	U
75-15-0	Carbon Disulfide	25	U
75-35-4	1,1-Dichloroethene	25	U
75-34-3	1,1-Dichloroethane	25	U
540-59-0	1,2-Dichloroethene (total)	25	U
67-66-3	Chloroform	25	U
107-06-2	1,2-Dichloroethane	25	U
78-93-3	2-Butanone	25	U
71-55-6	1,1,1-Trichloroethane	25	U
56-23-5	Carbon Tetrachloride	25	U
75-27-4	Bromodichloromethane	25	U
78-87-5	1,2-Dichloropropane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
79-01-6	Trichloroethene	25	U
124-48-1	Dibromochloromethane	25	U
79-00-5	1,1,2-Trichloroethane	25	U
71-43-2	Benzene	25	U
10061-02-6	trans-1,3-Dichloropropene	25	U
75-25-2	Bromoform	25	U
108-10-1	4-Methyl-2-Pentanone	25	U
591-78-6	2-Hexanone	25	U
127-18-4	Tetrachloroethene	25	U
79-34-5	1,1,2,2-Tetrachloroethane	25	U
108-88-3	Toluene	4	J
108-90-7	Chlorobenzene	25	U
100-41-4	Ethylbenzene	25	U
100-42-5	Styrene	25	U
1330-20-7	Xylene (Total)	25	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE30

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.02

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27057.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 60 Date Analyzed: 08/05/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	14.217	14	J
2.	UNKNOWN	14.266	29	J
3.	UNKNOWN HYDROCARBON	16.090	1200	J
4.	UNKNOWN	16.574	15	J
5.	UNKNOWN	16.641	23	J
6.	UNKNOWN	16.835	33	J
7.	UNKNOWN	17.144	43	J
8.	UNKNOWN	17.425	50	J
9.	UNKNOWN	18.101	17	J
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE31

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.06

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C25243.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. 59 Date Analyzed: 08/04/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	24	U
74-83-9	Bromomethane	24	U
75-01-4	Vinyl Chloride	24	U
75-00-3	Chloroethane	24	U
75-09-2	Methylene Chloride	24	U
67-64-1	Acetone	81	
75-15-0	Carbon Disulfide	24	U
75-35-4	1,1-Dichloroethene	24	U
75-34-3	1,1-Dichloroethane	24	U
540-59-0	1,2-Dichloroethene (total)	24	U
67-66-3	Chloroform	24	U
107-06-2	1,2-Dichloroethane	24	U
78-93-3	2-Butanone	24	U
71-55-6	1,1,1-Trichloroethane	24	U
56-23-5	Carbon Tetrachloride	24	U
75-27-4	Bromodichloromethane	24	U
78-87-5	1,2-Dichloropropane	24	U
10061-01-5	cis-1,3-Dichloropropene	24	U
79-01-6	Trichloroethene	24	U
124-48-1	Dibromochloromethane	24	U
79-00-5	1,1,2-Trichloroethane	24	U
71-43-2	Benzene	24	U
10061-02-6	trans-1,3-Dichloropropene	24	U
75-25-2	Bromoform	24	U
108-10-1	4-Methyl-2-Pentanone	24	U
591-78-6	2-Hexanone	24	U
127-18-4	Tetrachloroethene	24	U
79-34-5	1,1,2,2-Tetrachloroethane	24	U
108-88-3	Toluene	24	U
108-90-7	Chlorobenzene	24	U
100-41-4	Ethylbenzene	24	U
100-42-5	Styrene	24	U
1330-20-7	Xylene (Total)	24	U

J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE31

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.06

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C25243.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. 59 Date Analyzed: 08/04/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

FORM I VOA-TIC OLM03.0

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE32

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27058.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 24 Date Analyzed: 08/05/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	13	U
67-64-1	Acetone	130	
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	41	
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (Total)	13	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE32

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.03

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27058.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 24 Date Analyzed: 08/05/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	16.086	800	J
2.	UNKNOWN	16.520	7	J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE33

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27059.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 77 Date Analyzed: 08/05/97

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	43	U
74-83-9	Bromomethane	43	U
75-01-4	Vinyl Chloride	43	U
75-00-3	Chloroethane	43	U
75-09-2	Methylene Chloride	43	U
67-64-1	Acetone	43 ~~27~~	4 ~~J~~
75-15-0	Carbon Disulfide	43	U
75-35-4	1,1-Dichloroethene	43	U
75-34-3	1,1-Dichloroethane	43	U
540-59-0	1,2-Dichloroethene (total)	43	U
67-66-3	Chloroform	43	U
107-06-2	1,2-Dichloroethane	43	U
78-93-3	2-Butanone	43	U
71-55-6	1,1,1-Trichloroethane	43	U
56-23-5	Carbon Tetrachloride	43	U
75-27-4	Bromodichloromethane	43	U
78-87-5	1,2-Dichloropropane	43	U
10061-01-5	cis-1,3-Dichloropropene	43	U
79-01-6	Trichloroethene	43	U
124-48-1	Dibromochloromethane	43	U
79-00-5	1,1,2-Trichloroethane	43	U
71-43-2	Benzene	43	U
10061-02-6	trans-1,3-Dichloropropene	43	U
75-25-2	Bromoform	43	U
108-10-1	4-Methyl-2-Pentanone	43	U
591-78-6	2-Hexanone	43	U
127-18-4	Tetrachloroethene	43	U
79-34-5	1,1,2,2-Tetrachloroethane	43	U
108-88-3	Toluene	43	U
108-90-7	Chlorobenzene	43	U
100-41-4	Ethylbenzene	43	U
100-42-5	Styrene	43	U
1330-20-7	Xylene (Total)	43	U

J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE33

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.04

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27059.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 77 Date Analyzed: 08/05/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	15.812	250	J
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE34

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.05

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27060.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 90 Date Analyzed: 08/05/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	100	U
74-83-9	Bromomethane	100	U
75-01-4	Vinyl Chloride	100	U
75-00-3	Chloroethane	100	U
75-09-2	Methylene Chloride	10	J
67-64-1	Acetone	660	
75-15-0	Carbon Disulfide	19	J
75-35-4	1,1-Dichloroethene	100	U
75-34-3	1,1-Dichloroethane	100	U
540-59-0	1,2-Dichloroethene (total)	100	U
67-66-3	Chloroform	100	U
107-06-2	1,2-Dichloroethane	100	U
78-93-3	2-Butanone	200	
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
75-27-4	Bromodichloromethane	100	U
78-87-5	1,2-Dichloropropane	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
79-01-6	Trichloroethene	100	U
124-48-1	Dibromochloromethane	100	U
79-00-5	1,1,2-Trichloroethane	100	U
71-43-2	Benzene	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
75-25-2	Bromoform	100	U
108-10-1	4-Methyl-2-Pentanone	100	U
591-78-6	2-Hexanone	100	U
127-18-4	Tetrachloroethene	100	U
79-34-5	1,1,2,2-Tetrachloroethane	100	U
108-88-3	Toluene	100	U
108-90-7	Chlorobenzene	140	
100-41-4	Ethylbenzene	100	U
100-42-5	Styrene	100	U
1330-20-7	Xylene (Total)	100	U

J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE34

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.05

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27060.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 90 Date Analyzed: 08/05/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 4

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	15.735	91	J
2.	UNKNOWN	15.928	180	J
3.	UNKNOWN ALKYL BENZENE	17.085	58	J
4.	UNKNOWN ALKYL BENZENE	17.356	92	J
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE35

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.06

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27062.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 88 Date Analyzed: 08/05/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	83	U
74-83-9	Bromomethane	83	U
75-01-4	Vinyl Chloride	83	U
75-00-3	Chloroethane	83	U
75-09-2	Methylene Chloride	8	J
67-64-1	Acetone	230	4
75-15-0	Carbon Disulfide	83	U
75-35-4	1,1-Dichloroethene	83	U
75-34-3	1,1-Dichloroethane	83	U
540-59-0	1,2-Dichloroethene (total)	83	U
67-66-3	Chloroform	83	U
107-06-2	1,2-Dichloroethane	83	U
78-93-3	2-Butanone	83	U
71-55-6	1,1,1-Trichloroethane	83	U
56-23-5	Carbon Tetrachloride	83	U
75-27-4	Bromodichloromethane	83	U
78-87-5	1,2-Dichloropropane	83	U
10061-01-5	cis-1,3-Dichloropropene	83	U
79-01-6	Trichloroethene	83	U
124-48-1	Dibromochloromethane	83	U
79-00-5	1,1,2-Trichloroethane	83	U
71-43-2	Benzene	83	U
10061-02-6	trans-1,3-Dichloropropene	83	U
75-25-2	Bromoform	83	U
108-10-1	4-Methyl-2-Pentanone	83	U
591-78-6	2-Hexanone	83	U
127-18-4	Tetrachloroethene	83	U
79-34-5	1,1,2,2-Tetrachloroethane	12	J
108-88-3	Toluene	83	U
108-90-7	Chlorobenzene	83	U
100-41-4	Ethylbenzene	83	U
100-42-5	Styrene	83	U
1330-20-7	Xylene (Total)	83	U

J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE35

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.06

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27062.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 88 Date Analyzed: 08/05/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	16.039	69	J
2.	UNKNOWN HYDROCARBON	16.155	130	J
3.	UNKNOWN	17.137	100	J
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE36RE

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.07RA

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27090.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 60 Date Analyzed: 08/06/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	25	U
74-83-9	Bromomethane	25	U
75-01-4	Vinyl Chloride	25	U
75-00-3	Chloroethane	25	U
75-09-2	Methylene Chloride	25	U
67-64-1	Acetone	29	U
75-15-0	Carbon Disulfide	25	U
75-35-4	1,1-Dichloroethene	25	U
75-34-3	1,1-Dichloroethane	25	U
540-59-0	1,2-Dichloroethene (total)	25	U
67-66-3	Chloroform	25	U
107-06-2	1,2-Dichloroethane	25	U
78-93-3	2-Butanone	25	U
71-55-6	1,1,1-Trichloroethane	25	U
56-23-5	Carbon Tetrachloride	25	U
75-27-4	Bromodichloromethane	25	U
78-87-5	1,2-Dichloropropane	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
79-01-6	Trichloroethene	25	U
124-48-1	Dibromochloromethane	25	U
79-00-5	1,1,2-Trichloroethane	25	U
71-43-2	Benzene	25	U
10061-02-6	trans-1,3-Dichloropropene	25	U
75-25-2	Bromoform	25	U
108-10-1	4-Methyl-2-Pentanone	25	U
591-78-6	2-Hexanone	25	U
127-18-4	Tetrachloroethene	25	U
79-34-5	1,1,2,2-Tetrachloroethane	25	U
108-88-3	Toluene	25	U
108-90-7	Chlorobenzene	25	U
100-41-4	Ethylbenzene	25	U
100-42-5	Styrene	25	U
1330-20-7	Xylene (Total)	25	U

J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE36RE

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.07RA

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27090.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 60 Date Analyzed: 08/06/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75-18-3	Dimethyl sulfide	6.166	18	NJ
2.	Cyclotrisiloxane	12.482	14	J
3.	Cyclotetrasiloxane	15.122	20	J
4.	UNKNOWN	16.620	15	J
5.	UNKNOWN	17.130	43	J
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE37

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.07

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C25247.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. 40 Date Analyzed: 08/04/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	17	U
74-83-9	Bromomethane	17	U
75-01-4	Vinyl Chloride	17	U
75-00-3	Chloroethane	17	U
75-09-2	Methylene Chloride	17	U
67-64-1	Acetone	17	U
75-15-0	Carbon Disulfide	17	U
75-35-4	1,1-Dichloroethene	17	U
75-34-3	1,1-Dichloroethane	17	U
540-59-0	1,2-Dichloroethene (total)	17	U
67-66-3	Chloroform	17	U
107-06-2	1,2-Dichloroethane	17	U
78-93-3	2-Butanone	17	U
71-55-6	1,1,1-Trichloroethane	17	U
56-23-5	Carbon Tetrachloride	17	U
75-27-4	Bromodichloromethane	17	U
78-87-5	1,2-Dichloropropane	17	U
10061-01-5	cis-1,3-Dichloropropene	17	U
79-01-6	Trichloroethene	17	U
124-48-1	Dibromochloromethane	17	U
79-00-5	1,1,2-Trichloroethane	17	U
71-43-2	Benzene	17	U
10061-02-6	trans-1,3-Dichloropropene	17	U
75-25-2	Bromoform	17	U
108-10-1	4-Methyl-2-Pentanone	17	U
591-78-6	2-Hexanone	17	U
127-18-4	Tetrachloroethene	17	U
79-34-5	1,1,2,2-Tetrachloroethane	17	U
108-88-3	Toluene	17	U
108-90-7	Chlorobenzene	17	U
100-41-4	Ethylbenzene	17	U
100-42-5	Styrene	17	U
1330-20-7	Xylene (Total)	17	U

J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE37

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.07

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C25247.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. 40 Date Analyzed: 08/04/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE38

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.08

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C25245.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. 53 Date Analyzed: 08/04/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	21	U
74-83-9	Bromomethane	21	U
75-01-4	Vinyl Chloride	21	U
75-00-3	Chloroethane	21	U
75-09-2	Methylene Chloride	21	U
67-64-1	Acetone	21	U
75-15-0	Carbon Disulfide	21	U
75-35-4	1,1-Dichloroethene	21	U
75-34-3	1,1-Dichloroethane	21	U
540-59-0	1,2-Dichloroethene (total)	21	U
67-66-3	Chloroform	21	U
107-06-2	1,2-Dichloroethane	21	U
78-93-3	2-Butanone	21	U
71-55-6	1,1,1-Trichloroethane	21	U
56-23-5	Carbon Tetrachloride	21	U
75-27-4	Bromodichloromethane	21	U
78-87-5	1,2-Dichloropropane	21	U
10061-01-5	cis-1,3-Dichloropropene	21	U
79-01-6	Trichloroethene	21	U
124-48-1	Dibromochloromethane	21	U
79-00-5	1,1,2-Trichloroethane	21	U
71-43-2	Benzene	21	U
10061-02-6	trans-1,3-Dichloropropene	21	U
75-25-2	Bromoform	21	U
108-10-1	4-Methyl-2-Pentanone	21	U
591-78-6	2-Hexanone	21	U
127-18-4	Tetrachloroethene	21	U
79-34-5	1,1,2,2-Tetrachloroethane	21	U
108-88-3	Toluene	21	U
108-90-7	Chlorobenzene	21	U
100-41-4	Ethylbenzene	21	U
100-42-5	Styrene	21	U
1330-20-7	Xylene (Total)	21	U

R

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE38

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.08

Sample wt/vol: 5.0 (g/mL) G Lab File ID: C25245.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. 53 Date Analyzed: 08/04/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 5

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	12.640	52	J
2.	UNKNOWN	12.668	47	J
3.	Cyclotetrasiloxane	14.827	1600	J
4.	UNKNOWN	16.650	2200	J
5.	UNKNOWN	18.463	98	J
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE39 TB

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.09

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: L26952.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. _____ Date Analyzed: 08/01/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	3	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	2	J
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE39

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.09

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: L26952.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. _____ Date Analyzed: 08/01/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE41 FB

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.10

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: L26953.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. _____ Date Analyzed: 08/01/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	U	J
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10		
67-64-1	Acetone	3	J	
75-15-0	Carbon Disulfide	10	U	
75-35-4	1,1-Dichloroethene	10	U	
75-34-3	1,1-Dichloroethane	10	U	
540-59-0	1,2-Dichloroethene (total)	10	U	
67-66-3	Chloroform	3	J	
107-06-2	1,2-Dichloroethane	10	U	
78-93-3	2-Butanone	10	U	
71-55-6	1,1,1-Trichloroethane	10	U	
56-23-5	Carbon Tetrachloride	10	U	
75-27-4	Bromodichloromethane	10	U	
78-87-5	1,2-Dichloropropane	10	U	
10061-01-5	cis-1,3-Dichloropropene	10	U	
79-01-6	Trichloroethene	10	U	
124-48-1	Dibromochloromethane	10	U	
79-00-5	1,1,2-Trichloroethane	10	U	
71-43-2	Benzene	10	U	
10061-02-6	trans-1,3-Dichloropropene	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	
108-88-3	Toluene	10	U	
108-90-7	Chlorobenzene	10	U	
100-41-4	Ethylbenzene	10	U	
100-42-5	Styrene	10	U	
1330-20-7	Xylene (Total)	10	U	

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE41

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.10

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: L26953.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. _____ Date Analyzed: 08/01/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE42 FB

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30412.08

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: L27146.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. _____ Date Analyzed: 08/08/97

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	5	J
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (Total)	10	U

J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE42

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30412.08

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: L27146.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. _____ Date Analyzed: 08/08/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE43RE

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.11RA

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27050.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. 21 Date Analyzed: 08/05/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	13	U
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	7	J
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (Total)	13	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE43RE

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.11RA

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27050.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: not dec. 21 Date Analyzed: 08/05/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Cyclotetrasiloxane	15.152	44	J
2.	UNKNOWN	17.178	110	J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

FORM I VOA-TIC OLM03.0

p.241

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE44RE

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.09RA

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27091.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 21 Date Analyzed: 08/06/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	13	U
67-64-1	Acetone	13	U
75-15-0	Carbon Disulfide	13	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (Total)	13	U

J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE44RE

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.09RA

Sample wt/vol: 5.0 (g/mL) G Lab File ID: L27091.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: not dec. 21 Date Analyzed: 08/06/97

GC Column:DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Cyclotetrasiloxane	15.124	32	J
2.	UNKNOWN	17.122	100	J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE22

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T22951.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/01/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/05/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	[illegible]	[illegible]
106-46-7	1,4-Dichlorobenzene	[illegible]	[illegible]
95-50-1	1,2-Dichlorobenzene	[illegible]	[illegible]
95-48-7	2-Methylphenol	[illegible]	[illegible]
108-60-1	2,2'-oxybis(1-Chloropropane)	[illegible]	[illegible]
106-44-5	4-Methylphenol	[illegible]	[illegible]
621-64-7	N-Nitroso-di-n-propylamine	[illegible]	[illegible]
67-72-1	Hexachloroethane	[illegible]	[illegible]
98-95-3	Nitrobenzene	[illegible]	U
78-59-1	Isophorone	[illegible]	U
88-75-5	2-Nitrophenol	[illegible]	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE22

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T22951.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/01/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/05/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	2	J
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	3	J
129-00-0	Pyrene	3	J
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	1	J
218-01-9	Chrysene	2	J
117-81-7	bis(2-Ethylhexyl)phthalate	3	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	2	J
207-08-9	Benzo(k)fluoranthene	1	J
50-32-8	Benzo(a)pyrene	1	J
193-39-5	Indeno(1,2,3-cd)pyrene	0.6	J
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 OLM03.0

p. 245

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE22

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T22951.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/01/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/05/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.0

Number TICs found: 29

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	123-42-2	2-Pentanone, 4-hydroxy-4-met	3.139	~~3~~	~~NJA~~ R
2.		UNKNOWN	3.235	6	J
3.		UNKNOWN	3.740	2	~~JB~~
4.		UNKNOWN	4.148	7	~~JB~~
5.	3658-80-8	Trisulfide, dimethyl	4.351	3	NJ
6.		UNKNOWN	4.974	2	J
7.	5756-24-1	Dimethyl tetrasulphide	6.165	4	NJ
8.		UNKNOWN	6.616	2	J
9.		UNKNOWN	8.537	3	J
10.		UNKNOWN	8.602	10	J
11.	143-07-7	Dodecanoic acid	8.774	3	NJ
12.		UNKNOWN	9.782	2	J
13.	5325-97-3	Phenanthrene, 1,2,3,4,5,6,7,	10.137	9	NJ
14.	544-63-8	Tetradecanoic acid	10.523	26	NJ
15.	10544-50-0	Sulfur, mol. (S8)	11.070	3	NJ
16.		UNKNOWN KETONE	11.671	3	J
17.		Tetradecanol	11.768	6	J
18.		UNKNOWN ORGANIC ACID	12.036	2	J
19.	57-10-3	Hexadecanoic acid	12.294	240	NJ
20.	10544-50-0	Sulfur, mol. (S8)	13.185	37	NJ
21.	112-80-1	Oleic Acid	13.636	64	NJ
22.	57-11-4	Octadecanoic acid	13.743	46	NJ
23.		UNKNOWN ORGANIC ACID	15.031	3	J
24.	57-10-3	Hexadecanoic acid	15.127	4	NJ
25.		UNKNOWN	15.224	4	J
26.	112-88-9	1-Octadecene	18.229	6	NJ
27.		UNKNOWN	19.603	4	J
28.		UNKNOWN	19.893	6	J
29.		UNKNOWN PAH	21.288	8	J
30.					

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE23

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.02

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T22952.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/01/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/05/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	0.8	J
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE23

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.02

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T22952.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/01/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/05/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	1	J
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	2	J
129-00-0	Pyrene	3	J
85-68-7	Butylbenzylphthalate	1	J
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	1	J
218-01-9	Chrysene	2	J
117-81-7	bis(2-Ethylhexyl)phthalate	3	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	2	J
207-08-9	Benzo(k)fluoranthene	2	J
50-32-8	Benzo(a)pyrene	1	J
193-39-5	Indeno(1,2,3-cd)pyrene	0.8	J
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	0.9	J

(1) - Cannot_be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE23

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.02

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T22952.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/01/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/05/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.2

Number TICs found: 34

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN ALKENE	3.039	370	J
2.	Furaldehyde	3.103	6	J
3. 123-42-2	2-Pentanone, 4-hydroxy-4-met	3.168	~~4~~	~~NJA~~ R
4.	UNKNOWN	3.264	12	J
5.	UNKNOWN	-3.994	~~4~~	~~JB~~ R
6.	UNKNOWN	-4.027	2	~~JB~~
7.	Propene, -trichloro-	4.155	9	J
8.	UNKNOWN	4.348	9	J
9.	UNKNOWN	4.585	3	J
10.	UNKNOWN	4.735	2	J
11.	UNKNOWN	4.971	4	J
12.	UNKNOWN	5.046	3	J
13. 65-85-0	Benzoic Acid	5.722	2	NJ
14.	UNKNOWN	6.109	3	J
15. 5756-24-1	Dimethyl tetrasulphide	6.162	3	NJ
16.	UNKNOWN	6.613	3	J
17.	UNKNOWN	7.182	2	J
18.	UNKNOWN	7.386	2	J
19. 101660-61-	Geranyl nitrile	7.676	4	NJ
20.	Heptanone, -diethyl-tetrame	8.406	2	J
21.	UNKNOWN	8.599	4	J
22.	UNKNOWN	9.060	2	J
23.	UNKNOWN ORGANIC ACID	9.146	3	J
24. 544-63-8	Tetradecanoic acid	10.509	4	NJ
25.	UNKNOWN	11.132	3	J
26.	UNKNOWN KETONE	11.196	2	J
27.	UNKNOWN ORGANIC ACID	12.033	3	J
28. 57-10-3	Hexadecanoic acid	12.184	17	NJ
29. 10544-50-0	Sulfur, mol. (S8)	13.150	12	NJ
30. 112-80-1	Oleic Acid	13.557	19	NJ

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE23

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.02

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T22952.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/01/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/05/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.2

Number TICs found: 34

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 57-11-4	Octadecanoic acid	13.718	10	NJ
2. 3234-85-3	Tetradecanoic acid, tetradec	18.795	60	NJ
3.	UNKNOWN	19.611	6	J
4.	UNKNOWN ORGANIC ACID	21.318	7	J
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE26

b Name: SWL-TULSA

tract: 68-D5-0026

Lab Code: SWOK Case No.: 25601

AS No.: SDG No.: BSE22

Matrix: (soil/water) WATER

Lab Sample ID: 30388.03

Sample wt/vol: 1000 (g/mL) M

Lab File ID: T22950.D

Level: (low/med) LOW

Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N

Date Extracted: 08/01/97

Concentrated Extract Volume: 10

ate Analyzed: 08/05/97

Injection Volume: 2.0(uL)

ilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7

RATION UNITS:
r ug/Kg) UG/L

CAS NO.	COMPOUND			Q
108-95-2	Phenol		10	U
111-44-4	bis(2-Chlor		10	U
95-57-8	2-Chlorophe		10	U
541-73-1	1,3-Dichlor		10	U
106-46-7	1,4-Dichlor		10	U
95-50-1	1,2-Dichlor		10	U
95-48-7	2-Methylphe		10	U
108-60-1	2,2'-oxybis(	pane)	10	U
106-44-5	4-Methylphe		10	U
621-64-7	N-Nitroso-di	mine	10	U
67-72-1	Hexachloroet		10	U
98-95-3	Nitrobenzene		10	U
78-59-1	Isophorone		10	U
88-75-5	2-Nitrophen		10	U
105-67-9	2,4-Dimethyl		10	U
111-91-1	bis(2-Chlor	methane	10	U
120-83-2	2,4-Dichlor		10	U
120-82-1	1,2,4-Trich	ene	10	U
91-20-3	Naphthalene		10	U
106-47-8	4-Chloroani		10	U
87-68-3	Hexachlorob	e	10	U
59-50-7	4-Chloro-3-	phenol	10	U
91-57-6	2-Methylnap	ne	10	U
77-47-4	Hexachlorocy	ntadiene	10	U
88-06-2	2,4,6-Trich	enol	10	U
95-95-4	2,4,5-Trich	enol	25	U
91-58-7	2-Chloronap	ene	10	U
88-74-4	2-Nitroanil		25	U
131-11-3	Dimethylpht	e	10	U
208-96-8	Acenaphthyl		10	U
606-20-2	2,6-Dinitro	ene	10	U
99-09-2	3-Nitroanil		25	U
83-32-9	Acenaphthen		10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE26

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.03

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T22950.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/01/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/05/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	0.9	J
129-00-0	Pyrene	0.8	J
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 OLM03.0

p. 252

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE26

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.03

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T22950.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/01/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/05/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.8

Number TICs found: 14

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	3.019	270	J
2.		UNKNOWN	3.245	2	J
3.		UNKNOWN	3.996	5	~~JB~~
4.		UNKNOWN	4.114	4	JB
5.		UNKNOWN	4.146	10	JB
6.		UNKNOWN	4.361	5	J
7.		UNKNOWN ORGANIC ACID	9.137	3	J
8.		UNKNOWN	9.770	2	J
9.	57-10-3	Hexadecanoic acid	12.164	17	NJ
10.	10544-50-0	Sulfur, mol. (S8)	13.130	5	NJ
11.	301-00-8	9,12,15-Octadecatrienoic aci	13.570	14	NJ
12.	57-11-4	Octadecanoic acid	13.699	6	NJ
13.		UNKNOWN ORGANIC ACID	18.775	2	J
14.		UNKNOWN	19.881	2	J
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

808

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE27

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18355.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 52 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	690	U
111-44-4	bis(2-Chloroethyl)Ether	690	U
95-57-8	2-Chlorophenol	690	U
541-73-1	1,3-Dichlorobenzene	690	U
106-46-7	1,4-Dichlorobenzene	690	U
95-50-1	1,2-Dichlorobenzene	690	U
95-48-7	2-Methylphenol	690	U
108-60-1	2,2'-oxybis(1-Chloropropane)	690	U
106-44-5	4-Methylphenol	690	U
621-64-7	N-Nitroso-di-n-propylamine	690	U
67-72-1	Hexachloroethane	690	U
98-95-3	Nitrobenzene	690	U
78-59-1	Isophorone	690	U
88-75-5	2-Nitrophenol	690	U
105-67-9	2,4-Dimethylphenol	690	U
111-91-1	bis(2-Chloroethoxy)methane	690	U
120-83-2	2,4-Dichlorophenol	690	U
120-82-1	1,2,4-Trichlorobenzene	690	U
91-20-3	Naphthalene	690	U
106-47-8	4-Chloroaniline	690	U
87-68-3	Hexachlorobutadiene	690	U
59-50-7	4-Chloro-3-Methylphenol	690	U
91-57-6	2-Methylnaphthalene	42	J
77-47-4	Hexachlorocyclopentadiene	690	U
88-06-2	2,4,6-Trichlorophenol	690	U
95-95-4	2,4,5-Trichlorophenol	1700	U
91-58-7	2-Chloronaphthalene	690	U
88-74-4	2-Nitroaniline	1700	U
131-11-3	Dimethylphthalate	690	U
208-96-8	Acenaphthylene	690	U
606-20-2	2,6-Dinitrotoluene	690	U
99-09-2	3-Nitroaniline	1700	U
83-32-9	Acenaphthene	85	J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE27

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18355.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 52 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1700	U
100-02-7	4-Nitrophenol	1700	U
132-64-9	Dibenzofuran	690	U
121-14-2	2,4-Dinitrotoluene	690	U
84-66-2	Diethylphthalate	690	U
7005-72-3	4-Chlorophenyl-phenylether	690	U
86-73-7	Fluorene	92	J
100-01-6	4-Nitroaniline	1700	U
534-52-1	4,6-Dinitro-2-methylphenol	1700	U
86-30-6	N-Nitrosodiphenylamine (1)	690	U
101-55-3	4-Bromophenyl-phenylether	690	U
118-74-1	Hexachlorobenzene	690	U
87-86-5	Pentachlorophenol	1700	U
85-01-8	Phenanthrene	1200	
120-12-7	Anthracene	[illegible]	J
86-74-8	Carbazole	[illegible]	J
84-74-2	Di-n-butylphthalate	[illegible]	
206-44-0	Fluoranthene	[illegible]	
129-00-0	Pyrene	[illegible]	
85-68-7	Butylbenzylphthalate	[illegible]	U
91-94-1	3,3'-Dichlorobenzidine	[illegible]	U
56-55-3	Benzo(a)anthracene	1[illegible]	
218-01-9	Chrysene	1[illegible]	
117-81-7	bis(2-Ethylhexyl)phthalate	[illegible]0	J
117-84-0	Di-n-octylphthalate	[illegible]90	U
205-99-2	Benzo(b)fluoranthene	1000	
207-08-9	Benzo(k)fluoranthene	930	
50-32-8	Benzo(a)pyrene	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	780	
53-70-3	Dibenz(a,h)anthracene	250	J
191-24-2	Benzo(g,h,i)perylene	880	

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE27

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18355.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 52 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.762	37000	J
2.	141-79-7	3-Penten-2-one, 4-methyl-	2.794	~~1700~~	~~NJAB~~ R
3.		UNKNOWN ALCOHOL	2.859	~~1000~~	~~JB~~ R
4.		UNKNOWN	2.956	38000	J
5.	123-42-2	2-Pentanone, 4-hydroxy-4-met	3.052	~~1100~~	~~NJAB~~ R
6.		UNKNOWN	3.924	780	J
7.		UNKNOWN	4.333	750	J
8.	464-48-2	Bicyclo[2.2.1]heptan-2-one,	4.990	1400	NJ
9.		UNKNOWN	7.971	480	J
10.		UNKNOWN PAH	11.447	420	J
11.		Heptadecanol	12.383	1100	J
12.	10544-50-0	Sulfur, mol. (S8)	12.523	1800	NJ
13.		Benzo[]naphtho[]furan	13.158	550	J
14.		11H-Benzo[]fluorene	13.697	650	J
15.		Pyrene, methyl-	13.890	440	J
16.		UNKNOWN AMIDE	14.450	6100	J
17.		Hexanedioic acid,	14.622	1700	J
18.		UNKNOWN PAH	16.193	480	J
19.	192-97-2	Benzo[e]pyrene	17.851	640	NJ
20.		Unknown	18.400	420	J
21.		UNKNOWN	18.938	390	J
22.		UNKNOWN	19.153	740	J
23.		UNKNOWN	19.336	400	J
24.		UNKNOWN	19.444	470	J
25.		UNKNOWN	19.896	460	J
26.		UNKNOWN	19.950	590	J
27.		UNKNOWN	20.294	650	J
28.		UNKNOWN	20.348	390	J
29.		UNKNOWN	20.520	420	J
30.		UNKNOWN PAH	20.692	2700	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE27

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18355.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 52 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	20.778	490	J
2.	UNKNOWN PAH	21.316	430	J
3.	UNKNOWN	21.532	600	J
4.	UNKNOWN	21.596	410	J
5.	UNKNOWN	22.027	870	J
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE28

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18356.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 48 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	630	U
111-44-4	bis(2-Chloroethyl)Ether	630	U
95-57-8	2-Chlorophenol	630	U
541-73-1	1,3-Dichlorobenzene	630	U
106-46-7	1,4-Dichlorobenzene	630	U
95-50-1	1,2-Dichlorobenzene	630	U
95-48-7	2-Methylphenol	630	U
108-60-1	2,2'-oxybis(1-Chloropropane)	630	U
106-44-5	4-Methylphenol	630	U
621-64-7	N-Nitroso-di-n-propylamine	630	U
67-72-1	Hexachloroethane	630	U
98-95-3	Nitrobenzene	630	U
78-59-1	Isophorone	630	U
88-75-5	2-Nitrophenol	630	U
105-67-9	2,4-Dimethylphenol	630	U
111-91-1	bis(2-Chloroethoxy)methane	630	U
120-83-2	2,4-Dichlorophenol	630	U
120-82-1	1,2,4-Trichlorobenzene	630	U
91-20-3	Naphthalene	630	U
106-47-8	4-Chloroaniline	630	U
87-68-3	Hexachlorobutadiene	630	U
59-50-7	4-Chloro-3-Methylphenol	630	U
91-57-6	2-Methylnaphthalene	630	U
77-47-4	Hexachlorocyclopentadiene	630	U
88-06-2	2,4,6-Trichlorophenol	630	U
95-95-4	2,4,5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	630	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethylphthalate	630	U
208-96-8	Acenaphthylene	97	J
606-20-2	2,6-Dinitrotoluene	630	U
99-09-2	3-Nitroaniline	1600	U
83-32-9	Acenaphthene	130	J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE28

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18356.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 48 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U
132-64-9	Dibenzofuran	44	J
121-14-2	2,4-Dinitrotoluene	630	U
84-66-2	Diethylphthalate	630	U
7005-72-3	4-Chlorophenyl-phenylether	630	U
86-73-7	Fluorene	79	J
100-01-6	4-Nitroaniline	1600	U
534-52-1	4,6-Dinitro-2-methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	630	U
101-55-3	4-Bromophenyl-phenylether	630	U
118-74-1	Hexachlorobenzene	630	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	840	
120-12-7	Anthracene	230	J
86-74-8	Carbazole	150	J
84-74-2	Di-n-butylphthalate	150	J
206-44-0	Fluoranthene	1700	
129-00-0	Pyrene	1800	
85-68-7	Butylbenzylphthalate	700	
91-94-1	3,3'-Dichlorobenzidine	630	U
56-55-3	Benzo(a)anthracene	940	
218-01-9	Chrysene	1200	
117-81-7	bis(2-Ethylhexyl)phthalate	~~8800~~ 9200	E
117-84-0	Di-n-octylphthalate	110	J
205-99-2	Benzo(b)fluoranthene	1100	
207-08-9	Benzo(k)fluoranthene	1100	
50-32-8	Benzo(a)pyrene	1200	
193-39-5	Indeno(1,2,3-cd)pyrene	920	
53-70-3	Dibenz(a,h)anthracene	370	J
191-24-2	Benzo(g,h,i)perylene	1200	

* Result from BSE28DL

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 OLM03.0

p. 259

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE28

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18356.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 48 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	141-79-7	3-Penten-2-one, 4-methyl-	2.784	~~1600~~	~~NJAB~~ R
2.	625-33-2	3-Penten-2-one	2.945	9900	NJ
3.	123-42-2	2-Pentanone, 4-hydroxy-4-met	3.053	~~1200~~	~~NJAB~~ R
4.	0-00-0	Decahydro-4,4,8,9,10-pentame	6.669	560	NJ
5.	0-00-0	Decahydro-4,4,8,9,10-pentame	7.121	600	NJ
6.		Decahydro-pentamethylnaphtha	7.444	860	J
7.	7704-34-9	Sulfur	12.513	1500	NJ
8.		UNKNOWN AMIDE	14.450	7300	J
9.		Hexanedioic acid, ester	14.623	1100	J
10.		UNKNOWN PAH	16.183	1200	J
11.		Unknown	16.818	530	J
12.		UNKNOWN	17.550	440	J
13.		UNKNOWN	17.658	840	J
14.		UNKNOWN	17.722	460	J
15.	192-97-2	Benzo[e]pyrene	17.851	990	NJ
16.		Tetradecanoic acid, ester	17.991	710	J
17.	198-55-0	Perylene	18.077	570	NJ
18.		UNKNOWN	18.174	470	J
19.		UNKNOWN	18.529	580	J
20.		UNKNOWN	18.745	410	J
21.		UNKNOWN	18.884	890	J
22.		UNKNOWN	18.928	870	J
23.		UNKNOWN ORGANIC ACID ESTER	19.035	630	J
24.		UNKNOWN	19.337	1300	J
25.		UNKNOWN PAH	19.552	790	J
26.		Unknown	19.767	620	J
27.		UNKNOWN	19.896	940	J
28.		UNKNOWN	19.971	920	J
29.		UNKNOWN	20.187	460	J
30.		UNKNOWN	20.294	500	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE28

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18356.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 48 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	20.370	750	J
2.	UNKNOWN	20.477	540	J
3.	UNKNOWN	20.789	430	J
4.	UNKNOWN	20.994	620	JB
5.	UNKNOWN	21.220	480	J
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE29

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18399.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 32 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	520	
111-44-4	bis(2-Chloroethyl)Ether	480	U
95-57-8	2-Chlorophenol	480	U
541-73-1	1,3-Dichlorobenzene	480	U
106-46-7	1,4-Dichlorobenzene	480	U
95-50-1	1,2-Dichlorobenzene	480	U
95-48-7	2-Methylphenol	480	U
108-60-1	2,2'-oxybis(1-Chloropropane)	480	U
106-44-5	4-Methylphenol	480	U
621-64-7	N-Nitroso-di-n-propylamine	480	U
67-72-1	Hexachloroethane	480	U
98-95-3	Nitrobenzene	480	U
78-59-1	Isophorone	480	U
88-75-5	2-Nitrophenol	480	U
105-67-9	2,4-Dimethylphenol	480	U
111-91-1	bis(2-Chloroethoxy)methane	480	U
120-83-2	2,4-Dichlorophenol	480	U
120-82-1	1,2,4-Trichlorobenzene	480	U
91-20-3	Naphthalene	480	U
106-47-8	4-Chloroaniline	480	U
87-68-3	Hexachlorobutadiene	480	U
59-50-7	4-Chloro-3-Methylphenol	480	U
91-57-6	2-Methylnaphthalene	480	U
77-47-4	Hexachlorocyclopentadiene	480	U
88-06-2	2,4,6-Trichlorophenol	480	U
95-95-4	2,4,5-Trichlorophenol	1200	U
91-58-7	2-Chloronaphthalene	480	U
88-74-4	2-Nitroaniline	1200	U
131-11-3	Dimethylphthalate	480	U
208-96-8	Acenaphthylene	480	U
606-20-2	2,6-Dinitrotoluene	480	U
99-09-2	3-Nitroaniline	1200	U
83-32-9	Acenaphthene	480	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE29

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18399.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 32 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1200	U
100-02-7	4-Nitrophenol	1200	U
132-64-9	Dibenzofuran	480	U
121-14-2	2,4-Dinitrotoluene	480	U
84-66-2	Diethylphthalate	480	U
7005-72-3	4-Chlorophenyl-phenylether	480	U
86-73-7	Fluorene	480	U
100-01-6	4-Nitroaniline	1200	U
534-52-1	4,6-Dinitro-2-methylphenol	1200	U
86-30-6	N-Nitrosodiphenylamine (1)	480	U
101-55-3	4-Bromophenyl-phenylether	480	U
118-74-1	Hexachlorobenzene	480	U
87-86-5	Pentachlorophenol	1200	U
85-01-8	Phenanthrene	340	J
120-12-7	Anthracene	100	J
86-74-8	Carbazole	480	U
84-74-2	Di-n-butylphthalate	160	J
206-44-0	Fluoranthene	600	
129-00-0	Pyrene	820	
85-68-7	Butylbenzylphthalate	580	
91-94-1	3,3'-Dichlorobenzidine	480	U
56-55-3	Benzo(a)anthracene	400	J
218-01-9	Chrysene	420	J
117-81-7	bis(2-Ethylhexyl)phthalate	1400	~~B~~ U
117-84-0	Di-n-octylphthalate	480	U
205-99-2	Benzo(b)fluoranthene	320	J
207-08-9	Benzo(k)fluoranthene	320	J
50-32-8	Benzo(a)pyrene	420	J
193-39-5	Indeno(1,2,3-cd)pyrene	300	J
53-70-3	Dibenz(a,h)anthracene	130	J
191-24-2	Benzo(g,h,i)perylene	330	J

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE29

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18399.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 32 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 35 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.737	1500	JB
2. 141-79-7	3-Penten-2-one, 4-methyl-	2.759	~~4200~~	~~NJAB~~
3.	UNKNOWN ORGANIC ACID	2.920	960	J
4. 123-42-2	2-Pentanone, 4-hydroxy-4-met	3.028	~~2800~~	~~NJAB~~
5.	UNKNOWN	~~3.082~~	550	J
6.	UNKNOWN Alkane	3.663	670	JB
7. 617-94-7	Benzenemethanol, .alpha.,.al	~~4.524~~	480	NJ
8. 108-46-3	Resorcinol	5.816	240	NJ
9.	Benzo[]thiophene, -ethyl--me	7.774	460	J
10.	UNKNOWN	7.946	260	J
11.	UNKNOWN	8.958	390	J
12.	UNKNOWN	9.442	220	J
13. 25154-52-3	Phenol, nonyl-	9.507	400	NJ
14.	-Nonylphenol	9.561	270	J
15.	Phenol, nonyl-	9.776	260	J
16.	-Triazine--diamine, -phenyl-	12.176	320	J
17.	UNKNOWN AMIDE	13.123	~~310~~	~~JB~~
18.	UNKNOWN AMIDE	14.425	~~3900~~	~~JB~~
19.	-Indene, -dihydro--trimethyl	15.997	2000	J
20.	-Indene, -dihydro--trimethyl	16.287	690	J
21.	UNKNOWN AMIDE	17.019	~~1000~~	~~JB~~
22.	UNKNOWN	18.870	350	J
23.	UNKNOWN	19.742	270	J
24.	UNKNOWN	19.936	460	J
25. 83-47-6	.gamma.-Sitosterol	20.259	2200	NJ
26.	UNKNOWN	20.603	300	J
27.	UNKNOWN	20.743	330	J
28.	UNKNOWN	20.818	800	J
29.	UNKNOWN	20.915	520	J
30.	UNKNOWN	21.077	300	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE29

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18399.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 32 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	1058-61-3	Stigmast-4-en-3-one	21.184	840	NJ
2.		UNKNOWN	21.443	300	J
3.		UNKNOWN	21.507	260	J
4.	20475-86-9	Urs-12-en-24-oic acid, 3-oxo	21.572	690	NJ
5.		UNKNOWN	22.799	340	J
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE30

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.02

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18400.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 60 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	820	U
111-44-4	bis(2-Chloroethyl)Ether	820	U
95-57-8	2-Chlorophenol	820	U
541-73-1	1,3-Dichlorobenzene	820	U
106-46-7	1,4-Dichlorobenzene	820	U
95-50-1	1,2-Dichlorobenzene	820	U
95-48-7	2-Methylphenol	820	U
108-60-1	2,2'-oxybis(1-Chloropropane)	820	U
106-44-5	4-Methylphenol	820	U
621-64-7	N-Nitroso-di-n-propylamine	820	U
67-72-1	Hexachloroethane	820	U
98-95-3	Nitrobenzene	820	U
78-59-1	Isophorone	820	U
88-75-5	2-Nitrophenol	820	U
105-67-9	2,4-Dimethylphenol	820	U
111-91-1	bis(2-Chloroethoxy)methane	820	U
120-83-2	2,4-Dichlorophenol	820	U
120-82-1	1,2,4-Trichlorobenzene	820	U
91-20-3	Naphthalene	820	U
106-47-8	4-Chloroaniline	820	U
87-68-3	Hexachlorobutadiene	820	U
59-50-7	4-Chloro-3-Methylphenol	820	U
91-57-6	2-Methylnaphthalene	820	U
77-47-4	Hexachlorocyclopentadiene	820	U
88-06-2	2,4,6-Trichlorophenol	820	U
95-95-4	2,4,5-Trichlorophenol	2100	U
91-58-7	2-Chloronaphthalene	820	U
88-74-4	2-Nitroaniline	2100	U
131-11-3	Dimethylphthalate	820	U
208-96-8	Acenaphthylene	110	J
606-20-2	2,6-Dinitrotoluene	820	U
99-09-2	3-Nitroaniline	2100	U
83-32-9	Acenaphthene	100	J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE30

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.02

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18400.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 60 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	2100	U
100-02-7	4-Nitrophenol	2100	U
132-64-9	Dibenzofuran	80	~~U~~
121-14-2	2,4-Dinitrotoluene	820	U
84-66-2	Diethylphthalate	820	U
7005-72-3	4-Chlorophenyl-phenylether	820	U
86-73-7	Fluorene	140	J
100-01-6	4-Nitroaniline	2100	U
534-52-1	4,6-Dinitro-2-methylphenol	2100	U
86-30-6	N-Nitrosodiphenylamine (1)	820	U
101-55-3	4-Bromophenyl-phenylether	820	U
118-74-1	Hexachlorobenzene	820	U
87-86-5	Pentachlorophenol	2100	U
85-01-8	Phenanthrene	1600	
120-12-7	Anthracene	400	~~U~~
86-74-8	Carbazole	160	~~U~~
84-74-2	Di-n-butylphthalate	820	U
206-44-0	Fluoranthene	2100	
129-00-0	Pyrene	2200	
85-68-7	Butylbenzylphthalate	2600	
91-94-1	3,3'-Dichlorobenzidine	820	U
56-55-3	Benzo(a)anthracene	1100	
218-01-9	Chrysene	1100	
117-81-7	bis(2-Ethylhexyl)phthalate	15000 ~~7100~~	~~EB~~
117-84-0	Di-n-octylphthalate	820	U
205-99-2	Benzo(b)fluoranthene	790	~~U~~
207-08-9	Benzo(k)fluoranthene	800	~~U~~
50-32-8	Benzo(a)pyrene	1000	
193-39-5	Indeno(1,2,3-cd)pyrene	580	~~U~~
53-70-3	Dibenz(a,h)anthracene	290	~~U~~
191-24-2	Benzo(g,h,i)perylene	670	~~U~~

→ Reanal from BSE30DL

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 OLM03.0

p. 267

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE30

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.02

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18400.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 60 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	141-79-7	3-Penten-2-one, 4-methyl-	2.761	~~3000~~	~~NJAB~~ R
2.		UNKNOWN	2.826	~~620~~	~~JB~~ R
3.		UNKNOWN	2.923	490	JB
4.	123-42-2	2-Pentanone, 4-hydroxy-4-met	3.030	~~2100~~	~~NJAB~~ R
5.		UNKNOWN	3.084	320	J
6.		Phenol, -(-trimethylpentyl)-	8.584	370	J
7.		Anthracene, -methyl-	11.253	270	J
8.	203-64-5	4H-Cyclopenta[def]phenanthre	11.414	380	NJ
9.		UNKNOWN PAH	12.727	210	J
10.		Phenol, '-(-methylethylidene	13.298	270	J
11.		UNKNOWN PAH	13.438	250	J
12.		UNKNOWN	13.642	250	J
13.		11H-Benzo[]fluorene	13.675	420	J
14.		UNKNOWN PHTHALATE	13.739	370	J
15.		Pyrene, -methyl-	13.868	250	J
16.	82-05-3	7H-Benz[de]anthracen-7-one	14.686	320	NJ
17.	1241-94-7	Octicizer	14.955	680	NJ
18.		UNKNOWN	15.816	400	J
19.		UNKNOWN PAH	15.892	250	J
20.		-Methylchrysene	16.161	370	J
21.		UNKNOWN	17.258	310	J
22.	198-55-0	Perylene	17.829	600	NJ
23.	192-97-2	Benzo[e]pyrene	18.044	270	NJ
24.		UNKNOWN	18.851	350	J
25.		UNKNOWN	18.905	280	J
26.		UNKNOWN	19.497	1800	J
27.		UNKNOWN	19.863	320	J
28.		UNKNOWN PAH	19.917	320	J
29.	83-47-6	.gamma.-Sitosterol	20.261	490	NJ
30.		UNKNOWN	20.337	520	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE30

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.02

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18400.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 60 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	20.745	430	J
2.	UNKNOWN	21.101	280	J
3.	UNKNOWN	21.187	530	J
4.	UNKNOWN	21.757	370	J
5.	Naphtho[-def]chrysene	22.102	260	J
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE31

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.06

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18359.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 59 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	800	U
111-44-4	bis(2-Chloroethyl)Ether	800	U
95-57-8	2-Chlorophenol	800	U
541-73-1	1,3-Dichlorobenzene	800	U
106-46-7	1,4-Dichlorobenzene	800	U
95-50-1	1,2-Dichlorobenzene	800	U
95-48-7	2-Methylphenol	800	U
108-60-1	2,2'-oxybis(1-Chloropropane)	800	U
106-44-5	4-Methylphenol	800	U
621-64-7	N-Nitroso-di-n-propylamine	800	U
67-72-1	Hexachloroethane	800	U
98-95-3	Nitrobenzene	800	U
78-59-1	Isophorone	800	U
88-75-5	2-Nitrophenol	800	U
105-67-9	2,4-Dimethylphenol	800	U
111-91-1	bis(2-Chloroethoxy)methane	800	U
120-83-2	2,4-Dichlorophenol	800	U
120-82-1	1,2,4-Trichlorobenzene	800	U
91-20-3	Naphthalene	800	U
106-47-8	4-Chloroaniline	800	U
87-68-3	Hexachlorobutadiene	800	U
59-50-7	4-Chloro-3-Methylphenol	800	U
91-57-6	2-Methylnaphthalene	70	J
77-47-4	Hexachlorocyclopentadiene	800	U
88-06-2	2,4,6-Trichlorophenol	800	U
95-95-4	2,4,5-Trichlorophenol	2000	U
91-58-7	2-Chloronaphthalene	800	U
88-74-4	2-Nitroaniline	2000	U
131-11-3	Dimethylphthalate	800	U
208-96-8	Acenaphthylene	800	U
606-20-2	2,6-Dinitrotoluene	800	U
99-09-2	3-Nitroaniline	2000	U
83-32-9	Acenaphthene	160	J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE31

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.06

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18359.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 59 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	2000	U
100-02-7	4-Nitrophenol	2000	U
132-64-9	Dibenzofuran	800	U
121-14-2	2,4-Dinitrotoluene	800	U
84-66-2	Diethylphthalate	800	U
7005-72-3	4-Chlorophenyl-phenylether	800	U
86-73-7	Fluorene	150	J
100-01-6	4-Nitroaniline	2000	U
534-52-1	4,6-Dinitro-2-methylphenol	2000	U
86-30-6	N-Nitrosodiphenylamine (1)	800	U
101-55-3	4-Bromophenyl-phenylether	800	U
118-74-1	Hexachlorobenzene	800	U
87-86-5	Pentachlorophenol	2000	U
85-01-8	Phenanthrene	2000	
120-12-7	Anthracene	420	J
86-74-8	Carbazole	270	J
84-74-2	Di-n-butylphthalate	1100	
206-44-0	Fluoranthene	2900	
129-00-0	Pyrene	3000	
85-68-7	Butylbenzylphthalate	800	U
91-94-1	3,3'-Dichlorobenzidine	800	U
56-55-3	Benzo(a)anthracene	1600	
218-01-9	Chrysene	1800	
117-81-7	bis(2-Ethylhexyl)phthalate	660	J
117-84-0	Di-n-octylphthalate	800	U
205-99-2	Benzo(b)fluoranthene	1600	
207-08-9	Benzo(k)fluoranthene	1300	
50-32-8	Benzo(a)pyrene	1600	
193-39-5	Indeno(1,2,3-cd)pyrene	1200	
53-70-3	Dibenz(a,h)anthracene	600	J
191-24-2	Benzo(g,h,i)perylene	1400	

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 OLM03.0

p.271

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE31

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.06

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18359.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 59 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.		UNKNOWN	2.794	~~1600~~	~~AJB~~	R
2.		UNKNOWN ALCOHOL	2.858	~~980~~	~~JB~~	R
3.		UNKNOWN	2.944	20000	JB	
4.	123-42-2	2-Pentanone, 4-hydroxy-4-met	3.052	~~1100~~	~~NJAB~~	R
5.		UNKNOWN	3.095	720	JB	
6.	76-22-2	Camphor	4.989	3100	NJ	
7.		UNKNOWN	7.981	900	J	
8.		UNKNOWN PAH	11.447	610	J	
9.		Octadecanol	12.394	2000	J	
10.	10544-50-0	Sulfur, mol. (S8)	12.523	1400	NJ	
11.		UNKNOWN AMIDE	13.158	720	J	
12.		11H-Benzo[]fluorene	13.707	740	J	
13.		UNKNOWN AMIDE	14.450	6500	J	
14.		Hexanedioic acid, este	14.622	~~1200~~	~~JB~~	R
15.		UNKNOWN PAH	15.838	800	J	
16.		UNKNOWN PAH	16.204	760	J	
17.	192-97-2	Benzo[e]pyrene	17.861	820	NJ	
18.		UNKNOWN ORGANIC ACID	18.399	520	J	
19.		UNKNOWN	18.948	470	J	
20.		UNKNOWN	19.207	650	J	
21.		UNKNOWN	19.336	590	J	
22.		UNKNOWN ALDEHYDE	19.454	670	J	
23.		UNKNOWN PAH	19.562	510	J	
24.		UNKNOWN PAH	19.895	640	J	
25.		UNKNOWN PAH	19.949	780	J	
26.		UNKNOWN	20.294	720	J	
27.		UNKNOWN	20.520	480	J	
28.		UNKNOWN	20.659	570	J	
29.		UNKNOWN	20.703	1100	J	
30.		UNKNOWN	20.789	520	J	

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE31

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.06

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18359.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 59 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	21.025	~~600~~	~~JB~~ R
2.	UNKNOWN	21.531	530	J
3.	UNKNOWN	22.037	670	J
4.	Naphtho[]chrysene	22.155	490	J
5.	Dibenzpyrene	23.199	460	J
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE32

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.03

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18401.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 24 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	430	U
111-44-4	bis(2-Chloroethyl)Ether	430	U
95-57-8	2-Chlorophenol	430	U
541-73-1	1,3-Dichlorobenzene	430	U
106-46-7	1,4-Dichlorobenzene	430	U
95-50-1	1,2-Dichlorobenzene	430	U
95-48-7	2-Methylphenol	430	U
108-60-1	2,2'-oxybis(1-Chloropropane)	430	U
106-44-5	4-Methylphenol	430	U
621-64-7	N-Nitroso-di-n-propylamine	430	U
67-72-1	Hexachloroethane	430	U
98-95-3	Nitrobenzene	430	U
78-59-1	Isophorone	430	U
88-75-5	2-Nitrophenol	430	U
105-67-9	2,4-Dimethylphenol	430	U
111-91-1	bis(2-Chloroethoxy)methane	430	U
120-83-2	2,4-Dichlorophenol	430	U
120-82-1	1,2,4-Trichlorobenzene	430	U
91-20-3	Naphthalene	430	U
106-47-8	4-Chloroaniline	430	U
87-68-3	Hexachlorobutadiene	430	U
59-50-7	4-Chloro-3-Methylphenol	430	U
91-57-6	2-Methylnaphthalene	430	U
77-47-4	Hexachlorocyclopentadiene	430	U
88-06-2	2,4,6-Trichlorophenol	430	U
95-95-4	2,4,5-Trichlorophenol	1100	U
91-58-7	2-Chloronaphthalene	430	U
88-74-4	2-Nitroaniline	1100	U
131-11-3	Dimethylphthalate	430	U
208-96-8	Acenaphthylene	430	U
606-20-2	2,6-Dinitrotoluene	430	U
99-09-2	3-Nitroaniline	1100	U
83-32-9	Acenaphthene	430	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE32

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.03

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18401.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 24 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1100	U
100-02-7	4-Nitrophenol	1100	U
132-64-9	Dibenzofuran	430	U
121-14-2	2,4-Dinitrotoluene	430	U
84-66-2	Diethylphthalate	430	U
7005-72-3	4-Chlorophenyl-phenylether	430	U
86-73-7	Fluorene	430	U
100-01-6	4-Nitroaniline	1100	U
534-52-1	4,6-Dinitro-2-methylphenol	1100	U
86-30-6	N-Nitrosodiphenylamine (1)	430	U
101-55-3	4-Bromophenyl-phenylether	430	U
118-74-1	Hexachlorobenzene	430	U
87-86-5	Pentachlorophenol	1100	U
85-01-8	Phenanthrene	430	U
120-12-7	Anthracene	430	U
86-74-8	Carbazole	430	U
84-74-2	Di-n-butylphthalate	430	U
206-44-0	Fluoranthene	430	U
129-00-0	Pyrene	430	U
85-68-7	Butylbenzylphthalate	430	U
91-94-1	3,3'-Dichlorobenzidine	430	U
56-55-3	Benzo(a)anthracene	430	U
218-01-9	Chrysene	430	U
117-81-7	bis(2-Ethylhexyl)phthalate	400 ~~150~~	~~JB~~ J
117-84-0	Di-n-octylphthalate	430	U
205-99-2	Benzo(b)fluoranthene	430	U
207-08-9	Benzo(k)fluoranthene	430	U
50-32-8	Benzo(a)pyrene	190	J
193-39-5	Indeno(1,2,3-cd)pyrene	430	U
53-70-3	Dibenz(a,h)anthracene	430	U
191-24-2	Benzo(g,h,i)perylene	430	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2

OLM03.0

p. 275

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE32

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.03

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18401.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 24 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 32

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 141-79-7	3-Penten-2-one, 4-methyl-	2.760	~~2100~~	~~NJAB~~
2.	UNKNOWN	2.824	~~420~~	~~JB~~
3. 123-42-2	2-~~Pentanone, 4-hydroxy-4-met~~	3.029	~~1600~~	~~NJAB~~
4.	UNKNOWN	3.082	190	J
5.	UNKNOWN Alkane	3.664	340	JB
6.	~~-Cyclooctadiene, -()-~~	10.498	110	J
7.	~~UNKNOWN AMIDE~~	11.552	120	J
8.	UNKNOWN AMIDE	12.995	110	J
9.	UNKNOWN AMIDE	13.124	~~260~~	~~JB~~
10.	UNKNOWN AMIDE	14.426	~~2600~~	~~JB~~
11.	UNKNOWN	15.233	260	J
12.	-Eicosanol	16.460	830	J
13.	UNKNOWN AMIDE	17.020	~~1200~~	~~JB~~
14. 7683-64-9	Squalene	17.257	140	NJ
15.	UNKNOWN	17.633	240	J
16.	UNKNOWN	17.709	140	J
17.	UNKNOWN KETONE	18.796	130	J
18.	UNKNOWN	19.538	120	J
19.	UNKNOWN	19.786	140	J
20.	UNKNOWN KETONE	19.861	220	J
21.	UNKNOWN	19.926	280	J
22.	UNKNOWN	20.044	180	J
23.	UNKNOWN	20.259	400	J
24.	UNKNOWN	20.302	1100	J
25.	UNKNOWN	20.442	200	J
26.	UNKNOWN PAH	20.496	660	J
27.	UNKNOWN	20.604	510	J
28.	UNKNOWN	20.765	540	J
29.	UNKNOWN	20.905	520	J
30.	UNKNOWN	21.185	160	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE32

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.03

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18401.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 24 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 32

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	21.400	160	J
2.	UNKNOWN	21.981	710	J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE33

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18402.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 77 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1400	U
111-44-4	bis(2-Chloroethyl)Ether	1400	U
95-57-8	2-Chlorophenol	1400	U
541-73-1	1,3-Dichlorobenzene	1400	U
106-46-7	1,4-Dichlorobenzene	88	J
95-50-1	1,2-Dichlorobenzene	1400	U
95-48-7	2-Methylphenol	1400	U
108-60-1	2,2'-oxybis(1-Chloropropane)	1400	U
106-44-5	4-Methylphenol	1400	U
621-64-7	N-Nitroso-di-n-propylamine	1400	U
67-72-1	Hexachloroethane	1400	U
98-95-3	Nitrobenzene	1400	U
78-59-1	Isophorone	1400	U
88-75-5	2-Nitrophenol	1400	U
105-67-9	2,4-Dimethylphenol	1400	U
111-91-1	bis(2-Chloroethoxy)methane	1400	U
120-83-2	2,4-Dichlorophenol	1400	U
120-82-1	1,2,4-Trichlorobenzene	1400	U
91-20-3	Naphthalene	600	J
106-47-8	4-Chloroaniline	1400	U
87-68-3	Hexachlorobutadiene	1400	U
59-50-7	4-Chloro-3-Methylphenol	1400	U
91-57-6	2-Methylnaphthalene	230	J
77-47-4	Hexachlorocyclopentadiene	1400	U
88-06-2	2,4,6-Trichlorophenol	1400	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	1400	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethylphthalate	1400	U
208-96-8	Acenaphthylene	420	J
606-20-2	2,6-Dinitrotoluene	1400	U
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	790	J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE33

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18402.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 77 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	520	J
121-14-2	2,4-Dinitrotoluene	1400	U
84-66-2	Diethylphthalate	1400	JB
7005-72-3	4-Chlorophenyl-phenylether	1400	U
86-73-7	Fluorene	880	J
100-01-6	4-Nitroaniline	3600	U
534-52-1	4,6-Dinitro-2-methylphenol	3600	U
86-30-6	N-Nitrosodiphenylamine (1)	1400	U
101-55-3	4-Bromophenyl-phenylether	1400	U
118-74-1	Hexachlorobenzene	1400	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	8000	
120-12-7	Anthracene	2300	
86-74-8	Carbazole	1000	J
84-74-2	Di-n-butylphthalate	* ~~12000~~	E
206-44-0	Fluoranthene	* ~~12000~~	E
129-00-0	Pyrene	* ~~12000~~	E
85-68-7	Butylbenzylphthalate	7800	
91-94-1	3,3'-Dichlorobenzidine	1400	U
56-55-3	Benzo(a)anthracene	6800	
218-01-9	Chrysene	6900	
117-81-7	bis(2-Ethylhexyl)phthalate	* ~~25000~~	EB
117-84-0	Di-n-octylphthalate	260	J
205-99-2	Benzo(b)fluoranthene	5300	
207-08-9	Benzo(k)fluoranthene	6600	
50-32-8	Benzo(a)pyrene	7400	
193-39-5	Indeno(1,2,3-cd)pyrene	4800	
53-70-3	Dibenz(a,h)anthracene	1900	
191-24-2	Benzo(g,h,i)perylene	5500	

* Result from BSE 33DL

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 OLM03.0

p. 279

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE33

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18402.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 77 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

Number TICs found: 34

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	141-79-7	3-Penten-2-one, 4-methyl-	2.762	~~9300~~	~~NJAB~~
2.	123-42-2	2-Pentanone, 4-hydroxy-4-met	3.021	~~8300~~	~~NJAB~~
3.		UNKNOWN ORGANIC ACID	8.434	25000	J
4.		UNKNOWN PHTHALATE	10.759	1900	J
5.	203-64-5	4H-Cyclopenta[def]phenanthre	11.415	2100	NJ
6.		11H-Benzo[]fluorene	13.675	3100	J
7.		Pyrene,-methyl-	13.869	2100	J
8.		UNKNOWN AMIDE	14.429	22000	JB
9.		UNKNOWN	14.935	2100	J
10.		UNKNOWN PHTHALATE	15.032	2000	J
11.		UNKNOWN	15.150	2000	J
12.		UNKNOWN PAH	15.591	2100	J
13.		UNKNOWN	15.817	3200	J
14.		UNKNOWN	15.893	3300	J
15.		Chrysene, -methyl-	16.162	2100	J
16.	1090-13-7	5,12-Naphthacenedione	16.786	960	NJ
17.		Decanedioic acid, este	17.119	980	J
18.		Benzo[]fluoranthene	17.539	2700	J
19.		UNKNOWN PHTHALATE	17.658	2400	J
20.		UNKNOWN PHTHALATE	17.733	4100	J
21.	192-97-2	Benzo[e]pyrene	17.830	5200	NJ
22.	198-55-0	Perylene	18.056	3000	NJ
23.		-Quaterphenyl	18.110	3500	J
24.		UNKNOWN PHTHALATE	18.206	2100	J
25.		UNKNOWN PAH	18.282	920	J
26.		UNKNOWN	19.143	880	J
27.		UNKNOWN PAH	19.864	1100	J
28.		UNKNOWN	20.337	1100	J
29.	603-48-5	Benzenamine, 4,4',4''-methyl	20.746	6200	NJ
30.	1058-61-3	Stigmast-4-en-3-one	21.198	970	NJ

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE33

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18402.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 77 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3

Number TICs found: 34

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	21.500	1200	J
2.	[ ]Dibenzpyrene	22.113	1400	J
3.	-Dibenzpyrene	22.382	980	J
4.	-Dibenzpyrene	23.146	920	J
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE34

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18403.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 90 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	3300	U
111-44-4	bis(2-Chloroethyl)Ether	3300	U
95-57-8	2-Chlorophenol	3300	U
541-73-1	1,3-Dichlorobenzene	3300	U
106-46-7	1,4-Dichlorobenzene	3300	U
95-50-1	1,2-Dichlorobenzene	3300	U
95-48-7	2-Methylphenol	3300	U
108-60-1	2,2'-oxybis(1-Chloropropane)	3300	U
106-44-5	4-Methylphenol	3300	U
621-64-7	N-Nitroso-di-n-propylamine	3300	U
67-72-1	Hexachloroethane	3300	U
98-95-3	Nitrobenzene	3300	U
78-59-1	Isophorone	3300	U
88-75-5	2-Nitrophenol	3300	U
105-67-9	2,4-Dimethylphenol	3300	U
111-91-1	bis(2-Chloroethoxy)methane	3300	U
120-83-2	2,4-Dichlorophenol	3300	U
120-82-1	1,2,4-Trichlorobenzene	3300	U
91-20-3	Naphthalene	3300	U
106-47-8	4-Chloroaniline	3300	U
87-68-3	Hexachlorobutadiene	3300	U
59-50-7	4-Chloro-3-Methylphenol	3300	U
91-57-6	2-Methylnaphthalene	3300	U
77-47-4	Hexachlorocyclopentadiene	3300	U
88-06-2	2,4,6-Trichlorophenol	3300	U
95-95-4	2,4,5-Trichlorophenol	8300	U
91-58-7	2-Chloronaphthalene	3300	U
88-74-4	2-Nitroaniline	8300	U
131-11-3	Dimethylphthalate	3300	U
208-96-8	Acenaphthylene	3300	U
606-20-2	2,6-Dinitrotoluene	3300	U
99-09-2	3-Nitroaniline	8300	U
83-32-9	Acenaphthene	3300	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE34

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18403.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 90 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	8300	U
100-02-7	4-Nitrophenol	8300	U
132-64-9	Dibenzofuran	3300	U
121-14-2	2,4-Dinitrotoluene	3300	U
84-66-2	Diethylphthalate	3300	U
7005-72-3	4-Chlorophenyl-phenylether	3300	U
86-73-7	Fluorene	3300	U
100-01-6	4-Nitroaniline	8300	U
534-52-1	4,6-Dinitro-2-methylphenol	8300	U
86-30-6	N-Nitrosodiphenylamine (1)	3300	U
101-55-3	4-Bromophenyl-phenylether	3300	U
118-74-1	Hexachlorobenzene	3300	U
87-86-5	Pentachlorophenol	8300	U
85-01-8	Phenanthrene	3300	U
120-12-7	Anthracene	3300	U
86-74-8	Carbazole	3300	U
84-74-2	Di-n-butylphthalate	3300	U
206-44-0	Fluoranthene	3300	U
129-00-0	Pyrene	3300	U
85-68-7	Butylbenzylphthalate	3300	U
91-94-1	3,3'-Dichlorobenzidine	3300	U
56-55-3	Benzo(a)anthracene	3300	U
218-01-9	Chrysene	3300	U
117-81-7	bis(2-Ethylhexyl)phthalate	3300 ~~760~~	~~JB~~
117-84-0	Di-n-octylphthalate	3300	U
205-99-2	Benzo(b)fluoranthene	3300	U
207-08-9	Benzo(k)fluoranthene	3300	U
50-32-8	Benzo(a)pyrene	3300	U
193-39-5	Indeno(1,2,3-cd)pyrene	3300	U
53-70-3	Dibenz(a,h)anthracene	3300	U
191-24-2	Benzo(g,h,i)perylene	3300	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 OLM03.0

p. 283

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE34

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18403.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 90 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.737	13000	JB
2. 10574-37-5	2-Pentene, 2,3-dimethyl-	2.759	~~25000~~	~~NJA~~ R
3.	UNKNOWN	2.920	8200	JB
4. 123-42-2	2-Pentanone, 4-hydroxy-4-met	3.028	~~17000~~	~~NJAB~~ R
5. 5153-92-4	1H-Naphtho[2,1-b]pyran, 4a,5	11.842	9000	NJ
6. 19407-28-4	Phenanthrene, 1,2,3,4,4a,9,1	12.424	6000	NJ
7. 511-15-9	2-Phenanthrenol, 4b,5,6,7,8,	14.275	15000	NJ
8.	UNKNOWN	14.339	13000	J
9.	UNKNOWN AMIDE	14.425	29000	JB
10.	UNKNOWN ORGANIC ACID	16.460	6600	J
11.	UNKNOWN AMIDE	17.030	21000	JB
12.	UNKNOWN ORGANIC ACID	18.720	13000	J
13.	UNKNOWN KETONE	18.795	13000	J
14. 471-68-1	Olean-12-ene	18.870	9800	NJ
15.	UNKNOWN	19.021	8500	J
16.	UNKNOWN	19.129	8500	J
17. 1615-91-4	A'-Neogammacer-22(29)-ene	19.279	21000	NJ
18.	UNKNOWN	19.548	7400	J
19.	UNKNOWN	19.656	16000	J
20.	UNKNOWN	19.753	7400	J
21.	UNKNOWN	19.796	15000	J
22. 0-00-0	2-Nonacosanone	19.871	11000	NJ
23.	UNKNOWN	19.936	23000	J
24.	UNKNOWN	20.087	11000	J
25. 514-07-8	D-Friedoolean-14-en-3-one	20.323	170000	NJ
26.	UNKNOWN	20.442	31000	J
27. 127-22-0	Taraxerol	20.506	62000	NJ
28.	UNKNOWN	20.646	29000	J
29. 1617-70-5	Lup-20(29)-en-3-one	20.808	510000	NJ
30. 1678-31-5	a'-Neogammacer-22(29)-en-3-o	20.948	82000	NJ

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE34

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18403.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 90 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/07/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	21.098	34000	J
2.	UNKNOWN	21.195	12000	J
3.	UNKNOWN	21.421	7900	J
4.	UNKNOWN	21.809	6900	J
5.	UNKNOWN	21.981	34000	J
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE35

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.06

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18404.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 88 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/08/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	2700	U
111-44-4	bis(2-Chloroethyl)Ether	2700	U
95-57-8	2-Chlorophenol	2700	U
541-73-1	1,3-Dichlorobenzene	2700	U
106-46-7	1,4-Dichlorobenzene	2700	U
95-50-1	1,2-Dichlorobenzene	2700	U
95-48-7	2-Methylphenol	2700	U
108-60-1	2,2'-oxybis(1-Chloropropane)	2700	U
106-44-5	4-Methylphenol	2700	U
621-64-7	N-Nitroso-di-n-propylamine	2700	U
67-72-1	Hexachloroethane	2700	U
98-95-3	Nitrobenzene	2700	U
78-59-1	Isophorone	2700	U
88-75-5	2-Nitrophenol	2700	U
105-67-9	2,4-Dimethylphenol	2700	U
111-91-1	bis(2-Chloroethoxy)methane	2700	U
120-83-2	2,4-Dichlorophenol	2700	U
120-82-1	1,2,4-Trichlorobenzene	2700	U
91-20-3	Naphthalene	2700	U
106-47-8	4-Chloroaniline	2700	U
87-68-3	Hexachlorobutadiene	2700	U
59-50-7	4-Chloro-3-Methylphenol	2700	U
91-57-6	2-Methylnaphthalene	2700	U
77-47-4	Hexachlorocyclopentadiene	2700	U
88-06-2	2,4,6-Trichlorophenol	2700	U
95-95-4	2,4,5-Trichlorophenol	6900	U
91-58-7	2-Chloronaphthalene	2700	U
88-74-4	2-Nitroaniline	6900	U
131-11-3	Dimethylphthalate	2700	U
208-96-8	Acenaphthylene	2700	U
606-20-2	2,6-Dinitrotoluene	2700	U
99-09-2	3-Nitroaniline	6900	U
83-32-9	Acenaphthene	2700	U

J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE35

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.06

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18404.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 88 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/08/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	6900	U
100-02-7	4-Nitrophenol	6900	U
132-64-9	Dibenzofuran	2700	U
121-14-2	2,4-Dinitrotoluene	2700	U
84-66-2	Diethylphthalate	2700	U
7005-72-3	4-Chlorophenyl-phenylether	2700	U
86-73-7	Fluorene	2700	U
100-01-6	4-Nitroaniline	6900	U
534-52-1	4,6-Dinitro-2-methylphenol	6900	U
86-30-6	N-Nitrosodiphenylamine (1)	2700	U
101-55-3	4-Bromophenyl-phenylether	2700	U
118-74-1	Hexachlorobenzene	2700	U
87-86-5	Pentachlorophenol	6900	U
85-01-8	Phenanthrene	2700	U
120-12-7	Anthracene	2700	U
86-74-8	Carbazole	2700	U
84-74-2	Di-n-butylphthalate	2700	U
206-44-0	Fluoranthene	2700	U
129-00-0	Pyrene	2700	U
85-68-7	Butylbenzylphthalate	180	J
91-94-1	3,3'-Dichlorobenzidine	2700	U
56-55-3	Benzo(a)anthracene	2700	U
218-01-9	Chrysene	2700	U
117-81-7	bis(2-Ethylhexyl)phthalate	3800	~~B~~
117-84-0	Di-n-octylphthalate	2700	U
205-99-2	Benzo(b)fluoranthene	2700	U
207-08-9	Benzo(k)fluoranthene	2700	U
50-32-8	Benzo(a)pyrene	210	J
193-39-5	Indeno(1,2,3-cd)pyrene	2700	U
53-70-3	Dibenz(a,h)anthracene	2700	U
191-24-2	Benzo(g,h,i)perylene	2700	U

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE35

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.06

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18404.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 88 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/08/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	2.737	4900	JB
2. 10574-37-5	2-Pentene, 2,3-dimethyl-	2.758	~~14000~~	~~NJA~~
3. 123-42-2	2-Pentanone, 4-hydroxy-4-met	3.027	~~19000~~	~~NJAB~~
4. 38754-94-8	s-Indacen-1(2H)-one, 3,5,6,7	12.122	6400	NJ
5. 19407-28-4	Phenanthrene, 1,2,3,4,4a,9,1	12.423	4600	NJ
6.	UNKNOWN	12.735	7400	J
7.	UNKNOWN HYDROCARBON	13.855	5500	J
8. 511-15-9	2-Phenanthrenol, 4b,5,6,7,8,	14.274	20000	NJ
9.	UNKNOWN	14.339	12000	J
10.	2-Phenanthrenol, -octa	14.382	6700	J
11.	-Nonadecanol	18.719	7900	J
12.	UNKNOWN	18.784	11000	J
13.	UNKNOWN	18.870	7200	J
14. 59-02-9	Vitamin E	19.042	5400	NJ
15.	UNKNOWN	19.085	4900	J
16.	UNKNOWN	19.300	7400	J
17.	UNKNOWN	19.537	5100	J
18.	UNKNOWN	19.645	8200	J
19.	UNKNOWN	19.742	5600	J
20.	UNKNOWN	19.795	8700	J
21.	UNKNOWN KETONE	19.860	6700	J
22.	UNKNOWN	19.935	25000	J
23.	UNKNOWN	20.032	6800	J
24.	UNKNOWN	20.269	14000	J
25. 514-07-8	D-Friedoolean-14-en-3-one	20.323	64000	NJ
26.	UNKNOWN	20.441	15000	J
27.	UNKNOWN	20.506	29000	J
28.	UNKNOWN	20.624	22000	J
29.	UNKNOWN	20.807	83000	J
30.	UNKNOWN	20.979	44000	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE35

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.06

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18404.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 88 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/08/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0

Number TICs found: 35

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND	RT	EST. CONC.	Q
1.		UNKNOWN	21.098	8300	J
2.	1058-61-3	Stigmast-4-en-3-c	21.195	9400	NJ
3.		UNKNOWN	21.238	9000	J
4.		UNKNOWN	22.680	9000	J
5.		Unknown	22.841	5600	J
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE36

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18405.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 60 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/08/97

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 7.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	8200	U
111-44-4	bis(2-Chloroethyl)Ether	8200	U
95-57-8	2-Chlorophenol	8200	U
541-73-1	1,3-Dichlorobenzene	8200	U
106-46-7	1,4-Dichlorobenzene	8200	U
95-50-1	1,2-Dichlorobenzene	8200	U
95-48-7	2-Methylphenol	8200	U
108-60-1	2,2'-oxybis(1-Chloropropane)	8200	U
106-44-5	4-Methylphenol	8200	U
621-64-7	N-Nitroso-di-n-propylamine	8200	U
67-72-1	Hexachloroethane	8200	U
98-95-3	Nitrobenzene	8200	U
78-59-1	Isophorone	8200	U
88-75-5	2-Nitrophenol	8200	U
105-67-9	2,4-Dimethylphenol	8200	U
111-91-1	bis(2-Chloroethoxy)methane	8200	U
120-83-2	2,4-Dichlorophenol	8200	U
120-82-1	1,2,4-Trichlorobenzene	8200	U
91-20-3	Naphthalene	8200	U
106-47-8	4-Chloroaniline	8200	U
87-68-3	Hexachlorobutadiene	8200	U
59-50-7	4-Chloro-3-Methylphenol	8200	U
91-57-6	2-Methylnaphthalene	8200	U
77-47-4	Hexachlorocyclopentadiene	8200	U
88-06-2	2,4,6-Trichlorophenol	8200	U
95-95-4	2,4,5-Trichlorophenol	21000	U
91-58-7	2-Chloronaphthalene	8200	U
88-74-4	2-Nitroaniline	21000	U
131-11-3	Dimethylphthalate	8200	U
208-96-8	Acenaphthylene	8200	U
606-20-2	2,6-Dinitrotoluene	8200	U
99-09-2	3-Nitroaniline	21000	U
83-32-9	Acenaphthene	8200	U

J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE36

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18405.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 60 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/08/97

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 7.5

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	21000	U
100-02-7	4-Nitrophenol	21000	U
132-64-9	Dibenzofuran	8200	U
121-14-2	2,4-Dinitrotoluene	8200	U
84-66-2	Diethylphthalate	8200	U
7005-72-3	4-Chlorophenyl-phenylether	8200	U
86-73-7	Fluorene	8200	U
100-01-6	4-Nitroaniline	21000	U
534-52-1	4,6-Dinitro-2-methylphenol	21000	U
86-30-6	N-Nitrosodiphenylamine (1)	8200	U
101-55-3	4-Bromophenyl-phenylether	8200	U
118-74-1	Hexachlorobenzene	8200	U
87-86-5	Pentachlorophenol	21000	U
85-01-8	Phenanthrene	4200	~~J~~
120-12-7	Anthracene	1000	~~J~~
86-74-8	Carbazole	8200	U
84-74-2	Di-n-butylphthalate	8200	U
206-44-0	Fluoranthene	5400	~~J~~
129-00-0	Pyrene	5400	~~J~~
85-68-7	Butylbenzylphthalate	2800	J
91-94-1	3,3'-Dichlorobenzidine	8200	U
56-55-3	Benzo(a)anthracene	2800	~~J~~
218-01-9	Chrysene	3100	~~J~~
117-81-7	bis(2-Ethylhexyl)phthalate	230000 → ~~200000~~	~~EB~~
117-84-0	Di-n-octylphthalate	7700	~~J~~
205-99-2	Benzo(b)fluoranthene	2200	~~J~~
207-08-9	Benzo(k)fluoranthene	2600	~~J~~
50-32-8	Benzo(a)pyrene	3000	~~J~~
193-39-5	Indeno(1,2,3-cd)pyrene	1800	~~J~~
53-70-3	Dibenz(a,h)anthracene	8200	U
191-24-2	Benzo(g,h,i)perylene	2000	~~J~~

* Result from BSE36DL

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 OLM03.0

p. 291

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE36

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18405.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 60 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/08/97

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 7.5

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	141-79-7	3-Penten-2-one, 4-methyl-	2.771	~~5800~~	~~NJAB~~
2.	123-42-2	2-Pentanone, 4-hydroxy-4-met	3.029	~~9700~~	~~NJAB~~
3.		UNKNOWN AMIDE	14.427	11000	JB
4.		UNKNOWN	15.202	5000	J
5.		UNKNOWN	15.266	40000	J
6.		UNKNOWN PHTHALATE	15.525	4800	J
7.		UNKNOWN PHTHALATE	15.804	5400	J
8.		UNKNOWN PHTHALATE	15.880	8600	J
9.		UNKNOWN PHTHALATE	15.912	5700	J
10.		UNKNOWN PHTHALATE	15.977	3100	J
11.		UNKNOWN PHTHALATE	16.160	8200	J
12.		UNKNOWN PHTHALATE	16.256	14000	J
13.		UNKNOWN	16.321	2900	J
14.		UNKNOWN PHTHALATE	16.353	2900	J
15.		UNKNOWN	16.504	3500	J
16.	1330-78-5	Phosphoric acid, tris(methyl	16.579	3300	NJ
17.		UNKNOWN PHTHALATE	16.622	5700	J
18.		UNKNOWN PHTHALATE	16.730	2900	J
19.		UNKNOWN	16.848	4100	J
20.		UNKNOWN PHTHALATE	16.967	3100	J
21.		UNKNOWN	17.031	3400	J
22.		UNKNOWN PHTHALATE	17.709	8400	J
23.		UNKNOWN	17.774	4400	J
24.	192-97-2	Benzo[e]pyrene	17.838	5300	NJ
25.		UNKNOWN PHTHALATE	17.871	3100	J
26.		Unknown	19.130	3700	J
27.		UNKNOWN	19.313	2400	J
28.		UNKNOWN	19.378	3600	J
29.		UNKNOWN	20.271	4500	J
30.		UNKNOWN	20.755	2400	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE36

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18405.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 60 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/08/97

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 7.5

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	20.949	3100	J
2.	UNKNOWN	21.186	5100	J
3.	UNKNOWN	21.573	4900	J
4.	UNKNOWN	22.133	13000	J
5.	UNKNOWN	22.854	12000	J
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE37

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18360.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 40 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	550	U
111-44-4	bis(2-Chloroethyl)Ether	550	U
95-57-8	2-Chlorophenol	550	U
541-73-1	1,3-Dichlorobenzene	550	U
106-46-7	1,4-Dichlorobenzene	550	U
95-50-1	1,2-Dichlorobenzene	550	U
95-48-7	2-Methylphenol	550	U
108-60-1	2,2'-oxybis(1-Chloropropane)	550	U
106-44-5	4-Methylphenol	550	U
621-64-7	N-Nitroso-di-n-propylamine	550	U
67-72-1	Hexachloroethane	550	U
98-95-3	Nitrobenzene	550	U
78-59-1	Isophorone	550	U
88-75-5	2-Nitrophenol	550	U
105-67-9	2,4-Dimethylphenol	550	U
111-91-1	bis(2-Chloroethoxy)methane	550	U
120-83-2	2,4-Dichlorophenol	550	U
120-82-1	1,2,4-Trichlorobenzene	550	U
91-20-3	Naphthalene	550	U
106-47-8	4-Chloroaniline	550	U
87-68-3	Hexachlorobutadiene	550	U
59-50-7	4-Chloro-3-Methylphenol	550	U
91-57-6	2-Methylnaphthalene	54	J
77-47-4	Hexachlorocyclopentadiene	550	U
88-06-2	2,4,6-Trichlorophenol	550	U
95-95-4	2,4,5-Trichlorophenol	1400	U
91-58-7	2-Chloronaphthalene	550	U
88-74-4	2-Nitroaniline	1400	U
131-11-3	Dimethylphthalate	550	U
208-96-8	Acenaphthylene	550	U
606-20-2	2,6-Dinitrotoluene	550	U
99-09-2	3-Nitroaniline	1400	U
83-32-9	Acenaphthene	560	

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE37

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18360.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 40 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1400	U
100-02-7	4-Nitrophenol	1400	U
132-64-9	Dibenzofuran	240	J
121-14-2	2,4-Dinitrotoluene	550	U
84-66-2	Diethylphthalate	550	U
7005-72-3	4-Chlorophenyl-phenylether	550	U
86-73-7	Fluorene	440	J
100-01-6	4-Nitroaniline	1400	U
534-52-1	4,6-Dinitro-2-methylphenol	1400	U
86-30-6	N-Nitrosodiphenylamine (1)	550	U
101-55-3	4-Bromophenyl-phenylether	550	U
118-74-1	Hexachlorobenzene	550	U
87-86-5	Pentachlorophenol	1400	U
85-01-8	Phenanthrene	3400	
120-12-7	Anthracene	870	
86-74-8	Carbazole	420	J
84-74-2	Di-n-butylphthalate	550	U
206-44-0	Fluoranthene	2900 * 4500	E
129-00-0	Pyrene	4100	
85-68-7	Butylbenzylphthalate	190	J
91-94-1	3,3'-Dichlorobenzidine	550	U
56-55-3	Benzo(a)anthracene	2300	
218-01-9	Chrysene	2200	
117-81-7	bis(2-Ethylhexyl)phthalate	1600	
117-84-0	Di-n-octylphthalate	550	U
205-99-2	Benzo(b)fluoranthene	1800	
207-08-9	Benzo(k)fluoranthene	1600	
50-32-8	Benzo(a)pyrene	2000	
193-39-5	Indeno(1,2,3-cd)pyrene	1200	
53-70-3	Dibenz(a,h)anthracene	520	J
191-24-2	Benzo(g,h,i)perylene	1300	

J

* Result from [illegible]

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 OLM03.0

p. 295

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE37

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18360.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 40 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	2.793	~~1100~~	~~JB~~ R
2.		UNKNOWN	2.944	10000	JB
3.	123-42-2	2-Pentanone, 4-hydroxy-4-met	3.051	~~910~~	~~NJAB~~ R
4.		Benzene, (-methylethyl)-	3.794	890	J
5.		UNKNOWN	9.649	1000	J
6.	20071-09-4	Benzene, 1,1'-(1,2-cyclobuta	9.950	670	NJ
7.	203-64-5	4H-Cyclopenta[def]phenanthre	11.446	980	NJ
8.	10544-50-0	Sulfur, mol. (S8)	12.522	550	NJ
9.		UNKNOWN	12.759	700	J
10.		UNKNOWN AMIDE	13.157	470	J
11.		Phenanthrene, -tetramethyl-	13.674	550	J
12.		11H-Benzo[]fluorene	13.706	810	J
13.		Pyrene, -methyl-	13.900	520	J
14.		UNKNOWN AMIDE	14.449	5100	J
15.		Hexanedioic acid, este	14.621	~~1700~~	~~JB~~ R
16.		UNKNOWN PAH	14.998	650	J
17.		UNKNOWN	15.181	4400	J
18.		UNKNOWN	15.848	2100	J
19.		UNKNOWN	15.923	2400	J
20.		UNKNOWN	15.977	680	J
21.		UNKNOWN	16.031	1000	J
22.		Benzo[]phenanthrene, methyl-	16.203	480	J
23.	192-97-2	Benzo[e]pyrene	17.860	1100	NJ
24.		UNKNOWN	19.163	980	J
25.		UNKNOWN	19.238	570	J
26.		UNKNOWN	19.335	550	J
27.		UNKNOWN	19.894	510	J
28.		UNKNOWN PAH	19.948	730	J
29.		UNKNOWN	20.293	520	J
30.		UNKNOWN PAH	20.336	600	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE37

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18360.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 40 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	20.777	500	J
2.		UNKNOWN	21.218	810	J
3.		Dibenzpyrene	22.144	620	J
4.		Dibenzpyrene	22.413	450	J
5.		Dibenzpyrene	23.123	450	J
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE38

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.08

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18361.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 53 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	700	U
111-44-4	bis(2-Chloroethyl)Ether	700	U
95-57-8	2-Chlorophenol	700	U
541-73-1	1,3-Dichlorobenzene	700	U
106-46-7	1,4-Dichlorobenzene	700	U
95-50-1	1,2-Dichlorobenzene	700	U
95-48-7	2-Methylphenol	700	U
108-60-1	2,2'-oxybis(1-Chloropropane)	700	U
106-44-5	4-Methylphenol	700	U
621-64-7	N-Nitroso-di-n-propylamine	700	U
67-72-1	Hexachloroethane	700	U
98-95-3	Nitrobenzene	700	U
78-59-1	Isophorone	700	U
88-75-5	2-Nitrophenol	700	U
105-67-9	2,4-Dimethylphenol	700	U
111-91-1	bis(2-Chloroethoxy)methane	700	U
120-83-2	2,4-Dichlorophenol	700	U
120-82-1	1,2,4-Trichlorobenzene	700	U
91-20-3	Naphthalene	700	U
106-47-8	4-Chloroaniline	700	U
87-68-3	Hexachlorobutadiene	700	U
59-50-7	4-Chloro-3-Methylphenol	700	U
91-57-6	2-Methylnaphthalene	50	J
77-47-4	Hexachlorocyclopentadiene	700	U
88-06-2	2,4,6-Trichlorophenol	700	U
95-95-4	2,4,5-Trichlorophenol	1800	U
91-58-7	2-Chloronaphthalene	700	U
88-74-4	2-Nitroaniline	1800	U
131-11-3	Dimethylphthalate	700	U
208-96-8	Acenaphthylene	700	U
606-20-2	2,6-Dinitrotoluene	700	U
99-09-2	3-Nitroaniline	1800	U
83-32-9	Acenaphthene	700	U

J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE38

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.08

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18361.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 53 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1800	U
100-02-7	4-Nitrophenol	1800	U
132-64-9	Dibenzofuran	700	U
121-14-2	2,4-Dinitrotoluene	700	U
84-66-2	Diethylphthalate	700	U
7005-72-3	4-Chlorophenyl-phenylether	700	U
86-73-7	Fluorene	39	J
100-01-6	4-Nitroaniline	1800	U
534-52-1	4,6-Dinitro-2-methylphenol	1800	U
86-30-6	N-Nitrosodiphenylamine (1)	700	U
101-55-3	4-Bromophenyl-phenylether	700	U
118-74-1	Hexachlorobenzene	700	U
87-86-5	Pentachlorophenol	1800	U
85-01-8	Phenanthrene	380	J
120-12-7	Anthracene	87	J
86-74-8	Carbazole	700	U
84-74-2	Di-n-butylphthalate	700	U
206-44-0	Fluoranthene	580	J
129-00-0	Pyrene	630	J
85-68-7	Butylbenzylphthalate	700	U
91-94-1	3,3'-Dichlorobenzidine	700	U
56-55-3	Benzo(a)anthracene	260	J
218-01-9	Chrysene	300	J
117-81-7	bis(2-Ethylhexyl)phthalate	480	J
117-84-0	Di-n-octylphthalate	700	U
205-99-2	Benzo(b)fluoranthene	260	J
207-08-9	Benzo(k)fluoranthene	200	J
50-32-8	Benzo(a)pyrene	240	J
193-39-5	Indeno(1,2,3-cd)pyrene	160	J
53-70-3	Dibenz(a,h)anthracene	700	U
191-24-2	Benzo(g,h,i)perylene	200	J

(1) - Cannot be separated from Diphenylamine

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE38

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.08

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18361.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 53 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 33

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1.	UNKNOWN	2.758	16000	J	
2.	ALDOL CONDENSATE	2.790	~~1300~~	~~AJ~~	R
3.	UNKNOWN ALCOHOL	2.854	900	~~JB~~	
4.	UNKNOWN ALCOHOL	2.897	~~280~~	~~JB~~	R
5.	Buten-one, -methyl-	2.951	15000	J	
6.	UNKNOWN	3.016	220	~~JB~~	
7. 123-42-2	2-Pentanone, 4-hydroxy-4-met	3.048	~~1000~~	~~NJAB~~	R
8.	UNKNOWN	3.102	660	~~JB~~	
9.	UNKNOWN ALKENE	3.285	200	J	
10.	UNKNOWN	3.371	~~330~~	~~JB~~	R
11.	UNKNOWN	3.468	360	J	
12.	UNKNOWN	3.576	~~220~~	~~JB~~	R
* 13.	UNKNOWN	3.748	~~380~~	~~JB~~	R
14. 100-52-7	Benzaldehyde	3.802	410	NJ	
15.	UNKNOWN	3.931	210	J	
16.	UNKNOWN	4.318	190	J	
17.	UNKNOWN	6.212	210	J	
18.	UNKNOWN	12.412	190	J	
19. 10544-50-0	Sulfur, mol. (S8)	12.519	180	NJ	
20.	UNKNOWN AMIDE	13.154	420	J	
21.	Phenanthrene, tetramethyl-	13.671	360	J	
22.	UNKNOWN AMIDE	14.446	7200	J	
23.	Hexanedioic acid, este	14.618	~~930~~	~~JB~~	R
24.	UNKNOWN	16.437	250	J	
25.	Dodecatrien-ol, trimethy	17.276	300	J	
26. 198-55-0	Perylene	17.857	300	NJ	
27.	UNKNOWN	18.503	280	J	
28.	UNKNOWN	18.880	270	J	
29.	UNKNOWN	19.332	210	J	
30.	UNKNOWN	19.881	190	J	

* was not found on blank Form 1F.

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE38

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.08

Sample wt/vol: 30.1 (g/mL) G Lab File ID: V18361.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 53 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 33

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	20.989	~~420~~	~~JB~~ R
2.	UNKNOWN	21.140	240	J~~B~~
3.	UNKNOWN	22.022	730	J
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE41 FB

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.10

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T22948.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/01/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/05/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

J

FORM I SV-1 OLM03.0

p. 302

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE41 EB

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.10

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T22948.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/01/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/05/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.6

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	0.5	J
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE41

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.10

Sample wt/vol: 1000 (g/mL) ML Lab File ID: T22948.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/01/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/05/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.6

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	3.117	~~4~~	~~NJA~~ R
2.	UNKNOWN	3.868	16	JB
3.	Trimethyl-hexene	3.997	5	J
4.	UNKNOWN	4.136	8	JB
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE42 FB

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30412.08

Sample wt/vol: 1000 (g/mL) ML Lab File ID: V18428.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/05/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/11/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-di-n-propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE42 FB

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30412.08

Sample wt/vol: 1000 (g/mL) ML Lab File ID: V18428.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/05/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/11/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.4

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)phthalate	12	~~B~~
117-84-0	Di-n-octylphthalate	10	U
205-99-2	Benzo(b)fluoranthene	10	U
207-08-9	Benzo(k)fluoranthene	10	U
50-32-8	Benzo(a)pyrene	10	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	U
53-70-3	Dibenz(a,h)anthracene	10	U
191-24-2	Benzo(g,h,i)perylene	10	U

J

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE42

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30412.08

Sample wt/vol: 1000 (g/mL) ML Lab File ID: V18428.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 08/05/97

Concentrated Extract Volume: 1000(uL) Date Analyzed: 08/11/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.4

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	3.452	2	J
2.		Hexanedioic acid, est	7.079	2	JB
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE43

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18362.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 21 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	280	J
111-44-4	bis(2-Chloroethyl)Ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	420	U
108-60-1	2,2'-oxybis(1-Chloropropane)	420	U
106-44-5	4-Methylphenol	420	U
621-64-7	N-Nitroso-di-n-propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-Methylphenol	420	U
91-57-6	2-Methylnaphthalene	54	J
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	140	J
606-20-2	2,6-Dinitrotoluene	420	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	420	U

J

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE43

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18362.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 21 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	420	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	1600	
7005-72-3	4-Chlorophenyl-phenylether	420	U
86-73-7	Fluorene	420	U
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	1200	
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	260	J
120-12-7	Anthracene	120	J
86-74-8	Carbazole	420	U
84-74-2	Di-n-butylphthalate	200	J
206-44-0	Fluoranthene	410	J
129-00-0	Pyrene	620	
85-68-7	Butylbenzylphthalate	5300* ~~5400~~	E
91-94-1	3,3'-Dichlorobenzidine	420	U
56-55-3	Benzo(a)anthracene	350	J
218-01-9	Chrysene	440	
117-81-7	bis(2-Ethylhexyl)phthalate	2000	
117-84-0	Di-n-octylphthalate	150	J
205-99-2	Benzo(b)fluoranthene	470	
207-08-9	Benzo(k)fluoranthene	340	J
50-32-8	Benzo(a)pyrene	420	J
193-39-5	Indeno(1,2,3-cd)pyrene	360	J
53-70-3	Dibenz(a,h)anthracene	130	J
191-24-2	Benzo(g,h,i)perylene	540	

* Result from BSE43DL

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE43

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18362.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 21 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

Number TICs found: 35

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 141-79-7	3-Penten-2-one, 4-methyl-	2.783	~~780~~	~~NJAB~~ R
2.	UNKNOWN	2.880	430	JB
3.	UNKNOWN	2.945	1600	JB
4.	UNKNOWN	3.053	640	JB
5.	UNKNOWN	3.096	~~1000~~	~~JB~~ R
6.	UNKNOWN	8.617	760	J
7.	Phenol, (phenylamino)-	11.437	660	J
8.	1,1'-Biphenyl, -Tetrachloro-	11.899	360	J
9.	Triazine-diamine, -phenyl-	12.211	580	J
10.	1,1'-Biphenyl, -pentachloro-	13.514	540	J
11.	11H-Benzo[]fluorene	13.707	610	J
12.	1,1'-Biphenyl, -pentachloro-	13.890	680	J
13.	UNKNOWN AMIDE	14.461	4400	J
14.	Hexanedioic acid, este	14.622	~~590~~	~~JB~~ R
15. 115-86-6	Phosphoric acid, triphenyl e	14.870	3700	NJ
16.	UNKNOWN	17.646	410	J
17.	UNKNOWN	17.776	280	J
18. 192-97-2	Benzo[e]pyrene	17.862	380	NJ
19.	UNKNOWN	18.206	300	J
20.	UNKNOWN	18.303	420	J
21.	UNKNOWN	18.389	370	J
22.	UNKNOWN PAH	18.497	600	J
23.	UNKNOWN	18.572	370	J
24.	UNKNOWN PAH	18.712	610	J
25.	UNKNOWN	18.787	240	J
26.	UNKNOWN	18.895	650	J
27.	UNKNOWN	18.949	350	J
28.	Unknown	19.003	250	J
29. 59-02-9	Vitamin E	19.067	300	NJ
30.	UNKNOWN	19.336	270	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE43

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.11

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18362.D

Level: (low/med) LOW Date Received: 07/31/97

% Moisture: 21 decanted: (Y/N) N Date Extracted: 08/01/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/06/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 5.8

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 83-47-6	.gamma.-Sitosterol	20.294	980	NJ
2. 603-48-5	Benzenamine, 4,4',4''-methyl	20.778	450	NJ
3.	UNKNOWN	21.123	740	JB
4. 1058-61-3	Stigmast-4-en-3-one	21.230	720	NJ
5.	UNKNOWN	22.576	340	J
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE44

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.09

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18442.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 21 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/11/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl)Ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
95-48-7	2-Methylphenol	38	~~J~~
108-60-1	2,2'-oxybis(1-Chloropropane)	420	U
106-44-5	4-Methylphenol	46	~~J~~
621-64-7	N-Nitroso-di-n-propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
106-47-8	4-Chloroaniline	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-Methylphenol	420	U
91-57-6	2-Methylnaphthalene	42	~~J~~
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
95-95-4	2,4,5-Trichlorophenol	1000	U
91-58-7	2-Chloronaphthalene	420	U
88-74-4	2-Nitroaniline	1000	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	120	~~J~~
606-20-2	2,6-Dinitrotoluene	420	U
99-09-2	3-Nitroaniline	1000	U
83-32-9	Acenaphthene	91	~~J~~

J

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE44

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.09

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18442.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 21 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/11/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.2

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
132-64-9	Dibenzofuran	52	~~J~~
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U
86-73-7	Fluorene	74	~~J~~
100-01-6	4-Nitroaniline	1000	U
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	N-Nitrosodiphenylamine (1)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1000	U
85-01-8	Phenanthrene	1200	
120-12-7	Anthracene	380	~~J~~
86-74-8	Carbazole	110	~~J~~
84-74-2	Di-n-butylphthalate	70	~~J~~
206-44-0	Fluoranthene	1800	
129-00-0	Pyrene	2200	
85-68-7	Butylbenzylphthalate	420	U
91-94-1	3,3'-Dichlorobenzidine	420	U
56-55-3	Benzo(a)anthracene	1300	
218-01-9	Chrysene	1400	
117-81-7	bis(2-Ethylhexyl)phthalate	1700	B
117-84-0	Di-n-octylphthalate	420	U
205-99-2	Benzo(b)fluoranthene	1100	
207-08-9	Benzo(k)fluoranthene	1100	
50-32-8	Benzo(a)pyrene	1300	
193-39-5	Indeno(1,2,3-cd)pyrene	850	
53-70-3	Dibenz(a,h)anthracene	350	~~J~~
191-24-2	Benzo(g,h,i)perylene	980	

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE44

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.09

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18442.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 21 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/11/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.2

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	141-79-7	3-Penten-2-one, 4-methyl-	2.738	~~2900~~	~~NJAB~~
2.	123-42-2	2-Pentanone, 4-hydroxy-4-met	3.007	~~3400~~	~~NJAB~~
3.	100-52-7	Benzaldehyde	3.761	1100	NJ
4.	57-10-3	Hexadecanoic acid	11.391	3500	NJ
5.		UNKNOWN	11.574	960	J
6.		Naphtho[]pyran,	11.800	3400	J
7.		Indacen-one, -tetrahydro-	12.080	2000	J
8.		Phenanthrene, -dimethyl-	12.371	810	J
9.		UNKNOWN	12.457	1900	J
10.		UNKNOWN	12.694	2500	J
11.		UNKNOWN	13.264	730	J
12.		Phenanthrene, -tetramethyl-	13.608	7200	J
13.		UNKNOWN	13.899	670	J
14.		UNKNOWN	14.125	620	J
15.		UNKNOWN	14.168	6800	J
16.		UNKNOWN	14.243	1400	J
17.		UNKNOWN	14.373	1400	J
18.	1740-19-8	1-Phenanthrenecarboxylic aci	14.416	6900	NJ
19.		UNKNOWN	14.599	580	J
20.	18956-15-5	2-Propen-1-one, 1-(2,6-dihyd	14.857	980	NJ
21.		UNKNOWN	15.072	840	J
22.	1740-19-8	1-Phenanthrenecarboxylic aci	15.158	1800	NJ
23.		Benzopyran-one, -dihydro-d	15.449	720	J
24.		UNKNOWN	15.772	620	J
25.		UNKNOWN	16.008	2900	J
26.		UNKNOWN	16.105	1400	J
27.		UNKNOWN	16.202	820	J
28.		UNKNOWN	16.536	590	J
29.		UNKNOWN	17.214	920	J
30.		UNKNOWN	18.602	1400	J

PR

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BSE44

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.09

Sample wt/vol: 30.0 (g/mL) G Lab File ID: V18442.D

Level: (low/med) LOW Date Received: 08/01/97

% Moisture: 21 decanted: (Y/N) N Date Extracted: 08/04/97

Concentrated Extract Volume: 500(uL) Date Analyzed: 08/11/97

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 6.2

Number TICs found: 35

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	18.828	560	J
2.		UNKNOWN	18.936	620	J
3.		UNKNOWN PAH	20.260	930	J
4.		UNKNOWN	20.916	1000	J
5.		UNKNOWN	21.131	1500	J
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE22

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.01

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) __ Date Received: 07/31/97

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 08/01/97

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/16/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

J

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE23

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.02

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) __ Date Received: 07/31/97

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 08/01/97

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/16/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

2414

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE26

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.03

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) __ Date Received: 07/31/97

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 08/01/97

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/16/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

J

2417

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE27

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.04RE

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 52 decanted: (Y/N) Date Received: 07/31/97

Extraction: (SepF/Cont/Sonc) SC Extracted: 08/15/97

Concentrated Extract Volume: 50 Analyzed: 08/24/97

Injection Volume: 0.5(uL) Dilution: 1.0

GPC Cleanup: (Y/N) Y pH: 7 Sulfur (Y/N) N

CAS NO.	COMPOUND	Q
319-84-6	alpha-BHC	U
319-85-7	beta-BHC	U
319-86-8	delta-BHC	U
58-89-9	gamma-BHC (L	U
76-44-8	Heptachlor	U
309-00-2	Aldrin	U
1024-57-3	Heptachlor e	U
959-98-8	Endosulfan I	U
60-57-1	Dieldrin	U
72-55-9	4,4'-DDE	U
72-20-8	Endrin	U
33213-65-9	Endosulfan I	U
72-54-8	4,4'-DDD	U
1031-07-8	Endosulfan s	U
50-29-3	4,4'-DDT	U
72-43-5	Methoxychlor	U
53494-70-5	Endrin keton	U
7421-93-4	Endrin alde	U
5103-71-9	alpha-Chlord	U
5103-74-2	gamma-Chlord	U
8001-35-2	Toxaphene	U
12674-11-2	Aroclor-1016	U
11104-28-2	Aroclor-1221	U
11141-16-5	Aroclor-1232	U
53469-21-9	Aroclor-1242	U
12672-29-6	Aroclor-1248	U
11097-69-1	Aroclor-1254	U
11096-82-5	Aroclor-1260	U

2420

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE28DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.05DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 48 decanted: (Y/N) N Date Received: 07/31/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/15/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/24/97

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 7.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	33	U	J
319-85-7	beta-BHC	33	U	
319-86-8	delta-BHC	33	U	
58-89-9	gamma-BHC (Lindane)	33	U	
76-44-8	Heptachlor	33	U	
309-00-2	Aldrin	33	U	
1024-57-3	Heptachlor epoxide	33	U	
959-98-8	Endosulfan I	33	U	
60-57-1	Dieldrin	100	DP	J
72-55-9	4,4'-DDE	63	U	
72-20-8	Endrin	63	U	
33213-65-9	Endosulfan II	63	U	
72-54-8	4,4'-DDD	240	D	
1031-07-8	Endosulfan sulfate	63	U	
50-29-3	4,4'-DDT	130	DP	J
72-43-5	Methoxychlor	330	U	
53494-70-5	Endrin ketone	63	U	
7421-93-4	Endrin aldehyde	63	U	
5103-71-9	alpha-Chlordane	73	DP	J
5103-74-2	gamma-Chlordane	72	DP	J
8001-35-2	Toxaphene	3300	U	
12674-11-2	Aroclor-1016	630	U	
11104-28-2	Aroclor-1221	1300	U	
11141-16-5	Aroclor-1232	630	U	
53469-21-9	Aroclor-1242	630	U	
12672-29-6	Aroclor-1248	630	U	
11097-69-1	Aroclor-1254	630	U	
11096-82-5	Aroclor-1260	450	DJ	

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE29

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.01

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 32 decanted: (Y/N) N Date Received: 08/01/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/17/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	2.5	U	J
319-85-7	beta-BHC	2.5	U	
319-86-8	delta-BHC	2.5	U	
58-89-9	gamma-BHC (Lindane)	2.5	U	
76-44-8	Heptachlor	2.5	U	
309-00-2	Aldrin	4.9		
1024-57-3	Heptachlor epoxide	3.5	~~P~~	J
959-98-8	Endosulfan I	26		
60-57-1	Dieldrin	14	P	J N
72-55-9	4,4'-DDE	29	P	J N
72-20-8	Endrin	4.8	U	
33213-65-9	Endosulfan II	4.8	U	
72-54-8	4,4'-DDD	26		
1031-07-8	Endosulfan sulfate	4.8	U	
50-29-3	4,4'-DDT	73	~~P~~	J N
72-43-5	Methoxychlor	25	U	
53494-70-5	Endrin ketone	4.8	U	
7421-93-4	Endrin aldehyde	31	~~P~~	J N
5103-71-9	alpha-Chlordane	28	P	
5103-74-2	gamma-Chlordane	24	P	
8001-35-2	Toxaphene	250	U	
12674-11-2	Aroclor-1016	48	U	
11104-28-2	Aroclor-1221	98	U	
11141-16-5	Aroclor-1232	48	U	
53469-21-9	Aroclor-1242	48	U	
12672-29-6	Aroclor-1248	48	U	
11097-69-1	Aroclor-1254	48	U	
11096-82-5	Aroclor-1260	520	~~P~~	J

2442

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE30

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.02

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 60 decanted: (Y/N) N Date Received: 08/01/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/17/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	4.2	U	J
319-85-7	beta-BHC	4.2	U	
319-86-8	delta-BHC	4.2	U	
58-89-9	gamma-BHC (Lindane)	12		
76-44-8	Heptachlor	~~5.5~~	~~P~~	R
309-00-2	Aldrin	31	P	JN
1024-57-3	Heptachlor epoxide	4.2	U	
959-98-8	Endosulfan I	17	P	JN
60-57-1	Dieldrin	25		
72-55-9	4,4'-DDE	54		
72-20-8	Endrin	8.2	U	
33213-65-9	Endosulfan II	8.2	U	
72-54-8	4,4'-DDD	78		
1031-07-8	Endosulfan sulfate	8.2	U	
50-29-3	4,4'-DDT	100		
72-43-5	Methoxychlor	~~78~~	~~P~~	R
53494-70-5	Endrin ketone	10	P	J
7421-93-4	Endrin aldehyde	~~95~~	~~P~~	R
5103-71-9	alpha-Chlordane	29		
5103-74-2	gamma-Chlordane	16		
8001-35-2	Toxaphene	420	U	
12674-11-2	Aroclor-1016	82	U	
11104-28-2	Aroclor-1221	170	U	
11141-16-5	Aroclor-1232	82	U	
53469-21-9	Aroclor-1242	82	U	
12672-29-6	Aroclor-1248	82	U	
11097-69-1	Aroclor-1254	82	U	
11096-82-5	Aroclor-1260	600	~~P~~	J

0450

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE31

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 59 decanted: (Y/N) N Date Received: 07/31/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/15/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/24/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	4.1	U
319-85-7	beta-BHC	4.1	U
319-86-8	delta-BHC	4.1	U
58-89-9	gamma-BHC (Lindane)	4.1	U
76-44-8	Heptachlor	4.1	U
309-00-2	Aldrin	4.1	U
1024-57-3	Heptachlor epoxide	4.1	U
959-98-8	Endosulfan I	4.1	U
60-57-1	Dieldrin	8.0	U
72-55-9	4,4'-DDE	8.0	U
72-20-8	Endrin	8.0	U
33213-65-9	Endosulfan II	8.0	U
72-54-8	4,4'-DDD	130**	E
1031-07-8	Endosulfan sulfate	8.0	U
50-29-3	4,4'-DDT	~~8.0~~	~~U~~ R
72-43-5	Methoxychlor	~~41~~	~~U~~ R
53494-70-5	Endrin ketone	8.0	U
7421-93-4	Endrin aldehyde	8.0	U
5103-71-9	alpha-Chlordane	4.1	U
5103-74-2	gamma-Chlordane	4.1	U
8001-35-2	Toxaphene	410	U
12674-11-2	Aroclor-1016	80	U
11104-28-2	Aroclor-1221	160	U
11141-16-5	Aroclor-1232	80	U
53469-21-9	Aroclor-1242	80	U
12672-29-6	Aroclor-1248	80	U
11097-69-1	Aroclor-1254	80	U
11096-82-5	Aroclor-1260	80	U

** Result was BSE31DL was qualified "U,"

2483

p. 323

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE32

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.03

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 24 decanted: (Y/N) N Date Received: 08/01/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/17/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	2.2	U	J
319-85-7	beta-BHC	2.2	U	
319-86-8	delta-BHC	2.2	U	
58-89-9	gamma-BHC (Lindane)	2.2	U	
76-44-8	Heptachlor	2.2	U	
309-00-2	Aldrin	2.2	U	
1024-57-3	Heptachlor epoxide	2.2	U	
959-98-8	Endosulfan I	22		
60-57-1	Dieldrin	4.3	U	
72-55-9	4,4'-DDE	4.3	U	
72-20-8	Endrin	4.3	U	
33213-65-9	Endosulfan II	4.3	U	
72-54-8	4,4'-DDD	4.3	U	
1031-07-8	Endosulfan sulfate	4.3	U	
50-29-3	4,4'-DDT	9.5	~~P~~	
72-43-5	Methoxychlor	22	U	
53494-70-5	Endrin ketone	4.3	U	
7421-93-4	Endrin aldehyde	4.3	U	
5103-71-9	alpha-Chlordane	22		
5103-74-2	gamma-Chlordane	20	~~P~~	N
8001-35-2	Toxaphene	220	U	
12674-11-2	Aroclor-1016	43	U	
11104-28-2	Aroclor-1221	88	U	
11141-16-5	Aroclor-1232	43	U	
53469-21-9	Aroclor-1242	43	U	
12672-29-6	Aroclor-1248	43	U	
11097-69-1	Aroclor-1254	43	U	
11096-82-5	Aroclor-1260	110	~~P~~	

2489

FORM I PEST

OLM03.0

p. 324

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE33

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.04

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 77 decanted: (Y/N) N Date Received: 08/01/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/17/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	7.4	U	J
319-85-7	beta-BHC	7.4	U	
319-86-8	delta-BHC	78	~~P~~	
58-89-9	gamma-BHC (Lindane)	58		
76-44-8	Heptachlor	140* ~~110~~	~~PE~~	N
309-00-2	Aldrin	7.4	U	
1024-57-3	Heptachlor epoxide	210* ~~150~~	~~PE~~	N
959-98-8	Endosulfan I	900* ~~860~~	~~PE~~	
60-57-1	Dieldrin	330 **	E	
72-55-9	4,4'-DDE	730* ~~1200~~	~~E~~	N
72-20-8	Endrin	~~62~~	~~P~~	R
33213-65-9	Endosulfan II	14	U	
72-54-8	4,4'-DDD	1300* ~~1400~~	~~E~~	
1031-07-8	Endosulfan sulfate	16		
50-29-3	4,4'-DDT	780* ~~410~~	PE	N
72-43-5	Methoxychlor	74	U	
53494-70-5	Endrin ketone	47		
7421-93-4	Endrin aldehyde	810* ~~720~~	~~PE~~	N
5103-71-9	alpha-Chlordane	900* ~~1100~~	~~E~~	
5103-74-2	gamma-Chlordane	870* ~~790~~	~~PE~~	
8001-35-2	Toxaphene	740	U	
12674-11-2	Aroclor-1016	140	U	
11104-28-2	Aroclor-1221	290	U	
11141-16-5	Aroclor-1232	140	U	
53469-21-9	Aroclor-1242	140	U	
12672-29-6	Aroclor-1248	140	U	
11097-69-1	Aroclor-1254	140	U	
11096-82-5	Aroclor-1260	8100* ~~5400~~	~~P~~	

* Result from BSE33DL.
** Analyte was not detected in BSE33DL.

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE34

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.05

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 90 decanted: (Y/N) N Date Received: 08/01/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/17/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	17	U
319-85-7	beta-BHC	17	U
319-86-8	delta-BHC	17	U
58-89-9	gamma-BHC (Lindane)	17	U
76-44-8	Heptachlor	17	U
309-00-2	Aldrin	17	U
1024-57-3	Heptachlor epoxide	17	U
959-98-8	Endosulfan I	17	U
60-57-1	Dieldrin	33	U
72-55-9	4,4'-DDE	33	U
72-20-8	Endrin	33	U
33213-65-9	Endosulfan II	33	U
72-54-8	4,4'-DDD	33	U
1031-07-8	Endosulfan sulfate	33	U
50-29-3	4,4'-DDT	33	U
72-43-5	Methoxychlor	170	U
53494-70-5	Endrin ketone	33	U
7421-93-4	Endrin aldehyde	33	U
5103-71-9	alpha-Chlordane	17	U
5103-74-2	gamma-Chlordane	17	U
8001-35-2	Toxaphene	1700	U
12674-11-2	Aroclor-1016	330	U
11104-28-2	Aroclor-1221	670	U
11141-16-5	Aroclor-1232	330	U
53469-21-9	Aroclor-1242	330	U
12672-29-6	Aroclor-1248	330	U
11097-69-1	Aroclor-1254	330	U
11096-82-5	Aroclor-1260	330	U

2564

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE35

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.06

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 88 decanted: (Y/N) N Date Received: 08/01/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/17/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	14	U
319-85-7	beta-BHC	14	U
319-86-8	delta-BHC	14	U
58-89-9	gamma-BHC (Lindane)	14	U
76-44-8	Heptachlor	14	U
309-00-2	Aldrin	14	U
1024-57-3	Heptachlor epoxide	14	U
959-98-8	Endosulfan I	14	U
60-57-1	Dieldrin	28	U
72-55-9	4,4'-DDE	28	U
72-20-8	Endrin	28	U
33213-65-9	Endosulfan II	28	U
72-54-8	4,4'-DDD	81	
1031-07-8	Endosulfan sulfate	28	U
50-29-3	4,4'-DDT	28	U
72-43-5	Methoxychlor	140	U
53494-70-5	Endrin ketone	28	U
7421-93-4	Endrin aldehyde	28	U
5103-71-9	alpha-Chlordane	14	U
5103-74-2	gamma-Chlordane	14	U
8001-35-2	Toxaphene	1400	U
12674-11-2	Aroclor-1016	280	U
11104-28-2	Aroclor-1221	560	U
11141-16-5	Aroclor-1232	280	U
53469-21-9	Aroclor-1242	280	U
12672-29-6	Aroclor-1248	280	U
11097-69-1	Aroclor-1254	280	U
11096-82-5	Aroclor-1260	280	U

J

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE36

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.07

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 60 decanted: (Y/N) N Date Received: 08/01/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/17/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	4.2	U	J
319-85-7	beta-BHC	4.2	U	
319-86-8	delta-BHC	4.2	U	
58-89-9	gamma-BHC (Lindane)	4.2	U	
76-44-8	Heptachlor	4.2	U	
309-00-2	Aldrin	4.2	U	
1024-57-3	Heptachlor epoxide	4.2	U	
959-98-8	Endosulfan I	28		
60-57-1	Dieldrin	21	~~P~~	N
72-55-9	4,4'-DDE	23	~~P~~	
72-20-8	Endrin	8.2	U	
33213-65-9	Endosulfan II	8.2	U	
72-54-8	4,4'-DDD	39	~~P~~	
1031-07-8	Endosulfan sulfate	8.2	U	
50-29-3	4,4'-DDT	78	~~P~~	
72-43-5	Methoxychlor	42	U	
53494-70-5	Endrin ketone	8.2	U	
7421-93-4	Endrin aldehyde	~~49~~	~~P~~	R
5103-71-9	alpha-Chlordane	25	~~P~~	
5103-74-2	gamma-Chlordane	26		
8001-35-2	Toxaphene	420	U	
12674-11-2	Aroclor-1016	82	U	
11104-28-2	Aroclor-1221	170	U	
11141-16-5	Aroclor-1232	82	U	
53469-21-9	Aroclor-1242	82	U	
12672-29-6	Aroclor-1248	82	U	
11097-69-1	Aroclor-1254	82	U	
11096-82-5	Aroclor-1260	350		

2576

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE37DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.07DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 40 decanted: (Y/N) N Date Received: 07/31/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/15/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/24/97

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 7.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	28	U	J
319-85-7	beta-BHC	28	U	
319-86-8	delta-BHC	28	U	
58-89-9	gamma-BHC (Lindane)	28	U	
76-44-8	Heptachlor	28	U	
309-00-2	Aldrin	28	U	
1024-57-3	Heptachlor epoxide	28	U	
959-98-8	Endosulfan I	28	U	
60-57-1	Dieldrin	~~68~~	~~DP~~	R
72-55-9	4,4'-DDE	56	D	J
72-20-8	Endrin	120	DP	J
33213-65-9	Endosulfan II	~~59~~	~~DP~~	R
72-54-8	4,4'-DDD	42	DPJ	J
1031-07-8	Endosulfan sulfate	55	U	
50-29-3	4,4'-DDT	55	U	
72-43-5	Methoxychlor	280	U	
53494-70-5	Endrin ketone	55	U	
7421-93-4	Endrin aldehyde	55	U	
5103-71-9	alpha-Chlordane	83	D	
5103-74-2	gamma-Chlordane	63	DP	JN
8001-35-2	Toxaphene	2800	U	J
12674-11-2	Aroclor-1016	550	U	
11104-28-2	Aroclor-1221	1100	U	
11141-16-5	Aroclor-1232	550	U	
53469-21-9	Aroclor-1242	550	U	
12672-29-6	Aroclor-1248	550	U	
11097-69-1	Aroclor-1254	550	U	
11096-82-5	Aroclor-1260	650	D	J

FORM I PEST

p. 329

2608
~~2603~~ 0

DD
8/26/97

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE38

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.08

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 53 decanted: (Y/N) N Date Received: 07/31/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/15/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/24/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.6	U
319-85-7	beta-BHC	3.6	U
319-86-8	delta-BHC	3.6	U
58-89-9	gamma-BHC (Lindane)	3.6	U
76-44-8	Heptachlor	3.6	U
309-00-2	Aldrin	3.6	U
1024-57-3	Heptachlor epoxide	3.6	U
959-98-8	Endosulfan I	3.6	U
60-57-1	Dieldrin	7.0	U
72-55-9	4,4'-DDE	7.0	U
72-20-8	Endrin	7.0	U
33213-65-9	Endosulfan II	7.0	U
72-54-8	4,4'-DDD	7.0	U
1031-07-8	Endosulfan sulfate	7.0	U
50-29-3	4,4'-DDT	~~7.0~~	~~U~~ R
72-43-5	Methoxychlor	~~36~~	~~U~~ R
53494-70-5	Endrin ketone	7.0	U
7421-93-4	Endrin aldehyde	7.0	U
5103-71-9	alpha-Chlordane	3.6	U
5103-74-2	gamma-Chlordane	3.6	U
8001-35-2	Toxaphene	360	U
12674-11-2	Aroclor-1016	70	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	70	U
53469-21-9	Aroclor-1242	70	U
12672-29-6	Aroclor-1248	70	U
11097-69-1	Aroclor-1254	70	U
11096-82-5	Aroclor-1260	70	U

2612A

DD 8/26/97

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE41

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30388.10

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) __ Date Received: 07/31/97

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 08/01/97

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/16/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

J

2618

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE42

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) WATER Lab Sample ID: 30412.08

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) __ Date Received: 08/01/97

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted: 08/04/97

Concentrated Extract Volume: 10000(uL) Date Analyzed: 08/16/97

Injection Volume: 0.5(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

J

2621

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE43DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30388.11DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/31/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/15/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/24/97

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 5.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	22	U
319-85-7	beta-BHC	22	U
319-86-8	delta-BHC	22	U
58-89-9	gamma-BHC (Lindane)	22	U
76-44-8	Heptachlor	22	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	22	U
959-98-8	Endosulfan I	22	U
60-57-1	Dieldrin	~~260~~	~~DP~~
72-55-9	4,4'-DDE	180	D
72-20-8	Endrin	300	DP
33213-65-9	Endosulfan II	~~88~~	~~DP~~
72-54-8	4,4'-DDD	~~120~~	~~DP~~
1031-07-8	Endosulfan sulfate	42	U
50-29-3	4,4'-DDT	600	DP
72-43-5	Methoxychlor	220	U
53494-70-5	Endrin ketone	42	U
7421-93-4	Endrin aldehyde	93	D
5103-71-9	alpha-Chlordane	190	DP
5103-74-2	gamma-Chlordane	~~33~~	~~DP~~
8001-35-2	Toxaphene	2200	U
12674-11-2	Aroclor-1016	420	U
11104-28-2	Aroclor-1221	850	U
11141-16-5	Aroclor-1232	420	U
53469-21-9	Aroclor-1242	420	U
12672-29-6	Aroclor-1248	420	U
11097-69-1	Aroclor-1254	420	U
11096-82-5	Aroclor-1260	1800	D

2639

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BSE44DL

Lab Name: SWL-TULSA Contract: 68-D5-0026

Lab Code: SWOK Case No.: 25601 SAS No.: SDG No.: BSE22

Matrix: (soil/water) SOIL Lab Sample ID: 30412.09DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 08/01/97

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/04/97

Concentrated Extract Volume: 5000(uL) Date Analyzed: 08/17/97

Injection Volume: 0.5(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) Y pH: 6.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	22	U	J
319-85-7	beta-BHC	22	U	
319-86-8	delta-BHC	22	U	
58-89-9	gamma-BHC (Lindane)	22	U	
76-44-8	Heptachlor	22	U	
309-00-2	Aldrin	22	U	
1024-57-3	Heptachlor epoxide	22	U	
959-98-8	Endosulfan I	22	U	
60-57-1	Dieldrin	42	U	
72-55-9	4,4'-DDE	42	U	
72-20-8	Endrin	42	U	
33213-65-9	Endosulfan II	42	U	
72-54-8	4,4'-DDD	42	U	
1031-07-8	Endosulfan sulfate	42	U	
50-29-3	4,4'-DDT	61	~~DP~~	JN
72-43-5	Methoxychlor	220	U	J
53494-70-5	Endrin ketone	42	U	
7421-93-4	Endrin aldehyde	42	U	
5103-71-9	alpha-Chlordane	22	U	
5103-74-2	gamma-Chlordane	22	U	
8001-35-2	Toxaphene	2200	U	
12674-11-2	Aroclor-1016	420	U	
11104-28-2	Aroclor-1221	850	U	
11141-16-5	Aroclor-1232	420	U	
53469-21-9	Aroclor-1242	420	U	
12672-29-6	Aroclor-1248	420	U	
11097-69-1	Aroclor-1254	420	U	
11096-82-5	Aroclor-1260	810	~~DP~~	J

2658

U.S. EPA CLP
DATA PACKAGE -
TARGET ANALYTE LIST

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (ug/L)

Total Metals	Contract Required Detection Limit (CRDL)	Water MBQK29 07025S	Water MBQK30 07026S	Water MBQK33 07027S	Water MBQK46 07028S	Water MBQK47 07092S	
Percent Solids		-	-	-	-	-	
Dilution Factor		1.0	1.0	1.0	1.0	1.0	
Alumimum	200	19200 J	14900 J	20800 J	20.4 B	119 B	
Antimony	60.0	R	R	R	R	U	
Arsenic	10.0	32.0	31.9	38.9	U	3.0 B	
Barium	200	1380	839	1470	1.0 B	3.3 B	
Beryllium	10.0	0.73 B	0.45 B	0.84 B	U	U	
Cadmium	10.0	11.2 J	12.8 J	13.2 J	1.7 B	1.6 B	
Calcium	5000	150000	257000	151000	91.6 B	337 B	
Chromium	10.0	117	160	130	1.9 B	1.0 B	
Cobalt	50.0	13.9 B	15.5 B	14.6 B	U	U	
Copper	25.0	499	549	602	27.8	74.5	
Iron	100.0	66500	52200	70400	72.8 B	81.2 B	
Lead	3.0	1020	1590	1180	34.9	21.2	
Magnesium	5000	40600	56700	40900	35.1 B	151 B	
Manganese	15.0	726	1700	748	2.2 B	7.6 B	
Mercury	0.2	7.8	6.2	8.7	0.17 B	U	
Nickel	40.0	82.4	115	91.6	17.5 B	5.3 B	
Potassium	5000	18600	21600	18500	185 B	368 B	
Selenium	10.0	U J	U J	U J	U J	U	
Silver	10.0	15.8	11.1	17.6	1.6 B	0.92 B	
Sodium	5000	77100	102000	75500	U	353 B	
Thallium	10.0	U	U J	U	U	6.5 B	
Vanadium	50.0	81.6	87.2	90.8	U	U	
Zinc	20.0	1520	1640	1710	46.7	44.1	

Inorganic Qualifiers

U - non-detected compound
J - estimated value
B - between the instrument detection limit (IDL) and the contract required detection limit (CRDL)
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (MG/KG)

Total Metals	Contract Required Detection Limit (CRDL)	Soil MBQK34 07029S		Soil MBQK35 07030S		Soil MBQK36 07085S		Soil MBQK37 07086S		Soil MBQK38 07031S		Soil MBQK39 07087S	
Percent Solids		42.1		49.8		71.9		28.3		44.6		57.3	
Dilution Factor		1		1		1		1		1		1	
Aluminum	40.0	12400	J	11100		7200		8410	J	9820	J	6320	
Antimony	12.0	3.8	BJ	2.5	BJ	U	J	71.5	J	2.8	BJ	U	J
Arsenic	2.0	27.9	J	11.8	J	2.6	B	17.9	J	18.9	J	4.6	
Barium	40.0	374	J	312		55.8		511	J	339	J	131	
Beryllium	1.0	0.72	BJ	0.42	B	0.36	B	0.91	BJ	0.56	BJ	0.35	B
Cadmium	1.0	5.3	J	5.8	J	1.3	B	13.9	J	4.3	J	1.1	B
Calcium	1000	5080	J	14800		1970		21000	J	3570	J	3490	
Chromium	2.0	103	J	125		19.8		229	J	61.7	J	19.8	
Cobalt	10.0	7.3	BJ	6.1	B	5.0	B	12.2	BJ	5.2	BJ	2.8	B
Copper	5.0	447	J	279	J	R		588	J	302	J	R	
Iron	20.0	23100	J	27300		10600		47400	J	17900	J	10900	
Lead	0.6	1130	J	879		164		27700	J	844	J	92.2	
Magnesium	1000	3680	J	3870	J	1790	J	2240	BJ	2650	J	1180	B
Manganese	3.0	255	J	272		335		266	J	99.5	J	89.1	
Mercury	0.1	10.8	J	4.2		1.1		1.7	J	7.5	J	0.30	
Nickel	8.0	50.2	J	44.0	J	16.0	J	157	J	35.3	J	12.9	B
Potassium	1000	1310	BJ	945	B	762	B	691	BJ	1050	BJ	494	B
Selenium	1.0	2.1	BJ	U		U		U	J	2.1	J	U	
[illegible]er	2.0	7.0	J	6.5	J	1.1	B	8.6	J	5.8	J	0.95	B
[illegible]ium	1000	996	BJ	576	B	459	B	1600	BJ	779	BJ	643	B
Thallium	2.0	U	J	U		U		U	J	U	J	U	
Vanadium	10.0	74.2	J	53.8		20.6		94.8	J	51.3	J	13.0	B
Zinc	4.0	873	J	877		290		1130	J	662	J	148	

Inorganic Qualifiers

U - non-detected compound
[illegible]stimated value
[illegible]tween the instrument detection limit (IDL)
[illegible]and the method detection limit (MDL)
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (MG/KG)

Total Metals	Contract Required Detection Limit (CRDL)	Soil MBQK40 07088S		Soil MBQK41 07089S		Soil MBQK42 07090S		Soil MBQK43 07091S		Soil MBQK44 07032S		Soil MBQK45 07033S	
Percent Solids		17.4		9.8		10.2		43.8		58.1		59.2	
Dilution Factor		1.0		1.0		1.0		1.0		1.0		1.0	
Aluminum	40.0	15200	J	2260	J	6390	J	13100	J	7300		16900	
Antimony	12.0	23.2	BJ	U	J	15.9	BJ	6.6	BJ	1.7	BJ	4.0	BJ
Arsenic	2.0	93.0	J	4.9	BJ	31.4	J	9.2	J	4.5		60.5	J
Barium	40.0	1740	J	174	BJ	297	BJ	389	J	129		85.1	
Beryllium	1.0	0.70	BJ	U	J	0.49	BJ	0.59	BJ	0.27	B	0.17	B
Cadmium	1.0	22.2	J	1.5	BJ	3.4	BJ	8.4	J	3.3	J	0.87	B
Calcium	1000	23400	J	16200	J	22100	J	90200	J	6850		21200	
Chromium	2.0	441	J	49.2	J	143	J	54.9	J	57.0		28.9	
Cobalt	10.0	39.1	BJ	U	J	3.1	BJ	7.5	BJ	6.0	B	3.5	B
Copper	5.0	1560	J	R		R		247	J	177	J	4870	J
Iron	20.0	71200	J	6300	J	12000	J	20500	J	29900		15000	
Lead	0.6	2250	J	215	J	518	J	319	J	463		91.4	
Magnesium	1000	4600	BJ	4550	BJ	4750	BJ	6530	J	1710	J	2560	J
Manganese	3.0	590	J	114	J	123	J	377	J	272		370	
Mercury	0.1	7.1	J	0.82	BJ	0.89	BJ	1.2	J	2.1		0.15	B
Nickel	8.0	468	J	21.7	BJ	43.9	BJ	56.2	J	27.3	J	13.8	J
Potassium	1000	872	BJ	701	BJ	1080	BJ	2030	BJ	645	B	637	B
Selenium	1.0	U	J	U	J	U	J	U	J	U		U	
[illegible]er	2.0	16.4	J	2.8	BJ	2.3	BJ	1.9	BJ	2.5	B	0.80	B
[illegible]dium	1000	2100	BJ	4730	BJ	4340	BJ	1180	BJ	308	B	435	B
Thallium	2.0	U	J	U	J	U	J	U	J	U		U	
Vanadium	10.0	145	J	51.7	BJ	112	J	49.3	J	23.1		24.3	
Zinc	4.0	3620	J	R		492	J	979	J	528		436	

Inorganic Qualifiers

[illegible]on-detected compound
[illegible]stimated value
B - between the instrument detection limit (IDL) and the method detection limit (MDL)
R - rejected compound

OTHER ANALYTES WORK TABLE

Project: Keegan Landfill Site

START PM: Gerry Gilliland

Sampling Date: July 30 & 31, 1997

SAMPLE #/CONCENTRATION (MG/KG)

Total Metals	Contract Required Detection Limit (CRDL)	Soil MBQK48 07034S		Soil MBQK49 07093S		Soil MBQK66 07094S		Soil MBQK67 07095S		Soil MBQK68 07096S	
Percent Solids		71.9		79.0		34.5		34.3		21.6	
Dilution Factor		1.0		1.0		1.0		1.0		1.0	
Aluminum	40.0	10500		6000		11400	J	7510	J	4420	J
Antimony	12.0	215	J	3.9	BJ	4.7	BJ	U	J	U	J
Arsenic	2.0	39.6	J	12.1	J	2.7	BJ	1.8	BJ	5.4	BJ
Barium	40.0	1110		704		236	J	118	J	323	J
Beryllium	1.0	1.1	B	0.36	B	0.65	BJ	0.43	BJ	0.37	BJ
Cadmium	1.0	22.4	J	5.4	J	8.2	J	1.7	BJ	5.9	J
Calcium	1000	4590		4570		8390	J	4100	J	13100	J
Chromium	2.0	118		34.2		281	J	35.1	J	44.2	J
Cobalt	10.0	11.8	B	6.9	B	6.4	BJ	6.3	BJ	10.6	BJ
Copper	5.0	443	J	154	J	545	J	R		390	J
Iron	20.0	116000		51800		15200	J	12400	J	23400	J
Lead	0.6	1200		522		1330	J	282	J	754	J
Magnesium	1000	1100	B	1450	J	4130	J	2480	BJ	1910	BJ
Manganese	3.0	598		225		150	J	691	J	207	J
Mercury	0.1	3.7		1.1		5.0	J	0.75	J	4.0	J
Nickel	8.0	82.3	J	24.0	J	71.1	J	24.6	J	299	J
Potassium	1000	662	B	656	B	1150	BJ	1110	BJ	839	BJ
Selenium	1.0	U		U		1.4	BJ	U	J	U	J
Silver	2.0	5.4	J	2.3	J	7.2	J	1.5	BJ	4.7	BJ
Sodium	1000	385	B	194	B	866	BJ	1630	BJ	1500	BJ
Thallium	2.0	U		U		U	J	U	J	U	J
Vanadium	10.0	106		30.4		72.4	J	35.7	J	59.6	J
Zinc	4.0	1580		862		1090	J	281	J	1000	J

Inorganic Qualifiers

U - non-detected compound
J - estimated value
B - between the instrument detection limit (IDL) and the method detection limit (MDL)
R - rejected compound

RECORD OF COMMUNICATION

REGIONAL SAMPLE CONTROL CENTER

DATE: AUG. 15, 1997
SUBJECT: CLP Data Package for Quality Assurance Review
FROM: RSCC / ESAT
TO: Hanif Sheikh, Hazardous Waste Support Section

RECEIVED
SEP 11 1997

Attached is the following INORGANIC Data Package to be reviewed for Quality Assurance

SITE KEEGAN LF

CASE# 25601

CONTRACTOR STARTW

PHASE SIP

LAB SENTIN

#SAMPLES	MATRIX
17	SOIL
5	WATER

FRACTION TAL ONLY

REGION II RSCC DATA TRANSFER LOG

Relinquished By Signature	Date/Time	Received By Signature	Date/Time
		John Bulich	8/14/97
John Bulich	8/15/97	[illegible]	8/28/97
[illegible]	9/9/97		
DCR [illegible]	9/10/97	Hanif Sheikh	9/10/97
Hanif Sheikh	9/11/97	DCR	9/11/97 2:07

(over for instructions) revised 7/96

p. 340

Case #	25601	Site:	Keegan Landfill	Soil:	17
SDG #	MBQK29/MBQK34	Lab:	Sentinel	Water:	05
Contractor:	STARTW/SIP	Reviewer:	C. M. Alaimo/ESAT	Other:	

A.2.1. Validation flags- The following flags have been applied in red by the data validator and must be considered by the data user.

J - This flag indicates the result qualified as estimated.

Red-Line - A red-line drawn through a sample result indicates unusable value. The red-lined data are known to contain significant errors based on documented information and must not be used by the data user.

Fully Usable Data- The results that do not carry "J" or "red-line" are fully usable.

Contractual Qualifiers- The legend of contractual qualifiers applied by the lab on Form I's is found on page B-20 of SOW ILM01.0

A.2.2. The data assessment is given below and on the attached sheets.
This package consists of seventeen (17) soil and five (5) aqueous samples taken from the Keegan Landfill site on 7/30/97 and 7/31/97 for TAL metals analysis. QC was performed on sample MBQK30 for the aqueous matrix and sample MBQK35 for the soil matrix. Two field blanks were identified as samples MBQK46 & MBQK48. Two field duplicate pairs were taken: for aqueous matrix-MBQK29/MBQK33; for soil matrix-MBQK34/MBQK38. All holding times were met.

CSF

The trip report and chain of custody listed two samples with the same ID# MBQK48. This was corrected by the lab (see page 180). Two soil samples (MBQK67 & MBQK68) were included in this package but was not listed on the trip report. RSCC was contacted and the lab submitted a revised trip report with the additional samples included.

CRDL

SDG# MBQK29
The initial CRI % recovery for Tl (75.5%) fell between 50-79% therefore all associated data within the affected range were estimated.

J--->Tl in MBQK30.

MATRIX SPIKE

SDG# MBQK29 (water matrix)
For Sb, the matrix spike recovery was less than 30% (17.0%) therefore all associated data were rejected. For Se, the matrix spike recovery fell between 30-74% (74.5%), therefore all associated data were estimated.

R--->Sb in MBQK29, MBQK30, MBQK33 & MBQK46
J--->Se in MBQK29, MBQK30, MBQK33 & MBQK46

SDG# MBQK34 (soil matrix)
For Sb, the matrix spike recovery fell between 10-74% (10.7%), therefore all associated data were estimated. For Cu, the matrix spike recovery fell between 126-200% (130.5%), therefore all positive associated data were estimated. Please note that due to field blank contamination several Cu results were notated for rejection under that criterion.

J--->Sb in MBQK34-->45, MBQK47-->49, MBQK66, MBQK67 & MBQK68
J--->Cu in MBQK34, MBQK35, MBQK36*, MBQK37, MBQK38, MBQK39*, MBQK40, MBQK41*, MBQK42*, MBQK43 to MBQK49, MBQK66, MBQK67* & MBQK68

A.2.2. (continuation)

ICP SERIAL DILUTION

SDG# MBQK29 (water matrix)
For Al (15.6%) and Cd (20.8%), the %Ds were >10% but <100% when the initial sample results were >10xIDL, therefore all associated data ≥ CRDL (or ≥ 10xIDL when 10xIDL > CRDL) were estimated.

J--->Al & Cu in MBQK29, MBQK30 & MBQK33.

SDG# MBQK34 (soil matrix)
For As (57.0%), Cd (17.9%), Mg (15.3%), Ni (31.0%) and Ag (11.1%), the %Ds were >10% but <100% when the initial sample results were >10xIDL, therefore all associated data ≥ CRDL (or ≥ 10xIDL when 10xIDL > CRDL) were estimated.

J--->As in MBQK34, MBQK35, MBQK37, MBQK38, MBQK40, MBQK43, MBQK45, MBQK48 & MBQK49
J--->Cd in MBQK34, MBQK35, MBQK37, MBQK38, MBQK40, MBQK43, MBQK44, MBQK48, MBQK49, MBQK66 & MBQK68
J--->Mg in MBQK34, MBQK35, MBQK36, MBQK38, MBQK43, MBQK44, MBQK45, MBQK49 & MBQK66
J--->Ni in MBQK34-->38, MBQK40, MBQK43-->45, MBQK48, MBQK49, MBQK66-->68
J--->Ag in MBQK34, MBQK35, MBQK37, MBQK38, MBQK40, MBQK48, MBQK49 & MBQK66.

FIELD BLANK CONTAMINATION

Both field blanks had values greater than the CRDL for several analytes. Only field blank MBQK47 had associated data that was affected by the contaminates. Associated positive data with results less than 5x the contaminate results were rejected.

R--->Cu in MBQK36, MBQK39, MBQK41, MBQK42, MBQK67
R--->Zn in MBQK41.

% TOTAL SOLIDS

For samples MBQK34 (42.1%), MBQK37 (28.3%), MBQK38 (44.6%), MBQK40 (17.4%), MBQK41 (9.8%-rounded up to 10%), MBQK42 (10.2%), MBQK43 (43.8%), MBQK66 (34.5%) MBQK67 (34.3%) & MBQK68 (21.6%), the % total solids were less than 50% but greater than 10%, therefore all associated data not previously qualified were estimated.

J--->all metals not previously qualified in MBQK34, MBQK37, MBQK38, MBQK40, MBQK41, MBKQ42, MBQK43, MBQK66, MBQK67 & MBQK68.

A.2.3. Contract-Problems/Non-Compliance
NONE.

MMB Reviewer: _____ Date: _____
Signature

Contractor Reviewer: _____ Date: 9/3/97
Signature

Verified by: _____ Date: _____
Signature

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.3: Contract Non-Compliance (SMO Report)

Date: Jan. 1992
Number: HW-2
Revision: 11

CONTRACT NON-COMPLIANCE
(SMO REPORT)

Regional Review of Uncontrolled Hazardous Waste
Site Contract Laboratory Data Package

CASE NO. 25601

The hardcopied (laboratory name) _____ Inorganic data package received at Region II has been reviewed and the quality assurance and performance data summarized. The data reviewed included:

SMO Sample No.: _____

Conc. & Matrix: _____

Contract No. (_____) requires that specific analytical work be done and that associated reports be provided by the contractor to the Regions, EMSL-LV, and SMO. The general criteria used to determine the performance were based on an examination of:

- Data Completeness
- Matrix Spike Results
- Calibration Standards Results
- Duplicate Analysis Results
- Blank Analysis Results
- MSA Results

Items of non-compliance with the above contract are described below.

Comments: N/A

CMA
Reviewer's Initial

9/5/97
Date

DPO MAILING LIST FOR DATA REVIEWERS

1. USEPA Region I (ESD)
60 Westview Street
Lexington, MA 02173
Deb Szaro
(617) 861-4312
CT, ME, MA, NH, RI, VT
CAA, Resource Analysts, York,
E3I, Skinner, TMA

2. USEPA Region II ESD
Woodbridge Avenue
Edison, NJ 08837
Lisa Gatton Vidulich
(201) 321-6676
NJ, NY, PR, VI
Century, Chemtech, US Test, Nanco
ETC, Gadson, EMS, Galson, ICM

3. USEPA Region III (CRL)
839 Bestgate Road
Annapolis, MD 21401
Chuck Sands
(301) 266-9180
DE, MD, PA, VA, WV, DC
Centec, Hitman, JTC, MACK, VERSAR,
ITAS, Weston, MMES, EA Engineering,
Subject Tech., KEYPA

4. USEPA Region IV (ESD)
Analytical Support Branch
College Station Road
Athens, GA 30613
Tom Bennett, Jr.
(404) 546-3112
AL, FL, GA, KY, MS, NC, SC, TN
CompuChem, EPS, ESE, PBS&J,
Triangle Labs

5. USEPA Region V (ESD)
536 South Clark Street
Tenth Floor, CRL
Chicago, IL 60605
Pat Churilla
(312) 353-9087
IL, IN, MI, MN, OH, WI
NLE, TAI/ENG

6. USEPA Region VI (ESD)
Monterey Park Plaza, Bldg. C
6608 Hornwood Drive
Houston, TX 77074
David Stockton
(713) 953-3425
AR, LA, NM, TX, OK
ANACON, RADIAN, SPECS, EIS, Glochem
Research, Inc., SPL Inc., SWRI,
Allied, KEYTX, EIRA

7. USEPA Region VII Laboratory
25 Funston Road
Kansas City, KS 66115
Debra Morey
(913) 236-3881
IO, KS, NB, MO
Wilson, Kansas City Scientific
Enterprises, Eagle Picher

8. USEPA Region VIII Laboratory
Box 25366
Denver Federal Center
Lakewood, CO 80225
Eva Hoffman
(303) 236-7371
CO, ND, SD, UT, WY, MT
ACCU, CSMRI, RMAL, Data Chem., Cearef

9. USEPA Region XI (ESD)
QA Management Section
215 Fremont Street
San Francisco, CA 94105
Kent Kitchingman
(415) 974-0924
AZ, CA, HI, NV, American Samoa,
Guam Trust Territories of Pacific
Islands, Wake Island
ALI, CAL Weston, S-Cubed, IT_CA,
Vegas

10. USEPA Region X Laboratory
P.O. Box 549
Manchester, WA 98353
Gerald Muth
(206) 442-0370
AK, ID, OR, WA
Laucks Testing Labs, Century Testing
Labs (For VOA Only), Weyerhauser Co.,
Columbia Testing, Silver Valley

11. Carla Dempsey - (OS-230)
USEPA
401 "M" Street S.W.
Washington, DC 20460
FTS 382-5746

12. Edward Kantor
USEPA
EMSL-LV
944 E. Harmon Avenue
Box 93478
Las Vegas, NV 89119

13. Sample Management Office
Viar and Company
P.O. Box 818
Alexandria, VA 22313

STANDARD OPERATING PROCEDURE

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.6: CLP Data Assessment Checklist

Inorganic Analysis

Date: Jan. 1992
Number: HW-2
Revision: 11

INORGANIC REGIONAL DATA ASSESSMENT

Region II

CASE NO. 25601

SITE Keegan LF

LABORATORY Sentinel

NO. OF SAMPLES 17

MATRIX 17 Soil / Water

SDG# MBQK29 / MBQK30

REVIEWER (IF NOT ESD)

SOW# ILM04.0

REVIEWER'S NAME C.M. Alaimo

DPO: ACTION FYI

COMPLETION DATE 9/5/97

DATA ASSESSMENT SUMMARY

		ICP	AA	Hg	CYANIDE
1.	HOLDING TIMES	O	N/A	O	N/A
2.	CALIBRATIONS	↓	↓	↓	↓
3.	BLANKS	↓	↓	↓	↓
4.	ICS	↓	↓	↓	↓
5.	LCS	↓	↓	↓	↓
6.	DUPLICATE ANALYSIS	↓	↓	↓	↓
7.	MATRIX SPIKE	↓	↓	↓	↓
8.	MSA	↓	↓	↓	↓
9.	SERIAL DILUTION	↓	↓	↓	↓
10.	SAMPLE VERIFICATION	↓	↓	↓	↓
11.	OTHER QC	X	↓	↓	↓
12.	OVERALL ASSESSMENT	O-X	↓	↓	↓

O = Data has no problems/or qualified due to minor problems.
M = Data qualified due to major problems.
Z = Data unacceptable.
X = Problems, but do not affect data.

ACTION ITEMS:

AREAS OF CONCERN:

NOTABLE PERFORMANCE:

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.6: CLP Data Assessment Summary Form (Inorganics)

Date: Feb. 1990
Number: HW-2
Revision: 10

CLP DATA ASSESSMENT SUMMARY FORM (INORGANICS)

Type of Review: TAL Date: 9/8/97 Case #: 25601

Site: Keegan LF Lab Name: Sentinel

Reviewer's Initials: CMA Number of Samples: 17 soil / 5 water

Analytes Rejected Due to Exceeding Review Criteria:*

	Holding Times	Calibration	Prep Blank	Field Blank	Inter-ferences	Spike Recovery	Duplicates Lab	Duplicates Field	Detection Limits	LCS	Serial Dilution	MSA	Total Analytes	Rejection
ICP				6		4							484	10
Flame AA														
Furnace AA														
Mercury													22	0
Total				6		4							506	10
Other														

Analytes Flagged as Estimated (J) Due to Exceeding Criteria For:*

	%TS	CRDL												
ICP	180	1				38/5*					57		484	275/5*
Flame AA														
Furnace AA														
Mercury													22	
Total	180	1				38/5*					57		506	275/5*
Other														

Note:
Asterisk (*) Indicates additional exceedances of review criteria.

SENTINEL, Inc.

Industrial Hygiene and Environmental Services

2800 Bob Wallace Avenue, Ste. L3 Huntsville, AL 35805 (205) 534- 9800

FAX TRANSMITTAL

DATE:	August 4, 1997
TO:	Dyncorp
ATTN:	Mistie Sisson
FAX NUMBER:	(703) 519-8626
NO. OF PAGES:	1 (Including Transmittal Page)
FROM:	Susan Pearsall Sentinel, Inc. 2800 Bob Wallace Avenue, Suite L-3 Huntsville, AL 35805 Telephone No.: (205) 534-9800 Fax No.: (205) 534-9878
COMMENTS:	Concerning Case 25601: Sample MBQK48 (LW TM) was incorrectly labeled on the COC. The actual sample number is MBQK47.

If you have any questions regarding this transmittal, or you need any additional information, please do not hesitate to call.

180

U.S. EPA – CLP

6
FIELD DUPLICATES

EPA SAMPLE NO.

MBQK29	MBQK3:

Lab Name: Sentinel Inc

Contract: 68-D7-0169

Lab Code: Santin

Case No.: 25601

SAS No.:

SDG No.: MBQK29

Matrix (soil/water): water

Level (low/med): low

% Solids Sample: 0

% Solids Duplicate: 0

Concentration Units (ug/L or mg/kg dry weight): µg/L

Analyte	Action Limit	Sample (S) Concentration	C	Field Duplicate (D) Concentration	C	RPD	DIFF	Q	M
Aluminum		19200.0000		20800.0000		8.0	—		P
Antimony		7.7000	B	5.1000	B	—	2.6		P
Arsenic		32.0000		38.9000		—	6.9		F
Barium		1380.0000		1470.0000		6.3	—		P
Beryllium		0.7300	B	0.8400	B	—	.11		P
Cadmium		11.2000		13.2000		—	2.0		P
Calcium		150 000.0000		151.000.0000		0.7	—		P
[illegible]mium		117.0000		130.0000		10.5	—		P
[illegible]alt		13.9000	B	14.6000	B	—	0.7		P
Copper		199.0000		602.0000		18.7	—		F
Iron		66500.0000		70400.0000		5.7	—		P
Lead		1020.0000		1180.0000		14.5	—		P
Magnesium		40600.0000		40900.0000		0.7	—		P
Manganese		726.0000		748.0000		3.0	—		CV
Mercury		7.8000		8.7000		10.9	—		P
Nickel		82.4000		91.6000		—	9.2		P
Potassium		18600.0000		18500.0000		—	100		F
Selenium		2.4000	U	2.4000	U	—	—		P
Silver		15.8000		17.6000		—	1.8		P
Sodium		77100.0000		75500.0000		2.1	—		F
Thallium		3.4000	U	3.4000	U	—	—		P
Vanadium		81.6000		90.8000		—	9.2		P
Zinc		1520.0000		1710.0000		11.8	—		P
Cyanide									NR

FORM VI – IN

U.S. EPA – CLP

6
FIELD DUPLICATES

EPA SAMPLE NO.

MBQK34	MBQK3

Lab Name: Sentinel, Inc Contract: 68-D5-0169

Lab Code: SentIn Case No.: 25601 SAS No.: SDG No.: MBQK34

Matrix (soil/water): soil Level (low/med): low

% Solids Sample: 42.1 % Solids Duplicate: 44.6

Concentration Units (ug/L or mg/kg dry weight): µg/L

Analyte	Action Limit	Sample (S) Concentration	C	Field Duplicate (D) Concentration	C	RPD	DIFF	Q	M
Aluminum	100%	26102.0000		21898.6000		17.5	—		P
Antimony	120	7.9999	B	6.2440	B	—	1.7559		P
Arsenic	20	58.7295		42.1470		—	16.5825		F
Barium	400	787.2700		755.9700		—	31.3		P
Beryllium	10	1.5156	B	1.2488	B	—	0.268		P
Cadmium	10	11.1565		9.5890		—	1.567		P
Calcium	10,000	10693.4000		7961.1000		—	2732.3		P
Chromium	100%	216.8150		137.5910		44.7	—		P
Cobalt	100	15.3165	B	11.5960	B	—	3.705		P
Copper	100%	940.9350		673.4600		33.1	—		F
Iron	100%	48625.5000		39917.0000		19.7	—		P
Lead	100%	2378.6500		1882.1200		23.3	—		P
Magnesium	10,000	7746.4000		5909.5000		—	1836.9		P
Manganese	100%	536.7750		321.8850		83.0	—		P
Mercury	100%	9.0936		6.6900		30.4	—		CV
Nickel	80	105.6710		78.7190		—	26.952		P
Potassium	10,000	2757.5500	B	2341.5000	B	—	416.05		P
Selenium	10	4.4205	B	4.6830		—	0.2625		F
Silver	20	14.7350		12.9340		—	1.801		P
Sodium	10,000	2096.5800	B	1737.1700	B	—	359.41		P
Thallium		2.9470	U	2.8990	U	—	—		F
Vanadium	100	156.1910		114.3990		—	41.792		P
Zinc	100%	1837.6650		1476.2600		21.8	—		P
Cyanide									NR

FORM VI – IN

Evaluation of Metals Data for the Contract Laboratory Program (CLP)

based on

SOW. 3/90

(SOP Revision XI)

PREPARED BY: _____ DATE: 1-30-92
Hanif Sheikh, Quality Assurance Chemist
Toxic and Hazardous Waste Section

APPROVED BY: _____ DATE: 1-30-92
Kevin Kubik, Chief
Toxic and Hazardous Waste Section

APPROVED BY: _____ DATE: 1/30/92
Robert Runyon, Chief
Monitoring Management Branch

STANDARD OPERATING PROCEDURE

Date: Jan. 1992
Number: HW-2
Revision: 11

Title: Evaluation of Metals Data for the Contract Laboratory Program

---

1.0 Scope

1.1 This procedure is applicable to inorganic data obtained from contractor laboratories working for Hazardous Waste Site Contract Laboratory Program (CLP).

1.2 The data validation is based upon analytical and quality assurance requirements specified in Statement of Work (SOW) 3/90 .

2.0 Responsibilities - Data reviewers will complete the following tasks as assigned by the Data Review Coordinator:

2.1. For a total review:

2.1.1 Data Assessment - "Total Review-Inorganics" Checklist Appendix (A.1). The reviewer must answer every question on the checklist.

2.1.2 Data Assessment - Data Assessment Narrative (Appendix A.2) The answer on the checklist must match the action in the narrative (appendix A.2) and on Form I's. Do not use pencil to write the narrative.

2.1.3 Contract Non-Compliance - SMO Report (Appendix A.3) This report is to be completed only when a serious contract violation is encountered, or upon the request of the Data Validation Task Monitor, or Technical Project Officer (TPO). Forward 5 copies: one each for internal files, appropriate Regional TPO, Sample Management Office (SMO) and last two addresses of Mailing List for Data Reviewers (Appendix A.4). In other cases, all contract violations should be appended to the end of the Data Assessment Narrative (Sec. A.2.2).

2.1.4 CLP Data Assessment Summary Forms

2.1.4.1 Appendix A.5 Fill in the total number of analytes analyzed by different analyses and the number of analytes rejected or flagged as estimated due to corresponding quality control criteria. Place an "X" in boxes where analyses were not performed, or criteria do not apply.

2.1.4.2 Appendix A.6 Data reviewer is also required to fill out Inorganic Regional Data Assessment form (Appendix A.7) provided by EPA Headquarters. Codes listed on the form will be used to describe the Data Assessment Summary.

2.1.5 Data Review Log: It is recommended that each data reviewer should maintain a log of the reviews completed to include: a. date of start of case review

b. date of completion of case review
c. site
d. case number
e. contract laboratory
f. number of samples
g. matrix
h. hours worked
i. reviewer's initials

2.1.6 Telephone Record Log - the data reviewer should enter the bare facts of inquiry, before initiating any phone conversation with CLP laboratory. After the case review has been completed, mail white copy of Telephone Record Log to the laboratory and pink copy to SMO. File yellow copy in the Telephone Record Log folder, and attach a xerox copy of the Telephone Record Log to the completed Data Assessment Narrative (Appendix A.2).

2.1.7 Forwarded Paperwork

2.1.7.1 Upon completion of review, the following are to be forwarded to the Regional Sample Control Center (RSCC) located in the Surveillance and Monitoring Branch:
a. data package
b. completed data assessment checklist (Appendix A.1,original)
c. SMO Contract Compliance Screening (CCS)
d. Record of Communication (copy)
e. CLP Reanalysis Request/Approval Record (original + 3 copies)
f. Appendix A.6 (original).

2.1.7.2 Forward 2 copies of completed Data Assessment Narrative (Appendix A.2) along with 2 copies of the Inorganic Data Assessment Form (Appendix A.6) and Telephone Record Log , if any,: one each for appropriate Regional TPO, and the other one to EPA EMSL office in Las Vegas. The addresses of TPOs and EPA office in Las Vegas are given in Appendix A-4.

2.1.8 Filed Paperwork - Upon completion of review, the following are to be filed within MMB files:
a. Two copies of completed Data Assessment Narrative (Appendix A.2) each carrying Appendix A.6.
b. Telephone Record Log (copy)
c. SMO Report (copy Appendix A-3)
d. CLP Reanalysis Request/Approval Record (copy)

3.0 Data Completeness
Each data package is checked by a Regional Sample Control Coordinator (RSSC) for completeness. A data package is assumed to be complete when all the deliverables required under the contract are present. If a data package is incomplete, the RSSC would call the laboratory for missing document(s). If the laboratory does not respond within a week, SMO and MMB coordinator of Region II will be notified.

4.0 Rejection of Data - All values determined to be unacceptable on the Inorganic Analysis Data Sheet (Form I) must be lined over with a red pencil. As soon as any review criteria causes data to be rejected, that data can be eliminated from any further review or consideration.

5.0 Acceptance Criteria - In order that reviews be consistent among reviewers, acceptance criteria as stated in Appendix A.1 (pages 4-25) should be used. Additional guidance can be found in the National Inorganic Functional Guidelines October 1, 1989.

6.0 SMO Contract Compliance Screening (CCS) - This is intended to aid reviewer in locating any problems, both corrected and uncorrected. However, the validation should be carried out even if CCS is not present. Resubmittals received from laboratory in response to CCS must be used by the reviewer.

7.0 Request for Reanalysis - Data reviewers must note all items of contract non-compliance within Data Assessment Narrative. If holding times and sample storage times have not been exceeded, TPO may request reanalysis if items of non-compliance are critical to data assessment. Requests are to be made on "CLP Re-Analysis Request/Approval Record".

8.0 Record of Communication - Provided by the Regional Sample Control Center (RSCC) to indicate which data packages have been received and are ready to be reviewed.

9.0 Rounding off numbers - The data reviewer will follow the standard practice.

	YES	NO	N/A
A.1.1 Contract Compliance Screening Report (CCS) - Present?	[__]	__	__
ACTION: If no, contact RSCC.			
A.1.2 Record of Communication (from RSCC) - Present?	[__]	__	__
ACTION: If no, request from RSCC.			
A.1.3 Trip Report - Present and complete?	[__]	__	__
ACTION: If no, contact RSCC for trip report.			
A.1.4 Sample Traffic Report - Present?	[__]	__	__
Legible?	[__]	__	__
ACTION: If no, request from Regional Sample Control Center (RSCC).			
A.1.5 Cover Page - Present?	[__]	__	__
Is cover page properly filled in and signed by the lab manager or the manager's designee?	[__]	__	__
ACTION: If no, prepare Telephone Record Log, and contact laboratory.			
Do numbers of samples correspond to numbers on Record of Communication?	[__]	__	__
Do sample numbers on cover page agree with sample numbers on:			
(a) Traffic Report Sheet?	[__]	__	__
(b) Form I's?	[__]	__	__
ACTION: If no for any of the above, contact RSCC for clarification.			

		Yes	No	N/A
A.1.6	Form I to IX			
A.1.6.1	Are all the Form I through Form IX labeled with:			
	Laboratory name?	[___]	___	___
	Case/SAS number?	[___]	___	___
	EPA sample No.?	[___]	___	___
	SDG No.?	[___]	___	___
	Contract No.?	[___]	___	___
	Correct units?	[___]	___	___
	Matrix?	[___]	___	___

ACTION: If no for any of the above, note under Contract Problem/Non-Compliance section of the "Data Assessment Narrative".

A.1.6.2	Do any computation/transcription errors exceed 10% of reported values on Forms I-IX for:			
	(NOTE: Check all forms against raw data.)			
	(a) all analytes analyzed by ICP?	[___]	___	___
	(b) all analytes analyzed by GFAA?	[___]	___	___
	(c) all analytes analyzed by AA Flame?	[___]	___	___
	(d) Mercury?	[___]	___	___
	(e) Cyanide?	[___]	___	___

ACTION: If yes, prepare Telephone Log, contact laboratory for corrected data and correct errors with red pencil and initial.

Title: Evaluation of Metals Data for the Contract Laboratory Program
Appendix A.1: Data Assessment - Contract Compliance (Total Review)

Date: Jan. 1992
Number: HW-2
Revision: 11

		YES	NO	N/A
A.1.7	Raw Data			
A.1.7.1	Digestion Log* for flame AA/ICP (Form XIII) present?	[__]	__	__
	Digestion Log for furnace AA Form XIII present?	[__]	__	__
	Distillation Log for mercury Form XIII present?	[__]	__	__
	Distillation Log for cyanides Form XIII present?	[__]	__	__
	Are pH values (pH<2 for all metals, pH>12 for cyanide) present?	[__]	__	__
	*Weights, dilutions and volumes used to obtain values.			
	Percent solids calculation present for soils/sediments?	[__]	__	__
	Are preparation dates present on sample preparation logs/bench sheets?	[__]	__	__
A.1.7.2	Measurement read out record present? ICP	[__]	__	__
	Flame AA	[__]	__	__
	Furnace AA	[__]	__	__
	Mercury	[__]	__	__
	Cyanides	[__]	__	__
A.1.7.3	Are all raw data to support all sample analyses and QC operations present?	[__]	__	__
	Legible?	[__]	__	__
	Properly Labeled?	[__]	__	__

ACTION: If no for any of the above questions in sections A.1.7.1 through A.1.7.3, write Telephone Record Log and contact laboratory for resubmittals.

		YES	NO	N/A
A.1.8	**Holding Times** - (aqueous and soil samples)			
	(Examine sample traffic reports and digestion/distillation logs.)			
	Mercury analysis (28 days) . . . . . exceeded?	___	[___]	___
	Cyanide distillation (14 days) . . . . . exceeded?	___	[___]	___
	Other Metals analysis (6 months) . . . . exceeded?	___	[___]	___
	NOTE: Prepare a list of all samples and analytes for which holding times have been exceeded. Specify the number of days from date of collection to the date of preparation (from raw data). Attach to checklist.			
	ACTION: If yes, reject (red-line) values less than Instrument Detection Limit (IDL) and flag as estimated (J) the values above IDL even though sample(s) was preserved properly.			
A.1.8.2	Is pH of aqueous samples for: Metals Analysis >2?	___	[___]	___
	Cyanides Analysis <12?	___	[___]	___
	Action: If yes, flag the associated metals and cyanides data as estimated.			
A.1.9	**Form I (Final Data)**			
A.1.9.1	Are all Form I's present and complete?	[___]	___	___
	ACTION: If no, prepare telephone record log and contact laboratory for submittal.			
A.1.9.2	Are correct units (ug/l for waters and mg/kg for soils) indicated on Form I's?	[___]	___	___
	Are soil sample results for each parameter corrected for percent solids?	[___]	___	___
	Are all "less than IDL" values properly coded with "U"?	[___]	___	___

		YES	NO	N/A
	Are the correct concentration qualifiers used with final data?	[__]	__	__
	ACTION: If no for any of the above, prepare Telephone Record Log, and contact laboratory for corrected data.			
A.1.9.3	Are EPA sample # s and corresponding laboratory sample ID # s the same as on the Cover Page, Form I's and in the raw data?	[__]	__	__
	Was a brief physical description of samples given on Form I's?	[__]	__	__
	Was the dilution of any sample diluted beyond the requirements of the contract noted on Form I or Form XIV?	__	[__]	__
	ACTION: If no for any of the above, note under Contract-Problem/Non-Compliance of the "Data Assessment Narrative".			
A.1.10	Calibration			
A.1.10.1	Is record of at least 2 point calibration present for ICP analysis?	[__]	__	__
	Is record of 5 point calibration present for Hg analysis?	[__]	__	__
	Is record of 4 point calibration present for:			
	Flame AA?	[__]	__	__
	Furnace AA?	[__]	__	__
	Cyanides?	[__]	__	__
	Is one calibration standard at the CRDL level for all AA (except Hg) and cyanides analyses?	[__]	__	__
	ACTION: If no for any of the above, write in the Contract Problem/Non-Compliance section of the "Data Assessment Narrative".			

		YES	NO	N/A
A.1.10.2	Is correlation coefficient less than 0.995 for:			
	Mercury Analysis?	___	[___]	___
	Cyanide Analysis?	___	[___]	___
	Atomic Absorption Analysis?	___	[___]	___

ACTION: If yes, flag the associated data as estimated.

NOTE: The data validator shall calculate the correlation coefficient using concentrations of the standards and the corresponding instrument response (e.g. absorbance, peak area, peak height, etc.).

A.1.10.3	In the instance where less than 4 standards are measured in absorbance (or peak area, peak height,etc.) mode, are the remaining standards analyzed in concentration mode immediately after calibration within ±10% of the true values?	[___]	___	___

ACTION: If no, flag the associated data as estimated if standards are not within ±10% of true values. Do not flag the data as estimated in linear range indicated by good recovery of standard(s).

A.1.11 Form II A (Initial and Continuing Calibration Verification) -

A.1.11.1	Present and complete for every metal and cyanide?	[___]	___	___
	Present and complete for AA and ICP when both are used for the same analyte?	[___]	___	___

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

A.1.11.2	Circle on each Form IIA all percent recoveries that are outside the contract windows. Are all calibration standards (initial and continuing) within control limits:			
	Metals- 90-110%R?	[___]	___	___
	Hg - 80-120%R?	[___]	___	___
	Cyanides- 85-115%R?	[___]	___	___

		YES	NO	N/A
	ACTION: Flag as estimated (J) all positive data (not flagged with a "U") analyzed between a calibration standard with %R between 75-89% (65-79% for Hg; 70-84% for CN) or 111-125% (121-135% for Hg; 116-130% for CN) recovery and nearest good calibration standard. Qualify results <IDL as estimated (UJ) if the ICV or CCV %R is 75-89% (CN, 70-84% ; HG, 65-79%). Reject (red-line) as unacceptable data if recovery of the ICV or CCV is outside the range 75-125% (CN, 70-130%; Hg, 65-135%). Qualify five samples on either side of verification standard out of control limits.			
A.1.11.3	Was continuing calibration performed every 10 samples or every 2 hours?	[__]	__	__
	Was ICV for cyanides distilled?	[__]	__	__
	ACTION: If no for any of the above, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".			
A.1.12	Form II B (CRDL Standards for AA and ICP) -			
A.1.12.1	Was a CRDL standard (CRA) analyzed after initial calibration for all AA metals (except Hg)?	[__]	__	__
	Was a mid-range calib. verification standard distilled and analyzed for cyanide analysis?	[__]	__	__
	Was a 2xCRDL (or 2xIDL when IDL>CRDL) analyzed (CRI) for each ICP run? (Note: CRI for AL,Ba,Ca,Fe,Mg,Na,or K is not required.)	[__]	__	__
	ACTION: If no for any of the above, flag as estimated all data falling within the affected ranges. The affected ranges are: AA Analysis - **True Value ± CRDL ICP Analysis - **True Value ± 2CRDL CN Analysis - **True Value ± 0.5 x True Value.			

**True value of CRA, CRI or mid-range standard. Substitute IDL for CRDL when IDL > CRDL. Compute the concentration of the missing mid-range standard from the calibration range.

		YES	NO	N/A
A.1.12.2	Was CRI analyzed after ICV/ICB and before the final CCV/CCB, and twice every eight hours of ICP run?	[__]	__	__
	ACTION: If no, write in Contract Problem/Non-Compliance Section of the "Data Assessment Narrative".			
A.1.12.3	Circle on each Form IIB all the percent recoveries that are outside the acceptance windows.			
	Are CRA and CRI standards within control limits: Metals 80 - 120%R?	[__]	__	__
	Is mid-range standard within control limits: Cyanide 80 - 120%R?	[__]	__	__
	ACTION: Flag as estimated all sample results within the affected range if the recovery of the standard is between 50-79%; flag only positive data within the affected range if the recovery is between 121-150%; reject all data within the affected range if the recovery is less than 50%; reject only positive data within the affected range if the recovery is greater than 150%. Qualify 50% of the samples on either side of CRI standard outside the control limits.			
	Note: Flag or reject the final results only when sample raw data are within the affected ranges and the CRDL standards are outside the acceptance windows.			
A.1.13	Form III (Initial and Continuing Calibration Blanks)	[__]	__	__
A.1.13.1	Present and complete?	[__]	__	__
	For both AA and ICP when both are used for the same analyte?	[__]	__	__
	Was an initial calibration blank analyzed?	[__]	__	__
	Was a continuing calibration blank analyzed after every 10 samples or every 2 hours (which ever is more frequent)?	[__]	__	__

		YES	NO	N/A
	ACTION: If no, prepare Telephone Record Log, contact laboratory and write in the Contract-Problems/ Non-Compliance section of the "Data Assessment Narrative".			
A.1.13.2	Circle on each Form III all calibration blank values that are above CRDL (or 2 x IDL when IDL > CRDL).			
	Are all calibration blanks (when IDL<CRDL) less than or equal to the Contract Required Detection Limits (CRDLs)?	[__]	__	__
	Are all calibration blanks less than two times Instrument Detection Limit (when IDL>CRDL)?	[__]	__	__
	ACTION: If no for any of the above, flag as estimated (J) positive sample results when raw sample value is less than or equal to calibration blank value analyzed between calibration blank with value over CRDL (or 2xIDL) and nearest good calibration blank. Flag five samples on either side of the calibration blank outside the control limits.			
A.1.14	FORM III (Preparation Blank) - (Note: The preparation blank for mercury is the same as the calibration blank.)			
A.1.14.1	Was one prep. blank analyzed for:			
	each Sample Delivery Group (SDG)?	[__]	__	__
	each batch of digested samples?	[__]	__	__
	each matrix type?	[__]	__	__
	both AA and ICP when both are used for the same analyte?	[__]	__	__
	ACTION: If no for any of the above, flag as estimated (J) all the associated positive data <10 x IDLs for which prep. blank was not analyzed.			
	NOTE: If only one blank was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			

		YES	NO	N/A
A.1.14.2	Is concentration of prep. blank value greater than the CRDL when IDL is less than or equal to CRDL?	___	[___]	___
	If yes, is the concentration of the sample with the least concentrated analyte less than 10 times the prep.blank?	___	[___]	___
	ACTION: If yes, reject (red-line) all associated data greater than CRDL concentration but less than ten times the prep. blank value.			
A.1.14.3	Is concentration of prep. blank value (Form III) less than two times IDL, when IDL is greater than CRDL?	[___]	___	___
	ACTION: If no, reject (red-line) all positive sample results when sample raw data are less than 10 times the prep. blank value.			
A.1.14.4	Is concentration of prep. blank below the negative CRDL?	___	[___]	___
	ACTION: If yes, reject (red-line) all associated sample results less than 10xCRDL.			
A.1.15	Form IV (ICP Interference Check Sample)	[___]	___	___
A.1.15.1	Present and complete?			
	(NOTE: Not required for furnace AA, flame AA, mercury, cyanide and Ca, Mg, K and Na.)			
	Was ICS analyzed at beginning and end of run (or at least twice every 8 hours)?	[___]	___	___
	ACTION: If no, flag as estimated (J) all the samples for which AL, Ca, Fe, or Mg is higher than in ICS.			
A.1.15.2	Circle all values on each Form IV that are more than ± 20% of true or established mean value.			
	Are all Interference Check Sample results inside the control limits (± 20%)?	[___]	___	___
	If no, is concentration of Al, Ca, Fe, or Mg lower than the respective concentration in ICS?	[___]	___	___

		YES	NO	N/A
___	**ACTION**: If no, flag as estimated (J) those positive results for which ICS recovery is between 121-150%; flag all sample results as estimated if ICS recovery falls within 50-79%; reject (red-line) those sample results for which ICS recovery is less than 50%; if ICS recovery is above 150%, reject positive results only (not flagged with a "U").			
A.1.16	Form V A (Spiked Sample Recovery - Pre-Digestion/Pre-Distillation)- (Note: Not required for Ca, Mg, K, and Na (both matrices), Al, and Fe (soil only.)			
A.1.16.1	Present and complete for: each SDG?	[___]	___	___
	each matrix type?	[___]	___	___
	each conc. range (i.e. low, med., high)?	[___]	___	___
	For both AA and ICP when both are used for the same analyte?	[___]	___	___
	ACTION: If no for any of the above, flag as estimated (J) all the positive data less than four times the spiking levels specified in SOW for which spiked sample was not analyzed.			
	NOTE: If one spiked sample was analyzed for more than 20 samples, then first 20 samples analyzed do not have to be flagged as estimated (J).			
A.1.16.2	Was field blank used for spiked sample?	___	[___]	___
	ACTION: If yes, flag all positive data less than 4 x spike added as estimated (J) for which field blank was used as spiked sample.			
A.1.16.3	Circle on each Form VA all spike recoveries that are outside control limits (75% to 125%).			
	Are all recoveries within control limits?	[___]	___	___
	If no, is sample concentration greater than or equal to four times spike concentration?	[___]	___	___

	YES	NO	N/A
ACTION: If yes, disregard spike recoveries for analytes whose concentrations are greater than or equal to four times spike added. If no, circle those analytes on Form V for which sample concentration is less than four times the spike concentration.			
Are results outside the control limits (75-125%) flagged with "N" on Form I's and Form VA?	[__]	__	__
ACTION: If no, write in the Contract - Problem/Non - Compliance section of "Data Assessment Narrative".			
A.1.16.4 Aqueous Are any spike recoveries:			
(a) less than 30%?	__	[__]	__
(b) between 30-74%?	__	[__]	__
(c) between 126-150%?	__	[__]	__
(d) greater than 150%?	__	[__]	__
ACTION: If less than 30%, reject all associated aqueous data; if between 30-74%, flag all associated aqueous data as estimated (J); if between 126-150%, flag as estimated (J) all associated aqueous data not flagged with a "U"; if greater than 150%, reject (red-line) all associated aqueous data not flagged with a "U".			
A.1.16.5 Soil/Sediment Are any spike recoveries:			
(a) less than 10%?	__	[__]	__
(b) between 10-74%?	__	[__]	__
(c) between 126-200%?	__	[__]	__
(d) greater than 200%?	__	[__]	__

		YES	NO	N/A
	ACTION: If less than 10%, reject all associated data; if between 10-74%, flag all associated data as estimated; if between 126-200%, flag as estimated all associated data was not flagged with a "U"; if greater than 200%, reject all associated data not flagged with a "U".			
A.1.17	Form VI (Lab Duplicates)			
A.1.17.1	Present and complete for: each SDG?	[__]	__	__
	each matrix type?	[__]	__	__
	each concentration range (i.e. low, med., high)?	[__]	__	__
	both AA and ICP when both are used for the same analyte?	[__]	__	__
	ACTION: If no for any the above, flag as estimated (J) all the data ≥CRDL* for which duplicate sample was not analyzed.			
	Note: 1. If one duplicate sample was analyzed for more than 20 samples, then first 20 samples do not have to be flagged as estimated. 2. If percent solids for soil sample and its duplicate differ by more than 1%, prepare a Form VI for each duplicate pair, report concentrations in ug/L on wet weight basis and calculate RPD or Difference for each analyte.			
A.1.17.2	Was field blank used for duplicate analysis?	__	[__]	__
	ACTION: If yes, flag all data ≥CRDL* as estimated (J) for which field blank was used as duplicate.			
A.1.17.3	Are all values within control limits (RPD 20% or difference ≤ ±CRDL)?	[__]	__	__
	If no, are all results outside the control limits flagged with an * on Form I's and VI?	[__]	__	__
	ACTION: If no, write in the Contract - Problems/Non-Compliance section of "Data Assessment Narrative".			

* Substitute IDL for CRDL when IDL > CRDL.

	YES	NO	N/A

NOTE: 1. RPD is not calculable for an analyte of the sample - duplicate pair when both values are less than IDL.
2. If the result of lab duplicate analyzed by GFAA is rejectable due to coefficient of correlation of MSA, analytical spike recovery, or duplicate injections criteria, do not apply precision criteria to metals analyzed by GFAA.

A.1.17.4 Aqueous

Circle on each Form VI all values that are:

RPD > 50%, or
Difference > CRDL*

Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL?	___	[__]	___
Is any difference** between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL?	___	[__]	___

ACTION: If yes, flag the associated data as estimated.

A.1.17.5 Soil/Sediment

Circle on each Form VI all values that are:

RPD > 100%, or

Difference > 2 x CRDL*

Is any RPD (where sample and duplicate are both greater than or equal to 5 times *CRDL) : > 100%?	___	[__]	___
Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x*CRDL) : > 2x*CRDL?	___	[__]	___

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

		YES	NO	N/A
	ACTION: If yes, flag the associated data as estimated.			
A.1.18	Field Duplicates	[__]	__	__
A.1.18.1	Were field duplicates analyzed?			
	ACTION: If yes, prepare a Form VI for each aqueous field duplicate pair. Prepare a Form VI for each soil duplicate pair, if percent solids for sample and its duplicate differ by more than 1%; report concentrations of soils in ug/l on wet weight basis and calculate RPDs or Difference for each analyte.			
	NOTE: 1. Do not calculate RPD when both values are less than IDL. 2. Flag all associated data only for field duplicate pair.			
A.1.18.2	Aqueous			
	Circle all values on self prepared Form VI for field duplicates that are: RPD > 50%, or Difference > CRDL*			
	Is any RPD greater than 50% where sample and duplicate are both greater than or equal to 5 times *CRDL?	__	[__]	__
	Is any **difference between sample and duplicate greater than *CRDL where sample and/or duplicate is less than 5 times *CRDL?	__	[__]	__
	ACTION: If yes, flag the associated data as estimated.			

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

		YES	NO	N/A
A.1.18.3	Soil/Sediment			
	Circle all values on self prepared Form VI for field duplicates that are: RPD >100%, or Difference > 2 x CRDL*			
	Is any RPD (where sample and duplicate are both greater than 5 times *CRDL) : >100%?	___	[___]	___
	Is any **difference between sample and duplicate (where sample and/or duplicate is less than 5x *CRDL): >2x *CRDL?	___	[___]	___
	ACTION: If yes, flag the associated data as estimated.			
A.1.19	Form VII (Laboratory Control Sample) (Note: LCS - not required for aqueous Hg and cyanide analyses.)			
A.1.19.1	Was one LCS prepared and analyzed for: each SDG?	[___]	___	___
	each batch samples digested/distilled?	[___]	___	___
	both AA and ICP when both are used for the same analyte?	[___]	___	___
	ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory for submittal of results of LCS. Flag as estimated (J) all the data for which LCS was not analyzed.			
	NOTE: If only one LCS was analyzed for more than 20 samples, then first 20 samples close to LCS do not have to be flagged as estimated.			

* Substitute IDL for CRDL when IDL > CRDL.
** Use absolute values of sample and duplicate to calculate the difference.

		YES	NO	N/A
A.1.19.2	**Aqueous LCS**			
	Circle on each Form VII the LCS percent recoveries outside control limits (80 - 120%) except for aqueous Ag and Sb.			
	Is any LCS recovery: less than 50%?	___	[__]	___
	between 50% and 79%?	___	[__]	___
	between 121% and 150%?	___	[__]	___
	greater than 150%?	___	[__]	___
	ACTION: Less than 50%, reject (red-line) all data; between 50% and 79%, flag all associated data as estimated (J); between 121% and 150%, flag all positive (not flagged with a "U") results as estimated; greater than 150%, reject all positive results.			
A.1.19.3	**Solid LCS**			
	NOTE: 1. If "Found" value of LCS is rejectable due to duplicate injections or analytical spike recovery criteria, regardless of LCS recovery, flag the associated data as estimated (J). 2. If IDL of an analyte is equal to or greater than true value of LCS, disregard the "Action" below even though LCS is out of control limits.			
	Is LCS "Found" value higher than the control limits on Form VII?	___	[__]	___
	ACTION: If yes, qualify all associated positive data as estimated			
	Is LCS "Found" value lower than the Control limits on Form VII?	___	[__]	___
	ACTION: If yes, qualify all associated data as estimated.			

		YES	NO	N/A
A.1.20	Form IX (ICP Serial Dilution) -			
	NOTE: Serial dilution analysis is required only for initial concentrations equal to or greater than 10 x IDL.			
A.1.20.1	Was Serial Dilution analysis performed for: each SDG?	[__]	__	__
	each matrix type?	[__]	__	__
	each concentration range (i.e. low, med.)?	[__]	__	__
	ACTION: If no for any of the above, flag as estimated all the positive data ≥ 10xIDLs or ≥ CRDL when 10xIDL ≤ CRDL for which Serial Dilution Analysis was not performed.			
A.1.20.2	Was field blank(s) used for Serial Dilution Analysis?	__	[__]	__
	ACTION: If yes, flag all associated data ≥ 10 x IDL as estimated (J). If 10xIDL ≤ CRDL, flag all data ≥ CRDL.			
A.1.20.3	Are results outside control limit flagged with an "E" on Form I's and Form IX when initial concentration on Form IX is equal to 50 times IDL or greater.	[__]	__	__
	ACTION: If no, write in the Contract-Problem/Non-Compliance section of the "Data Assessment Narrative".			
A.1.20.4	Circle on each Form IX all percent difference that are outside the control limits for initial concentrations equal to or greater than 10 x IDLs only.			
	Are any % difference values:			
	> 10%?	__	[__]	__
	≥ 100%?	__	[__]	__

		YES	NO	N/A
	ACTION: Flag as estimated (J) all the associated sample data ≥ 10xIDLs (or ≥ CRDL when 10xIDL ≤ CRDL) for which percent difference is greater than 10% but less than 100%. Reject (red-line) all the associated sample results equal to or greater than 10xIDLs (or ≥ CRDL when 10xIDL ≤ CRDL) for which PD is greater than or equal to 100%.			
	Note: Flag or reject on Form I's only the sample results whose associated raw data are ≥ 10xIDL (or ≥ CRDL when 10xIDL≤ CRDL)			
A.1.21	**Furnace Atomic Absorbtion (AA) QC Analysis**			
A.1.21.1	Are duplicate injections present in furnace raw data (except during full Method of Standard Addition) for each sample analyzed by GFAA?	[__]	__	__
	ACTION: If no, reject the data on Form I's for which duplicate injections were not performed.			
A.1.21.2	Do the duplicate injection readings agree within 20% Relative Standard Deviation (RSD) or Coefficient of Variation (CV) for concentration greater than CRDL?	[__]	__	__
	Was a dilution analyzed for sample with analytical spike recovery less than 40%?	[__]	__	__
	ACTION: If no for any of the above, flag all the associated data as estimated.			
A.1.21.3	Is *analytical spike recovery outside the control limits (85-115%) for any sample?	__	[__]	__
	ACTION: If yes, flag as estimated the affected sample results if the recovery is between 10-84%; if the recovery is between 115-200%, flag the associated positive sample results as estimated; reject the associated sample results if the recovery is less than 10%; reject positive sample results if the recovery is greater than 200%.			

* Analytical spike is not required on the pre-digestion spiked sample.

		YES	NO	N/A
	NOTE: Reject or flag the data only when the affected sample(s) was not subsequently analyzed by Method of Standard Addition.			
A.1.22	Form VIII (Method of Standard Addition Results)	[__]	__	__
A.1.22.1	Present?			
	If no, is any Form I result coded with "S" or a "+"?	__	[__]	__
	ACTION: If yes, write request on Telephone Record Log and contact laboratory for submittal of Form VIII.			
A.1.22.2	Is coefficient of correlation for MSA less than 0.990 for any sample?	__	[__]	__
	ACTION: If yes, reject (red-line) the affected data.			
A.1.22.3	Was *MSA required for any sample but not performed?	__	[__]	__
	Is coefficient of correlation for MSA less than 0.995?	__	[__]	__
	Are MSA calculations outside the linear range of the calibration curve generated at the beginning of the analytical run?	__	[__]	__
	ACTION: If yes for any of the above, flag all the associated data as estimated (J).			
A.1.22.4	Was proper quantitation procedure followed correctly as outlined in the SOW on page B-23?	[__]	__	__
	ACTION: If no, note exception under Contract Problem/ Non-Compliance section of the "Data Assessment Narrative", and prepare a separate list.			

* MSA is not required on LCS and prep. blank.

		YES	NO	N/A
A.1.23	Dissolved/Total or Inorganic/Total Analytes -			
A.1.23.1	Were any analyses performed for dissolved as well as total analytes on the same sample(s).	___	[___]	___
	Were any analyses performed for inorganic as well as total (organic + inorganic) analytes on the same sample(s)?	___	[___]	___
	NOTE: 1. If yes, prepare a list comparing differences between all dissolved (or inorganic) and total analytes. Compute the differences as a percent of the total analyte only when dissolved concentration is greater than CRDL as well as total concentration. 2. Apply the following questions only if inorganic (or dissolved) results are (i) above CRDL, and (ii) greater than total constituents. 3. At least one preparation blank, ICS, and LCS should be analyzed in each analytical run.			
A.1.23.2	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 10%?	___	[___]	___
A.1.23.3	Is the concentration of any dissolved (or inorganic) analyte greater than its total concentration by more than 50%?	___	[___]	___
	ACTION: If more than 10%, flag both dissolved (or inorganic) and total values as estimated (J); if more than 50%, reject (red-line) the data for both values.			
A.1.24	Form I (Field Blank) -			
	(Note: Designate "Field Blank" as such on Form I.)			
A.1.24.1	Circle all field blank values on Form I that are greater than CRDL, (or 2 x IDL when IDL > CRDL).			
	Is field blank concentration less than CRDL (or 2 x IDL when IDL > CRDL) for all parameters of associated aqueous and soil samples?	[___]	___	___

p. 362

	YES	NO	N/A
If no, was field blank value already rejected due to other QC criteria?	[__]	__	__

ACTION: If no, reject (except field blank results) all associated positive sample data less than or equal to five times the field blank value. Reject on Form I's the soil sample results that when converted to ug/L on wet basis are less than or equal to five times the field blank value in ug/L.

A.1.25 Form X, XI, XII (Verification of Instrumental Parameters).

A.1.25.1	Is verification report present for:			
	Instrument Detection Limits (quarterly)?	[__]	__	__
	ICP Interelement Correction Factors (annually)?	[__]	__	__
	ICP Linear Ranges (quarterly)?	[__]	__	__

ACTION: If no, contact TPO of the lab.

A.1.25.2	Form X (Instrument Detection Limits) - (Note: IDL is not required for Cyanide.)			
A.1.25.2.1	Are IDLs present for: all the analytes?	[__]	__	__
	all the instruments used?	[__]	__	__
	For both AA and ICP when both are used for the same analyte?	[__]	__	__

ACTION: If no for any of the above, prepare Telephone Record Log and contact laboratory.

A.1.25.2.2	Is IDL greater than CRDL for any analyte?	__	[__]	__
	If yes, is the concentration on Form I of the sample analyzed on the instrument whose IDL exceeds CRDL, greater than 5 x IDL.	[__]	__	__

		YES	NO	N/A
	Action : If no, flag as estimated all values less than five times IDL of the instrument whose IDL exceeds CRDL.			
A.1.25.3	**Form XI (Linear Ranges)**			
A.1.25.3.1	Was any sample result higher than high linear range of ICP.	___	[___]	___
	Was any sample result higher than the highest calibration standard for non-ICP parameters?	___	[___]	___
	If yes for any of the above, was the sample diluted to obtain the result on Form I?	[___]	___	___
	ACTION: If no, flag the result reported on Form I as estimated(J).			
A.1.26	**Percent Solids of Sediments**			
A.1.26.1	Are percent solids in sediment(s): < 50%?	___	[___]	___
	< 10%?	___	[___]	___
	ACTION: If yes, qualify as estimated all the results of a sample that has per cent solids between 10%-50% (i.e. moisture content between 50%-90%). Reject all the results of a sample that has per cent solids less than 10% (i.e. moisture content greater than 90%).			
	NOTE: Reject or flag(J) only the sample results that were not previously rejected or flaged due to other QC criteria.			

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

ab Name: SENTINEL, INC. Contract: 68-D5-0169

ab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK29

OW No.: ILM04.0

EPA Sample No.	Lab Sample ID.
MBQK29	07025S
MBQK30	07026S
MBQK30D	07026S2
MBQK30S	07026DS
MBQK33	07027S
MBQK46	07028S

ere ICP interelement corrections applied?	Yes/No	YES
ere ICP background corrections applied?	Yes/No	YES
If yes-were raw data generated before application of background corrections?	Yes/No	NO

omments:

certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained n this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the anager's designee, as verified by the following signature.

Signature: M.V. Kilgore Name: Melvin V. Kilgore, Jr.

Da 8-9-97 Title: Lab Director

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK29

ab Name: SENTINEL, INC. Contract: 68-D5-0169

ab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK29

atrix (soil/water): WATER Lab Sample ID: 07025S

evel (low/med): LOW Date Received: 07/31/97

Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	19200		E J	P
7440-36-0	Antimony	~~7.7~~	B	N	P
7440-38-2	Arsenic	32.0			P
7440-39-3	Barium	1380			P
7440-41-7	Beryllium	0.73	B	J	P
7440-43-9	Cadmium	11.2			P
7440-70-2	Calcium	150000			P
7440-47-3	Chromium	117			P
7440-48-4	Cobalt	13.9	B		P
7440-50-8	Copper	499			P
7439-89-6	Iron	66500			P
7439-92-1	Lead	1020			P
7439-95-4	Magnesium	40600			P
7439-96-5	Manganese	726			P
7439-97-6	Mercury	7.8			CV
7440-02-0	Nickel	82.4			P
7440-09-7	Potassium	18600			P
7782-49-2	Selenium	2.4	U	N J	P
7440-22-4	Silver	15.8			P
7440-23-5	Sodium	77100			P
7440-28-0	Thallium	3.4	U		P
7440-62-2	Vanadium	81.6			P
7440-66-6	Zinc	1520			P
	Cyanide				NR

olor Before: COLORLESS Clarity Before: CLEAR Texture:

olor After: COLORLESS Clarity After: CLEAR Artifacts:

omments:

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBQK30

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK29

Matrix (soil/water): WATER Lab Sample ID: 07026S

Level (low/med): LOW Date Received: 07/31/97

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14900		E	P
7440-36-0	Antimony	~~8.2~~	~~B~~	N	P
7440-38-2	Arsenic	31.9			P
7440-39-3	Barium	839			P
7440-41-7	Beryllium	0.45	B		P
7440-43-9	Cadmium	12.8			P
7440-70-2	Calcium	257000			P
7440-47-3	Chromium	160			P
7440-48-4	Cobalt	15.5	B		P
7440-50-8	Copper	549			P
7439-89-6	Iron	52200			P
7439-92-1	Lead	1590			P
7439-95-4	Magnesium	56700			P
7439-96-5	Manganese	1700			P
7439-97-6	Mercury	6.2			CV
7440-02-0	Nickel	115			P
7440-09-7	Potassium	21600			P
7782-49-2	Selenium	2.4	U	N	P
7440-22-4	Silver	11.1			P
7440-23-5	Sodium	102000			P
7440-28-0	Thallium	3.4	U		P
7440-62-2	Vanadium	87.2			P
7440-66-6	Zinc	1640			P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK33

ab Name: SENTINEL, INC. Contract: 68-D5-0169

ab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK29

atrix (soil/water): WATER Lab Sample ID: 07027S

evel (low/med): LOW Date Received: 07/31/97

Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20800		E	P
7440-36-0	Antimony	~~5.1~~	~~B~~	N	P
7440-38-2	Arsenic	38.9			P
7440-39-3	Barium	1470			P
7440-41-7	Beryllium	0.84	B		P
7440-43-9	Cadmium	13.2			P
7440-70-2	Calcium	151000			P
7440-47-3	Chromium	130			P
7440-48-4	Cobalt	14.6	B		P
7440-50-8	Copper	602			P
7439-89-6	Iron	70400			P
7439-92-1	Lead	1180			P
7439-95-4	Magnesium	40900			P
7439-96-5	Manganese	748			P
7439-97-6	Mercury	8.7			CV
7440-02-0	Nickel	91.6			P
7440-09-7	Potassium	18500			P
7782-49-2	Selenium	2.4	U	N	P
7440-22-4	Silver	17.6			P
7440-23-5	Sodium	75500			P
7440-28-0	Thallium	3.4	U		P
7440-62-2	Vanadium	90.8			P
7440-66-6	Zinc	1710			P
	Cyanide				NR

olor Before: COLORLESS Clarity Before: CLEAR Texture:

olor After: COLORLESS Clarity After: CLEAR Artifacts:

omments:

4

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
Field Blank
MBQK46

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK29

Matrix (soil/water): WATER Lab Sample ID: 07028S

Level (low/med): LOW Date Received: 07/31/97

% Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20.4	B	E	P
7440-36-0	Antimony	~~4.7~~	~~U~~	~~N~~	P
7440-38-2	Arsenic	2.0	U		P
7440-39-3	Barium	1.0	B		P
7440-41-7	Beryllium	0.10	U		P
7440-43-9	Cadmium	1.7	B		P
7440-70-2	Calcium	91.6	B		P
7440-47-3	Chromium	1.9	B		P
7440-48-4	Cobalt	~~1.4~~	U		P
7440-50-8	Copper	27.8			P
7439-89-6	Iron	72.8	B		P
7439-92-1	Lead	34.9			P
7439-95-4	Magnesium	35.1	B		P
7439-96-5	Manganese	2.2	B		P
7439-97-6	Mercury	0.17	B		CV
7440-02-0	Nickel	17.5	B		P
7440-09-7	Potassium	185	B		P
7782-49-2	Selenium	2.4	U	N J	P
7440-22-4	Silver	1.6	B		P
7440-23-5	Sodium	141	U		P
7440-28-0	Thallium	3.4	U		P
7440-62-2	Vanadium	~~1.5~~	U		P
7440-66-6	Zinc	46.7			P
	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

5

SAMPLE DELIVERY GROUP (SDG) TRAFFIC REPORT (TR) COVER SHEET

Lab Name: Sentinel Contract No.: 68-D5-0169

Lab Code: Sentin Case No.: 25601

Full Sample Analysis Price in Contract:

SDG No./First Sample in SDG: MBQK29 Sample Receipt Date: 07/31/97 (MM/DD/YY)
(Lowest EPA Sample Number in first shipment of samples received under SDG.)

Last Sample in SDG: MBQK46 Sample Receipt Date: 07/31/97 (MM/DD/YY)
(Highest EPA Sample Number in last shipment of samples received under SDG.)

EPA Sample Numbers in the SDG (listed in alphanumeric order)

1	MBQK29	11	
2	MBQK30	12	
3	MBQK33	13	
4	MBQK46	14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		20	

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order (i.e., the order listed on this form).

Signature: [signature] Date: 08/02/97

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

SOW No.: ILM04.0

EPA Sample No.	Lab Sample ID.
MBQK34	07029S
MBQK35	07030S
MBQK35D	07030S2
MBQK35S	07030DS
MBQK36	07085S
MBQK37	07086S
MBQK38	07031S
MBQK39	07087S
MBQK40	07088S
MBQK41	07089S
MBQK42	07090S
MBQK43	07091S
MBQK44	07032S
MBQK45	07033S
MBQK47	07092S
MBQK48	07034S
MBQK49	07093S
MBQK66	07094S
MBQK67	07095S
MBQK68	07096S

Were ICP interelement corrections applied? Yes/No YES
Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: Concentrations are estimated for ~~calcium~~ cadmium magnesium, and potassium due to possible sample matrix interferents.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: MV Kilgore Name: MELVIN V. KILGORE, JR.

Date: 8/12/97 Title: LABORATORY DIRECTOR

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBQK34

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

Matrix (soil/water): SOIL Lab Sample ID: 07029S

Level (low/med): LOW Date Received: 07/31/97

% Solids: 42.1

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12400			P
7440-36-0	Antimony	3.8	B	N	P
7440-38-2	Arsenic	27.9			P
7440-39-3	Barium	374			P
7440-41-7	Beryllium	0.72	B		P
7440-43-9	Cadmium	5.3		E	P
7440-70-2	Calcium	5080			P
7440-47-3	Chromium	103			P
7440-48-4	Cobalt	7.3	B		P
7440-50-8	Copper	447		N	P
7439-89-6	Iron	23100			P
7439-92-1	Lead	1130			P
7439-95-4	Magnesium	3680		E	P
7439-96-5	Manganese	255			P
7439-97-6	Mercury	10.8			CV
7440-02-0	Nickel	50.2			P
7440-09-7	Potassium	1310	B	E	P
7782-49-2	Selenium	2.1	B		P
7440-22-4	Silver	7.0			P
7440-23-5	Sodium	996	B		P
7440-28-0	Thallium	1.4	U		P
7440-62-2	Vanadium	74.2			P
7440-66-6	Zinc	873			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

2

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK35

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

Matrix (soil/water): SOIL Lab Sample ID: 07030S

Level (low/med): LOW Date Received: 07/31/97

% Solids: 49.8

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11100			P
7440-36-0	Antimony	2.5	B	N	P
7440-38-2	Arsenic	11.8			P
7440-39-3	Barium	312			P
7440-41-7	Beryllium	0.42	B		P
7440-43-9	Cadmium	5.8		E	P
7440-70-2	Calcium	14800			P
7440-47-3	Chromium	125			P
7440-48-4	Cobalt	6.1	B		P
7440-50-8	Copper	279		N	P
7439-89-6	Iron	27300			P
7439-92-1	Lead	879			P
7439-95-4	Magnesium	3870		E	P
7439-96-5	Manganese	272			P
7439-97-6	Mercury	4.2			CV
7440-02-0	Nickel	44.0			P
7440-09-7	Potassium	945	B	E	P
7782-49-2	Selenium	0.85	U		P
7440-22-4	Silver	6.5			P
7440-23-5	Sodium	576	B		P
7440-28-0	Thallium	1.2	U		P
7440-62-2	Vanadium	53.8			P
7440-66-6	Zinc	877			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

3

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBQK36

ab Name: SENTINEL, INC. Contract: 68-D5-0169

ab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

atrix (soil/water): SOIL Lab Sample ID: 07085S

evel (low/med): LOW Date Received: 08/02/97

Solids: 71.9

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7200			P
7440-36-0	Antimony	1.3	U	N J	P
7440-38-2	Arsenic	2.6	B		P
7440-39-3	Barium	55.8			P
7440-41-7	Beryllium	0.36	B		P
7440-43-9	Cadmium	1.3	B	E	P
7440-70-2	Calcium	1970			P
7440-47-3	Chromium	19.8			P
7440-48-4	Cobalt	5.0	B		P
7440-50-8	Copper	~~75.1~~		N	P
7439-89-6	Iron	10600			P
7439-92-1	Lead	164			P
7439-95-4	Magnesium	1790		E J	P
7439-96-5	Manganese	335			P
7439-97-6	Mercury	1.1			CV
7440-02-0	Nickel	16.0		J	P
7440-09-7	Potassium	762	B	E	P
7782-49-2	Selenium	0.67	U		P
7440-22-4	Silver	1.1	B		P
7440-23-5	Sodium	459	B		P
7440-28-0	Thallium	0.95	U		P
7440-62-2	Vanadium	20.6			P
7440-66-6	Zinc	290			P
	Cyanide				NR

olor Before: BROWN Clarity Before: Texture: MEDIUM

olor After: COLORLESS Clarity After: Artifacts:

omments:

4

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK37

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

Matrix (soil/water): SOIL Lab Sample ID: 07086S

Level (low/med): LOW Date Received: 08/02/97

% Solids: 28.3

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8410			P
7440-36-0	Antimony	71.5		N	P
7440-38-2	Arsenic	17.9			P
7440-39-3	Barium	511			P
7440-41-7	Beryllium	0.91	B		P
7440-43-9	Cadmium	13.9		E	P
7440-70-2	Calcium	21000			P
7440-47-3	Chromium	229			P
7440-48-4	Cobalt	12.2	B		P
7440-50-8	Copper	588		N	P
7439-89-6	Iron	47400			P
7439-92-1	Lead	27700			P
7439-95-4	Magnesium	2240	B	E	P
7439-96-5	Manganese	266			P
7439-97-6	Mercury	1.7			CV
7440-02-0	Nickel	157			P
7440-09-7	Potassium	691	B	E	P
7782-49-2	Selenium	1.7	U		P
7440-22-4	Silver	8.6			P
7440-23-5	Sodium	1600	B		P
7440-28-0	Thallium	2.4	U		P
7440-62-2	Vanadium	94.8			P
7440-66-6	Zinc	1130			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

5

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK38

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

Matrix (soil/water): SOIL Lab Sample ID: 07031S

Level (low/med): LOW Date Received: 07/31/97

Solids: 44.6

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9820			P
7440-36-0	Antimony	2.8	B	N	P
7440-38-2	Arsenic	18.9			P
7440-39-3	Barium	339			P
7440-41-7	Beryllium	0.56	B		P
7440-43-9	Cadmium	4.3		E	P
7440-70-2	Calcium	3570			P
7440-47-3	Chromium	61.7			P
7440-48-4	Cobalt	5.2	B		P
7440-50-8	Copper	302		N	P
7439-89-6	Iron	17900			P
7439-92-1	Lead	844			P
7439-95-4	Magnesium	2650		E	P
7439-96-5	Manganese	99.5			P
7439-97-6	Mercury	7.5			CV
7440-02-0	Nickel	35.3			P
7440-09-7	Potassium	1050	B	E	P
7782-49-2	Selenium	2.1			P
7440-22-4	Silver	5.8			P
7440-23-5	Sodium	779	B		P
7440-28-0	Thallium	1.3	U		P
7440-62-2	Vanadium	51.3			P
7440-66-6	Zinc	662			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

6

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK39

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

Matrix (soil/water): SOIL Lab Sample ID: 07087S

Level (low/med): LOW Date Received: 08/02/97

% Solids: 57.3

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6320			P
7440-36-0	Antimony	1.6	U	N J	P
7440-38-2	Arsenic	4.6			P
7440-39-3	Barium	131			P
7440-41-7	Beryllium	0.35	B		P
7440-43-9	Cadmium	1.1	B	E	P
7440-70-2	Calcium	3490			P
7440-47-3	Chromium	19.8			P
7440-48-4	Cobalt	2.8	B		P
7440-50-8	Copper	~~55.8~~		N	P
7439-89-6	Iron	10900			P
7439-92-1	Lead	92.2			P
7439-95-4	Magnesium	1180	B	E	P
7439-96-5	Manganese	89.1			P
7439-97-6	Mercury	0.30			CV
7440-02-0	Nickel	12.9	B		P
7440-09-7	Potassium	494	B	E	P
7782-49-2	Selenium	0.81	U		P
7440-22-4	Silver	0.95	B		P
7440-23-5	Sodium	643	B		P
7440-28-0	Thallium	1.2	U		P
7440-62-2	Vanadium	13.0	B		P
7440-66-6	Zinc	148			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

7

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK40

ab Name: SENTINEL, INC. Contract: 68-D5-0169

ab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

atrix (soil/water): SOIL Lab Sample ID: 07088S

evel (low/med): LOW Date Received: 08/02/97

Solids: 17.4

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15200			P
7440-36-0	Antimony	23.2	B	N	P
7440-38-2	Arsenic	93.0			P
7440-39-3	Barium	1740			P
7440-41-7	Beryllium	0.70	B		P
7440-43-9	Cadmium	22.2		E	P
7440-70-2	Calcium	23400			P
7440-47-3	Chromium	441			P
7440-48-4	Cobalt	39.1	B		P
7440-50-8	Copper	1560		N	P
7439-89-6	Iron	71200			P
7439-92-1	Lead	2250			P
7439-95-4	Magnesium	4600	B	E	P
7439-96-5	Manganese	590			P
7439-97-6	Mercury	7.1			CV
7440-02-0	Nickel	468			P
7440-09-7	Potassium	872	B	E	P
7782-49-2	Selenium	2.7	U		P
7440-22-4	Silver	16.4			P
7440-23-5	Sodium	2100	B		P
7440-28-0	Thallium	3.9	U		P
7440-62-2	Vanadium	145			P
7440-66-6	Zinc	3620			P
	Cyanide				NR

olor Before: BROWN Clarity Before: Texture: MEDIUM

olor After: COLORLESS Clarity After: Artifacts:

omments:

8

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK41

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

Matrix (soil/water): SOIL Lab Sample ID: 07089S

Level (low/med): LOW Date Received: 08/02/97

% Solids: 9.8

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2260			P
7440-36-0	Antimony	9.2	U	N	P
7440-38-2	Arsenic	4.9	B		P
7440-39-3	Barium	174	B		P
7440-41-7	Beryllium	0.20	U		P
7440-43-9	Cadmium	1.5	B	E	P
7440-70-2	Calcium	16200			P
7440-47-3	Chromium	49.2			P
7440-48-4	Cobalt	2.7	U		P
7440-50-8	Copper	~~90.8~~		N	P
7439-89-6	Iron	6300			P
7439-92-1	Lead	215			P
7439-95-4	Magnesium	4550	B	E	P
7439-96-5	Manganese	114			P
7439-97-6	Mercury	0.82	B		CV
7440-02-0	Nickel	21.7	B		P
7440-09-7	Potassium	701	B	E	P
7782-49-2	Selenium	4.7	U		P
7440-22-4	Silver	2.8	B		P
7440-23-5	Sodium	4730	B		P
7440-28-0	Thallium	6.7	U		P
7440-62-2	Vanadium	51.7	B		P
7440-66-6	Zinc	~~264~~			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

9

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK42

ab Name: SENTINEL, INC. Contract: 68-D5-0169

ab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

atrix (soil/water): SOIL Lab Sample ID: 07090S

evel (low/med): LOW Date Received: 08/02/97

Solids: 10.2

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6390			P
7440-36-0	Antimony	15.9	B	N	P
7440-38-2	Arsenic	31.4			P
7440-39-3	Barium	297	B		P
7440-41-7	Beryllium	0.49	B		P
7440-43-9	Cadmium	3.4	B	E	P
7440-70-2	Calcium	22100			P
7440-47-3	Chromium	143			P
7440-48-4	Cobalt	3.1	B		P
7440-50-8	Copper	~~239~~		N	P
7439-89-6	Iron	12000			P
7439-92-1	Lead	518			P
7439-95-4	Magnesium	4750	B	E	P
7439-96-5	Manganese	123			P
7439-97-6	Mercury	0.89	B		CV
7440-02-0	Nickel	43.9	B		P
7440-09-7	Potassium	1080	B	E	P
7782-49-2	Selenium	4.7	U		P
7440-22-4	Silver	2.3	B		P
7440-23-5	Sodium	4340	B		P
7440-28-0	Thallium	6.7	U		P
7440-62-2	Vanadium	112			P
7440-66-6	Zinc	492			P
	Cyanide				NR

olor Before: BROWN Clarity Before: Texture: MEDIUM

olor After: COLORLESS Clarity After: Artifacts:

omments:

10

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK43

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

Matrix (soil/water): SOIL Lab Sample ID: 07091S

Level (low/med): LOW Date Received: 08/02/97

% Solids: 43.8

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13100			P
7440-36-0	Antimony	6.6	B	N	P
7440-38-2	Arsenic	9.2			P
7440-39-3	Barium	389			P
7440-41-7	Beryllium	0.59	B		P
7440-43-9	Cadmium	8.4		E	P
7440-70-2	Calcium	90200			P
7440-47-3	Chromium	54.9			P
7440-48-4	Cobalt	7.5	B		P
7440-50-8	Copper	247		N	P
7439-89-6	Iron	20500			P
7439-92-1	Lead	319			P
7439-95-4	Magnesium	6530		E	P
7439-96-5	Manganese	377			P
7439-97-6	Mercury	1.2			CV
7440-02-0	Nickel	56.2			P
7440-09-7	Potassium	2030	B	E	P
7782-49-2	Selenium	1.1	U		P
7440-22-4	Silver	1.9	B		P
7440-23-5	Sodium	1180	B		P
7440-28-0	Thallium	1.5	U		P
7440-62-2	Vanadium	49.3			P
7440-66-6	Zinc	979			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MBQK44

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

Matrix (soil/water): SOIL Lab Sample ID: 07032S

Level (low/med): LOW Date Received: 07/31/97

% Solids: 58.1

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7300			P
7440-36-0	Antimony	1.7	B	N J	P
7440-38-2	Arsenic	4.5			P
7440-39-3	Barium	129			P
7440-41-7	Beryllium	0.27	B		P
7440-43-9	Cadmium	3.3		E J	P
7440-70-2	Calcium	6850			P
7440-47-3	Chromium	57.0			P
7440-48-4	Cobalt	6.0	B		P
7440-50-8	Copper	177		N J	P
7439-89-6	Iron	29900			P
7439-92-1	Lead	463			P
7439-95-4	Magnesium	1710		E J	P
7439-96-5	Manganese	272			P
7439-97-6	Mercury	2.1			CV
7440-02-0	Nickel	27.3		J	P
7440-09-7	Potassium	645	B	E	P
7782-49-2	Selenium	0.76	U		P
7440-22-4	Silver	2.5	B		P
7440-23-5	Sodium	308	B		P
7440-28-0	Thallium	1.1	U		P
7440-62-2	Vanadium	23.1			P
7440-66-6	Zinc	528			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

12

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK45

ab Name: SENTINEL, INC. Contract: 68-D5-0169

ab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

atrix (soil/water): SOIL Lab Sample ID: 07033S

evel (low/med): LOW Date Received: 07/31/97

Solids: 59.2

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16900			P
7440-36-0	Antimony	4.0	B	N	P
7440-38-2	Arsenic	60.5			P
7440-39-3	Barium	85.1			P
7440-41-7	Beryllium	0.17	B		P
7440-43-9	Cadmium	0.87	B	E	P
7440-70-2	Calcium	21200			P
7440-47-3	Chromium	28.9			P
7440-48-4	Cobalt	3.5	B		P
7440-50-8	Copper	4870		N	P
7439-89-6	Iron	15000			P
7439-92-1	Lead	91.4			P
7439-95-4	Magnesium	2560		E	P
7439-96-5	Manganese	370			P
7439-97-6	Mercury	0.15	B		CV
7440-02-0	Nickel	13.8			P
7440-09-7	Potassium	637	B	E	P
7782-49-2	Selenium	0.80	U		P
7440-22-4	Silver	0.80	B		P
7440-23-5	Sodium	435	B		P
7440-28-0	Thallium	1.1	U		P
7440-62-2	Vanadium	24.3			P
7440-66-6	Zinc	436			P
	Cyanide				NR

olor Before: BROWN Clarity Before: Texture: MEDIUM

olor After: COLORLESS Clarity After: Artifacts:

omments:

13

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.
Field Blank
MBQK47

ab Name: SENTINEL, INC. Contract: 68-D5-0169

ab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

atrix (soil/water): WATER Lab Sample ID: 07092S

evel (low/med): LOW Date Received: 08/02/97

Solids: 0.0

Concentration Units (ug/L or mg/Kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	119	B		P
7440-36-0	Antimony	4.7	U		P
7440-38-2	Arsenic	3.0	B		P
7440-39-3	Barium	3.3	B		P
7440-41-7	Beryllium	0.10	U		P
7440-43-9	Cadmium	1.6	B		P
7440-70-2	Calcium	337	B		P
7440-47-3	Chromium	1.0	B		P
7440-48-4	Cobalt	1.4	U		P
7440-50-8	Copper	74.5			P
7439-89-6	Iron	81.2	B		P
7439-92-1	Lead	21.2			P
7439-95-4	Magnesium	151	B		P
7439-96-5	Manganese	7.6	B		P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	5.3	B		P
7440-09-7	Potassium	368	B		P
7782-49-2	Selenium	2.4	U		P
7440-22-4	Silver	0.92	B		P
7440-23-5	Sodium	353	B		P
7440-28-0	Thallium	6.5	B		P
7440-62-2	Vanadium	1.5	U		P
7440-66-6	Zinc	44.1			P
	Cyanide				NR

olor Before: COLORLESS Clarity Before: CLEAR Texture:

olor After: COLORLESS Clarity After: CLEAR Artifacts:

omments:

14

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK48

ab Name: SENTINEL, INC. Contract: 68-D5-0169

ab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

atrix (soil/water): SOIL Lab Sample ID: 07034S

evel (low/med): LOW Date Received: 07/31/97

Solids: 71.9

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10500			P
7440-36-0	Antimony	215		N	P
7440-38-2	Arsenic	39.6			P
7440-39-3	Barium	1110			P
7440-41-7	Beryllium	1.1	B		P
7440-43-9	Cadmium	22.4		E	P
7440-70-2	Calcium	4590			P
7440-47-3	Chromium	118			P
7440-48-4	Cobalt	11.8	B		P
7440-50-8	Copper	443		N	P
7439-89-6	Iron	116000			P
7439-92-1	Lead	1200			P
7439-95-4	Magnesium	1100	B	E	P
7439-96-5	Manganese	598			P
7439-97-6	Mercury	3.7			CV
7440-02-0	Nickel	82.3			P
7440-09-7	Potassium	662	B	E	P
7782-49-2	Selenium	0.65	U		P
7440-22-4	Silver	5.4			P
7440-23-5	Sodium	385	B		P
7440-28-0	Thallium	0.92	U		P
7440-62-2	Vanadium	106			P
7440-66-6	Zinc	1580			P
	Cyanide				NR

olor Before: BROWN Clarity Before: Texture: MEDIUM

olor After: COLORLESS Clarity After: Artifacts:

omments:

15

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK49

ıb Name: SENTINEL, INC. Contract: 68-D5-0169

ıb Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

ıtrix (soil/water): SOIL Lab Sample ID: 07093S

ɜvel (low/med): LOW Date Received: 08/02/97

Solids: 79.0

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6000			P
7440-36-0	Antimony	3.9	B	N	P
7440-38-2	Arsenic	12.1			P
7440-39-3	Barium	704			P
7440-41-7	Beryllium	0.36	B		P
7440-43-9	Cadmium	5.4		E	P
7440-70-2	Calcium	4570			P
7440-47-3	Chromium	34.2			P
7440-48-4	Cobalt	6.9	B		P
7440-50-8	Copper	154		N	P
7439-89-6	Iron	51800			P
7439-92-1	Lead	522			P
7439-95-4	Magnesium	1450		E	P
7439-96-5	Manganese	225			P
7439-97-6	Mercury	1.1			CV
7440-02-0	Nickel	24.0			P
7440-09-7	Potassium	656	B	E	P
7782-49-2	Selenium	0.53	U		P
7440-22-4	Silver	2.3			P
7440-23-5	Sodium	194	B		P
7440-28-0	Thallium	0.76	U		P
7440-62-2	Vanadium	30.4			P
7440-66-6	Zinc	862			P
	Cyanide				NR

ɔlor Before: BROWN Clarity Before: Texture:

ɔlor After: COLORLESS Clarity After: Artifacts:

ɔmments:

16

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK66

ab Name: SENTINEL, INC. Contract: 68-D5-0169

ab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

atrix (soil/water): SOIL Lab Sample ID: 07094S

evel (low/med): LOW Date Received: 08/02/97

Solids: 34.5

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11400			P
7440-36-0	Antimony	4.7	B	N	P
7440-38-2	Arsenic	2.7	B		P
7440-39-3	Barium	236			P
7440-41-7	Beryllium	0.65	B		P
7440-43-9	Cadmium	8.2		E	P
7440-70-2	Calcium	8390			P
7440-47-3	Chromium	281			P
7440-48-4	Cobalt	6.4	B		P
7440-50-8	Copper	545		N	P
7439-89-6	Iron	15200			P
7439-92-1	Lead	1330			P
7439-95-4	Magnesium	4130		E	P
7439-96-5	Manganese	150			P
7439-97-6	Mercury	5.0			CV
7440-02-0	Nickel	71.1			P
7440-09-7	Potassium	1150	B	E	P
7782-49-2	Selenium	1.4	B		P
7440-22-4	Silver	7.2			P
7440-23-5	Sodium	866	B		P
7440-28-0	Thallium	1.9	U		P
7440-62-2	Vanadium	72.4			P
7440-66-6	Zinc	1090			P
	Cyanide				NR

olor Before: BROWN Clarity Before: Texture: MEDIUM

olor After: COLORLESS Clarity After: Artifacts:

omments:

17

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK67

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

Matrix (soil/water): SOIL Lab Sample ID: 07095S

Level (low/med): LOW Date Received: 08/02/97

% Solids: 34.3

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7510			P
7440-36-0	Antimony	2.6	U	N	P
7440-38-2	Arsenic	1.8	B		P
7440-39-3	Barium	118			P
7440-41-7	Beryllium	0.43	B		P
7440-43-9	Cadmium	1.7	B	E	P
7440-70-2	Calcium	4100			P
7440-47-3	Chromium	35.1			P
7440-48-4	Cobalt	6.3	B		P
7440-50-8	Copper	~~90.6~~		N	P
7439-89-6	Iron	12400			P
7439-92-1	Lead	282			P
7439-95-4	Magnesium	2480	B	E	P
7439-96-5	Manganese	691			P
7439-97-6	Mercury	0.75			CV
7440-02-0	Nickel	24.6			P
7440-09-7	Potassium	1110	B	E	P
7782-49-2	Selenium	1.3	U		P
7440-22-4	Silver	1.5	B		P
7440-23-5	Sodium	1630	B		P
7440-28-0	Thallium	1.9	U		P
7440-62-2	Vanadium	35.7			P
7440-66-6	Zinc	281			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

18

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

MBQK68

Lab Name: SENTINEL, INC. Contract: 68-D5-0169

Lab Code: SENTIN Case No.: 25601 SAS No.: SDG No.: MBQK34

Matrix (soil/water): SOIL Lab Sample ID: 07096S

Level (low/med): LOW Date Received: 08/02/97

% Solids: 21.6

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4420			P
7440-36-0	Antimony	4.1	U	N	P
7440-38-2	Arsenic	5.4	B		P
7440-39-3	Barium	323			P
7440-41-7	Beryllium	0.37	B		P
7440-43-9	Cadmium	5.9		E	P
7440-70-2	Calcium	13100			P
7440-47-3	Chromium	44.2			P
7440-48-4	Cobalt	10.6	B		P
7440-50-8	Copper	390		N	P
7439-89-6	Iron	23400			P
7439-92-1	Lead	754			P
7439-95-4	Magnesium	1910	B	E	P
7439-96-5	Manganese	207			P
7439-97-6	Mercury	4.0			CV
7440-02-0	Nickel	299			P
7440-09-7	Potassium	839	B	E	P
7782-49-2	Selenium	2.1	U		P
7440-22-4	Silver	4.7	B		P
7440-23-5	Sodium	1500	B		P
7440-28-0	Thallium	3.0	U		P
7440-62-2	Vanadium	59.6			P
7440-66-6	Zinc	1000			P
	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: COLORLESS Clarity After: Artifacts:

Comments:

19

SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVER SHEET

Lab Name: Sentinel Contract No.: 68-D5-0169

Lab Code: Sentin Case No.: 25601

Full Sample Analysis Price in Contract:

SDG No./First Sample in SDG: MBQK34 Sample Receipt Date: 07/31/97 (MM/DD/YY)
(Lowest EPA Sample Number in first shipment of samples received under SDG.)

Last Sample in SDG: MBQK68 Sample Receipt Date: 08/02/97 (MM/DD/YY)
(Highest EPA Sample Number in last shipment of samples received under SDG.)

EPA Sample Numbers in the SDG (listed in alphanumeric order)

1	MBQK34	11	MBQK44
2	MBQK35	12	MBQK45
3	MBQK36	13	MBQK47
4	MBQK37	14	MBQK48
5	MBQK38	15	MBQK49
6	MBQK39	16	MBQK66
7	MBQK40	17	MBQK67
8	MBQK41	18	MBQK68
9	MBQK42	19	
10	MBQK43	20	

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order (i.e., the order listed on this form).

Signature: [signature] Date: 08/02/97

167

p. 389

SENTINEL, Inc.

Industrial Hygiene and Environmental Services

2800 Bob Wallace Avenue, Ste. L3 Huntsville, AL 35805 (205) 534- 9800

FAX TRANSMITTAL

DATE:	August 4, 1997
TO:	Dyncorp
ATTN:	Mistie Sisson
FAX NUMBER:	(703) 519-8626
NO. OF PAGES:	1 (Including Transmittal Page)
FROM:	Susan Pearsall Sentinel, Inc. 2800 Bob Wallace Avenue, Suite L-3 Huntsville, AL 35805 Telephone No.: (205) 534-9800 Fax No.: (205) 534-9878
COMMENTS:	Concerning Case 25601: Sample MBQK48 (LW TM) was incorrectly labeled on the COC. The actual sample number is MBQK47.

If you have any questions regarding this transmittal, or you need any additional information, please do not hesitate to call.