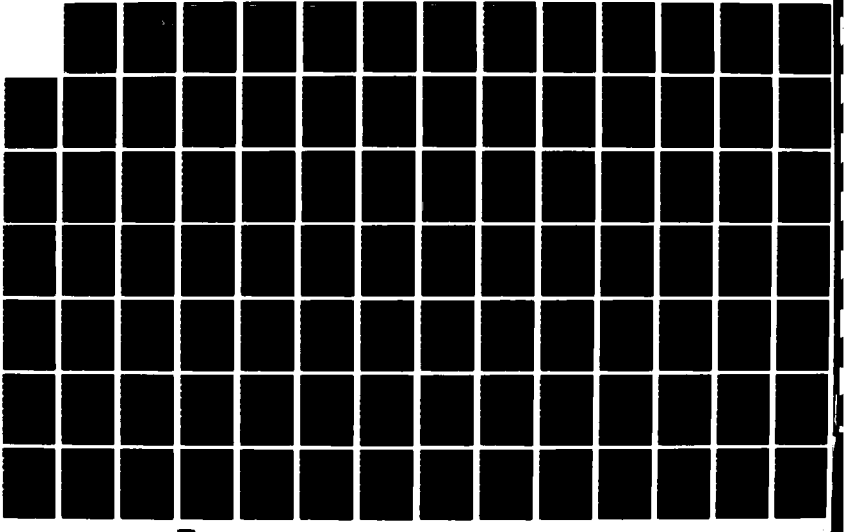
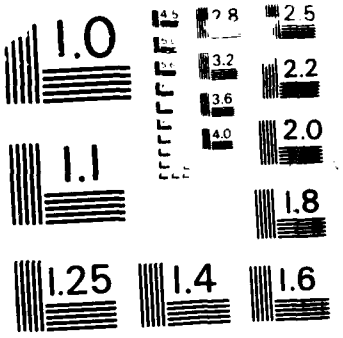
AD-A190 447 INSTALLATION RESTORATION PROGRAM PHASE 2 1/5
CONFIRMATION/QUANTIFICATION STAG (U) RADIAN CORP
AUSTIN TX DEC 87 F33615-83-D-4001

UNCLASSIFIED F/G 24/7 NL





DCN 87-212-027-27-01

INSTALLATION RESTORATION PROGRAM
PHASE II - CONFIRMATION/QUANTIFICATION
STAGE 1

FINAL REPORT
FOR
AIR FORCE PLANT 4
FORT WORTH, TEXAS

VOLUME 7. APPENDICES A-3 AND A-4

HEADQUARTERS AERONAUTICAL SYSTEMS DIVISION
FACILITIES MANAGEMENT DIVISION (ASD/PMDA)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433-6503

AND

HEADQUARTERS, AIR FORCE SYSTEMS COMMAND
COMMAND BIOENVIRONMENTAL ENGINEER (AFSC/SGPB)
ANDREWS AIR FORCE BASE, DC 20334-5000

DECEMBER 1987

PREPARED BY
RADIAN CORPORATION
8501 MO-PAC BOULEVARD
POST OFFICE BOX 201088
AUSTIN, TEXAS 78720-1088

USAF CONTRACT NO. F33615-83-D-4001 DELIVERY ORDER 27
RADIAN CONTRACT NO. 212-027-27

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USAFOEHL TECHNICAL PROGRAM MANAGERS
MAJOR GEORGE R. NEW
CAPTAIN ARTHUR S. KAMINSKI

UNITED STATES AIR FORCE
OCCUPATIONAL & ENVIRONMENTAL HEALTH LABORATORY (USAFOEHL)
BROOKS AIR FORCE BASE, TEXAS 78235-5501

RADIAN
CORPORATION

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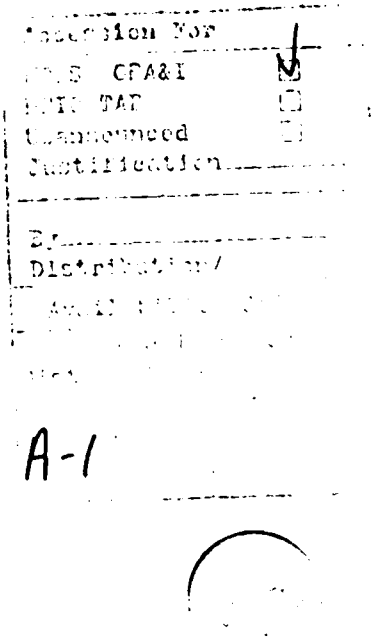

RADIAN CORPORATION

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(Volume 7)

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APPENDIX A-3

Soil Analytical Data

Soil samples for chemical analysis were submitted to Radian Analytical Services (RAS) Laboratory. The samples were logged in, and the data reported in "batches". Each batch submitted was assigned a RAS work order number. Table A.3-1 is a sequential listing of all analytical reports associated with AF Plant 4 Phase II, Stage 1 soil analyses by work order number.

Table A.3-2 cross-references soil borings or well numbers, OEHL numbers, and the RAS work order numbers under which the results are located. Methyl ethyl ketone analyses were performed by the Radian chromatography laboratory. The results of these analyses are provided in a memo included in this volume.

The RAS reports in this volume are arranged consecutively by RAS work order number. Pages in Appendix A are numbered by the volume number followed by the page number of that volume. For example, Page 7 001 is Page 1 of Volume 7.

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RADIAN
CORPORATION

TABLE A.3-1. INDEX OF ANALYTICAL REPORTS, BY WORK ORDER NUMBER

86-01-205
86-01-206
86-03-008
86-03-021
86-03-176
86-03-184
86-05-072
86-05-078
86-07-086
86-08-058
86-09-040

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TABLE A.3-2. SOIL SAMPLE LOG AND CROSS-REFERENCE TABLE

Well or Soil Boring Number	OEHL Number	Date Sampled	Analyses Performed	RAS Work Order Number	Date Extracted	Date Analyzed
HA-1	860029	5/12/86	Halogenated vols. (8010)	86-05-072		
			Aromatic vols. (8020)	86-05-072		
			Pest and PCBs (8080)	86-05-078	5/15/86	5/22/86
			B/N & Acid Semi-vols. (8270)	86-05-078	5/15/86	5/22/86
			Oil and Grease	86-05-072		
			Hydrocarbon Fuels	86-05-072		
HA-2	860030	5/12/86	Halogenated vols. (8010)	86-05-072		
			Aromatic vols. (8020)	86-05-072		
			Pest and PCBs (8080)	86-05-078	5/15/86	5/22/86
			B/N & Acid Semi-vols. (8270)	86-05-078	5/15/86	5/22/86
			Oil and Grease	86-05-072		
			Hydrocarbon Fuels	86-05-072		
HA-3	860031	3/12/86	Halogenated vols. (8010)	86-05-072		
			Aromatic vols. (8020)	86-02-072		
			Pest and PCBs (8080)	86-05-078	5/15/86	5/22/86
			B/N & Acid Semi-vols. (8270)	86-05-078	5/15/86	5/22/86
			Oil and Grease	86-05-072		
			Hydrocarbon Fuels	86-05-072		
HA-4	860032	5/12/86	Halogenated vols. (8010)	86-05-072		
			Aromatic vols. (8020)	86-05-072		
			Pest and PCBs (8080)	86-05-078	5/15/86	5/22/86
			B/N & Acid Semi-vols. (8270)	86-05-078	5/15/86	5/22/86
			Oil and Grease	86-05-072		
			Hydrocarbon Fuels	86-05-072		
HA-5	860033	5/12/86	Halogenated vols. (8010)	86-05-072		
			Aromatic vols. (8020)	86-05-072		
			Pest and PBs (8080)	86-05-078	5/15/86	5/22/86
			P/N & Acid Semi-vols. (8270)	86-05-078	5/15/86	5/22/86
			Oil and Grease	86-05-072		
			Hydrocarbon Fuels	86-05-072		
HA-6	860034	5/12/86	Halogenated vols. (8010)	86-05-072		
			Aromatic vols. (8020)	86-05-072		
			Pest and PCBs (8080)	86-05-078	5/15/86	5/21/86
			B/N & Acid Semi-vols. (8270)	86-05-078	5/15/86	5/21/86
			Oil and Grease	86-05-072		
			Hydrocarbon Fuels	86-05-072		
SB-1-A	860009	1/24/86	Halogenated vols. (8010)	86-01-205		
			Aromatic vols. (8020)	86-01-205		
			Hydrocarbon Fuels	86-01-205		
SB-1-B	860010	1/24/86	EP Ext. and Met.	86-01-206		
			Ignitability	86-01-206		
SB-1-C	860011	1/24/86	Halogenated vols. (8010)	86-01-205		
			Aromatic vols. (8020)	86-01-205		
			Hydrocarbon Fuels	86-01-205		
SB-2-A	860012	1/24/86	Halogenated vols. (8010)	86-01-205		
			Aromatic vols. (8020)	86-01-205		
			Hydrocarbon Fuels	86-01-205		

(Continued)

TABLE A.3-2. (Continued)

Well or Soil Boring Number	OEHL Number	Date Sampled	Analyses Performed	RAS Work Order Number	Date Extracted	Date Analyzed
SB-2-B	860013	1/24/86	Halogenated vols. (8010)	86-01-205		
			Aromatic vols. (8020)	86-01-205		
			Hydrocarbon Fuels	86-01-205		
SB-2-C	860014	1/24/86	Halogenated vols. (8010)	86-01-205		
			Aromatic vols. (8020)	86-01-205		
			Hydrocarbon Fuels	86-01-205		
SB-2-D	860015	1/24/86	EP Ext. and Met.	86-01-206		
			Ignitability	86-01-206		
SB-3-A	860022	1/26/86	Halogenated vols. (8010)	86-01-205	2/14/86	1/29/86
			Aromatic vols. (8020)	86-01-205	2/14/86	1/31/86
			Hydrocarbon Fuels	86-01-205	2/14/86	1/31/86
SB-3-C	860023	1/26/86	EP Ext. and Met.	86-01-206		
			Ignitability	86-01-206		
SB-4-A	860016	1/26/86	Hydrocarbon Fuels	86-01-205		
SB-4-B	860017	1/26/86	Hydrocarbon Fuels	86-01-205		
SB-4-C	860018	1/26/86	EP Ext. and Met.	86-01-206		
			Ignitability	86-01-206		
SB-4-D	860024	1/27/86	Hydrocarbon Fuels	86-01-205		
SB-5	860008	1/23/86	EP Ext. and Met.	86-01-206		
			Ignitability	86-01-206		
SB-6-A	860035	7/21/86	Alpha	86-07-088		
			Beta	86-07-088		
			Gamma	86-07-088		
SB-6-B	860036	7/21/86	Alpha	86-07-088		
			Beta	86-07-088		
			Gamma	86-07-088		
SB-6-C	860037	7/21/86	Alpha	86-07-088		
			Beta	86-07-088		
			Gamma	86-07-088		
SB-6-D	860038	7/21/86	Alpha	86-07-088		
			Beta	86-07-088		
			Gamma	86-07-088		
SB-7-A	860039	7/21/86	Alpha	86-07-088		
			Beta	86-07-088		
			Gamma	86-07-088		
SB-8-A	860040	7/21/86	Alpha	86-07-088		
			Beta	86-07-088		
			Gamma	86-07-088		
SB-9-A	860041	7/22/86	Oil and Grease	86-07-086		
			Hydrocarbon Fuels	86-07-086		
SB-9-B	860042	7/22/86	EP Ext. and Met.	86-07-086		
			Ignitability	86-07-086		
SB-9-C	860043	7/22/86	Oil and Grease	86-07-086		
			Hydrocarbon Fuels	86-07-086		
SB-10-A	860044	7/22/86	Oil and Grease	86-07-086		
			Hydrocarbon Fuels	86-07-086		

(Continued)

TABLE A.3-2. (Continued)

Well or Soil Boring Number	OEHL Number	Date Sampled	Analyses Performed	RAS Work Order Number	Date Extracted	Date Analyzed
SB-10-B	860045	7/22/86	EP Ext. and Met.	86-07-086		
			Ignitability	86-07-086		
SB-11-A	860046	7/24/86	Alpha	86-07-095		
			Beta	86-07-095		
			Gamma	86-07-095		
SB-11-B	860047	7/24/86	Alpha	86-07-095		
			Beta	86-07-095		
			Gamma	86-07-095		
SB-11-C	860048	7/24/86	Alpha	86-07-095		
			Beta	86-07-095		
			Gamma	86-07-095		
HM-100-A	860001	1/20/86	Hydrocarbon Fuels	86-01-205		
HM-100-B	860002	1/20/86	Hydrocarbon Fuels	86-01-205		
HM-100-C	860003	1/20/86	Hydrocarbon Fuels	86-01-205		
			Halogenated vols. (8010)	86-01-205		
HM-103-A	860004	1/21/86	Aromatic vols. (8020)	86-01-205		
			Chromium	86-01-205		
HM-103-B	860005	1/21/86	Halogenated vols. (8010)	86-01-205		
			Aromatic vols. (8020)	86-01-205		
			Chromium	86-01-205		
HM-103-C	860006	1/21/86	EP Ext. and Met.	86-01-206		
			Ignitability	86-01-206		
HM-104-A	860007	1/22/86	EP Ext. and Met.	86-01-206		
			Ignitability	86-01-206		
HM-105	860053	8/11/86	Oil and Grease	86-08-058		
			Hydrocarbon Fuels	86-08-058		
HM-105	860054	8/11/86	EP Ext. and Met.	86-08-058		
			Ignitability	86-08-058		
HM-106-A	860019	1/26/86	Methyl ethyl ketone	9/8/86 memo		
			Xylene	86-01-205		
			Oil and Grease	86-01-205		
HM-106-B	860020	1/26/86	EP Ext. and Met.	86-01-206		
			Ignitability	86-01-206		
HM-106-C	860021	1/26/86	Methyl ethyl ketone	9/8/86 memo		
			Xylene	86-01-205		
			Oil and Grease	86-01-205		
HM-107	860049	8/11/86	Oil and Grease	86-08-058		
			Hydrocarbon Fuels	86-08-058		
HM-107	860050	8/11/86	EP Ext. and Met.	86-08-058		
			Ignitability	86-08-058		
HM 108	860051	8/11/86	Oil and Grease	86-08-058		
			Hydrocarbon Fuels	86-08-058		
HM-108	860052	8/11/86	EP Ext. and Met.	86-08-058		
			Ignitability	86-08-058		

(Continued)

TABLE A.3-2. (Continued)

Well or Soil Boring Number	OEHL Number	Date Sampled	Analyses Performed	RAS Work Order Number	Date Extracted	Date Analyzed
P-20	860025	2/28/86	EP Ext. and Met.	86-03-008		
			Ignitability	86-03-008		
			Volatiles (8240)	86-03-021		
P-21	860026	2/28/86	EP Ext. and Met.	86-02-008		
			Ignitability	86-03-008		
			Volatiles (8240)	86-03-021		
P-22 mud	860027	3/20/86	EP Ext. and Met.	86-03-176		
			Ignitability	86-09-040		
			Volatiles (8240)	86-03-184		
P-22 water	860027	3/20/86	Halogenated vols. (601)	86-03-176		
			Aromatic vols. (602)	86-03-176		
-23 mud	860028	3/20/86	EP Ext. and Met.	86-03-176		
			Ignitability	86-09-040		
			Volatiles (8240)	86-03-184		

PAGE 1 Analytical Serv REPORT LAB # 86-01-205

RECEIVED: 01/28/86 02/27/86 17:01:58

REPORT TO: Radian
Bl. 4
Austin

ATTEN: Larry French

CLIENT: PLANT4 SAMPLES: 16
COMPANY: Plant 4
FACILITY: Carswell AFB (Gen. Dynamics)

PREPARED BY: Radian Analytical Services
8501 MoPac Blvd.
P.O. Box 9948
Austin, Texas 78766

ATTEN:
PHONE: (512) 454-4797

CERTIFIED BY

CONTACT: CONOVER

WORK ID: soils
TAKEN: PAW
TRANS: PAW
TYPE:
P.O. #: 212-027-27-40
INVOICE: under separate cover

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

7 001

SAMPLE IDENTIFICATION

01	860001
02	860002
03	860003
04	860009
05	860011
06	860012
07	860013
08	860014
09	860016
10	860017
11	860022
12	860004
13	860005
14	860019
15	860021
16	860024

Analytical Serv TEST CODES and NAMES used on this report

CR E	Chromium, ICPES
HC IR	Hydrocarbons in soil
ONG IR	Oil and Grease, Infrared
PREP W	Special Digestion Method
PREP X	Special Digestion Method
SW8010	GC-HECD Halog. Vol. - SW846
SW8020	GC-PID Arom. Vol. - SW846
XYLENE	Xylenes

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
HC_IR ug/g	<4.7	<5.7	<5.1	<5.9	<6.0
PREP_W date complete	02/14/86	02/14/86	02/14/86	02/14/86	02/14/86

TEST CODE default units	Sample 06 (entered units)	Sample 07 (entered units)	Sample 08 (entered units)	Sample 09 (entered units)	Sample 10 (entered units)
HC_IR ug/g	4,600	<6.7	<4.7	<5.1	59,000
PREP_W date complete	02/14/86	02/14/86	02/14/86	02/14/86	02/14/86

TEST CODE default units	Sample 11 (entered units)	Sample 12 (entered units)	Sample 13 (entered units)	Sample 14 (entered units)	Sample 15 (entered units)
CR_E ug/ml		7.4	7.1		
HC_IR ug/g	<5.7				
ONG_IR mg/L				<4.6 ug/g	<6.1 ug/g
PREP_W date complete	02/14/86			02/14/86	02/14/86
PREP_X date complete		02/07/86	02/07/86		

Analytical Serv REPORT

LAB # 86-01-205

RECEIVED: 01/28/86

RESULTS BY TEST

TEST CODE default units	Sample 16 (entered units)
HC_IR ug/g	97.0 %

RECEIVED: 01/28/86 Results by Sample

SAMPLE ID 860009 FRACTION 04B TEST CODE SW8010 NAME GC-HECD Haloq. Vol. - SW846

Date & Time Collected 01/24/86 Category

DATA FILE G DATE INJECTED 01/28/86 ANALYST RP VERIFIED BY MCL

CONC. FACTOR INSTRUMENT q COMPOUNDS DETECTED Q

SCAN	COMPOUND	RESULT
	Chloromethane	ND
	Bromomethane	ND
	Vinyl Chloride	ND
	Chloroethane	ND
	Methylene Chloride	ND
	Trichlorofluoromethane	ND
	1,1-Dichloroethene	ND
	1,1-Dichloroethane	ND
	trans-1,2-Dichloroethene	ND
	Chloroform	ND
	1,2-Dichloroethane	ND
	1,1,1-Trichloroethane	ND
	Carbon Tetrachloride	ND
	Bromodichloromethane	ND
	1,2-Dichloropropane	ND
	trans-1,3-Dichloropropene	ND

SCAN	COMPOUND	RESULT
	Trichloroethene	ND
	Dibromochloromethane	ND
	1,1,2-Trichloroethane	ND
	cis-1,3-Dichloropropene	ND
	2-Chloroethylvinyl Ether	ND
	Bromoform	ND
	1,1,2,2-Tetrachloroethane	ND
	Tetrachloroethylene	ND
	Chlorobenzene	ND
	1,3-Dichlorobenzene	ND
	1,2-Dichlorobenzene	ND
	1,4-Dichlorobenzene	ND

7 004

SAMPLE ID 860009 FRACTION 04B TEST CODE SW8010 NAME GC-HECD Haloq. Vol. - SW846
Date & Time Collected 01/24/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

CORPORATION

PAGE 6 Analytical Serv REPORT LAB # 86-01-205
RECEIVED: 01/28/86 Results by Sample

SAMPLE ID 860009 FRACTION 04C TEST CODE SW8020 NAME GC-PID Arom. Vol. - SW846
Date & Time Collected 01/24/86 Category

DATA FILE D DATE INJECTED 01/30/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT d COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT	SCAN	COMPOUND	RESULT
	Benzene	ND		1,3-Dichlorobenzene	ND
	Toluene	ND		1,2-Dichlorobenzene	ND
	Ethyl Benzene	ND		1,4-Dichlorobenzene	ND

900 4

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

PAGE 7 Analytical Serv REPORT LAB # 86-01-205
RECEIVED: 01/28/86 Results by Sample

SAMPLE ID 860011 FRACTION 05B TEST CODE SW8010 NAME GC-HECD Haloq. Vol. - SW846
Date & Time Collected 01/24/86 Category

DATA FILE G DATE INJECTED 01/28/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT q COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT	SCAN	COMPOUND	RESULT
	Chloromethane	ND		Trichloroethene	ND
	Bromomethane	ND		Dibromochloromethane	ND
	Vinyl Chloride	ND		1,1,2-Trichloroethane	ND
	Chloroethane	ND		cis-1,3-Dichloropropene	ND
	Methylene Chloride	ND		2-Chloroethylvinyl Ether	ND
	Trichlorofluoromethane	ND		Bromoform	ND
	1,1-Dichloroethene	ND		1,1,2,2-Tetrachloroethane	ND
	1,1-Dichloroethane	ND		Tetrachloroethylene	ND
	trans-1,2-Dichloroethene	ND		Chlorobenzene	ND
	Chloroform	ND		1,3-Dichlorobenzene	ND
	1,2-Dichloroethane	ND		1,2-Dichlorobenzene	ND
	1,1,1-Trichloroethane	ND		1,4-Dichlorobenzene	ND
	Carbon Tetrachloride	ND			
	Bromodichloromethane	ND			
	1,2-Dichloropropane	ND			
	trans-1,3-Dichloropropene	ND			

007

SAMPLE ID 860011 FRACTION 05B TEST CODE SW8010 NAME GC-HECD Haloq. Vol. - SW846
Date & Time Collected 01/24/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

800 7

PAGE 9 Analytical Serv REPORT LAB # 86-01-205
RECEIVED: 01/28/86 Results by Sample

SAMPLE ID 860011 FRACTION 05C TEST CODE SW8020 NAME GC-PID Arom. Vol. - SW846
Date & Time Collected 01/24/86 Category

DATA FILE D DATE INJECTED 01/30/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT d COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT	SCAN	COMPOUND	RESULT
	Benzene	ND		1,3-Dichlorobenzene	ND
	Toluene	ND		1,2-Dichlorobenzene	ND
	Ethyl Benzene	ND		1,4-Dichlorobenzene	ND

600 7

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

SAMPLE ID 860012 FRACTION 06B TEST CODE SW8010 NAME GC-HECD Halog. Vol. - SW846
Date & Time Collected 01/24/86 Category

DATA FILE B DATE INJECTED 01/30/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT b COMPOUNDS DETECTED 1

SCAN	COMPOUND	RESULT
	Chloromethane	ND
	Bromomethane	ND
	Vinyl Chloride	ND
	Chloroethane	ND
	Methylene Chloride	ND
	Trichlorofluoromethane	ND
1	1,1-Dichloroethene	11.9
	1,1-Dichloroethane	ND
	trans-1,2-Dichloroethene	ND
	Chloroform	ND
	1,2-Dichloroethane	ND
	1,1,1-Trichloroethane	ND
	Carbon Tetrachloride	ND
	Bromodichloromethane	ND
	1,2-Dichloropropane	ND
	trans-1,3-Dichloropropene	ND

SCAN	COMPOUND	RESULT
	Trichloroethene	ND
	Dibromochloromethane	ND
	1,1,2-Trichloroethane	ND
	cis-1,3-Dichloropropene	ND
	2-Chloroethylvinyl Ether	ND
	Bromoform	ND
	1,1,2,2-Tetrachloroethane	ND
	Tetrachloroethylene	ND
	Chlorobenzene	ND
	1,3-Dichlorobenzene	ND
	1,2-Dichlorobenzene	ND
	1,4-Dichlorobenzene	ND

7 010

PAGE 11 Analytical Serv REPORT LAB # 86-01-205
RECEIVED: 01/28/86 Results by Sample Continued From Above

SAMPLE ID 860012 FRACTION 06B TEST CODE SW8010 NAME GC-HECD Haloq. Vol. - SW846
Date & Time Collected 01/24/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

7 011

RECEIVED: 01/28/86 Results by Sample

SAMPLE ID 860012 FRACTION 06B TEST CODE SW8020 NAME GC-PID Arom. Vol. - SW846
Date & Time Collected 01/24/86 Category

DATA FILE D DATE INJECTED 01/30/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT d COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT	SCAN	COMPOUND	RESULT
	Benzene	ND		1,3-Dichlorobenzene	ND
	Toluene	ND		1,2-Dichlorobenzene	ND
	Ethyl Benzene	ND		1,4-Dichlorobenzene	ND

7 012

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

SAMPLE ID 860013 FRACTION 07B TEST CODE SW8010 NAME GC-HECD Haloq. Vol. - SW846
Date & Time Collected 01/24/86 Category

DATA FILE G DATE INJECTED 01/29/86 ANALYST MCL VERIFIED BY MCL
CONC. FACTOR INSTRUMENT g COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT
	Chloromethane	ND
	Bromomethane	ND
	Vinyl Chloride	ND
	Chloroethane	ND
	Methylene Chloride	ND
	Trichlorofluoromethane	ND
	1,1-Dichloroethene	ND
	1,1-Dichloroethane	ND
	trans-1,2-Dichloroethene	ND
	Chloroform	ND
	1,2-Dichloroethane	ND
	1,1,1-Trichloroethane	ND
	Carbon Tetrachloride	ND
	Bromodichloromethane	ND
	1,2-Dichloropropane	ND
	trans-1,3-Dichloropropene	ND

SCAN	COMPOUND	RESULT
	Trichloroethene	ND
	Dibromochloromethane	ND
	1,1,2-Trichloroethane	ND
	cis-1,3-Dichloropropene	ND
	2-Chloroethylvinyl Ether	ND
	Bromoform	ND
	1,1,2,2-Tetrachloroethane	ND
	Tetrachloroethylene	ND
	Chlorobenzene	ND
	1,3-Dichlorobenzene	ND
	1,2-Dichlorobenzene	ND
	1,4-Dichlorobenzene	ND

SAMPLE ID 860013 FRACTION 07B TEST CODE SW8010 NAME GC-HECD Halog. Vol. - SW846
Date & Time Collected 01/24/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

PAGE 15 Analytical Serv REPORT LAB # 86-01-205
RECEIVED: 01/28/86 Results by Sample

SAMPLE ID 860013 FRACTION 07B TEST CODE SW8020 NAME GC-PID Arom. Vol. - SW846
Date & Time Collected 01/24/86 Category

DATA FILE D DATE INJECTED 01/30/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT d COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT	SCAN	COMPOUND	RESULT
	Benzene	ND		1,3-Dichlorobenzene	ND
	Toluene	ND		1,2-Dichlorobenzene	ND
	Ethyl Benzene	ND		1,4-Dichlorobenzene	ND

7 015

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

CORPORATION

PAGE 16 Analytical Serv REPORT LAB # 86-01-205
RECEIVED: 01/28/86 Results by Sample

SAMPLE ID 860014 FRACTION 08B TEST CODE SW8010 NAME GC-HECD Haloq. Vol. - SW846
Date & Time Collected 01/24/86 Category

DATA FILE G DATE INJECTED 01/29/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT q COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT
	Chloromethane	ND
	Bromomethane	ND
	Vinyl Chloride	ND
	Chloroethane	ND
	Methylene Chloride	ND
	Trichlorofluoromethane	ND
	1,1-Dichloroethene	ND
	1,1-Dichloroethane	ND
	trans-1,2-Dichloroethene	ND
	Chloroform	ND
	1,2-Dichloroethane	ND
	1,1,1-Trichloroethane	ND
	Carbon Tetrachloride	ND
	Bromodichloromethane	ND
	1,2-Dichloropropane	ND
	trans-1,3-Dichloropropene	ND

SCAN	COMPOUND	RESULT
	Trichloroethene	ND
	Dibromochloromethane	ND
	1,1,2-Trichloroethane	ND
	cis-1,3-Dichloropropene	ND
	2-Chloroethylvinyl Ether	ND
	Bromoform	ND
	1,1,2,2-Tetrachloroethane	ND
	Tetrachloroethylene	ND
	Chlorobenzene	ND
	1,3-Dichlorobenzene	ND
	1,2-Dichlorobenzene	ND
	1,4-Dichlorobenzene	ND

SAMPLE ID 860014 FRACTION 08B TEST CODE SW8010 NAME GC-HECD Haloq. Vol. - SW846
Date & Time Collected 01/24/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

7 017

RECEIVED: 01/28/86 Results by Sample

SAMPLE ID 860014 FRACTION 08B TEST CODE SW8020 NAME GC-PID Arom. Vol. - SW846
Date & Time Collected 01/24/86 Category

DATA FILE D DATE INJECTED 01/30/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT d COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT	SCAN	COMPOUND	RESULT
	Benzene	ND		1,3-Dichlorobenzene	ND
	Toluene	ND		1,2-Dichlorobenzene	ND
	Ethyl Benzene	ND		1,4-Dichlorobenzene	ND

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

SAMPLE ID 860022 FRACTION 11B TEST CODE SW8010 NAME GC-HECD Halog. Vol. - SW846
Date & Time Collected 01/26/86 Category

DATA FILE G DATE INJECTED 01/29/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT g COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT
	Chloromethane	ND
	Bromomethane	ND
	Vinyl Chloride	ND
	Chloroethane	ND
	Methylene Chloride	ND
	Trichlorofluoromethane	ND
	1,1-Dichloroethene	ND
	1,1-Dichloroethane	ND
	trans-1,2-Dichloroethene	ND
	Chloroform	ND
	1,2-Dichloroethane	ND
	1,1,1-Trichloroethane	ND
	Carbon Tetrachloride	ND
	Bromodichloromethane	ND
	1,2-Dichloropropane	ND
	trans-1,3-Dichloropropene	ND

SCAN	COMPOUND	RESULT
	Trichloroethene	ND
	Dibromochloromethane	ND
	1,1,2-Trichloroethane	ND
	cis-1,3-Dichloropropene	ND
	2-Chloroethylvinyl Ether	ND
	Bromoform	ND
	1,1,2,2-Tetrachloroethane	ND
	Tetrachloroethylene	ND
	Chlorobenzene	ND
	1,3-Dichlorobenzene	ND
	1,2-Dichlorobenzene	ND
	1,4-Dichlorobenzene	ND

SAMPLE ID 860022 FRACTION 11B TEST CODE SW8010 NAME GC-HECD Haloq. Vol. - SW846
Date & Time Collected 01/26/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

PAGE 21 Analytical Serv REPORT LAB # 86-01-205
RECEIVED: 01/28/86 Results by Sample

SAMPLE ID 860022 FRACTION 11C TEST CODE SW8020 NAME GC-PID Arom. Vol. - SW846
Date & Time Collected 01/26/86 Category

DATA FILE D DATE INJECTED 01/31/86 ANALYST MCL VERIFIED BY MCL
CONC. FACTOR INSTRUMENT d COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT	SCAN	COMPOUND	RESULT
	Benzene	ND		1,3-Dichlorobenzene	ND
	Toluene	ND		1,2-Dichlorobenzene	ND
	Ethyl Benzene	ND		1,4-Dichlorobenzene	ND

7 021

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

KADIAN

PAGE 22 Analytical Serv REPORT LAB # 86-01-205
RECEIVED: 01/28/86 Results by Sample

SAMPLE ID 860004 FRACTION 12B TEST CODE SW8010 NAME GC-HECD Halog. Vol. - SW846
Date & Time Collected 01/21/86 Category

DATA FILE G DATE INJECTED 01/29/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT g COMPOUNDS DETECTED 2

SCAN	COMPOUND	RESULT
	Chloromethane	ND
	Bromomethane	ND
	Vinyl Chloride	ND
	Chloroethane	ND
	Methylene Chloride	ND
	Trichlorofluoromethane	ND
	1,1-Dichloroethene	ND
	1,1-Dichloroethane	ND
1	trans-1,2-Dichloroethene	39.1
	Chloroform	ND
	1,2-Dichloroethane	ND
	1,1,1-Trichloroethane	ND
	Carbon Tetrachloride	ND
	Bromodichloromethane	ND
	1,2-Dichloropropane	ND
	trans-1,3-Dichloropropene	ND
2	Trichloroethene	64.8
	Dibromochloromethane	ND
	1,1,2-Trichloroethane	ND
	cis-1,3-Dichloropropene	ND
	2-Chloroethylvinyl Ether	ND
	Bromoform	ND
	1,1,2,2-Tetrachloroethane	ND
	Tetrachloroethylene	ND
	Chlorobenzene	ND
	1,3-Dichlorobenzene	ND
	1,2-Dichlorobenzene	ND
	1,4-Dichlorobenzene	ND

7 022

SAMPLE ID 860004 FRACTION 12B TEST CODE SW8010 NAME GC-HECD Haloq. Vol. - SW846
Date & Time Collected 01/21/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

Analytical Serv REPORT

LAB # 86-01-205

RECEIVED: 01/28/86

Results by Sample

SAMPLE ID 860004 FRACTION 12C TEST CODE SW8020 NAME GC-PID Arom. Vol. - SW846

Date & Time Collected 01/21/86 Category

DATA FILE D DATE INJECTED 01/31/86 ANALYST MCL VERIFIED BY MCL

CONC. FACTOR INSTRUMENT d COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT	SCAN	COMPOUND	RESULT
	Benzene	ND		1,3-Dichlorobenzene	ND
	Toluene	ND		1,2-Dichlorobenzene	ND
	Ethyl Benzene	ND		1,4-Dichlorobenzene	ND

7 024

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

PAGE 25 Analytical Serv REPORT LAB # 86-01-205
RECEIVED: 01/28/86 Results by Sample

SAMPLE ID 860005 FRACTION 13B TEST CODE SW8010 NAME GC-HECD Halog. Vol. - SW846
Date & Time Collected 01/21/86 Category

DATA FILE G DATE INJECTED 01/29/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT q COMPOUNDS DETECTED 2

SCAN	COMPOUND	RESULT
	Chloromethane	ND
	Bromomethane	ND
	Vinyl Chloride	ND
	Chloroethane	ND
	Methylene Chloride	ND
	Trichlorofluoromethane	ND
	1,1-Dichloroethene	ND
	1,1-Dichloroethane	ND
1	trans-1,2-Dichloroethene	96.2
	Chloroform	ND
	1,2-Dichloroethane	ND
	1,1,1-Trichloroethane	ND
	Carbon Tetrachloride	ND
	Bromodichloromethane	ND
	1,2-Dichloropropane	ND
	trans-1,3-Dichloropropene	ND
2	Trichloroethene	174
	Dibromochloromethane	ND
	1,1,2-Trichloroethane	ND
	cis-1,3-Dichloropropene	ND
	2-Chloroethylvinyl Ether	ND
	Bromoform	ND
	1,1,2,2-Tetrachloroethane	ND
	Tetrachloroethylene	ND
	Chlorobenzene	ND
	1,3-Dichlorobenzene	ND
	1,2-Dichlorobenzene	ND
	1,4-Dichlorobenzene	ND

7 025

SAMPLE ID 860005 FRACTION 13B TEST CODE SW8010 NAME GC-HECD Haloq. Vol. - SW846
Date & Time Collected 01/21/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.

All results reported in ug/kg unless otherwise specified.

ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

SAMPLE ID 860005 FRACTION 13C TEST CODE SW8020 NAME GC-PID Arom. Vol. - SW846
Date & Time Collected 01/21/86 Category

DATA FILE D DATE INJECTED 01/31/86 ANALYST MCL VERIFIED BY MCL
CONC. FACTOR INSTRUMENT d COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT	SCAN	COMPOUND	RESULT
	Benzene	ND		1,3-Dichlorobenzene	ND
	Toluene	ND		1,2-Dichlorobenzene	ND
	Ethyl Benzene	ND		1,4-Dichlorobenzene	ND

7 027

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/kg, unless otherwise specified.

SAMPLE ID 860019 FRACTION 14B TEST CODE XYLENE NAME Xylenes
Date & Time Collected 01/26/86 Category

DATA FILE D DATE INJECTED 01/31/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT d COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT
	p-xylene	ND
	m-xylene	ND
	o-xylene	ND

7 028

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected.

PAGE 29 Analytical Serv REPORT LAB # 86-01-205
RECEIVED: 01/28/86 Results by Sample

SAMPLE ID 860021 FRACTION 15B TEST CODE XYLENE NAME Xylenes
Date & Time Collected 01/26/86 Category

DATA FILE D DATE INJECTED 01/31/86 ANALYST RP VERIFIED BY MCL
CONC. FACTOR INSTRUMENT d COMPOUNDS DETECTED 0

SCAN	COMPOUND	RESULT
	p-xylene	ND
	m-xylene	ND
	o-xylene	ND

7 029

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected.

FRACTION AND TEST CODES FOR WORK NOT REPORTED ELSEWHERE

15C : DUP_NS

CORPORATION

PAGE 1 Analytical Serv REPORT LAB # 86-01-206
RECEIVED: 01/28/86 09/08/86 11:52:54

REPORT TO: Radian
Bl. 4
Austin

ATTEN: Larry French

CLIENT: PLANT4 SAMPLES: 8
COMPANY: Plant 4
FACILITY: Carswell AFB (Gen. Dynamics)

WORK ID: soils, EP tox and ignit.
TAKEN: PAW
TRANS: PAW
TYPE:
P.O. #: 212-027-27-40
INV. #: 7619

PREPARED BY: Radian Analytical Services
8501 MoPac Blvd.
P.O. Box 9948
Austin, Texas 78766

ATTEN:
PHONE: (512) 454-4797

CERTIFIED BY

CONTACT: CONOVER

Duplicate of report of 03/31/86.

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

7 031

SAMPLE IDENTIFICATION

01	860006
02	860007
03	860008
04	860010
05	860015
06	860018
07	860020
08	860023

Analytical Serv TEST CODES and NAMES used on this report

AG E	Silver, ICPES
AS GA	Arsenic, low level
BA E	Barium, ICPES
CD E	Cadmium, ICPES
CR E	Chromium, ICPES
DG3020	Digestion by Method 3020
DG6010	Digestion by Method 6010
EP EXT	RCRA Extraction Procedure
HG CA	Mercury, Cold Vapor
IGNITS	Ignitability-solids
PB GA	Lead, low level
SE GA	Selenium, low level

CORPORATION

PAGE 2 Analytical Serv REPORT LAB # 86-01-206
RECEIVED: 01/28/86 RESULTS BY TEST

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
AG_E ug/ml	0.023	0.015	0.019	0.027	0.017
AS_GA ug/ml	<.003	<.003	<.003	<.003	<.003
BA_E ug/ml	0.20	0.12	0.23	0.046	0.15
CD_E ug/ml	<.002	0.007*	0.005*	<.002	<.002
CR_E ug/ml	0.020*	0.012*	0.009*	0.018*	0.016*
DG3020 date complete	03/06/86	03/06/86	03/06/86	03/06/86	03/06/86
DG6010 date complete	03/13/86	03/13/86	03/13/86	03/13/86	03/13/86
EP_EXT date completed	02/25/86	02/25/86	02/25/86	02/25/86	02/25/86
HG_CA ug/ml	<.0002	0.0004*	<.0002	<.0002	0.0002*
IGNITS yes/no	no	no	no	no	no
PB_GA ug/ml	0.006	0.006	0.003*	0.002*	0.009
SE_GA ug/ml	<.003	<.003	<.003	<.003@	<.003

7-032

CORPORATION

PAGE 3 Analytical Serv REPORT LAB # 86-01-206
RECEIVED: 01/28/86 RESULTS BY TEST

TEST CODE default units	Sample 06 (entered units)	Sample 07 (entered units)	Sample 08 (entered units)
AG_E ug/ml	0.018	0.005*	0.017
AS_GA ug/ml	<.003	<.003	<.003
BA_E ug/ml	0.25	0.031	0.30
CD_E ug/ml	0.003*	0.004*	0.005*
CR_E ug/ml	0.013*	<.005	0.016*
DG3020 date complete	03/06/86	03/06/86	03/06/86
DG6010 date complete	03/13/86	03/13/86	03/13/86
EP_EXT date completed	02/25/86	02/25/86	02/25/86
HG_CA ug/ml	<.0002	<.0002	<.0002
IGNITS yes/no	no	no	no
PB_GA ug/ml	0.010	0.007	0.006
SE_GA ug/ml	<.003	<.003	<.003

CORPORATION

PAGE 1 Analytical Serv REPORT LAB # 86-03-008
RECEIVED: 03/03/86 09/08/86 11:53:53

REPORT TO: Radian
Bl. 4
Austin

ATTEN: Larry French

CLIENT: PLANT4 SAMPLES: 2
COMPANY: Plant 4
FACILITY: Carswell AFB (Gen. Dynamics)

WORK ID: EP and ignitability
TAKEN: PAW
TRANS: PAW
TYPE:
P.O. #: 212-027-27-40
INV. #: 7891

PREPARED BY: Radian Analytical Services
8501 MoPac Blvd.
P.O. Box 9948
Austin, Texas 78766
ATTEN:
PHONE: (512) 454-4797

CERTIFIED BY

CONTACT: CONOVER

Duplicate of report of 05/12/86.

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

7 034

SAMPLE IDENTIFICATION

01 860025
02 860026

Analytical Serv TEST CODES and NAMES used on this report

EP EXT RCRA Extraction Procedure
EP MET RCRA Metals
IGNITS Ignitability-solids

CORPORATION

PAGE 2 Analytical Serv REPORT LAB # 86-03-008
RECEIVED: 03/03/86 RESULTS BY TEST

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)
EP_EXT date completed	03/25/86	03/25/86
IGNITS yes/no	no	no

CORPORATION

PAGE 3 Analytical Serv REPORT LAB # 86-03-008
RECEIVED: 03/03/86 Results by Sample

SAMPLE ID 860025 FRACTION 01C TEST CODE EP MET NAME RCRA Metals
Date & Time Collected 02/28/86 Category

DATE ANALYZED 04/25/86 VERIFIED BY GCL

CODE	METAL	RESULT	CODE	METAL	RESULT
AG	Silver	0.039	AS	Arsenic	1.6
BA	Barium	18	HG	Mercury	3.7
CD	Cadmium	3.2	PB	Lead	0.18
CR	Chromium	0.031	SE	Selenium	2.1

7 036

NOTES AND DEFINITIONS FOR THIS REPORT

All results reported in ug/ml unless otherwise specified.
NA = not analyzed
* = less that 5 times the detection limit.
All elements determined by ICPES except Hg.

CORPORATION

PAGE 4 Analytical Serv REPORT LAB # 86-03-008
RECEIVED: 03/03/86 Results by Sample

SAMPLE ID 860026 FRACTION 02C TEST CODE EP MET NAME RCRA Metals
Date & Time Collected 02/28/86 Category

DATE ANALYZED 04/25/86 VERIFIED BY GCL

CODE	METAL	RESULT	CODE	METAL	RESULT
AG	Silver	0.014	AS	Arsenic	<.06
BA	Barium	0.72	HG	Mercury	0.10
CD	Cadmium	0.077	PB	Lead	<.08
CR	Chromium	0.017*	SE	Selenium	<.08

4 034

NOTES AND DEFINITIONS FOR THIS REPORT

All results reported in ug/ml unless otherwise specified.
NA = not analyzed
* = less that 5 times the detection limit.
All elements determined by ICPES except Hg.

CORPORATION

PAGE 1 Analytical Serv REPORT LAB # 86-03-021

RECEIVED: 03/04/86 12/18/86 14:23:18

REPORT TO: Radian Corporation
Larry French
Austin, Texas

ATTEN:

CLIENT: PLANT 4 SAMPLES: 8
COMPANY: General Dynamics
FACILITY: OEHL Plant 4, Bldg 4
Austin, Texas

WORK ID: Plant 4
TAKEN: 2/28/86 and 3-1-86
TRANS: Fed Ex 736746446
TYPE: H20 and Soil
P.O. #: 212-027-27-40
INV. #: 7678

PREPARED BY: Radian Analytical Services
8501 MoPac Blvd.
P.O. Box 9948
Austin, Texas 78766

ATTEN:
PHONE: (512) 454-4797

CERTIFIED BY

CONTACT FRENCH

Duplicate of report of 04/11/86.

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

7 038

SAMPLE IDENTIFICATION

01	860213 H20
02	860214 H20
03	860215 H20
04	860216 H20
05	Reagent Blank
06	860025 H2o VOA Soil
07	860026 VOA Soil
08	Reagent Blank VOA

Analytical Serv TEST CODES and NAMES used on this report

EX 625	Extraction only - 625 BN/A
IFB VS	VOA Screen by IFB method
M625 A	Method 625 Acid Compounds
M625 B	Method 625 Base/Neutrals
MS 608	Pesticides & PCBs by GC/MS
SW8240	GCMS Volatiles - SW846

CORPORATION

PAGE 2 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 RESULTS BY TEST

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
EX_625 date complete	03/05/86	03/05/86	03/05/86	03/05/86	03/05/86

TEST CODE default units	Sample 06 (entered units)	Sample 07 (entered units)
IFB_VS date complete	03/06/86	03/06/86

CORPORATION

PAGE 3 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860213 H20 FRACTION 01A TEST CODE M625 A NAME Method 625 Acid Compounds
Date & Time Collected 03/01/86 Category

DATA FILE 5CU03021C01 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 1 DATE INJECTED 03/24/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

7 040

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
375	AS1	d5-phenol	65
270	AS2	2-fluorophenol	70
971	AS3	2,4,6-tribromophenol	70
	AS4	d3-phenol	

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/l unless otherwise specified.

SAMPLE ID 860213 H20 FRACTION 01A TEST CODE M625 A NAME Method 625 Acid Compounds
Date & Time Collected 03/01/86 Category

ND = not detected at EPA detection limit method 625, (Federal Register, 11/26/84).
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 5 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860213 H20 FRACTION 01A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected 03/01/86 Category

DATA FILE 5CU03021C01 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 1 DATE INJECTED 03/24/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B		66B	bis(2-ethylhexyl)phthalate	ND
36B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B		68B	di-butyl phthalate	ND
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B		70B	diethyl phthalate	ND
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
27B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene B	ND

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PAGE 6 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample Continued From Above

SAMPLE ID 860213 H20 FRACTION 01A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected 03/01/86 Category

14B	41B	4-bromophenyl phenyl ether	ND	8B	79B	benzo(ghi)perylene	ND
12B	42B	bis(2-chloroisopropyl)ether	ND	32B	80B	fluorene	ND
10B	43B	bis(2-chloroethoxy)methane	ND	44B	81B	phenanthrene B	ND
34B	52B	hexachlorobutadiene	ND	19B	82B	dibenzo(a,h)anthracene	ND
35B	53B	hexachlorocyclopentadiene	ND	37B	83B	indeno(1,2,3-cd)pyrene	ND
38B	54B	isophorone	ND	45B	84B	pyrene	ND
39B	55B	naphthalene	ND				
40B	56B	nitrobenzene	ND				

SURROGATE RECOVERIES

SCAN	CODE	RESULT	
493	BS1	d5-nitrobenzene	39
750	BS2	2-fluorobiphenyl	36
1328	BS3	d14-terphenyl	53
	BS4	d10-biphenyl	

7 043

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.
All results reported in ug/l unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 10/26/84).
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = benzo(a)anthracene and chrysene co-elute in high concentrations.

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PAGE 7 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample Continued From Above

SAMPLE ID 860213 H2O FRACTION 01A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected 03/01/86 Category

B = anthracene and phenanthrene co-elute in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 8 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860213 H20 FRACTION 01A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 03/01/86 Category

DATA FILE 5CU03021C01 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR DATE INJECTED 03/24/86 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1P		89P	aldrin	ND	2P		102P	alpha BHC	ND
10P		90P	dieldrin	ND	3P		103P	beta BHC	ND
6P		91P	chlordane	ND	4P		104P	gamma BHC	ND
7P		92P	4,4'-DDT	ND	5P		105P	delta BHC	ND
8P		93P	4,4'-DDE	ND	18P		106P	PCB-1242	ND
9P		94P	4,4'-DDD	ND	19P		107P	PCB-1254	ND
11P		95P	alpha endosulfan	ND	20P		108P	PCB-1221	ND
12P		96P	beta endosulfan	ND	21P		109P	PCB-1232	ND
14P		97P	endosulfan sulfate	ND	22P		110P	PCB-1248	ND
14P		98P	endrin	ND	23P		111P	PCB-1260	ND
15P		99P	endrin aldehyde	ND	24P		112P	PCB-1016	ND
16P		100P	heptachlor	ND	25P		113P	toxaphene	ND
17P		101P	heptachlor epoxide	ND					

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PAGE 9 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample Continued From Above

SAMPLE ID 860213 H20 FRACTION 01A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 03/01/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number on chromatogram.
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

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PAGE 10 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860214 H20 FRACTION 02A TEST CODE M625 A NAME Method 625 Acid Compounds
Date & Time Collected 03/01/86 Category

DATA FILE 5CU3021C02 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 1 DATE INJECTED 03/24/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

7 047

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
376	AS1	d5-phenol	63
272	AS2	2-fluorophenol	69
972	AS3	2,4,6-tribromophenol	83
	AS4	d3-phenol	

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/l unless otherwise specified.

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PAGE 11 | Analytical Serv | REPORT | LAB # 86-03-021
RECEIVED: 03/04/86 | Results by Sample | Continued From Above

SAMPLE ID 860214 H20 _____ FRACTION 02A TEST CODE M625 A NAME Method 625 Acid Compounds
Date & Time Collected 03/01/86 _____ Category _____

ND = not detected at EPA detection limit method 625, (Federal Register, 11/26/84).
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 12 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860214 H20 FRACTION 02A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected 03/01/86 Category

DATA FILE 5CU0302\1C02 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC FACTOR 1 DATE INJECTED 03/24/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B		66B	bis(2-ethylhexyl)phthalate	ND
36B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B		68B	di-butyl phthalate	ND
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B		70B	diethyl phthalate	ND
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
27B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene B	ND

SAMPLE ID 860214 H20 FRACTION 02A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected 03/01/86 Category

14B	41B	4-bromophenyl phenyl ether	ND	8B	79B	benzo(ghi)perylene	ND
12B	42B	bis(2-chloroisopropyl)ether	ND	32B	80B	fluorene	ND
10B	43B	bis(2-chloroethoxy)methane	ND	44B	81B	phenanthrene B	ND
34B	52B	hexachlorobutadiene	ND	19B	82B	dibenzo(a,h)anthracene	ND
35B	53B	hexachlorocyclopentadiene	ND	37B	83B	indeno(1,2,3-cd)pyrene	ND
38B	54B	isophorone	ND	45B	84B	pyrene	ND
39B	55B	naphthalene	ND				
40B	56B	nitrobenzene	ND				

SURROGATE RECOVERIES

SCAN	CODE		RESULT
492	BS1	d5-nitrobenzene	57
751	BS2	2-fluorobiphenyl	56
972	BS3	d14-terphenyl	71
	BS4	d10-biphenyl	

7 050

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.
All results reported in ug/l unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 10/26/84).
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = benzo(a)anthracene and chrysene co-elute in high concentrations.

SAMPLE ID 860214 H20 FRACTION 02A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected 03/01/86 Category

B = anthracene and phenanthrene co-elute in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 15 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860214 H20 FRACTION 02A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 03/01/86 Category

DATA FILE 5CU03021C02 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR DATE INJECTED 03/24/86 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1P		89P	aldrin	ND	2P		102P	alpha BHC	ND
10P		90P	dieldrin	ND	3P		103P	beta BHC	ND
6P		91P	chlordane	ND	4P		104P	gamma BHC	ND
7P		92P	4,4'-DDT	ND	5P		105P	delta BHC	ND
8P		93P	4,4'-DDE	ND	18P		106P	PCB-1242	ND
9P		94P	4,4'-DDD	ND	19P		107P	PCB-1254	ND
11P		95P	alpha endosulfan	ND	20P		108P	PCB-1221	ND
12P		96P	beta endosulfan	ND	21P		109P	PCB-1232	ND
14P		97P	endosulfan sulfate	ND	22P		110P	PCB-1248	ND
14P		98P	endrin	ND	23P		111P	PCB-1260	ND
15P		99P	endrin aldehyde	ND	24P		112P	PCB-1016	ND
16P		100P	heptachlor	ND	25P		113P	toxaphene	ND
17P		101P	heptachlor epoxide	ND					

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PAGE 16 | Analytical Serv | REPORT | LAB # 86-03-021
RECEIVED: 03/04/86 | Results by Sample | Continued From Above

SAMPLE ID 860214 H20 FRACTION 02A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 03/01/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number on chromatogram.
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

7 053

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PAGE 17 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860215 H20 FRACTION 03A TEST CODE M625 A NAME Method 625 Acid Compounds
Date & Time Collected 03/01/86 Category

DATA FILE 5CU03021C03 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 1 DATE INJECTED 03/24/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

7 054

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
376	AS1	d5-phenol	34
270	AS2	2-fluorophenol	52
972	AS3	2,4,6-tribromophenol	49
	AS4	d3-phenol	

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/l unless otherwise specified.

SAMPLE ID 860215 H20 FRACTION 03A TEST CODE M625 A NAME Method 625 Acid Compounds
Date & Time Collected 03/01/86 Category

ND = not detected at EPA detection limit method 625, (Federal Register, 11/26/84).
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 19 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860215 H20 FRACTION 03A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected 03/01/86 Category

DATA FILE 5CU03021C03 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 1 DATE INJECTED 03/24/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B		66B	bis(2-ethylhexyl)phthalate	ND
36B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B		68B	di-butyl phthalate	ND
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B		70B	diethyl phthalate	ND
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
27B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene B	ND

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PAGE 20 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample Continued From Above

SAMPLE ID 860215 H2O FRACTION 03A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected 03/01/86 Category

14B	41B	4-bromophenyl phenyl ether	ND	8B	79B	benzo(ghi)perylene	ND
12B	42B	bis(2-chloroisopropyl)ether	ND	32B	80B	fluorene	ND
10B	43B	bis(2-chloroethoxy)methane	ND	44B	81B	phenanthrene B	ND
34B	52B	hexachlorobutadiene	ND	19B	82B	dibenzo(a,h)anthracene	ND
35B	53B	hexachlorocyclopentadiene	ND	37B	83B	indeno(1,2,3-cd)pyrene	ND
38B	54B	isophorone	ND	45B	84B	pyrene	ND
39B	55B	naphthalene	ND				
40B	56B	nitrobenzene	ND				

SURROGATE RECOVERIES

SCAN	CODE	RESULT	
497	BS1	d5-nitrobenzene	14
751	BS2	2-fluorobiphenyl	32
1328	BS3	d14-terphenyl	78
	BS4	d10-biphenyl	

7 057

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.
All results reported in ug/l unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 10/26/84).
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = benzo(a)anthracene and chrysene co-elute in high concentrations.

SAMPLE ID 860215 H2O FRACTION 03A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected 03/01/86 Category

B = anthracene and phenanthrene co-elute in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 22 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860215 H20 FRACTION 03A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 03/01/86 Category

DATA FILE 5CU03021C03 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR DATE INJECTED 03/24/86 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1P		89P	aldrin	ND	2P		102P	alpha BHC	ND
10P		90P	dieldrin	ND	3P		103P	beta BHC	ND
6P		91P	chlordane	ND	4P		104P	gamma BHC	ND
7P		92P	4,4'-DDT	ND	5P		105P	delta BHC	ND
8P		93P	4,4'-DDE	ND	18P		106P	PCB-1242	ND
9P		94P	4,4'-DDD	ND	19P		107P	PCB-1254	ND
11P		95P	alpha endosulfan	ND	20P		108P	PCB-1221	ND
12P		96P	beta endosulfan	ND	21P		109P	PCB-1232	ND
14P		97P	endosulfan sulfate	ND	22P		110P	PCB-1248	ND
14P		98P	endrin	ND	23P		111P	PCB-1260	ND
15P		99P	endrin aldehyde	ND	24P		112P	PCB-1016	ND
16P		100P	heptachlor	ND	25P		113P	toxaphene	ND
17P		101P	heptachlor epoxide	ND					

7 059

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PAGE 23 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample Continued From Above

SAMPLE ID 860215 H20 FRACTION 03A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 03/01/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number on chromatogram.
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

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PAGE 24 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860216 H20 FRACTION 04A TEST CODE M625 A NAME Method 625 Acid Compounds
Date & Time Collected 03/01/86 Category

DATA FILE 5CU03021C04 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 1 DATE INJECTED 03/24/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

7 061

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
375	AS1	d5-phenol	44
270	AS2	2-fluorophenol	53
972	AS3	2,4,6-tribromophenol	53
	AS4	d3-phenol	

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/l unless otherwise specified.

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PAGE 25 | Analytical Serv | REPORT | LAB # 86-03-021
RECEIVED: 03/04/86 | Results by Sample | Continued From Above

SAMPLE ID 860216 H20 FRACTION 04A TEST CODE M625 A NAME Method 625 Acid Compounds
Date & Time Collected 03/01/86 Category

ND = not detected at EPA detection limit method 625, (Federal Register, 11/26/84).
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 26 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860216 H20 FRACTION 04A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected 03/01/86 Category

DATA FILE 5CU03021C04 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC FACTOR 1 DATE INJECTED 03/24/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B		66B	bis(2-ethylhexyl)phthalate	ND
36B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B		68B	di-butyl phthalate	ND
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B		70B	diethyl phthalate	ND
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
27B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene B	ND

SAMPLE ID 860216 H20 FRACTION 04A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected 03/01/86 Category

14B	41B	4-bromophenyl phenyl ether	ND	8B	79B	benzo(ghi)perylene	ND
12B	42B	bis(2-chloroisopropyl)ether	ND	32B	80B	fluorene	ND
10B	43B	bis(2-chloroethoxy)methane	ND	44B	81B	phenanthrene B	ND
34B	52B	hexachlorobutadiene	ND	19B	82B	dibenzo(a,h)anthracene	ND
35B	53B	hexachlorocyclopentadiene	ND	37B	83B	indeno(1,2,3-cd)pyrene	ND
38B	54B	isophorone	ND	45B	84B	pyrene	ND
39B	55B	naphthalene	ND				
40B	56B	nitrobenzene	ND				

SURROGATE RECOVERIES

SCAN	CODE	RESULT	
491	BS1	d5-nitrobenzene	18
750	BS2	2-fluorobiphenyl	53
1327	BS3	d14-terphenyl	64
	BS4	d10-biphenyl	

7 064

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.
All results reported in ug/l unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 10/26/84).
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = benzo(a)anthracene and chrysene co-elute in high concentrations.

CORPORATION

PAGE 28 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample Continued From Above

SAMPLE ID 860216 H20 FRACTION 04A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected 03/01/86 Category

B = anthracene and phenanthrene co-elute in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 29 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860216 H20 FRACTION 04A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 03/01/86 Category

DATA FILE 5CU03021C04 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR DATE INJECTED 03/24/86 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1P		89P	aldrin	ND	2P		102P	alpha BHC	ND
10P		90P	dieldrin	ND	3P		103P	beta BHC	ND
6P		91P	chlordane	ND	4P		104P	gamma BHC	ND
7P		92P	4,4'-DDT	ND	5P		105P	delta BHC	ND
8P		93P	4,4'-DDE	ND	18P		106P	PCB-1242	ND
9P		94P	4,4'-DDD	ND	19P		107P	PCB-1254	ND
11P		95P	alpha endosulfan	ND	20P		108P	PCB-1221	ND
12P		96P	beta endosulfan	ND	21P		109P	PCB-1232	ND
14P		97P	endosulfan sulfate	ND	22P		110P	PCB-1248	ND
14P		98P	endrin	ND	23P		111P	PCB-1260	ND
15P		99P	endrin aldehyde	ND	24P		112P	PCB-1016	ND
16P		100P	heptachlor	ND	25P		113P	toxaphene	ND
17P		101P	heptachlor epoxide	ND					

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CORPORATION

PAGE 30 | Analytical Serv | REPORT | LAB # 86-03-021
RECEIVED: 03/04/86 | Results by Sample | Continued From Above

SAMPLE ID 860216 H20 FRACTION 04A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 03/01/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number on chromatogram.
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

CORPORATION

PAGE 31 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID Reagent Blank FRACTION 05A TEST CODE M625 A NAME Method 625 Acid Compounds
Date & Time Collected not specified Category

DATA FILE 2CB03016C18 DATE EXTRACTED 03/05/86 ANALYST WJLL VERIFIED BY LAK
CONC. FACTOR 1 DATE INJECTED 03/19/86 INSTRUMENT f2 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
471	AS1	d5-phenol	87
353	AS2	2-fluorophenol	60
1116	AS3	2,4,6-tribromophenol	72
	AS4	d3-phenol	

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/l unless otherwise specified.

SAMPLE ID Reagent Blank FRACTION 05A TEST CODE M625 A NAME Method 625 Acid Compounds
Date & Time Collected not specified Category

ND = not detected at EPA detection limit method 625, (Federal Register, 11/26/84).
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

SAMPLE ID Reagent Blank FRACTION 05A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected not specified Category

DATA FILE 2CB03016C18 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAM
CONC. FACTOR 1 DATE INJECTED 03/19/86 INSTRUMENT f2 COMPOUNDS DETECTED 1

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B		66B	bis(2-ethylhexyl)phthalate	ND
36B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B	1328	68B	di-butyl phthalate	3
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B		70B	diethyl phthalate	ND
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
27B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene B	ND

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REPORT LAB # 86-03-021

Results by Sample Continued From Above

TEST CODE M625 B NAME Method 625 Base/Neutrals

Date & Time Collected not specified Category

[illegible]	ND	88	79B	benzo(ghi)perylene	ND
[illegible] ether	ND	32B	80B	fluorene	ND
[illegible] methane	ND	44B	81B	phenanthrene B	ND
[illegible]tadiene	ND	19B	82B	dibenzo(a,h)anthracene	ND
[illegible]pentadiene	ND	37B	83B	indeno(1,2,3-cd)pyrene	ND
isophorone	ND	45B	84B	pyrene	ND
naphthalene	ND				
nitrobenzene	ND				

	RESULT
d5-nitrobenzene	91
2-fluorobiphenyl	83
d14-terphenyl	68
d10-biphenyl	

DEFINITIONS FOR THIS REPORT.

- [illegible] scan number or retention time on chromatogram.
- Results reported in ug/l unless otherwise specified.
- ND not detected at EPA detection limit method 625, (Federal Register, 10/26/84).
- benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
- benzo(a)anthracene and chrysene co-elute in high concentrations.

SAMPLE ID Reagent Blank FRACTION 05A TEST CODE M625 B NAME Method 625 Base/Neutrals
Date & Time Collected not specified Category

B - anthracene and phenanthrene co-elute in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC FACTOR indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 36 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID Reagent Blank FRACTION Q5A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected not specified Category

DATA FILE 2CB03021C05 DATE EXTRACTED 03/05/86 ANALYST WJL VERIFIED BY LAK
CONC FACTOR DATE INJECTED 03/19/86 COMPOUNDS DETECTED 0

NPDES	SCAN EPA	COMPOUND	RESULT	NPDES	SCAN EPA	COMPOUND	RESULT
1P	89P	aldrin	ND	2P	102P	alpha BHC	ND
10P	90P	dieldrin	ND	3P	103P	beta BHC	ND
6P	91P	chlordane	ND	4P	104P	gamma BHC	ND
7P	92P	4,4'-DDT	ND	5P	105P	delta BHC	ND
8P	93P	4,4'-DDE	ND	18P	106P	PCB-1242	ND
9P	94P	4,4'-DDD	ND	19P	107P	PCB-1254	ND
11P	95P	alpha endosulfan	ND	20P	108P	PCB-1221	ND
12P	96P	beta endosulfan	ND	21P	109P	PCB-1232	ND
14P	97P	endosulfan sulfate	ND	22P	110P	PCB-1248	ND
14P	98P	endrin	ND	23P	111P	PCB-1260	ND
15P	99P	endrin aldehyde	ND	24P	112P	PCB-1016	ND
16P	100P	heptachlor	ND	25P	113P	toxaphene	ND
17P	101P	heptachlor epoxide	ND				

CORPORATION

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RECEIVED: 03/04/86 | Results by Sample | Continued From Above

SAMPLE ID Reagent Blank FRACTION 05A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected not specified Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number on chromatogram.
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

CORPORATION

PAGE 38 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860025 H2o VOA Soil FRACTION 06A TEST CODE SW8240 NAME GCMS Volatiles - SW846
Date & Time Collected 02/28/86 Category

DATA FILE 4CU03021V06 DATE INJECTED 03/17/86 ANALYST MM VERIFIED BY LAK
CONC. FACTOR 1 INSTRUMENT F4 COMPOUNDS DETECTED 1

NPDES	SCAN	EPA	COMPOUND	RESULT
3V		4V	benzene	ND
6V		6V	carbon tetrachloride	ND
7V		7V	chlorobenzene	ND
15V		10V	1,2-dichloroethane	ND
27V		11V	1,1,1-trichloroethane	ND
14V		13V	1,1-dichloroethane	ND
28V		14V	1,1,2-trichloroethane	ND
23V		15V	1,1,2,2-tetrachloroethane	ND
9V		16V	chloroethane	ND
10V		19V	2-chloroethylvinyl ether	ND
11V		23V	chloroform	ND
16V		29V	1,1-dichloroethylene	ND
26V		30V	1,2-trans-dichloroethylene	ND
17V		32V	1,2-dichloropropane	ND
18V		33V	cis-1,3-dichloropropylene	ND
18V		33V	trans-1,3-dichloropropylene	ND
19V		38V	ethylbenzene	ND
22V	99	44V	methylene chloride	5 BL
21V		45V	methyl chloride	ND
20V		46V	methyl bromide	ND
5V		47V	bromoform	ND
12V		48V	dichlorobromomethane	ND
30V		49V	trichlorofluoromethane	ND
8V		51V	chlorodibromomethane	ND
24V		85V	tetrachloroethylene	ND
25V		86V	toluene	ND
29V		87V	trichloroethylene	ND
31V		88V	vinyl chloride	ND

SAMPLE ID 860025 H2o VOA Soil FRACTION 06A TEST CODE SW8240 NAME GCMS Volatiles - SW846
Date & Time Collected 02/28/86 Category

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
199	VS1	d4-1,1-dichloroethane	98
381	VS2	d8-toluene	102
471	VS3	bromofluorobenzene	92

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 10 ug/kg, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 40 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample

SAMPLE ID 860026 VOA Soil FRACTION 07A TEST CODE SW8240 NAME GCMS Volatiles - SW846
Date & Time Collected 02/28/86 Category

DATA FILE 4CU03021V07 DATE INJECTED 03/17/86 ANALYST MM VERIFIED BY LAK
CONC FACTOR 1 INSTRUMENT F4 COMPOUNDS DETECTED 1

NPDES	SCAN	EPA	COMPOUND	RESULT
3V		4V	benzene	ND
6V		6V	carbon tetrachloride	ND
7V		7V	chlorobenzene	ND
15V		10V	1,2-dichloroethane	ND
27V		11V	1,1,1-trichloroethane	ND
14V		13V	1,1-dichloroethane	ND
28V		14V	1,1,2-trichloroethane	ND
23V		15V	1,1,2,2-tetrachloroethane	ND
9V		16V	chloroethane	ND
10V		19V	2-chloroethylvinyl ether	ND
11V		23V	chloroform	ND
16V		29V	1,1-dichloroethylene	ND
26V		30V	1,2-trans-dichloroethylene	ND
17V		32V	1,2-dichloropropane	ND
18V		33V	cis-1,3-dichloropropylene	ND
18V		33V	trans-1,3-dichloropropylene	ND
19V		38V	ethylbenzene	ND
22V	103	44V	methylene chloride	2 BL
21V		45V	methyl chloride	ND
20V		46V	methyl bromide	ND
5V		47V	bromoform	ND
12V		48V	dichlorobromomethane	ND
30V		49V	trichlorofluoromethane	ND
8V		51V	chlorodibromomethane	ND
24V		85V	tetrachloroethylene	ND
25V		86V	toluene	ND
29V		87V	trichloroethylene	ND
31V		88V	vinyl chloride	ND

SAMPLE ID 860026 VOA Soil FRACTION 07A TEST CODE SW8240 NAME GCMS Volatiles - SW846
Date & Time Collected 02/28/86 Category

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
201	VS1	d4-1,1-dichloroethane	96
382	VS2	d8-toluene	101
471	VS3	bromofluorobenzene	113

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 10 ug/kg, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 42 Analytical Serv REPORT LAB # 86-03-021

RECEIVED: 03/04/86 Results by Sample

SAMPLE ID Reagent Blank VOA FRACTION 08A TEST CODE SW8240 NAME GCMS Volatiles - SW846

Date & Time Collected not specified Category

DATA FILE 4EB0317V000 DATE INJECTED 03/17/86 ANALYST MM VERIFIED BY LAK

CONC. FACTOR 1 INSTRUMENT F4 COMPOUNDS DETECTED 1

NPDES	SCAN	EPA	COMPOUND	RESULT
3V		4V	benzene	ND
6V		6V	carbon tetrachloride	ND
7V		7V	chlorobenzene	ND
15V		10V	1,2-dichloroethane	ND
27V		11V	1,1,1-trichloroethane	ND
14V		13V	1,1-dichloroethane	ND
28V		14V	1,1,2-trichloroethane	ND
23V		15V	1,1,2,2-tetrachloroethane	ND
9V		16V	chloroethane	ND
10V		19V	2-chloroethylvinyl ether	ND
11V		23V	chloroform	ND
16V		29V	1,1-dichloroethylene	ND
26V		30V	1,2-trans-dichloroethylene	ND
17V		32V	1,2-dichloropropane	ND
18V		33V	cis-1,3-dichloropropylene	ND
18V		33V	trans-1,3-dichloropropylene	ND
19V		38V	ethylbenzene	ND
22V	106	44V	methylene chloride	2
21V		45V	methyl chloride	ND
20V		46V	methyl bromide	ND
5V		47V	bromoform	ND
12V		48V	dichlorobromomethane	ND
30V		49V	trichlorofluoromethane	ND
8V		51V	chlorodibromomethane	ND
24V		85V	tetrachloroethylene	ND
25V		86V	toluene	ND
29V		87V	trichloroethylene	ND
31V		88V	vinyl chloride	ND

7 075

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PAGE 43 Analytical Serv REPORT LAB # 86-03-021
RECEIVED: 03/04/86 Results by Sample Continued From Above

SAMPLE ID Reagent Blank VOA FRACTION 08A TEST CODE SW8240 NAME GCMS Volatiles - SW846
Date & Time Collected not specified Category

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
202	VS1	d4-1,1-dichloroethane	99
382	VS2	d8-toluene	98
471	VS3	bromofluorobenzene	95

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 10 ug/kg, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

7 080

FRACTION AND TEST CODES FOR WORK NOT REPORTED ELSEWHERE

01B : DUP_NS
02B : DUP_NS
03B : DUP_NS
04B : DUP_NS

CORPORATION

PAGE 1 | Analytical Serv REPORT | LAB # 86-03-176
RECEIVED: 03/26/86 | 05/20/86 10:26:08

REPORT Radian
TO BI 4
Austin

ATTEN Larry French

CLIENT PLANT4 SAMPLES 3
COMPANY Plant 4
FACILITY Carswell AFB (Gen. Dynamics)

WORK ID mod samples
TAKEN TKW
TRANS TKW
TYPE
P.O. # 212-027-27-40
INVOICE under separate cover

PREPARED BY Radian Analytical Services
8501 MoPac Blvd.
P.O. Box 9948
Austin, Texas 78766

ATTEN
PHONE (512) 454-4797

CERTIFIED BY

CONTACT CONOVER

Second column confirmation performed for EPA 601 on -01

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

SAMPLE IDENTIFICATION

[illegible]

Analytical Serv TEST CODES and NAMES used on this report

EP EXT RCRA Extraction Procedure
EP MET RCRA Metals
GC 601 EPA Method 601/GC
GC 602 EPA Method 602/GC

7 092

CORPORATION

PAGE 2
RECEIVED 03/26/86

Analytical Serv ' REPORT
RESULTS BY TEST

LAB # 86-03-176

TEST CODE Test Result Units	Sample 02 (entered units)	Sample 03 (entered units)
TP EXT Date Completed	04/08/86	04/08/86

7 053

REPORT LAB # 86-03-176

[illegible] by Sample

[illegible] TEST CODE GC 601 NAME EPA Method 601/GC

[illegible] Collected 03/20/86 Category

ANALYST C[illegible] VERIFIED BY MCL

EQUIPMENT [illegible] COMPOUNDS DETECTED 4

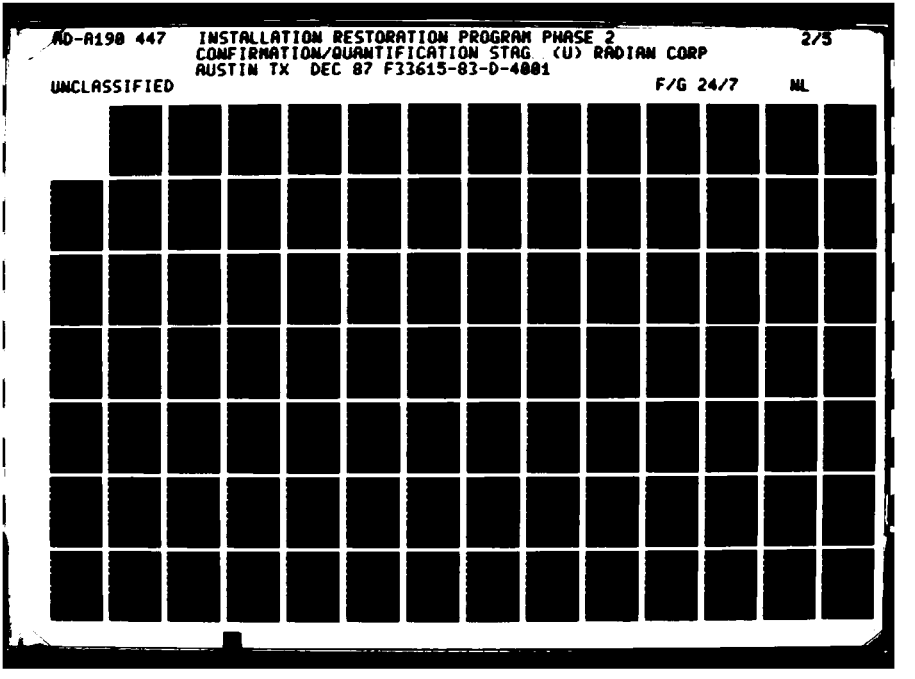
	COMPOUND	RESULT
	Trichloroethene	4.13
	Dibr[illegible]chloromethane *	ND
	[illegible]richloroethane *	ND
	[illegible]chloropropene *	ND
	[illegible]-chloroethyl Ether	ND
	[illegible]	ND
	[illegible] #	ND
	[illegible] #	ND
	[illegible]	ND
	[illegible]	ND
	[illegible]	ND
	[illegible]	ND

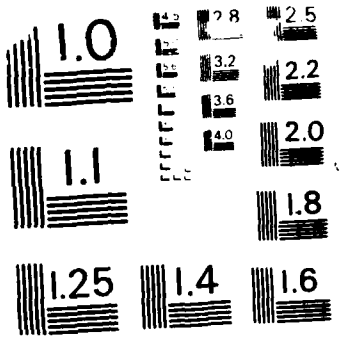
[illegible]

[illegible]

[illegible]

trans-1,3-Dichloropropene ND


AD-A190 447 INSTALLATION RESTORATION PROGRAM PHASE 2 2/5
CONFIRMATION/QUANTIFICATION STAG (U) RADIAN CORP
AUSTIN TX DEC 87 F33615-83-D-4001
UNCLASSIFIED F/G 24/7 NL



CORPORATION

PAGE 4 Analytical Serv REPORT LAB # 86-03-176
RECEIVED: 03/26/86 Results by Sample Continued From Above

SAMPLE ID P-22 water FRACTION 01A TEST CODE GC 601 NAME EPA Method 601/GC
Date & Time Collected 03/20/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT

SCAN = scan number or retention time on chromatogram.
All results reported in ug/l unless otherwise specified.
ND = not detected at EPA detection limit method 601, (Federal Register, 12/3/79).
*Dibromochloromethane, 1,1,2-trichloroethane and cis-1,3-dichloropropene co-elute.
#1,1,2,2-tetrachloroethane and tetrachloroethylene co-elute.

CORPORATION

PAGE 5 Analytical Serv REPORT LAB # 86-03-176
RECEIVED: 03/26/86 Results by Sample

SAMPLE ID P-22 water FRACTION 01B TEST CODE GC 602 NAME EPA Method 602/GC
Date & Time Collected 03/20/86 Category

DATA FILE _ D DATE INJECTED 03/27/86 ANALYST CL VERIFIED BY MCL
CONC. FACTOR 1 INSTRUMENT d COMPOUNDS DETECTED 1

SCAN	COMPOUND	RESULT	SCAN	COMPOUND	RESULT
	Benzene	ND		1,4-Dichlorobenzene	ND
1	Toluene	0.69		1,3-Dichlorobenzene	ND
	Ethyl Benzene	ND		1,2-Dichlorobenzene	ND
	Chlorobenzene	ND			

380 4

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/l unless otherwise specified.
ND = not detected at EPA detection limit method 602, (Federal Register, 12/3/79).

CORPORATION

PAGE 6 Analytical Serv REPORT LAB # 86-03-176
RECEIVED: 03/26/86 Results by Sample

SAMPLE ID P-22 mud FRACTION 02B TEST CODE EP MET NAME RCRA Metals
Date & Time Collected 03/20/86 Category

DATE ANALYZED 05/16/86 VERIFIED BY GCL

CODE	METAL	RESULT	CODE	METAL	RESULT
AG	Silver	0.009*	AS	Arsenic	<.06
BA	Barium	0.099	HG	Mercury	<.0002
CD	Cadmium	0.003*	PB	Lead	<.08
CR	Chromium	0.023*	SE	Selenium	<.08

NOTES AND DEFINITIONS FOR THIS REPORT

All results reported in ug/ml unless otherwise specified.
NA = not analyzed
* = less that 5 times the detection limit.
All elements determined by ICPES except Hg.

7 087

CORPORATION

PAGE 7 Analytical Serv REPORT LAB # 86-03-176
RECEIVED: 03/26/86 Results by Sample

SAMPLE ID P-23 mud FRACTION Q3B TEST CODE EP ME1 NAME RCRA Metals
Date & Time Collected 03/20/86 Category

DATE ANALYZED 05/15/86 VERIFIED BY GCL

CODE	METAL	RESULT	CODE	METAL	RESULT
AG	Silver	0.013	AS	Arsenic	0.06*
BA	Barium	0.15	HG	Mercury	0.0040
CD	Cadmium	0.005*	PB	Lead	<.08
CR	Chromium	0.019*	SE	Selenium	<.08

7 088

NOTES AND DEFINITIONS FOR THIS REPORT

All results reported in ug/ml unless otherwise specified.
NA = not analyzed
* = less that 5 times the detection limit.
All elements determined by ICPES except Hg.

CORPORATION

PAGE 1 Analytical Serv REPORT LAB # 86-03-184
RECEIVED: 03/27/86 04/14/86 05:08:30

REPORT TO: Radian Corporation
Larry French
Austin, Texas

ATTEN:

CLIENT: PLANT 4 SAMPLES: 3
COMPANY: General Dynamics
FACILITY: OEHL Plant 4, Bldg 4
Austin, Texas

WORK ID: Plant 4 Mud Samples
TAKEN: 3/20/86
TRANS: Fed Ex 736755582
TYPE: Mud
P.O. #: 212-027-27-40
INVOICE: under separate cover

PREPARED BY: Radian Analytical Services
8501 MoPac Blvd.
P.O. Box 9948
Austin, Texas 78766

ATTEN:
PHONE: (512) 454-4797

Lucas A Petterson
CERTIFIED BY

CONTACT FRENCH

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

7 089

SAMPLE IDENTIFICATION

01 P-22 VOA Soil
02 P-23 VOA Soil
03 Reagent Blank VOA Soil

Analytical Serv TEST CODES and NAMES used on this report

IFB VS VOA Screen by IFB method
SW8240 GCMS Volatiles - SW846

CORPORATION

PAGE 2 Analytical Serv REPORT LAB # 86-03-184
RECEIVED: 03/27/86 RESULTS BY TEST

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)
IFB_VS date complete	03/27/86	03/27/86

7 090

CORPORATION

PAGE 3 Analytical Serv REPORT LAB # 86-03-184
RECEIVED: 03/27/86 Results by Sample

SAMPLE ID P-22 VOA Soil FRACTION 01A TEST CODE SW8240 NAME GCMS Volatiles - SW846
Date & Time Collected 03/20/86 Category

DATA FILE 4CU03184V01 DATE INJECTED 03/31/86 ANALYST LAK VERIFIED BY LAK
CONC. FACTOR 1 INSTRUMENT f4 COMPOUNDS DETECTED 8

NPDES	SCAN	EPA	COMPOUND	RESULT
3V		4V	benzene	ND
6V		6V	carbon tetrachloride	ND
7V		7V	chlorobenzene	ND
15V	222	10V	1,2-dichloroethane	19
27V	243	11V	1,1,1-trichloroethane	5.3
14V		13V	1,1-dichloroethane	ND
28V		14V	1,1,2-trichloroethane	ND
23V		15V	1,1,2,2-tetrachloroethane	ND
9V		16V	chloroethane	ND
10V		19V	2-chloroethylvinyl ether	ND
11V		23V	chloroform	ND
16V		29V	1,1-dichloroethylene	ND
26V	201	30V	1,2-trans-dichloroethylene	5.4
17V		32V	1,2-dichloropropane	ND
18V		33V	cis-1,3-dichloropropylene	ND
18V		33V	trans-1,3-dichloropropylene	ND
19V	456	38V	ethylbenzene	6
22V	128	44V	methylene chloride	69 BL
21V		45V	methyl chloride	ND
20V		46V	methyl bromide	ND
5V		47V	bromoform	ND
12V		48V	dichlorobromomethane	ND
30V		49V	trichlorofluoromethane	ND
8V		51V	chlorodibromomethane	ND
24V	380	85V	tetrachloroethylene	9.6
25V	402	86V	toluene	470
29V	291	87V	trichloroethylene	1200
31V		88V	vinyl chloride	ND

7 091

CORPORATION

PAGE 4 Analytical Serv REPORT LAB # 86-03-184
RECEIVED: 03/27/86 Results by Sample Continued From Above

SAMPLE ID P-22 VOA Soil FRACTION 01A TEST CODE SW8240 NAME GCMS Volatiles - SW846
Date & Time Collected 03/20/86 Category

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
220	VS1	d4-1,1-dichloroethane	84
399	VS2	d8-toluene	93
501	VS3	bromofluorobenzene	82

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 10 ug/kg, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 5 Analytical Serv REPORT LAB # 86-03-184
RECEIVED: 03/27/86 Results by Sample

SAMPLE ID P-23 VOA Soil FRACTION 02A TEST CODE SW8240 NAME GCMS Volatiles - SW846
Date & Time Collected 03/20/86 Category

DATA FILE 4CR03184V02 DATE INJECTED 04/03/86 ANALYST REM VERIFIED BY LAK
CONC. FACTOR 1 INSTRUMENT f4 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT
3V		4V	benzene	ND
6V		6V	carbon tetrachloride	ND
7V		7V	chlorobenzene	ND
15V		10V	1,2-dichloroethane	ND
27V		11V	1,1,1-trichloroethane	ND
14V		13V	1,1-dichloroethane	ND
28V		14V	1,1,2-trichloroethane	ND
23V		15V	1,1,2,2-tetrachloroethane	ND
9V		16V	chloroethane	ND
10V		19V	2-chloroethylvinyl ether	ND
11V		23V	chloroform	ND
16V		29V	1,1-dichloroethylene	ND
26V		30V	1,2-trans-dichloroethylene	ND
17V		32V	1,2-dichloropropane	ND
18V		33V	cis-1,3-dichloropropylene	ND
18V		33V	trans-1,3-dichloropropylene	ND
19V		38V	ethylbenzene	ND
22V		44V	methylene chloride	ND
21V		45V	methyl chloride	ND
20V		46V	methyl bromide	ND
5V		47V	bromoform	ND
12V		48V	dichlorobromomethane	ND
30V		49V	trichlorofluoromethane	ND
8V		51V	chlorodibromomethane	ND
24V		85V	tetrachloroethylene	ND
25V		86V	toluene	ND
29V		87V	trichloroethylene	ND
31V		88V	vinyl chloride	ND

CORPORATION

PAGE 6 Analytical Serv REPORT LAB # 86-03-184
RECEIVED: 03/27/86 Results by Sample Continued From Above

SAMPLE ID P-23 VOA Soil FRACTION 02A TEST CODE SW8240 NAME GCMS Volatiles - SW846
Date & Time Collected 03/20/86 Category

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
220	VS1	d4-1,1-dichloroethane	84
399	VS2	d8-toluene	93
501	VS3	bromofluorobenzene	82

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 10 ug/kg, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

7 094

CORPORATION

PAGE 7 Analytical Serv REPORT LAB # 86-03-184
RECEIVED: 03/27/86 Results by Sample

SAMPLE ID Reagent Blank VOA Soil FRACTION 03A TEST CODE SW8240 NAME GCMS Volatiles - SW846
Date & Time Collected not specified Category

DATA FILE 4EB0331V000 DATE INJECTED 03/31/86 ANALYST REM VERIFIED BY LAK
CONC. FACTOR 1 INSTRUMENT f4 COMPOUNDS DETECTED 2

NPDES	SCAN	EPA	COMPOUND	RESULT
3V	331	4V	benzene	3 J
6V		6V	carbon tetrachloride	ND
7V		7V	chlorobenzene	ND
15V		10V	1,2-dichloroethane	ND
27V		11V	1,1,1-trichloroethane	ND
14V		13V	1,1-dichloroethane	ND
28V		14V	1,1,2-trichloroethane	ND
23V		15V	1,1,2,2-tetrachloroethane	ND
9V		16V	chloroethane	ND
10V		19V	2-chloroethylvinyl ether	ND
11V		23V	chloroform	ND
16V		29V	1,1-dichloroethylene	ND
26V		30V	1,2-trans-dichloroethylene	ND
17V		32V	1,2-dichloropropane	ND
18V		33V	cis-1,3-dichloropropylene	ND
18V		33V	trans-1,3-dichloropropylene	ND
19V		38V	ethylbenzene	ND
22V	129	44V	methylene chloride	3 J
21V		45V	methyl chloride	ND
20V		46V	methyl bromide	ND
5V		47V	bromoform	ND
12V		48V	dichlorobromomethane	ND
30V		49V	trichlorofluoromethane	ND
8V		51V	chlorodibromomethane	ND
24V		85V	tetrachloroethylene	ND
25V		86V	toluene	ND
29V		87V	trichloroethylene	ND
31V		88V	vinyl chloride	ND

7 093

CORPORATION

PAGE 8 Analytical Serv REPORT LAB # 86-03-184
RECEIVED: 03/27/86 Results by Sample Continued From Above

SAMPLE ID Reagent Blank VOA Soil FRACTION 03A TEST CODE SW8240 NAME GCMS Volatiles - SW846
Date & Time Collected not specified Category

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
221	VS1	d4-1,1-dichloroethane	100
400	VS2	d8-toluene	97
501	VS3	bromofluorobenzene	96

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 10 ug/kg, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

360 4

CORPORATION

Page 1 RAS - Austin REPORT Work Order # 86-05-072

Received: 05/13/86 06/23/86 11:41:11

REPORT TO: Radian
Bl 4
Austin

ATTEN: Larry French

CLIENT: PLANT4 SAMPLES: 6
COMPANY: Plant 4, USAF
FACILITY: General Dynamics

WORK ID: soils
TAKEN: PAW
TRANS: PAW
TYPE:
P O #: 212-027-27-40
INVOICE: under separate cover

PREPARED BY: Radian Analytical Services
8501 Mo-pac Bl.
PO Box 9948
Austin, TX 78751
ATTEN:
PHONE: 512-454-4797

CERTIFIED BY

CONTACT CONOVER

Compounds found in reagent blanks not subtracted out.
Unknown compound eluting near trichloroethene on 8010 split 05
Many unknown compounds present on 8020 split 05.

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

460 7 097

SAMPLE IDENTIFICATION

01	860029
02	860030
03	860031
04	860032
05	860033
06	860034

TEST CODES and NAMES used on this report

HC IR	Hydrocarbons
ONG IR	Oil and grease, infrared
PREP W	Special preparation
SW8010	SW846 halogenated vols.
SW8020	SW846 aromatic volatiles

CORP RATION

Page 2 RAS - Austin REPORT Work Order # 86-05-072
Received: 05/13/86 Results By Test

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
HC_IR mg/L	2600 ug/g	4000 ug/g	3800 ug/g	230 ug/g	14000 ug/g
ONG_IR mg/L	4700 ug/g	5600 ug/g	5600 ug/g	830 ug/g	13000 ug/g
PREP_W date complete	06/10/86	06/10/86	06/10/86	06/10/86	06/10/86

TEST CODE default units	Sample 06 (entered units)
HC_IR mg/L	<6 ug/g
ONG_IR mg/L	<6 ug/g
PREP_W date complete	06/10/86

7 098

SAMPLE ID 860029 FRACTION 01A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

ANALYST CL VERIFIED MCL
INSTRMT B INJECTD 05/14/86 FILE # B UNITS ug/kg

CAS#	COMPOUND	RESULT	DET LIMIT
74-87-3	Chloromethane	ND	1.0
74-83-9	Bromomethane	ND	15
75-01-4	Vinyl chloride	ND	2.3
75-00-3	Chloroethane	ND	6.5
75-09-2	Methylene chloride	ND	3.1
75-69-4	Trichlorofluoromethane	ND	N\A
75-35-4	1,1-Dichloroethene	ND	1.6
75-34-3	1,1-Dichloroethane	ND	0.88
156-60-5	trans-1,2-Dichloroethene	ND	1.3
67-66-3	Chloroform	ND	0.63
107-06-2	1,2-Dichloroethane	ND	0.38
71-55-6	1,1,1-Trichloroethane	20.0	16
56-23-5	Carbon tetrachloride	ND	1.5
75-27-4	Bromodichloromethane	ND	1.3

SAMPLE ID 860029 FRACTION 01A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

CAS#	COMPOUND	RESULT	DET LIMIT
78-87-5	1,2-Dichloropropane	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	4.3
79-01-6	Trichloroethene	ND	7.4
124-48-1	Dibromochloromethane	ND	1.1
79-00-5	1,1,2-Trichloroethane	ND	0.25
10061-01-5	cis-1,3-Dichloropropene	ND	2.5
110-75-8	2-Chloroethylvinyl ether	ND	1.6
75-25-2	Bromoform	ND	2.5
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.38
127-18-4	Tetrachloroethene	ND	4.3
108-90-7	Chlorobenzene	ND	3.1
541-73-1	1,3-Dichlorobenzene	ND	4.0
95-50-1	1,2-Dichlorobenzene	ND	1.9
106-46-7	1,4-Dichlorobenzene	ND	3.0
	SURROGATES		
74-97-5	Bromochloromethane	99	% Recovery
3017-95-6	2-Bromo-1-chloropropane		% Recovery
110-56-5	1-4-Dichlorobutane		% Recovery

7 100

CORPORATION

SAMPLE ID 860029 FRACTION 01A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

460-00-4 1-Bromo-4-fluorobenzene _____ % Recovery

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A= not available

CORPORATION

Page 6 RAS - Austin REPORT Work Order # 86-05-072
Received: 05/13/86 Results by Sample

SAMPLE ID 860029 FRACTION 01B TEST CODE SW8020 NAME SW846 aromatic volatiles
Date & Time Collected 05/12/86 Category

VERIFIED MCL

ANALYST CL FILE # D
INSTRMT D INJECTED 05/24/86 UNITS ug/kg

CAS#	COMPOUND	RESULT	DET LIMIT
71-43-2	Benzene	ND	500
108-88-3	Toluene	ND	500
100-41-4	Ethylbenzene	ND	60
108-90-7	Chlorobenzene	ND	30
106-42-3	p-Xylene	ND	100
108-38-3	m-Xylene	ND	200
95-47-6	o-Xylene	ND	100
106-46-7	1,4-Dichlorobenzene	ND	40
541-73-1	1,3-Dichlorobenzene	ND	50
95-50-1	1,2-Dichlorobenzene	ND	50

SURROGATES

98-08-8	a,a,a-Trifluorotoluene	102% recovery

NOTES AND DEFINITIONS FOR THIS REPORT
DET LIMIT = DETECTION LIMIT

CORPORATION

SAMPLE ID 860029 FRACTION 01B TEST CODE SW8020 NAME SW846 aromatic volatiles
Date & Time Collected 05/12/86 Category

ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

CORPORATION

Page 8 RAS - Austin REPORT Work Order # 86-05-072
Received: 05/13/86 Results by Sample

SAMPLE ID 860030 FRACTION 02A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

ANALYST RP VERIFIED MCL
INSTRMT B INJECTD 05/14/86 FILE # B UNITS ug/kg

CAS#	COMPOUND	RESULT	DET LIMIT
74-87-3	Chloromethane	ND	1.0
74-83-9	Bromomethane	ND	15
75-01-4	Vinyl chloride	ND	2.3
75-00-3	Chloroethane	ND	6.5
75-09-2	Methylene chloride	ND	3.1
75-69-4	Trichlorofluoromethane	ND	N\A
75-35-4	1,1-Dichloroethene	ND	1.6
75-34-3	1,1-Dichloroethane	ND	0.88
156-60-5	trans-1,2-Dichloroethene	ND	1.3
67-66-3	Chloroform	ND	0.63
107-06-2	1,2-Dichloroethane	ND	0.38
71-55-6	1,1,1-Trichloroethane	21.1	16
56-23-5	Carbon tetrachloride	ND	1.5
75-27-4	Bromodichloromethane	ND	1.3

SAMPLE ID 860030 FRACTION 02A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

CAS#	COMPOUND	RESULT	DET LIMIT
78-87-5	1,2-Dichloropropane	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	4.3
79-01-6	Trichloroethene	ND	7.4
124-48-1	Dibromochloromethane	ND	1.1
79-00-5	1,1,2-Trichloroethane	ND	0.25
10061-01-5	cis-1,3-Dichloropropene	ND	2.5
110-75-8	2-Chloroethylvinyl ether	ND	1.6
75-25-2	Bromoform	ND	2.5
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.38
127-18-4	Tetrachloroethene	ND	4.3
108-90-7	Chlorobenzene	ND	3.1
541-73-1	1,3-Dichlorobenzene	ND	4.0
95-50-1	1,2-Dichlorobenzene	ND	1.9
106-46-7	1,4-Dichlorobenzene	ND	3.0
	SURROGATES		
74-97-5	Bromochloromethane	110	% Recovery
3017-95-6	2-Bromo-1-chloropropane		% Recovery
110-56-5	1-4-Dichlorobutane		% Recovery

SAMPLE ID 860030 FRACTION 02A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

460-00-4 1-Bromo-4-fluorobenzene _____ % Recovery

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A= not available

7 106

CORPORATION

Page 11 RAS - Austin REPORT Work Order # 86-05-072
Received: 05/13/86 Results by Sample

SAMPLE ID 860030 FRACTION 02B TEST CODE SW8020 NAME SW846 aromatic volatiles
Date & Time Collected 05/12/86 Category

VERIFIED MCL

ANALYST CL FILE # D
INSTRMT D INJECTED 05/24/86 UNITS ug/kg

CAS#	COMPOUND	RESULT	DET LIMIT
71-43-2	Benzene	ND	500
108-88-3	Toluene	ND	500
100-41-4	Ethylbenzene	ND	60
108-90-7	Chlorobenzene	ND	30
106-42-3	p-Xylene	ND	100
108-38-3	m-Xylene	ND	200
95-47-6	o-Xylene	ND	100
106-46-7	1,4-Dichlorobenzene	ND	40
541-73-1	1,3-Dichlorobenzene	ND	50
95-50-1	1,2-Dichlorobenzene	ND	50

SURROGATES

98-08-8	a,a,a-Trifluorotoluene	92% recovery

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT

SAMPLE ID 860030 FRACTION 02B TEST CODE SW8020 NAME SW846 aromatic volatiles
Date & Time Collected 05/12/86 Category

ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 860031 FRACTION 03A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

ANALYST RP VERIFIED MCL
INSTRMT B FILE # B
INJECTD 05/14/86 UNITS ug/kg

CAS#	COMPOUND	RESULT	DET LIMIT
74-87-3	Chloromethane	ND	1.0
74-83-9	Bromomethane	ND	15
75-01-4	Vinyl chloride	ND	2.3
75-00-3	Chloroethane	ND	6.5
75-09-2	Methylene chloride	ND	3.1
75-69-4	Trichlorofluoromethane	ND	N\A
75-35-4	1,1-Dichloroethene	ND	1.6
75-34-3	1,1-Dichloroethane	ND	0.88
156-60-5	trans-1,2-Dichloroethene	ND	1.3
67-66-3	Chloroform	ND	0.63
107-06-2	1,2-Dichloroethane	ND	0.38
71-55-6	1,1,1-Trichloroethane	22.1	16
56-23-5	Carbon tetrachloride	ND	1.5
75-27-4	Bromodichloromethane	ND	1.3

SAMPLE ID 860031 FRACTION 03A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

CAS#	COMPOUND	RESULT	DET LIMIT
78-87-5	1,2-Dichloropropane	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	4.3
79-01-6	Trichloroethene	ND	7.4
124-48-1	Dibromochloromethane	ND	1.1
79-00-5	1,1,2-Trichloroethane	ND	0.25
10061-01-5	cis-1,3-Dichloropropene	ND	2.5
110-75-8	2-Chloroethylvinyl ether	ND	1.6
75-25-2	Bromoform	ND	2.5
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.38
127-18-4	Tetrachloroethene	ND	4.3
108-90-7	Chlorobenzene	ND	3.1
541-73-1	1,3-Dichlorobenzene	ND	4.0
95-50-1	1,2-Dichlorobenzene	ND	1.9
106-46-7	1,4-Dichlorobenzene	ND	3.0
	SURROGATES		
74-97-5	Bromochloromethane	104	% Recovery
3017-95-6	2-Bromo-1-chloropropane		% Recovery
110-56-5	1-4-Dichlorobutane		% Recovery

CORPORATION

Page 15 RAS - Austin REPORT Work Order # 86-05-072
Received: 05/13/86 Results by Sample Continued From Above

SAMPLE ID 860031 FRACTION 03A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

460-00-4 1-Bromo-4-fluorobenzene _____ % Recovery

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A= not available

7 111

SAMPLE ID 860031 FRACTION 03B TEST CODE SW8020 NAME SW846 aromatic volatiles
Date & Time Collected 05/12/86 Category

VERIFIED MCL

ANALYST CL FILE # D
INSTRMT D INJECTED 05/24/86 UNITS ug/kg

CAS#	COMPOUND	RESULT	DET LIMIT
71-43-2	Benzene	ND	500
108-88-3	Toluene	ND	500
100-41-4	Ethylbenzene	ND	60
108-90-7	Chlorobenzene	ND	30
106-42-3	p-Xylene	ND	100
108-38-3	m-Xylene	ND	200
95-47-6	o-Xylene	ND	100
106-46-7	1,4-Dichlorobenzene	ND	40
541-73-1	1,3-Dichlorobenzene	ND	50
95-50-1	1,2-Dichlorobenzene	ND	50

SURROGATES

98-08-8	a,a,a-Trifluorotoluene	102% recovery

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT

SAMPLE ID 860031 FRACTION 03B TEST CODE SW8020 NAME SW846 aromatic volatiles
Date & Time Collected 05/12/86 Category

ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 860032 FRACTION 04A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

ANALYST RP VERIFIED MCL
INSTRMT B INJECTD 05/14/86 FILE # B UNITS ug/kg

CAS#	COMPOUND	RESULT	DET LIMIT
74-87-3	Chloromethane	ND	1.0
74-83-9	Bromomethane	ND	15
75-01-4	Vinyl chloride	ND	2.3
75-00-3	Chloroethane	ND	6.5
75-09-2	Methylene chloride	ND	3.1
75-69-4	Trichlorofluoromethane	ND	N\A
75-35-4	1,1-Dichloroethene	ND	1.6
75-34-3	1,1-Dichloroethane	ND	0.88
156-60-5	trans-1,2-Dichloroethene	ND	1.3
67-66-3	Chloroform	ND	0.63
107-06-2	1,2-Dichloroethane	ND	0.38
71-55-6	1,1,1-Trichloroethane	ND	16
56-23-5	Carbon tetrachloride	ND	1.5
75-27-4	Bromodichloromethane	ND	1.3

SAMPLE ID 860032 FRACTION 04A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

CAS#	COMPOUND	RESULT	DET LIMIT
78-87-5	1,2-Dichloropropane	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	4.3
79-01-6	Trichloroethene	ND	7.4
124-48-1	Dibromochloromethane	ND	1.1
79-00-5	1,1,2-Trichloroethane	ND	0.25
10061-01-5	cis-1,3-Dichloropropene	ND	2.5
110-75-8	2-Chloroethylvinyl ether	ND	1.6
75-25-2	Bromoform	ND	2.5
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.38
127-18-4	Tetrachloroethene	ND	4.3
108-90-7	Chlorobenzene	ND	3.1
541-73-1	1,3-Dichlorobenzene	ND	4.0
95-50-1	1,2-Dichlorobenzene	ND	1.9
106-46-7	1,4-Dichlorobenzene	ND	3.0
	SURROGATES		
74-97-5	Bromochloromethane	92	% Recovery
3017-95-6	2-Bromo-1-chloropropane		% Recovery
110-56-5	1-4-Dichlorobutane		% Recovery

SAMPLE ID 860032 FRACTION 04A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

460-00-4 1-Bromo-4-fluorobenzene _____ % Recovery

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A= not available

SAMPLE ID 860032 FRACTION 04B TEST CODE SW8020 NAME SW846 aromatic volatiles
Date & Time Collected 05/12/86 Category

VERIFIED MCL

ANALYST CL FILE # D
INSTRMT D INJECTED 05/24/86 UNITS ug/kg

CAS#	COMPOUND	RESULT	DET LIMIT
71-43-2	Benzene	ND	500
108-88-3	Toluene	ND	500
100-41-4	Ethylbenzene	ND	60
108-90-7	Chlorobenzene	ND	30
106-42-3	p-Xylene	ND	100
108-38-3	m-Xylene	ND	200
95-47-6	o-Xylene	ND	100
106-46-7	1,4-Dichlorobenzene	ND	40
541-73-1	1,3-Dichlorobenzene	ND	50
95--50-1	1,2-Dichlorobenzene	ND	50

SURROGATES

98-08-8	a,a,a-Trifluorotoluene	100% recovery

NOTES AND DEFINITIONS FOR THIS REPORT
DET LIMIT = DETECTION LIMIT

SAMPLE ID 860032 FRACTION 04B TEST CODE SW8020 NAME SW846 aromatic volatiles
Date & Time Collected 05/12/86 Category

ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

CORPORATION

Page 23 RAS - Austin REPORT Work Order # 86-05-072

Received: 05/13/86 Results by Sample

SAMPLE ID 860033 FRACTION 05A TEST CODE SW8010 NAME SW846 halogenated vols.

Date & Time Collected 05/12/86 Category

VERIFIED MCL

ANALYST RP FILE # B

INSTRMT B INJECTD 05/14/86 UNITS ug/kg

CAS#	COMPOUND	RESULT	DET LIMIT
74-87-3	Chloromethane	ND	1.0
74-83-9	Bromomethane	ND	15
75-01-4	Vinyl chloride	ND	2.3
75-00-3	Chloroethane	ND	6.5
75-09-2	Methylene chloride	ND	3.1
75-69-4	Trichlorofluoromethane	ND	N\A
75-35-4	1,1-Dichloroethene	ND	1.6
75-34-3	1,1-Dichloroethane	ND	0.88
156-60-5	trans-1,2-Dichloroethene	ND	1.3
67-66-3	Chloroform	ND	0.63
107-06-2	1,2-Dichloroethane	ND	0.38
71-55-6	1,1,1-Trichloroethane	ND	16
56-23-5	Carbon tetrachloride	ND	1.5
75-27-4	Bromodichloromethane	ND	1.3

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SAMPLE ID 860033 FRACTION 05A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

CAS#	COMPOUND	RESULT	DET LIMIT
78-87-5	1,2-Dichloropropane	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	4.3
79-01-6	Trichloroethene	ND	7.4
124-48-1	Dibromochloromethane	ND	1.1
79-00-5	1,1,2-Trichloroethane	ND	0.25
10061-01-5	cis-1,3-Dichloropropene	ND	2.5
110-75-8	2-Chloroethylvinyl ether	ND	1.6
75-25-2	Bromoform	ND	2.5
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.38
127-18-4	Tetrachloroethene	ND	4.3
108-90-7	Chlorobenzene	ND	3.1
541-73-1	1,3-Dichlorobenzene	ND	4.0
95-50-1	1,2-Dichlorobenzene	ND	1.9
106-46-7	1,4-Dichlorobenzene	ND	3.0
	SURROGATES		
74-97-5	Bromochloromethane	92	% Recovery
3017-95-6	2-Bromo-1-chloropropane		% Recovery
110-56-5	1-4-Dichlorobutane		% Recovery

SAMPLE ID 860033 FRACTION 05A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

460-00-4 1-Bromo-4-fluorobenzene _____ % Recovery

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A= not available

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SAMPLE ID 860033 FRACTION 05B TEST CODE SW8020 NAME SW846 aromatic volatiles
Date & Time Collected 05/12/86 Category

VERIFIED MCL

ANALYST MCL
INSTRMT D
FILE #
INJECTED 05/24/86
UNITS ug/kg

CAS#	COMPOUND	RESULT	DET LIMIT
71-43-2	Benzene	ND	50000
108-88-3	Toluene	ND	50000
100-41-4	Ethylbenzene	ND	6000
108-90-7	Chlorobenzene	ND	3000
106-42-3	p-Xylene	ND	10000
108-38-3	m-Xylene	ND	20000
95-47-6	o-Xylene	ND	10000
106-46-7	1,4-Dichlorobenzene	ND	4000
541-73-1	1,3-Dichlorobenzene	ND	5000
95-50-1	1,2-Dichlorobenzene	ND	5000

SURROGATES

98-08-8	a,a,a-Trifluorotoluene	87% recovery

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT

SAMPLE ID 860033 FRACTION 05B TEST CODE SW8020 NAME SW846 aromatic volatiles
Date & Time Collected 05/12/86 Category

ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 860034 FRACTION 06A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

ANALYST RP VERIFIED MCL
INSTRMT B INJECTD 05/14/86 FILE # B UNITS ug/kg

CAS#	COMPOUND	RESULT	DET LIMIT
74-87-3	Chloromethane	ND	1.0
74-83-9	Bromomethane	ND	15
75-01-4	Vinyl chloride	ND	2.3
75-00-3	Chloroethane	ND	6.5
75-09-2	Methylene chloride	ND	3.1
75-69-4	Trichlorofluoromethane	ND	N\A
75-35-4	1,1-Dichloroethene	ND	1.6
75-34-3	1,1-Dichloroethane	ND	0.88
156-60-5	trans-1,2-Dichloroethene	ND	1.3
67-66-3	Chloroform	ND	0.63
107-06-2	1,2-Dichloroethane	ND	0.38
71-55-6	1,1,1-Trichloroethane	ND	22
56-23-5	Carbon tetrachloride	ND	1.5
75-27-4	Bromodichloromethane	ND	1.3

CORPORATION

Page 29 RAS - Austin REPORT Work Order # 86-05-072
Received: 05/13/86 Results by Sample Continued From Above

SAMPLE ID 860034 FRACTION 06A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

CAS#	COMPOUND	RESULT	DET LIMIT
78-87-5	1,2-Dichloropropane	ND	0.50
10061-02-6	trans-1,3-Dichloropropene	ND	4.3
79-01-6	Trichloroethene	ND	13
124-48-1	Dibromochloromethane	ND	1.1
79-00-5	1,1,2-Trichloroethane	ND	0.25
10061-01-5	cis-1,3-Dichloropropene	ND	2.5
110-75-8	2-Chloroethylvinyl ether	ND	1.6
75-25-2	Bromoform	ND	2.5
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.38
127-18-4	Tetrachloroethene	ND	4.0
108-90-7	Chlorobenzene	ND	3.1
541-73-1	1,3-Dichlorobenzene	ND	4.0
95-50-1	1,2-Dichlorobenzene	ND	1.9
106-46-7	1,4-Dichlorobenzene	ND	3.0
	SURROGATES		
74-97-5	Bromochloromethane	114	% Recovery
3017-95-6	2-Bromo-1-chloropropane		% Recovery
110-56-5	1-4-Dichlorobutane		% Recovery

SAMPLE ID 860034 FRACTION 06A TEST CODE SW8010 NAME SW846 halogenated vols.
Date & Time Collected 05/12/86 Category

460-00-4 1-Bromo-4-fluorobenzene _____ % Recovery

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A= not available

SAMPLE ID 860034 FRACTION 06B TEST CODE SW8020 NAME SW846 aromatic volatiles
Date & Time Collected 05/12/86 Category

VERIFIED MCL

ANALYST CL FILE # D
INSTRMT D INJECTED 05/24/86 UNITS ug/kg

CAS#	COMPOUND	RESULT	DET LIMIT
71-43-2	Benzene	ND	500
108-88-3	Toluene	ND	500
100-41-4	Ethylbenzene	ND	60
108-90-7	Chlorobenzene	ND	30
106-42-3	p-Xylene	ND	100
108-38-3	m-Xylene	ND	200
95-47-6	o-Xylene	ND	100
106-46-7	1,4-Dichlorobenzene	ND	40
541-73-1	1,3-Dichlorobenzene	ND	50
95-50-1	1,2-Dichlorobenzene	ND	50

SURROGATES

98-08-8	a,a,a-Trifluorotoluene	99% recovery

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT

SAMPLE ID 860034 FRACTION 06B TEST CODE SW8020 NAME SW846 aromatic volatiles
Date & Time Collected 05/12/86 Category

ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

CORPORATION

PAGE 1 Analytical Serv REPORT LAB # 86-05-078

RECEIVED: 05/14/86 06/20/86 15:06:28

REPORT TO: Radian Corporation
Larry French
Austin, Texas

ATTEN:

CLIENT: PLANT 4 SAMPLES: 10
COMPANY: General Dynamics
FACILITY: OEHL Plant 4, Bldg 4
Austin, Texas

WORK ID: Plant 4 FDTA 6
TAKEN: 5/12/86
TRANS: Fed Ex 736772696
TYPE: Soil
P.O. #: 212-027-27-40
INVOICE: under separate cover

PREPARED BY: Radian Analytical Services
8501 MoPac Blvd.
P.O. Box 9948
Austin, Texas 78766

ATTEN:
PHONE: (512) 454-4797

CERTIFIED BY

CONTACT FRENCH

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

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SAMPLE IDENTIFICATION

01	860029 Soil
02	860030 Soil
03	860031 Soil
04	860032 Soil
05	860033 Soil
06	860034 Soil
07	860032 Matrix Spike BNA
08	860034 Duplicate Analysis
09	Reagent Blank BNA
10	Method Spike BNA

Analytical Serv TEST CODES and NAMES used on this report

DRY WT	Dry weight of solid sample
IFB BS	BNA Screen by IFB method
MS 608	Pesticides & PCBs by GC/MS
SW827A	GCMS Acid Semivol-SW846
SW827B	GCMS B/N Semivol-SW846
SW846E	Extraction for SW-846 8270

CORPORATION

PAGE 2 Analytical Serv REPORT LAB # 86-05-078
RECEIVED 05/14/86 RESULTS BY TEST

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
DRY_WT % moisture	8	10	9	18	17
IFB_BS date complete	05/14/86	05/14/86	05/14/86	05/14/86	05/14/86
SW846E date completed	05/15/86	05/15/86	05/15/86	05/15/86	05/15/86

TEST CODE default units	Sample 06 (entered units)	Sample 07 (entered units)	Sample 08 (entered units)	Sample 09 (entered units)	Sample 10 (entered units)
DRY_WT % moisture	18				
IFB_BS date complete	05/14/86				
SW846E date completed	05/15/86	05/15/86	05/15/86	05/15/86	05/15/86

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CORPORATION

PAGE 3 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860029 Soil FRACTION 01A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 05/12/86 Category

DATA FILE 5CU05079C01 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC FACTOR DATE INJECTED 05/22/86 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1P		89P	aldrin	ND	2P		102P	alpha BHC	ND
10P		90P	dieldrin	ND	3P		103P	beta BHC	ND
6P		91P	chlordane	ND	4P		104P	gamma BHC	ND
7P		92P	4,4'-DDT	ND	5P		105P	delta BHC	ND
8P		93P	4,4'-DDE	ND	18P		106P	PCB-1242	ND
9P		94P	4,4'-DDD	ND	19P		107P	PCB-1254	ND
11P		95P	alpha endosulfan	ND	20P		108P	PCB-1221	ND
12P		96P	beta endosulfan	ND	21P		109P	PCB-1232	ND
14P		97P	endosulfan sulfate	ND	22P		110P	PCB-1248	ND
14P		98P	endrin	ND	23P		111P	PCB-1260	ND
15P		99P	endrin aldehyde	ND	24P		112P	PCB-1016	ND
16P		100P	heptachlor	ND	25P		113P	toxaphene	ND
17P		101P	heptachlor epoxide	ND					

CORPORATION

PAGE 4 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860029 Soil FRACTION 01A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 05/12/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT
SCAN = scan number on chromatogram
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

CORPORATION

PAGE 5 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860029 Soil FRACTION 01A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected 05/12/86 Category

DATA FILE 5CU05078C01 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC FACTOR 37 DATE INJECTED 05/22/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
379	AS1	d5-phenol	55
272	AS2	2-fluorophenol	45
923	AS3	2,4,6-tribromophenol	130
	AS4	d3-phenol	

CORPORATION

PAGE 6 | Analytical Serv | REPORT | LAB # 86-05-078
RECEIVED: 05/14/86 | Results by Sample | Continued From Above

SAMPLE ID 860029 Soil | FRACTION 01A | TEST CODE SW827A | NAME GCMS Acid Semivol-SW846
Date & Time Collected 05/12/86 | Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 7 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860029 Soil FRACTION 01A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

DATA FILE 5CU05078C01 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC FACTOR 1.7 DATE INJECTED 05/22/86 INSTRUMENT 5100 COMPOUNDS DETECTED 1

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B	1520	66B	bis(2-ethylhexyl)phthalate	2500
36B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B		68B	di-butyl phthalate	ND
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B		70B	diethyl phthalate	ND
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
27B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene	ND

CORPORATION

PAGE 8 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860029 Soil FRACTION 01A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

14B	41B	4-bromophenyl phenyl ether	ND	8B	79B	benzo(ghi)perylene	ND
12B	42B	bis(2-chloroisopropyl)ether	ND	32B	80B	fluorene	ND
10B	43B	bis(2-chloroethoxy)methane	ND	44B	81B	phenanthrene B	ND
34B	52B	hexachlorobutadiene	ND	19B	82B	dibenzo(a,h)anthracene	ND
35B	53B	hexachlorocyclopentadiene	ND	37B	83B	indeno(1,2,3-cd)pyrene	ND
38B	54B	isophorone	ND	45B	84B	pyrene	ND
39B	55B	naphthalene	ND				
40B	56B	nitrobenzene	ND				

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
496	BS1	d5-nitrobenzene	97
760	BS2	2-fluorobiphenyl	100
1339	BS3	d14-terphenyl	55
	BS4	d10-biphenyl	

7 1 (3)

NOTES AND DEFINITIONS FOR THIS REPORT

SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = enzo(a)anthracene and chryseneco-elute i igh concentrations.

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PAGE 9 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860029 Soil FRACTION 01A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

B = anthracene and phenanthrene co-elutetogether in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 10 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860030 Soil FRACTION 02A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 05/12/86 Category

DATA FILE 5CU05078C02 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR DATE INJECTED 05/22/86 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1P		89P	aldrin	ND	2P		102P	alpha BHC	ND
10P		90P	dieldrin	ND	3P		103P	beta BHC	ND
6P		91P	chlordane	ND	4P		104P	gamma BHC	ND
7P		92P	4,4'-DDT	ND	5P		105P	delta BHC	ND
8P		93P	4,4'-DDE	ND	18P		106P	PCB-1242	ND
9P		94P	4,4'-DDD	ND	19P		107P	PCB-1254	ND
11P		95P	alpha endosulfan	ND	20P		108P	PCB-1221	ND
12P		96P	beta endosulfan	ND	21P		109P	PCB-1232	ND
14P		97P	endosulfan sulfate	ND	22P		110P	PCB-1248	ND
14P		98P	endrin	ND	23P		111P	PCB-1260	ND
15P		99P	endrin aldehyde	ND	24P		112P	PCB-1016	ND
16P		100P	heptachlor	ND	25P		113P	toxaphene	ND
17P		101P	heptachlor epoxide	ND					

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PAGE 11 | Analytical Serv | REPORT | LAB # 86-05-078
RECEIVED: 05/14/86 | Results by Sample | Continued From Above

SAMPLE ID 860030 Soil | FRACTION 02A | TEST CODE MS 608 | NAME Pesticides & PCBs by GC/MS
Date & Time Collected 05/12/86 | Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number on chromatogram.
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

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PAGE 12 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860030 Soil FRACTION 02A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected 05/12/86 Category

DATA FILE 5CU05078C02 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC FACTOR 36 DATE INJECTED 05/22/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
334	AS1	d5-phenol	50
281	AS2	2-fluorophenol	42
582	AS3	2,4,6-tribromophenol	123
	AS4	d3-phenol	

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PAGE 13 | Analytical Serv | REPORT | LAB # 86-05-078
RECEIVED: 05/14/86 | Results by Sample | Continued From Above

SAMPLE ID 860030 Soil | FRACTION 02A | TEST CODE SW827A | NAME GCMS Acid Semivol-SW846
Date & Time Collected 05/12/86 | Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 14 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860030 Soil FRACTION 02A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

DATA FILE 5CU050/8C02 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC FACTOR 36 DATE INJECTED 05/22/86 INSTRUMENT 5100 COMPOUNDS DETECTED 3

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B	1522	66B	bis(2-ethylhexyl)phthalate	3100
34B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B	1191	68B	di-butyl phthalate	950
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B	538	70B	diethyl phthalate	220
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
27B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene B	ND

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PAGE 15 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860030 Soil FRACTION 02A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

14B	41B	4-bromophenyl phenyl ether	ND	8B	79B	benzo(ghi)perylene	ND
12B	42B	bis(2-chloroisopropyl)ether	ND	32B	80B	fluorene	ND
10B	43B	bis(2-chloroethoxy)methane	ND	44B	81B	phenanthrene B	ND
34B	52B	hexachlorobutadiene	ND	19B	82B	dibenzo(a,h)anthracene	ND
35B	53B	hexachlorocyclopentadiene	ND	37B	83B	indeno(1,2,3-cd)pyrene	ND
38B	54B	isophorone	ND	45B	84B	pyrene	ND
39B	55B	naphthalene	ND				
40B	56B	nitrobenzene	ND				

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
498	BS1	d5-nitrobenzene	70
761	BS2	2-fluorobiphenyl	114
1339	BS3	d14-terphenyl	50
	BS4	d10-biphenyl	

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NOTES AND DEFINITIONS FOR THIS REPORT

SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = benzo(a)anthracene and chryseneco-elute i[illegible]igh concentrations.

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PAGE 16 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860030 Soil FRACTION 02A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

B = anthracene and phenanthrene co-elutetogether in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 17 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860031 Soil FRACTION 03A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 05/12/86 Category

DATA FILE SCU05078C03 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC FACTOR DATE INJECTED 05/22/86 COMPOUNDS DETECTED 0

NPDES	SCAN EPA	COMPOUND	RESULT	NPDES	SCAN EPA	COMPOUND	RESULT
1P	89P	aldrin	ND	2P	102P	alpha BHC	ND
10P	90P	dieldrin	ND	3P	103P	beta BHC	ND
6P	91P	chlordane	ND	4P	104P	gamma BHC	ND
7P	92P	4,4'-DDT	ND	5P	105P	delta BHC	ND
8P	93P	4,4'-DDE	ND	18P	106P	PCB-1242	ND
9P	94P	4,4'-DDD	ND	19P	107P	PCB-1254	ND
11P	95P	alpha endosulfan	ND	20P	108P	PCB-1221	ND
12P	96P	beta endosulfan	ND	21P	109P	PCB-1232	ND
14P	97P	endosulfan sulfate	ND	22P	110P	PCB-1248	ND
14P	98P	endrin	ND	23P	111P	PCB-1260	ND
15P	99P	endrin aldehyde	ND	24P	112P	PCB-1016	ND
16P	100P	heptachlor	ND	25P	113P	toxaphene	ND
17P	101P	heptachlor epoxide	ND				

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PAGE 18 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860031 Soil FRACTION 03A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 05/12/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number on chromatogram.
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

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PAGE 19 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860031 Soil FRACTION 03A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected 05/12/86 Category

DATA FILE SCU05078C03 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC FACTOR 37 DATE INJECTED 05/22/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
383	AS1	d5-phenol	62
281	AS2	2-fluorophenol	44
983	AS3	2,4,6-tribromophenol	122
	AS4	d3-phenol	

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PAGE 20 | Analytical Serv | REPORT | LAB # 86-05-078
RECEIVED: 05/14/86 | Results by Sample | Continued From Above

SAMPLE ID 860031 Soil | FRACTION 03A | TEST CODE SW827A | NAME GCMS Acid Semivol-SW846
Date & Time Collected 05/12/86 | Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 21 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860031 Soil FRACTION 03A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

DATA FILE SCU05078C03 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 37 DATE INJECTED 05/22/86 INSTRUMENT 5100 COMPOUNDS DETECTED 1

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B		66B	bis(2-ethylhexyl)phthalate	ND
36B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B	1191	68B	di-butyl phthalate	1500
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B		70B	diethyl phthalate	ND
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
27B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene P	ND

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SAMPLE ID 860031 Soil FRACTION 03A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

14B	41B	4-bromophenyl phenyl ether	ND	8B	79B	benzo(ghi)perylene	ND
12B	42B	bis(2-chloroisopropyl)ether	ND	32B	80B	fluorene	ND
10B	43B	bis(2-chloroethoxy)methane	ND	44B	81B	phenanthrene B	ND
34B	52B	hexachlorobutadiene	ND	19B	82B	dibenzo(a,h)anthracene	ND
35B	53B	hexachlorocyclopentadiene	ND	37B	83B	indeno(1,2,3-cd)pyrene	ND
38B	54B	isophorone	ND	45B	84B	pyrene	ND
39B	55B	naphthalene	ND				
40B	56B	nitrobenzene	ND				

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
498	BS1	d5-nitrobenzene	80
761	BS2	2-fluorobiphenyl	109
1339	BS3	d14-terphenyl	63
	BS4	d10-biphenyl	

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NOTES AND DEFINITIONS FOR THIS REPORT

SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = enzo(a)anthracene and chryseneco-elute i igh concentrations.

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PAGE 23 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860031 Soil FRACTION 03A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

B = anthracene and phenanthrene co-elutetogether in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 24 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860032 Soil FRACTION 04A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 05/12/86 Category

DATA FILE SCU05078C04 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR DATE INJECTED 05/22/86 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1P		89P	aldrin	ND	2P		102P	alpha BHC	ND
10P		90P	dieldrin	ND	3P		103P	beta BHC	ND
6P		91P	chlordane	ND	4P		104P	gamma BHC	ND
7P		92P	4,4'-DDT	ND	5P		105P	delta BHC	ND
8P		93P	4,4'-DDE	ND	18P		106P	PCB-1242	ND
9P		94P	4,4'-DDD	ND	19P		107P	PCB-1254	ND
11P		95P	alpha endosulfan	ND	20P		108P	PCB-1221	ND
12P		96P	beta endosulfan	ND	21P		109P	PCB-1232	ND
14P		97P	endosulfan sulfate	ND	22P		110P	PCB-1248	ND
14P		98P	endrin	ND	23P		111P	PCB-1260	ND
15P		99P	endrin aldehyde	ND	24P		112P	PCB-1016	ND
16P		100P	heptachlor	ND	25P		113P	toxaphene	ND
17P		101P	heptachlor epoxide	ND					

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PAGE 25 | Analytical Serv | REPORT | LAB # 86-05-078
RECEIVED: 05/14/86 | Results by Sample | Continued From Above

SAMPLE ID 860032 Soil | FRACTION 04A | TEST CODE MS 608 | NAME Pesticides & PCBs by GC/MS
Date & Time Collected 05/12/86 | Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number on chromatogram.
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

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PAGE 26 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860032 Soil FRACTION 04A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected 05/12/86 Category

DATA FILE 5CU05078C04 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 39 DATE INJECTED 05/22/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

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SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
330	AS1	d5-phenol	71
274	AS2	2-fluorophenol	71
981	AS3	2,4,6-tribromophenol	106
	AS4	d3-phenol	

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PAGE 27 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860032 Soil FRACTION 04A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected 05/12/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 28 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860032 Soil FRACTION 04A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

DATA FILE SCU05078C04 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 39 DATE INJECTED 05/22/86 INSTRUMENT 5100 COMPOUNDS DETECTED 2

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B	1520	66B	bis(2-ethylhexyl)phthalate	150
36B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B	1189	68B	di-butyl phthalate	100
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B		70B	diethyl phthalate	ND
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
27B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene P	ND

SAMPLE ID 860032 Soil FRACTION 04A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

14B	41B	4-bromophenyl phenyl ether	ND	8B	79B	benzo(ghi)perylene	ND
12B	42B	bis(2-chloroisopropyl)ether	ND	32B	80B	fluorene	ND
10B	43B	bis(2-chloroethoxy)methane	ND	44B	81B	phenanthrene B	ND
34B	52B	hexachlorobutadiene	ND	19B	82B	dibenzo(a,h)anthracene	ND
35B	53B	hexachlorocyclopentadiene	ND	37B	83B	indeno(1,2,3-cd)pyrene	ND
38B	54B	isophorone	ND	45B	84B	pyrene	ND
39B	55B	naphthalene	ND				
40B	56B	nitrobenzene	ND				

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SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
497	BS1	d5-nitrobenzene	61
760	BS2	2-fluorobiphenyl	104
1337	BS3	d14-terphenyl	71
	BS4	d10-biphenyl	

NOTES AND DEFINITIONS FOR THIS REPORT

SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = enzo(a)anthracene and chryseneco-elute i igh concentrations.

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PAGE 30 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860032 Soil FRACTION 04A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

B = anthracene and phenanthrene co-elutetogether in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 31 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860033 Soil FRACTION 05A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 05/12/86 Category

DATA FILE 5CU05078C05 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR DATE INJECTED 05/22/86 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1P		89P	aldrin	ND	2P		102P	alpha BHC	ND
10P		90P	dieldrin	ND	3P		103P	beta BHC	ND
6P		91P	chlordane	ND	4P		104P	gamma BHC	ND
7P		92P	4,4'-DDT	ND	5P		105P	delta BHC	ND
8P		93P	4,4'-DDE	ND	18P		106P	PCB-1242	ND
9P		94P	4,4'-DDD	ND	19P		107P	PCB-1254	ND
11P		95P	alpha endosulfan	ND	20P		108P	PCB-1221	ND
12P		96P	beta endosulfan	ND	21P		109P	PCB-1232	ND
14P		97P	endosulfan sulfate	ND	22P		110P	PCB-1248	ND
14P		98P	endrin	ND	23P		111P	PCB-1260	ND
15P		99P	endrin aldehyde	ND	24P		112P	PCB-1016	ND
16P		100P	heptachlor	ND	25P		113P	toxaphene	ND
17P		101P	heptachlor epoxide	ND					

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PAGE 32 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860033 Soil FRACTION 05A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 05/12/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number on chromatogram.
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

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PAGE 33 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860033 Soil FRACTION 05A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected 05/12/86 Category

DATA FILE 5CU05078C05 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 120 DATE INJECTED 05/22/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
333	AS1	d5-phenol	88
279	AS2	2-fluorophenol	65
982	AS3	2,4,6-tribromophenol	90
	AS4	d3-phenol	

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PAGE 34 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860033 Soil FRACTION 05A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected 05/12/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 35 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860033 Soil FRACTION 05A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

DATA FILE 5CU05078C05 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 120 DATE INJECTED 05/22/86 INSTRUMENT 5100 COMPOUNDS DETECTED 3

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B		66B	bis(2-ethylhexyl)phthalate	ND
36B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B	1190	68B	di-butyl phthalate	710
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B		70B	diethyl phthalate	ND
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
37B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene B	ND

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PAGE 36 | Analytical Serv | REPORT | LAB # 86-05-078
RECEIVED: 05/14/86 | Results by Sample | Continued From Above

SAMPLE ID 860033 Soil | FRACTION 05A | TEST CODE SW827B | NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 | Category

14B		41B	4-bromophenyl phenyl ether	ND	8B		79B	benzo(ghi)perylene	ND
12B		42B	bis(2-chloroisopropyl)ether	ND	32B		80B	fluorene	ND
10B		43B	bis(2-chloroethoxy)methane	ND	44B	1089	81B	phenanthrene B	830
34B		52B	hexachlorobutadiene	ND	19B		82B	dibenzo(a,h)anthracene	ND
35B		53B	hexachlorocyclopentadiene	ND	37B		83B	indeno(1,2,3-cd)pyrene	ND
38B		54B	isophorone	ND	45B		84B	pyrene	ND
39B	599	55B	naphthalene	2300					
40B		56B	nitrobenzene	ND					

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SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
498	BS1	d5-nitrobenzene	111
761	BS2	2-fluorobiphenyl	132
1337	BS3	d14-terphenyl	61
	BS4	d10-biphenyl	

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = enzo(a)anthracene and chryseneco-elute i igh concentrations.

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PAGE 37 | Analytical Serv | REPORT | LAB # 86-05-078
RECEIVED: 05/14/86 | Results by Sample | Continued From Above

SAMPLE ID 860033 Soil | FRACTION 05A | TEST CODE SW827B | NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 | Category

B = anthracene and phenanthrene co-elutetogether in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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Analytical Serv REPORT LAB # 86-05-078

RECEIVED 05/14/86 Results by Sample

SAMPLE ID 860034 Soil FRACTION 06A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS

Date & Time Collected 05/12/86 Category

DATA FILE SCU05078C06 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK

CONC FACTOR DATE INJECTED 05/21/86 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1P		89P	aldrin	ND	2P		102P	alpha BHC	ND
10P		90P	dieldrin	ND	3P		103P	beta BHC	ND
6P		91P	chlordane	ND	4P		104P	gamma BHC	ND
7P		92P	4,4'-DDT	ND	5P		105P	delta BHC	ND
8P		93P	4,4'-DDE	ND	18P		106P	PCB-1242	ND
9P		94P	4,4'-DDD	ND	19P		107P	PCB-1254	ND
11P		95P	alpha endosulfan	ND	20P		108P	PCB-1221	ND
12P		96P	beta endosulfan	ND	21P		109P	PCB-1232	ND
14P		97P	endosulfan sulfate	ND	22P		110P	PCB-1248	ND
14P		98P	endrin	ND	23P		111P	PCB-1260	ND
15P		99P	endrin aldehyde	ND	24P		112P	PCB-1016	ND
16P		100P	heptachlor	ND	25P		113P	toxaphene	ND
17P		101P	heptachlor epoxide	ND					

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PAGE 39 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860034 Soil FRACTION 06A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected 05/12/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number on chromatogram.
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

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PAGE 40 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860034 Soil FRACTION 06A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected 05/12/86 Category

DATA FILE 5CU05078C06 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 41 DATE INJECTED 05/21/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
331	AS1	d5-phenol	55
281	AS2	2-fluorophenol	25
981	AS3	2,4,6-tribromophenol	58
	AS4	d3-phenol	

SAMPLE ID 860034 Soil FRACTION 06A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected 05/12/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 42 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860034 Soil FRACTION 06A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

DATA FILE 5CU05078C06 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 41 DATE INJECTED 05/21/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B		66B	bis(2-ethylhexyl)phthalate	ND
36B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B		68B	di-butyl phthalate	ND
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B		70B	diethyl phthalate	ND
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
27B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene B	ND

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PAGE 43 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860034 Soil FRACTION 06A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

14B	41B	4-bromophenyl phenyl ether	ND	8B	79B	benzo(ghi)perylene	ND
12B	42B	bis 2-chloroisopropyl)ether	ND	32B	80B	fluorene	ND
10B	43B	bis(2-chloroethoxy)methane	ND	44B	81B	phenanthrene B	ND
34B	52B	hexachlorobutadiene	ND	19B	82B	dibenzo(a,h)anthracene	ND
35B	53B	hexachlorocyclopentadiene	ND	37B	83B	indeno(1,2,3-cd)pyrene	ND
38B	54B	isophorone	ND	45B	84B	pyrene	ND
39B	55B	naphthalene	ND				
40B	56B	nitrobenzene	ND				

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SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
497	BS1	d5-nitrobenzene	57
760	BS2	2-fluorobiphenyl	88
1337	BS3	d14-terphenyl	51
	BS4	d10-biphenyl	

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = benzo(a)anthracene and chryseneco-elute i[illegible]igh concentrations.

SAMPLE ID 860034 Soil FRACTION 06A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected 05/12/86 Category

B = anthracene and phenanthrene co-elutetogether in high concentrations.
SL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR. indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 45 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860032 Matrix Spike BNA FRACTION 07A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected not specified Category

DATA FILE 5CM05078C07 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 1 DATE INJECTED 05/21/86 INSTRUMENT 5100 COMPOUNDS DETECTED 11

NPDES	SCAN	EPA	COMPOUND	RESULT
11A	747	21A	2,4,6-trichlorophenol	114
8A	683	22A	4-chloro-3-methylphenol	107
1A	397	24A	2-chlorophenol	88
2A	577	31A	2,4-dichlorophenol	92
3A	552	34A	2,4-dimethylphenol	93
6A	514	57A	2-nitrophenol	68
7A	884	58A	4-nitrophenol	115
5A	871	59A	2,4-dinitrophenol	28
4A	957	60A	2-methyl-4,6-dinitrophenol	85
9A	1066	64A	pentachlorophenol	137
10A	382	65A	phenol	76

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
381	AS1	d5-phenol	71
279	AS2	2-fluorophenol	16
981	AS3	2,4,6-tribromophenol	114
	AS4	d3-phenol	

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PAGE 46 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860032 Matrix Spike BNA FRACTION 07A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected not specified Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in% Recov. unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

SAMPLE ID 860032 Matrix Spike BNA FRACTION 07A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected not specified Category

DATA FILE 5CM05078C07 DATE EXTRACTED 05/15/86 ANALYST JL VERIFIED BY LAK
CONC FACTOR 1 DATE INJECTED 05/21/86 INSTRUMENT 5100 COMPOUNDS DETECTED 46

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B	865	1B	acenaphthene	116	41B	162	61B	N-nitrosodimethylamine	32
4B	1299	5B	benzidine	1	43B	963	62B	N-nitrosodiphenylamine	140
46B	590	8B	1,2,4-trichlorobenzene	102	42B	481	63B	N-nitrosodi-n-propylamine	104
32B	1039	9B	hexachlorobenzene	120	13B	1517	66B	bis(2-ethylhexyl)phthalate	150
36B	489	12B	hexachloroethane	489	15B	1421	67B	butyl benzyl phthalate	46
11B	392	18B	bis(2-chloroethyl)ether	92	26B	1189	68B	di-butyl phthalate	126
16B	772	20B	2-chloronaphthalene	114	29B	1612	69B	di-n-octyl phthalate	162
20B	447	25B	1,2-dichlorobenzene	94	24B	937	70B	diethyl phthalate	116
21B	417	26B	1,3-dichlorobenzene	96	25B	828	71B	dimethyl phthalate	121
22B	423	27B	1,4-dichlorobenzene	89	5B	1496	72B	benzo(a)anthracene A	127
23B	1495	28B	3,3'dichlorobenzidine	223	6B	1717	73B	benzo(a)pyrene	146
37B	895	35B	2,4-dinitrotoluene	98	7B	1665	74B	benzo(b)fluoranthene *	162
38B	837	36B	2,6-dinitrotoluene	128	9B	1669	75B	benzo(k)fluoranthene *	121
39B		37B	1,2-diphenylhydrazine	NA	18B	1503	76B	chrysene A	139
31B	1274	39B	fluoranthene	142	2B	836	77B	acenaphthylene	108
17B	944	40B	4-chlorophenyl phenyl ether	123	3B	1095	78B	anthracene B	14

SAMPLE ID 860032 Matrix Spike BNA FRACTION 07A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected not specified Category

14B	1018	41B	4-bromophenyl phenyl ether	134	8B	2017	79B	benzo(ghi)perylene	126
12B	464	42B	bis(2-chloroisopropyl)ether	98	32B	942	80B	fluorene	111
10B	566	43B	bis(2-chloroethoxy)methane	93	44B	1088	81B	phenanthrene B	113
34B	627	52B	hexachlorobutadiene	107	19B	1957	82B	dibenzo(a,h)anthracene	128
35B	736	53B	hexachlorocyclopentadiene	118	37B	1950	83B	indeno(1,2,3-cd)pyrene	124
38B	532	54B	isophorone	124	45B	1308	84B	pyrene	136
39B	598	55B	naphthalene	90					
40B	499	56B	nitrobenzene	88					

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
497	BS1	d5-nitrobenzene	86
759	BS2	2-fluorobiphenyl	103
1336	BS3	d14-terphenyl	65
	BS4	d10-biphenyl	

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram
All results reported in% Recov. unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
^ = enzo(a)anthracene and chryseneco-elute i igh concentrations.

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PAGE 49 | Analytical Serv | REPORT | LAB # 86-05-078
RECEIVED: 05/14/86 | Results by Sample | Continued From Above

SAMPLE ID 860032 Matrix Spike BNA FRACTION 07A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected not specified Category

B = anthracene and phenanthrene co-elutetogether in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

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PAGE 50 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860034 Duplicate Analysis FRACTION 08A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected not specified Category

DATA FILE 5CD05078C08 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR DATE INJECTED 05/21/86 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1P		89P	aldrin	ND	2P		102P	alpha BHC	ND
10P		90P	dieldrin	ND	3P		103P	beta BHC	ND
6P		91P	chlordane	ND	4P		104P	gamma BHC	ND
7P		92P	4,4'-DDT	ND	5P		105P	delta BHC	ND
8P		93P	4,4'-DDE	ND	18P		106P	PCB-1242	ND
9P		94P	4,4'-DDD	ND	19P		107P	PCB-1254	ND
11P		95P	alpha endosulfan	ND	20P		108P	PCB-1221	ND
13P		96P	beta endosulfan	ND	21P		109P	PCB-1232	ND
14P		97P	endosulfan sulfate	ND	22P		110P	PCB-1248	ND
14P		98P	endrin	ND	23P		111P	PCB-1260	ND
15P		99P	endrin aldehyde	ND	24P		112P	PCB-1016	ND
16P		100P	heptachlor	ND	25P		113P	toxaphene	ND
17P		101P	heptachlor epoxide	ND					

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CORPORATION

PAGE 51 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

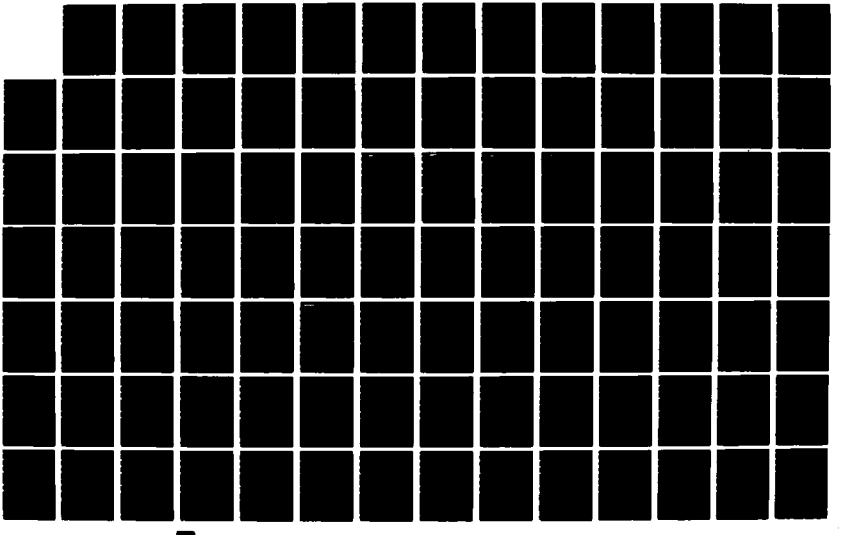
SAMPLE ID 860034 Duplicate Analysis FRACTION 08A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected not specified Category

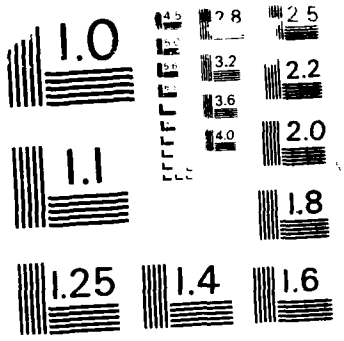
NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number on chromatogram.
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

7 179

AD-A190 447 INSTALLATION RESTORATION PROGRAM PHASE 2 CONFIRMATION/QUANTIFICATION STAG (U) RADIAN CORP AUSTIN TX DEC 87 F33615-83-D-4001 3/5

UNCLASSIFIED F/G 24/7 NL





CORPORATION

PAGE 52 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860034 Duplicate Analysis FRACTION 08A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected not specified Category

DATA FILE 5CD05078C08 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 42 DATE INJECTED 05/21/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
380	AS1	d5-phenol	65
279	AS2	2-fluorophenol	18
981	AS3	2,4,6-tribromophenol	77
	AS4	d3-phenol	

CORPORATION

PAGE 53 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID 860034 Duplicate Analysis FRACTION 08A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected not specified Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
NO = not detected at detection limit of 1 ug/g, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 54 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID 860034 Duplicate Analysis FRACTION 08A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected not specified Category

DATA FILE 5CD05078C08 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 42 DATE INJECTED 05/21/86 INSTRUMENT 5100 COMPOUNDS DETECTED 1

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B	1516	66B	bis(2-ethylhexyl)phthalate	480
36B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B		68B	di-butyl phthalate	ND
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B		70B	diethyl phthalate	ND
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
27B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene P	ND

SAMPLE ID 860034 Duplicate Analysis FRACTION 08A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected not specified Category

14B	41B	4-bromophenyl phenyl ether	ND	8B	79B	benzo(ghi)perylene	ND
12B	42B	bis(2-chloroisopropyl)ether	ND	32B	80B	fluorene	ND
10B	43B	bis(2-chloroethoxy)methane	ND	44B	81B	phenanthrene B	ND
34B	52B	hexachlorobutadiene	ND	19B	82B	dibenzo(a,h)anthracene	ND
35B	53B	hexachlorocyclopentadiene	ND	37B	83B	indeno(1,2,3-cd)pyrene	ND
38B	54B	isophorone	ND	45B	84B	pyrene	ND
39B	55B	naphthalene	ND				
40B	56B	nitrobenzene	ND				

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
496	BS1	d5-nitrobenzene	64
759	BS2	2-fluorobiphenyl	97
1336	BS3	d14-terphenyl	57
	BS4	d10-biphenyl	

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = benzo(a)anthracene and chryseneco-elute i[illegible]igh concentrations.

CORPORATION

PAGE 56 | Analytical Serv | REPORT | LAB # 86-05-078
RECEIVED: 05/14/86 | Results by Sample | Continued From Above

SAMPLE ID 860034 Duplicate Analysis FRACTION 08A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected not specified Category

B = anthracene and phenanthrene co-elutetogether in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 57 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID Reagent Blank BNA FRACTION 09A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected not specified Category

DATA FILE 5CB05078C09 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR DATE INJECTED 05/21/86 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1P		89P	aldrin	ND	2P		102P	alpha BHC	ND
10P		90P	dieldrin	ND	3P		103P	beta BHC	ND
6P		91P	chlordane	ND	4P		104P	gamma BHC	ND
7P		92P	4,4'-DDT	ND	5P		105P	delta BHC	ND
8P		93P	4,4'-DDE	ND	18P		106P	PCB-1242	ND
9P		94P	4,4'-DDD	ND	19P		107P	PCB-1254	ND
11P		95P	alpha endosulfan	ND	20P		108P	PCB-1221	ND
12P		96P	beta endosulfan	ND	21P		109P	PCB-1232	ND
14P		97P	endosulfan sulfate	ND	22P		110P	PCB-1248	ND
14P		98P	endrin	ND	23P		111P	PCB-1260	ND
15P		99P	endrin aldehyde	ND	24P		112P	PCB-1016	ND
16P		100P	heptachlor	ND	25P		113P	toxaphene	ND
17P		101P	heptachlor epoxide	ND					

CORPORATION

PAGE 58 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID Reagent Blank BNA FRACTION 09A TEST CODE MS 608 NAME Pesticides & PCBs by GC/MS
Date & Time Collected not specified Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number on chromatogram.
All results reported in micrograms/liter unless otherwise specified.
ND = not detected at EPA detection limit method 625, (Federal Register, 12/3/79).

CORPORATION

PAGE 59 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID Reagent Blank BNA FRACTION 09A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected not specified Category

DATA FILE SCB05078C09 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 33 DATE INJECTED 05/21/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
11A		21A	2,4,6-trichlorophenol	ND	7A		58A	4-nitrophenol	ND
8A		22A	4-chloro-3-methylphenol	ND	5A		59A	2,4-dinitrophenol	ND
1A		24A	2-chlorophenol	ND	4A		60A	2-methyl-4,6-dinitrophenol	ND
2A		31A	2,4-dichlorophenol	ND	9A		64A	pentachlorophenol	ND
3A		34A	2,4-dimethylphenol	ND	10A		65A	phenol	ND
6A		57A	2-nitrophenol	ND					

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
330	AS1	d5-phenol	78
275	AS2	2-fluorophenol	84
981	AS3	2,4,6-tribromophenol	76
	AS4	d3-phenol	

CORPORATION

PAGE 60 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID Reagent Blank BNA FRACTION 09A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected not specified Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
NO = not detected at detection limit of 1 ug/g, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 61 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID Reagent Blank BNA FRACTION 09A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected not specified Category

DATA FILE 5CB05078C09 DATE EXTRACTED 05/15/86 ANALYST WJL VERIFIED BY LAK
CONC. FACTOR 33 DATE INJECTED 05/21/86 INSTRUMENT 5100 COMPOUNDS DETECTED 0

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B		1B	acenaphthene	ND	41B		61B	N-nitrosodimethylamine	ND
4B		5B	benzidine	ND	43B		62B	N-nitrosodiphenylamine	ND
46B		8B	1,2,4-trichlorobenzene	ND	42B		63B	N-nitrosodi-n-propylamine	ND
33B		9B	hexachlorobenzene	ND	13B		66B	bis(2-ethylhexyl)phthalate	ND
36B		12B	hexachloroethane	ND	15B		67B	butyl benzyl phthalate	ND
11B		18B	bis(2-chloroethyl)ether	ND	26B		68B	di-butyl phthalate	ND
16B		20B	2-chloronaphthalene	ND	29B		69B	di-n-octyl phthalate	ND
20B		25B	1,2-dichlorobenzene	ND	24B		70B	diethyl phthalate	ND
21B		26B	1,3-dichlorobenzene	ND	25B		71B	dimethyl phthalate	ND
22B		27B	1,4-dichlorobenzene	ND	5B		72B	benzo(a)anthracene A	ND
23B		28B	3,3'dichlorobenzidine	ND	6B		73B	benzo(a)pyrene	ND
27B		35B	2,4-dinitrotoluene	ND	7B		74B	benzo(b)fluoranthene *	ND
28B		36B	2,6-dinitrotoluene	ND	9B		75B	benzo(k)fluoranthene *	ND
29B		37B	1,2-diphenylhydrazine	ND	18B		76B	chrysene A	ND
31B		39B	fluoranthene	ND	2B		77B	acenaphthylene	ND
17B		40B	4-chlorophenyl phenyl ether	ND	3B		78B	anthracene P	ND

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SAMPLE ID Reagent Blank BNA FRACTION 09A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected not specified Category

14B	41B	4-bromophenyl phenyl ether	ND	8B	79B	benzo(ghi)perylene	ND
12B	42B	bis(2-chloroisopropyl)ether	ND	32B	80B	fluorene	ND
10B	43B	bis(2-chloroethoxy)methane	ND	44B	81B	phenanthrene B	ND
34B	52B	hexachlorobutadiene	ND	19B	82B	dibenzo(a,h)anthracene	ND
35B	53B	hexachlorocyclopentadiene	ND	37B	83B	indeno(1,2,3-cd)pyrene	ND
38B	54B	isophorone	ND	45B	84B	pyrene	ND
39B	55B	naphthalene	ND				
40B	56B	nitrobenzene	ND				

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SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
497	BS1	d5-nitrobenzene	90
760	BS2	2-fluorobiphenyl	99
1337	BS3	d14-terphenyl	67
	BS4	d10-biphenyl	

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.
All results reported in ug/kg unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = benzo(a)anthracene and chryseneco-elute i. igh concentrations.

SAMPLE ID Reagent Blank BNA FRACTION 09A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected not specified Category

B = anthracene and phenanthrene co-elutetogether in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 64 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID Method Spike BNA FRACTION 10A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected not specified Category

DATA FILE 5CM04128C01 DATE EXTRACTED 04/22/86 ANALYST MM VERIFIED BY LAK
CONC. FACTOR 1 DATE INJECTED 05/29/86 INSTRUMENT 5100 COMPOUNDS DETECTED 11

NPDES	SCAN	EPA	COMPOUND	RESULT
11A	797	21A	2,4,6-trichlorophenol	102
8A	729	22A	4-chloro-3-methylphenol	93
1A	442	24A	2-chlorophenol	96
2A	624	31A	2,4-dichlorophenol	106
3A	596	34A	2,4-dimethylphenol	33
6A	591	57A	2-nitrophenol	87
7A	932	58A	4-nitrophenol	84
5A	922	59A	2,4-dinitrophenol	33
4A	1009	60A	2-methyl-4,6-dinitrophenol	111
9A	1121	64A	pentachlorophenol	105
10A	423	65A	phenol	76

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
422	AS1	d5-phenol	67
316	AS2	2-fluorophenol	85
1035	AS3	2,4,6-tribromophenol	87
	AS4	d3-phenol	

CORPORATION

PAGE 65 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID Method Spike BNA FRACTION 10A TEST CODE SW827A NAME GCMS Acid Semivol-SW846
Date & Time Collected not specified Category

NOTES AND DEFINITIONS FOR THIS REPORT.
SCAN = scan number or retention time on chromatogram.
All results reported in % unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

PAGE 66 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample

SAMPLE ID Method Spike BNA FRACTION 10A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected not specified Category

DATA FILE 5CM05128C01 DATE EXTRACTED 04/22/86 ANALYST REM VERIFIED BY LAK
CONC. FACTOR 1 DATE INJECTED 05/29/86 INSTRUMENT 5100 COMPOUNDS DETECTED 45

NPDES	SCAN	EPA	COMPOUND	RESULT	NPDES	SCAN	EPA	COMPOUND	RESULT
1B	917	1B	acenaphthene	90	41B	191	61B	N-nitrosodimethylamine	83
4B	1352	5B	benzidine	68	43B	1015	62B	N-nitrosodiphenylamine	91
46B	638	8B	1,2,4-trichlorobenzene	100	42B	525	63B	N-nitrosodi-n-propylamine	81
33B	1095	9B	hexachlorobenzene	85	13B	1578	66B	bis(2-ethylhexyl)phthalate	60
36B	535	12B	hexachloroethane	93	15B	1478	67B	butyl benzyl phthalate	20
11B	435	18B	bis(2-chloroethyl)ether	77	26B	1242	68B	di-butyl phthalate	78
16B	623	20B	2-chloronaphthalene	89	29B	1682	69B	di-n-octyl phthalate	67
20B	493	25B	1,2-dichlorobenzene	90	24B	987	70B	diethyl phthalate	68
21B	462	26B	1,3-dichlorobenzene	91	25B	877	71B	dimethyl phthalate	30
22B	468	27B	1,4-dichlorobenzene	82	5B	1562	72B	benzo(a)anthracene A	88
23B	1558	28B	3,3'dichlorobenzidine	110	6B	1814	73B	benzo(a)pyrene	80
27B	946	35B	2,4-dinitrotoluene	103	7B	1750	74B	benzo(b)fluoranthene *	83
28B	836	36B	2,6-dinitrotoluene	115	9B	1755	75B	benzo(k)fluoranthene *	84
29B		37B	1,2-diphenylhydrazine	NA	18B	1569	76B	chrysene A	80
31B	1333	39B	fluoranthene	110	2B	888	77B	acenaphthylene	87
17B	994	40B	4-chlorophenyl phenyl ether	97	3B	1152	78B	anthracene P	120

SAMPLE ID Method Spike BNA FRACTION 10A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected not specified Category

14B	1071	41B	4-bromophenyl phenyl ether	79	8B	2185	79B	benzo(ghi)perylene	86
12B	508	42B	bis(2-chloroisopropyl)ether	97	32B	996	80B	fluorene	84
10B	611	43B	bis(2-chloroethoxy)methane	81	44B	1145	81B	phenanthrene B	98
34B	676	52B	hexachlorobutadiene	106	19B	2109	82B	dibenzo(a,h)anthracene	91
35B		53B	hexachlorocyclopentadiene	ND	37B	2103	83B	indeno(1,2,3-cd)pyrene	87
38B	578	54B	isophorone	85	45B	1368	84B	pyrene	72
39B	647	55B	naphthalene	83					
40B	545	56B	nitrobenzene	86					

SURROGATE RECOVERIES

SCAN	CODE	COMPOUND	RESULT
547	BS1	d5-nitrobenzene	104
809	BS2	2-fluorobiphenyl	77
1395	BS3	d14-terphenyl	48
	BS4	d10-biphenyl	

NOTES AND DEFINITIONS FOR THIS REPORT.

SCAN = scan number or retention time on chromatogram.
All results reported in% Recov. unless otherwise specified.
ND = not detected at detection limit of 1 ug/g, unless otherwise specified.
* = benzo(b)fluoranthene and benzo(k)fluoranthene co-elute.
A = benzo(a)anthracene and chryseneco-elute at high concentrations.

CORPORATION

PAGE 68 Analytical Serv REPORT LAB # 86-05-078
RECEIVED: 05/14/86 Results by Sample Continued From Above

SAMPLE ID Method Spike BNA FRACTION 10A TEST CODE SW827B NAME GCMS B/N Semivol-SW846
Date & Time Collected not specified Category

B = anthracene and phenanthrene co-elutetogether in high concentrations.
BL = detected in reagent blank; background subtraction not performed.
J = estimated value; less than method detection limit.
CONC. FACTOR: indicates dilution of sample if greater than one (1). Minimum detection limits should be multiplied by conc. factor.

CORPORATION

Page 1 RAS - Austin REPORT Work Order # 86-07-086

Received: 07/24/86 08/21/86 14:16:46

REPORT Radian
TO B1.4
Austin

ATTEN Larry French

CLIENT PLANT4 SAMPLES 5
COMPANY Plant 4, USAF
FACILITY General Dynamics

WORK ID NARF and B1.21
TAKEN PAW
TRANS Fed Ex
TYPE
P.O. # 212-027-27-40
INVOICE under separate cover

PREPARED Radian Analytical Services
BY 8501 Mo-pac B1.
PO Box 9948
Austin, TX 78751
ATTEN
PHONE 512-454-4797

CERTIFIED BY

CONTACT CONOVER

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

SAMPLE IDENTIFICATION

01 B60041
02 B60042
03 B60043
04 B60044
05 B60045

TEST CODES and NAMES used on this report

AG E	Silver, ICPES
AS G	Arsenic, graphite AA
BA E	Barium, ICPES
CD E	Cadmium, ICPES
CR E	Chromium, ICPES
DG3020	Digestion, method 3020
DG6010	Digestion, method 6010
EP EXT	RCRA extraction procedure
HC IR	Hydrocarbons
HG C	Mercury, cold vapor
IGNITS	Ignitability - solids
ONG IR	Oil and grease, infrared
PB G	Lead, graphite AA
PREP W	Special preparation
SE G	Selenium, graphite AA

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CORPORATION

Page 2 RAS - Austin REPORT Work Order # 86-07-086
Received: 07/24/86 Results By Test

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
AG_E ug/ml		0.018			0.030@
AS_G ug/ml		<.003			<.003
BA_E ug/ml		1.5			0.62
CD_E ug/ml		<.002			<.002@
CR_E ug/ml		0.027			0.032
DG3020 date complete		08/09/86			08/09/86
DG6010 date complete		08/09/86			08/09/86
EP_EXT date complete		08/06/86			08/06/86
HC_IR mg/L	1300 ug/g		<6 ug/g	<4 ug/g	
IGNITS yes/no		no			no
ONG_IR mg/L	1800 ug/g		<6 ug/g	<5 ug/g	
PB_G mg/ml		0.015			0.006
PREP_W date complete	07/29/86		07/29/86	07/29/86	
SE_G mg/ml		<.02			<.002

8GT-138

CORPORATION

Received: 07/24/86 Results by Sample

SAMPLE ID 860042 FRACTION 02C TEST CODE HG C NAME Mercury, cold vapor
Date & Time Collected 07/22/86 Category

VERIFIED GCL

ANALYST DES
INSTRMT 403 ANALYZED 08/12/86 UNITS ug/ml

ANALYTE	RESULT	DET LIMIT
Mercury	0.080	0.0020

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

7 199

SAMPLE ID 860045 FRACTION 05C TEST CODE HG C NAME Mercury, cold vapor
Date & Time Collected 07/22/86 Category

VERIFIED GCL

ANALYST DES
INSTRMT 403 ANALYZED 08/12/86 UNITS ug/ml

ANALYTE	RESULT	DET LIMIT
Mercury	0.034	0.0020

CORPORATION

SAMPLE ID 860045 FRACTION 05C TEST CODE HG C NAME Mercury, cold vapor
Date & Time Collected 07/22/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

7 200

CORPORATION

Page 1 RAS - Austin REPORT Work Order # 86-07-088
Received: 07/24/86 09/09/86 10:06:03

REPORT TO: Radian
B1.4
Austin

ATTEN: Larry French

CLIENT: PLANT4 SAMPLES: 6
COMPANY: Plant 4, USAF
FACILITY: General Dynamics

WORK ID: NARF and B1.21, radiochem
TAKEN: PAW
TRANS: Fed Ex
TYPE:
P.O. #: 212-027-27-42
INV. #: 8548

PREPARED BY: Radian Analytical Services
8501 Mo-pac B1.
PO Box 9948
Austin, TX 78751

ATTEN:
PHONE: 512-454-4797

CERTIFIED BY

CONTACT: CONOVER

Duplicate of report of 09/03/86.

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

SAMPLE IDENTIFICATION

01 860035
02 860036
03 860037
04 860038
05 860039
06 860040

TEST CODES and NAMES used on this report

ALPHA	Gross alpha radiation
BETA	Gross beta radiation
GAMMA	Gamma radiation

7 201

SAMPLE Sample Id	Test: ALPHA pCi/	Test: BETA pCi/	Test: GAMMA pCi/
01 860035	6.7 (6.6) pCi/g	19.6(4.2) pCi/g	<54.4 pCi/ug
02 860036	11.3(6.8) pCi/g	15.2(4.2) pCi/g	<58.2 pCi/ug
03 860037	7.1(6.5) pCi/g	15.8(4.2) pCi/g	<53.6 pCi/ug
04 860038	12.4(6.9) pCi/g	19.5(4.2) pCi/g	<41.3 pCi/ug
05 860039	9.2(5.9) pCi/g	22.9(4.4) pCi/g	<59.7 pCi/ug
06 860040	9.7(6.5) pCi/g	23.1 pCi/g	<56.5 pCi/g

CORPORATION

Page 1 RAS - Austin REPORT Work Order # 86-07-095
Received: 07/25/86 09/09/86 10:13:37

REPORT TO: Radian
Bl.4
Austin

ATTEN: Larry French

CLIENT: PLANT4 SAMPLES: 3
COMPANY: Plant 4, USAF
FACILITY: General Dynamics

WORK ID: NARF, radiochemistry
TAKEN: PAW
TRANS: PAW
TYPE:
P.O. #: 212-027-27-42
INV. #: 8549

PREPARED BY: Radian Analytical Services
8501 Mo-pac Bl.
PO Box 9948
Austin, TX 78751

ATTEN:
PHONE: 512-454-4797

CERTIFIED BY

CONTACT: CONOVER

Duplicate of report of 09/03/86.

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

SAMPLE IDENTIFICATION

01 860046
02 860047
03 860048

TEST CODES and NAMES used on this report

ALPHA	Gross alpha radiation
BETA	Gross beta radiation
GAMMA	Gamma radiation

4 203

CORPORATION

Page 2 RAS - Austin REPORT Work Order # 86-07-095
Received: 07/25/86 Results By Test

SAMPLE Sample Id		Test: ALPHA pCi/	Test: BETA pCi/	Test: GAMMA pCi/
860046	01	7.1(6.5) pCi/g	16.1(4.2) pCi/g	<47.5 pCi/ug
860047	02	8.7(6.4) pCi/g	18.3(4.2) pCi/g	<46.9 pCi/ug
860048	03	7.6(5.8) pCi/g	10.0(3.9) pCi/g	<42.5 pCi/ug

4 204

CORPORATION

Page 1 RAS - Austin REPORT Work Order # 86-08-058

Received: 08/13/86 09/10/86 14:50:26

REPORT TO: Radian
B1 4
Austin

ATTEN: Larry French

CLIENT: PLANT4 SAMPLES: 6
COMPANY: Plant 4, USAF
FACILITY: General Dynamics

WORK ID: soils
TAKEN: PAW
TRANS: PAW
TYPE:
P.O. #: 212-027-27-40
INVOICE: under separate cover

PREPARED BY: Radian Analytical Services
8501 Mo-pac Bl.
PO Box 9948
Austin, TX 78751

ATTEN:
PHONE: 512-454-4797

CERTIFIED BY

CONTACT: CONOVER

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

SAMPLE IDENTIFICATION

01	860049
02	860051
03	860053
04	860050
05	860052
06	860054

TEST CODES and NAMES used on this report

AG E	Silver, ICPES
AS G	Arsenic, graphite AA
BA E	Barium, ICPES
CD E	Cadmium, ICPES
CR E	Chromium, ICPES
DG3020	Digestion, method 3020
DG6010	Digestion, method 6010
EP EXT	RCRA extraction procedure
HC IR	Hydrocarbons
HG C	Mercury, cold vapor
IGNITS	Ignitability - solids
ONG IR	Oil and grease, infrared
PB G	Lead, graphite AA
PREP W	Special preparation
SE G	Selenium, graphite AA

CORPORATION

Page 2 RAS - Austin REPORT Work Order # 86-08-058
Received: 08/13/86 Results By Test

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)	Sample 03 (entered units)	Sample 04 (entered units)	Sample 05 (entered units)
AG_E ug/ml				0.017	0.004*
AS_G ug/ml				<.003	0.003* .g/ml
BA_E ug/ml				0.95	0.16
CD_E ug/ml				0.009*	<.002
CR_E ug/ml				0.017*	0.005*
DG3020 date complete				08/25/86	08/25/86
DG6010 date complete				08/25/86	08/25/86
EP_EXT date complete				08/20/86	08/20/86
HC_IR mg/L	1700 ug/g	<6 ug/g	<6 ug/g		
IGNITS yes/no				no	no
ONG_IR mg/L	2000 ug/g	310 ug/g	170 ug/g		
PB_G ug/ml				0.35	0.064
PREP_W date complete	08/21/86	08/21/86	08/21/86		
SE_G ug/ml				<.002	<.002

4 902

TEST CODE default units	Sample 06 (entered units)
AG_E ug/ml	0.019
AS_G ug/ml	<.003
BA_E ug/ml	0.64
CD_E ug/ml	0.005*
CR_E ug/ml	0.024*
DG3020 date complete	08/25/86
DG6010 date complete	08/25/86
EP_EXT date complete	08/20/86
IGNITS yes/no	no
PB_G ug/ml	0.008
SE_G ug/ml	<.02@

CORPORATION

Page 4 RAS - Austin REPORT Work Order # 86-08-058
Received: 08/13/86 Results by Sample

SAMPLE ID 860050 FRACTION 04C TEST CODE HG C NAME Mercury, cold vapor
Date & Time Collected 08/11/86 Category

VERIFIED GCL

ANALYST DES
INSTRMT 403 ANALYZED 08/25/86 UNITS ug/ml

ANALYTE	RESULT	DET LIMIT
Mercury	0.0013	0.00020

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

802 4

SAMPLE ID 860052 FRACTION 05C TEST CODE HG C NAME Mercury, cold vapor
Date & Time Collected 08/11/86 Category

VERIFIED GCL

ANALYST DES
INSTRMT 403 ANALYZED 08/25/86 UNITS ug/ml

ANALYTE	RESULT	DET LIMIT
Mercury	0.0006*	0.00020

CORPORATION

SAMPLE ID 860052 FRACTION 05C TEST CODE HG C NAME Mercury, cold vapor
Date & Time Collected 08/11/86 Category

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

SAMPLE ID 860054 FRACTION 06C TEST CODE HG C NAME Mercury, cold vapor
Date & Time Collected 08/11/86 Category

VERIFIED GCL

ANALYST DES
INSTRMT 403 ANALYZED 08/25/86 UNITS ug/ml

ANALYTE	RESULT	DET LIMIT
Mercury	0.0003*	0.00020

7 209

NOTES AND DEFINITIONS FOR THIS REPORT.
DET LIMIT = DETECTION LIMIT
ND = not detected at detection limit
NA = not analyzed
* = less than 5 times the detection limit
N\A = not available

CORPORATION

Page 1 RAS - Austin REPORT Work Order # 86-09-040

Received: 09/09/86 09/10/86 14:56:03

REPORT TO: Radian
B1.4
Austin

ATTEN: Larry French

CLIENT: PLANT4 SAMPLES: 2
COMPANY: Plant 4, USAF
FACILITY: General Dynamics

WORK ID: ignitability
TAKEN: TKW
TRANS: TKW
TYPE:
P.O. #: 212-027-27-42
INVOICE: under separate cover

PREPARED BY: Radian Analytical Services
8501 Mo-pac Bl.
PO Box 9948
Austin, TX 78751

ATTEN:
PHONE: 512-454-4797

CERTIFIED BY

CONTACT CONOVER

Footnotes and Comments

* Indicates a value less than 5 times the detection limit. Potential error for such low values ranges between 50 and 100%.

@ Indicates that spike recovery for this analysis on the specific matrix was not within acceptable limits indicating an interferent present.

SAMPLE IDENTIFICATION

01 P-22 mud
02 P-23 mud

TEST CODES and NAMES used on this report

IGNITS Ignitability - solids

7 210

CORPORATION

Received: 09/09/86

Results By Test

TEST CODE default units	Sample 01 (entered units)	Sample 02 (entered units)
IGNITS yes/no	no	no

RADIAN
CORPORATION

MEMORANDUM

08 September 1986 RC No. 212-027-27-02

TO: Debra Richmann

FROM: Neal Amick

SUBJECT: Analysis of Soil and Water Samples for Methyl Ethyl Ketone - Air Force Plant #4

Soil and water samples were analyzed for MEK by EPA SW-846 Method 8015. A list of the samples and the results are presented in Table 1. Water samples were analyzed by direct injection into a gas chromatograph equipped with a flame ionization detector. The soil sample was analyzed by extracting with carbon disulfide and injecting an aliquot of the extract into the gas chromatograph.

For each day of analysis, a three-point calibration curve was determined by carefully preparing standard solutions of known concentrations. A quality control sample was independently prepared and analyzed to ensure accurate quantitation. The quality control sample was analyzed to be within 10% of the expected results for each day of analysis.

The extraction efficiency for the soil analysis was checked by spiking an aliquot of the soil with MEK and analyzing. A recovery of 89% was obtained. No sample had MEK concentrations above the minimum detection level, which was 1.0 ug/mL for the water samples and 1.0 ug/g for the soil samples.

The instrument parameters were set as follows:

Instrument:	Tracor 560 with FID
Column:	1% SP1000 on Carbopack B, 6' x 2 mm I.D.
Carrier Flow:	N_2 at 20 cc/minute
Oven Temperature:	80°C programmed to 150°C at 10°C/minute

RADIAN
CORPORATION

TABLE 1. ANALYTICAL RESULTS FOR METHYL ETHYL KETONE - AIR FORCE PLANT #4

A. Water Samples

Sample I.D.		Results (ug/mL)
860129A	HM - 74	<1.0
860129B	HM - 74	<1.0
860168A	HM - 72	<1.0
860168B	HM - 72	<1.0
860173A	HM - 75	<1.0
860173B	HM - 75	<1.0
860199A	HM - 73	<1.0
860199B	HM - 73	<1.0

B. Soil Samples

Sample I.D.		Results (ug/g)
860019	HM - 106A	<1.0
860021A	HM - 106C	<1.0
860021B	HM - 106C	<1.0

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APPENDIX A-4

Soil Quality Assurance/Quality Control Data

This volume contains all QA/QC reports for soil analyses (organized by work order number). Also included are summary tables (Tables A.4-1 through A.4-8) of the QC reports.

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TABLE A.4-1

EPA METHOD 8010: SURROGATE SPIKE RECOVERY RESULTS FOR SOIL SAMPLES

LAB ID	QC	DATE	BROMOCHLOROMETHANE % Recovery	2-BROMO-1-CHLOROPROPANE % Recovery
8603176-01A		32786	97	103
8601205-04B	D1	12886	108	99
8601205-04B	D2	12816	120	111
8601205-05B		12886	109	96
8601205-06B		13086	124	103
8601205-07B		12986	109	114
8601205-08B		12986	115	117
8601205-11B		12986	111	114
8601205-12B		12986	105	119
8601205-13B		12986	109	139
8605072-01		51486	99	
8605072-01		52486	101	
8605072-02A		51486	110	
8605072-02A		52486	93	
8605072-03		51486	104	
8605072-04		51486	92	
8605072-05		51486	92	
8605072-06A		51586	114	
Standard Deviation (n-1)			9.3	12.5
Mean			111	112
Coefficient of Variation			8.4	11.2

D = Duplicate analysis

TABLE A.4--2

EPA METHOD 8020: SURROGATE SPIKE RECOVERY RESULTS FOR SOIL SAMPLES

SAMPLE I.D.	QC	DATE	a,a,a-TRIFLUOROTOLUENE % Recovery
8603176-01B		32786	101
8601205-04B		13086	103
8601205-05B		13086	100
8601205-05B		13086	101
8601205-06B		13086	94
8601205-07B		13086	98
8601205-08B		13086	103
8601205-11B		13186	103
8601205-12B		13186	105
8601205-13B		13186	110
8601205-14B		13186	103
8601205-15B		13186	110
8605072-01	D1	51486	100
8605072-01	D2	52486	102
8605072-02A		51486	92
8605072-03		52486	102
8605072-04		52486	100
8605072-05		52486	87
8605072-06A		52486	99
Standard Deviation (n-1)			5.5
Mean			101
Coefficient of Variation			5.4

D = Duplicate analysis

TABLE A.4-3

EPA METHOD 8270 : MATRIX SPIKE RECOVERY RESULTS FOR SOIL SAMPLES

Sample I.D.	8605078-10A	8602078-07A			
Date Extracted	4/22/86	5/15/86	STANDARD	MEAN	COEFFICIENT OF
Date Injected	5/29/86	5/21/86	DEVIATION		VARIATION
Parameter	% Recovery	% Recovery	SD (n-1)	% Recovery	CV - %
ACID FRACTION					
2,4,6-Trichlorophenol	102	114	8.5	108	7.9
4-Chloro-3-methylphenol	93	107	9.9	100	9.9
2-Chlorophenol	96	88	5.7	92	6.1
2,4-Dichlorophenol	106	92	9.9	99	10.0
2,4-Dimethylphenol	33	93	42.4	63	67.3
2-Nitrophenol	87	68	13.4	78	17.3
4-Nitrophenol	84	115	21.9	100	22.0
2,4-Dinitrophenol	33	28	3.5	31	11.6
2-Methyl-4,6-dinitrophenol	111	85	18.4	98	18.8
Pentachlorophenol	105	137	22.6	121	18.7
Phenol	76	76	0.0	76	0.0
BASE FRACTION					
Acenaphthene	90	116	18.4	103	17.8
Benzidine	68	1	47.4	35	137.3
1,2,4-Trichlorobenzene	100	102	1.4	101	1.4
Hexachlorobenzene	85	120	24.7	103	24.1
Hexachloroethane	93	489	280.0	291	96.2
Bis(2-chloroethyl)ether	77	92	10.6	85	12.6
2-Chloronaphthalene	89	114	17.7	102	17.4
1,2-Dichlorobenzene	90	94	2.8	92	3.1
1,3-Dichlorobenzene	91	96	3.5	94	3.8
1,4-Dichlorobenzene	82	89	4.9	86	5.8
3,3-Dichlorobenzidine	110	223	79.9	167	48.0
2,4-Dinitrotoluene	103	98	3.5	101	3.5
2,6-Dinitrotoluene	115	128	9.2	122	7.6
Fluoranthene	110	142	22.6	126	18.0
4-Chlorophenyl phenyl ether	97	123	18.4	110	16.7
N-Nitrosodimethylamine	83	32	36.1	58	62.7
N-Nitrosodiphenylamine	91	140	34.6	116	30.0
N-Nitrosodi-n-propylamine	81	104	16.3	93	17.6
Bis(2-ethylhexyl)phthalate	60	150	63.6	105	60.6
Butyl benzyl phthalate	20	46	18.4	33	55.7
Di-butyl phthalate	78	126	33.9	102	33.3
Di-n-octyl phthalate	67	162	67.2	115	58.7
Dietyl phthalate	68	116	33.9	92	36.9

(Continued)

TABLE A.4-3 (Continued)

Sample I.D.	8605078-10A	8602078-07A			
Date Extracted	4/22/86	5/15/86	STANDARD	MEAN	COEFFICIENT OF
Date Injected	5/29/86	5/21/86	DEVIATION		VARIATION
Parameter	% Recovery	% Recovery	SD (n-1)	% Recovery	CV - %
Dimethyl phthalate	30	121	64.3	76	85.2
Benzo(a)anthracene	88	127	27.6	108	25.7
Benzo(a)pyrene	80	146	46.7	113	41.3
Benzo(b)fluoranthene	83	162	55.9	123	45.6
Benzo(k)fluoranthene	84	121	26.2	103	25.5
Chrysene	80	138	41.0	109	37.6
Acenaphthylene	87	108	14.8	98	15.2
Anthracene	120	14	75.0	67	111.9
4-Bromophenyl phenyl ether	79	134	38.9	107	36.5
Bis(2-chloroisopropyl)ether	97	98	0.7	98	0.7
Bis(2-chloroethoxy)methane	81	93	8.5	87	9.8
Hexachlorobutadiene	106	107	0.7	107	0.7
Hexachlorocyclopentadiene	ND	118	83.4	59	141.4
Isosphorone	85	124	27.6	105	26.4
Naphthalene	83	90	4.9	87	5.7
Nitrobenzene	86	88	1.4	87	1.6
Benzo(ghi)perylene	86	126	28.3	106	26.7
Fluorene	84	111	19.1	98	19.6
Phenanthrene	98	113	10.6	106	10.1
Dibenzo(a,h)anthracene	91	128	26.2	110	23.9
Indeno(1,2,3-cd)pyrene	87	124	26.2	106	24.8
Pyrene	72	136	45.3	104	43.5
1,2-Diphenylhydrazine	NA	NA	0.0	0	ERR
Standard Deviation (n-1)	22.9	62.7			
Mean	83.2	114.9			
Coefficient of Variation	27.5	54.6			

TABLE A.4-3 (Continued)

(Continued)

Sample I.D.	8605078-10A	8602078-07A			
Date Extracted	4/22/86	5/15/86	STANDARD	MEAN	COEFFICIENT OF
Date Injected	5/29/86	5/21/86	DEVIATION		VARIATION
Parameter	% Recovery	% Recovery	SD (n-1)	% Recovery	CV - %
SURROGATE SPIKE COMPOUNDS					
ACID FRACTION					
d5-Phenol	67	71	2.8	69.0	4.1
2-Fluorophenol	85	16	48.8	50.5	96.6
2,4,6-Tribromophenol	87	114	19.1	100.5	19.0
d3-Phenol	NR	NR	---	---	---
BASE FRACTION					
d5-Nitrobenzene	104	86	12.7	95.0	13.4
2-Fluorophenyl	77	103	18.4	90.0	20.4
d14-Terphenyl	48	65	12.0	56.5	21.3
d10-Biphenyl	NR	NR	---	---	---

NR = Not Reported
ND = Not Detected

TABLE A.4-4A

EPA METHOD 8270: SURROGATE SPIKE RECOVERY RESULTS FOR SOIL SAMPLES

Soil Lab I.D.	QC	DATE	ACID FRACTION d5-Phenol % Recovery	2-Fluorophenol % Recovery	2,4,6-Tribromophenol % Recovery	d3-Phenol % Recovery
8605078-01A		52286	55	45	130	NR
8605078-02A		52286	50	42	123	NR
8605078-03A		52286	62	44	122	NR
8605078-04A		52286	71	71	106	NR
8605078-05A		52286	88	65	90	NR
8605078-06A	D1	52286	55	25	58	NR
8605078-07A	D2	52286	65	18	77	NR
Standard Deviation (n-1)			12.8	19.2	26.9	---
Mean			64	44	101	---
Coefficient of Variation			20.1	43.4	26.7	---

D = Duplicate Analysis

TABLE A.4-4B

EPA METHOD 8270: SURROGATE SPIKE RECOVERY RESULTS FOR SOIL SAMPLES

Soil Lab I.D.	QC	DATE	BASE FRACTION d5-Nitrobenzene % Recovery	2-Fluorobiphenyl % Recovery	d14-Terphenyl % Recovery	d10-Biphenyl % Recovery
8605078-01A		52286	97	100	55	NR
8605078-02A		52286	70	114	50	NR
8605078-03A		52286	80	109	63	NR
8605078-04A		52286	61	104	71	NR
8605078-05A		52286	111	132	61	NR
8605078-06A	D1	52286	57	88	51	NR
8605078-07A	D2	52286	64	97	57	NR
Standard Deviation (n-1)			20.2	14.1	7.4	---
Mean			77	106	58	---
Coefficient of Variation			26.1	13.3	12.6	---

TABLE A.4-5

EPA METHOD 8240: SURROGATE SPIKE RECOVERY RESULTS FOR SOIL SAMPLES

LAB ID	QC	DATE	d4-1,1-Dichloroethane % Recovery	d8-Toluene	Bromofluorobenzene
8603021-06A		31786	98	102	92
8603021-07A		31786	96	101	113
8603184-01A		33186	84	93	82
8603184-02A		33186	84	93	82
Standard Deviation (n-1)			7.5	4.9	14.6
Mean			91	97	92
Coefficient of Variation			8.3	5.1	15.8

TABLE A.4-6

QC SAMPLE RESULTS FOR METALS ANALYSES IN SOLID SAMPLES

Parameter	Method	Analysis Date	SAM Workorder	SAM Fraction	QC Check % Recovery	Matrix Spike % Recovery	Duplicate Analyses % RPD	Reagent Blanks (ug/ml)
Ag	ICP	27-Feb	8601205	QC	99			
Ag	ICP	27-Feb	8601205	QC	99			
Ag	ICP	27-Feb	8601205	QC	101			
Ag	ICP	27-Feb	8601205	QC	99			
Ag	ICP	26-Mar	8601206	QC	98			
Ag	ICP	26-Mar	8601206	QC	103			
Ag	ICP	26-Mar	8601206	QC	103			
Ag	ICP	26-Mar	8601206	QC	103			
Ag	ICP	23-Apr	8603008	QC	77			
Ag	ICP	23-Apr	8603008	QC	76			
Ag	ICP	23-Apr	8603008	QC	77			
Ag	ICP	16-May	8603176	QC	96			
Ag	ICP	16-May	8603176	QC	95			
Ag	ICP	11-Aug	8707086	QC	94			
Ag	ICP	11-Aug	8707086	QC	93			
Ag	ICP	23-Apr	8603008	-01		97 p		
Ag	ICP	26-Mar	8601206	-04		95 a		
Ag	ICP	26-Mar	8601206	-07		86 p		
Ag	ICP	16-May	8603176	-03		76 p		
Ag	ICP	19-Aug	8707086	-05		58 p		
Ag	ICP	26-Mar	8601206	-08			12 p	
Ag	ICP	26-Mar	8601206	-05			6.1 a	
Ag	ICP	23-Apr	8603008	-01			13 a	
Ag	ICP	16-May	8603176	-02			NC	
Ag	ICP	19-Aug	8707086	-02			16 p	
Ag	ICP	27-Feb	8601205	Blank				<.002
Ag	ICP	27-Feb	8601205	Blank				<.002
Ag	ICP	26-Mar	8601206	Blank				<.002
Ag	ICP	23-Apr	8603008	Blank				*.003

TABLE A.4-6 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN SOLID SAMPLES

Parameter	Method	Analysis Date	SAM Workorder	SAM Fraction	QC Check % Recovery	Matrix Spike % Recovery		Duplicate Analyses % RPD		Reagent Blanks (ug/ml)
Ag	ICP	16-May	8603176	Blank						<.002
Ag	ICP	19-Aug	8707086	Blank						<.002
Mean					94	82		12		
RSD (%)					10.2	19.4				
As	AA	10-Mar	8601206	QC	108					
As	ICP	23-Apr	8603008	QC	113					
As	ICP	23-Apr	8603008	QC	119					
As	ICP	23-Apr	8603008	QC	113					
As	ICP	16-May	8603176	QC	97					
As	ICP	16-May	8603176	QC	99					
As	AA	11-Aug	8707086	QC	98					
As	AA	11-Aug	8707086	QC	95					
As	AA	10-Mar	8601206	-07C		100	a			
As	AA	10-Mar	8601206	-07C		95	p			
As	AA	19-Aug	8707086	-02		95	a			
As	AA	19-Aug	8707086	-05		83	p			
As	ICP	16-May	8603176	-03		74	p			
As	AA	10-Mar	8601206	-08C				NC	p	
As	ICP	23-Apr	8603008	-01				3.2	a	
As	ICP	16-May	8603176	-02				NC		
As	AA	19-Aug	8707086	-02				NC	a	
As	ICP	23-Apr	8603008	Blank						<.060
As	ICP	16-May	8603176	Blank						<.060
As	AA	19-Aug	8707086	Blank						<.003
Mean					105	89		3.2		
RSD (%)					8.7	11.9				

TABLE A.4-6 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN SOLID SAMPLES

Parameter	Method	Analysis Date	SAM Workorder	SAM Fraction	QC Check % Recovery	Matrix Spike % Recovery	Duplicate Analyses % RPD	Reagent Blanks (ug/ml)
Ba	ICP	27-Feb	8601205	QC	99			
Ba	ICP	27-Feb	8601205	QC	99			
Ba	ICP	27-Feb	8601205	QC	100			
Ba	ICP	27-Feb	8601205	QC	99			
Ba	ICP	26-Mar	8601206	QC	99			
Ba	ICP	26-Mar	8601206	QC	99			
Ba	ICP	26-Mar	8601206	QC	97			
Ba	ICP	26-Mar	8601206	QC	96			
Ba	ICP	23-Apr	8603008	QC	103			
Ba	ICP	23-Apr	8603008	QC	101			
Ba	ICP	23-Apr	8603008	QC	104			
Ba	ICP	16-May	8603176	QC	103			
Ba	ICP	16-May	8603176	QC	102			
Ba	ICP	11-Aug	8707086	QC	105			
Ba	ICP	11-Aug	8707086	QC	107			
Ba	ICP	23-Apr	8603008	-01		170 p		
Ba	ICP	26-Mar	8601206	-04		91 a		
Ba	ICP	26-Mar	8601206	-07		85 p		
Ba	ICP	16-May	8603176	-03		81 p		
Ba	ICP	19-Aug	8707086	-05		81 p		
Ba	ICP	26-Mar	8601206	-05			0 a	
Ba	ICP	26-Mar	8601206	-08			20 p	
Ba	ICP	23-Apr	8603008	-01			0.0 a	
Ba	ICP	16-May	8603176	-02			7.0	
Ba	ICP	19-Aug	8707086	-02			1.3 p	
Ba	ICP	19-Aug	8707086	Blank				<.001
Ba	ICP	27-Feb	8601205	Blank				*.001
Ba	ICP	16-May	8603176	Blank				<.001

TABLE A.4-6 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN SOLID SAMPLES

Parameter	Method	Analysis Date	SAM Workorder	SAM Fraction	QC Check % Recovery	Matrix Spike % Recovery	Duplicate Analyses % RPD	Reagent Blanks (ug/ml)
Ba	ICP	27-Feb	8601205	Blank				<.001
Ba	ICP	26-Mar	8601206	Blank				0.008
Ba	ICP	23-Apr	8603008	Blank				*.002
Mean					101	102	5.7	
RSD (%)					3.0	37.8		
Cd	ICP	27-Feb	8601205	QC	100			
Cd	ICP	27-Feb	8601205	QC	100			
Cd	ICP	27-Feb	8601205	QC	100			
Cd	ICP	27-Feb	8601205	QC	103			
Cd	ICP	26-Mar	8601206	QC	96			
Cd	ICP	26-Mar	8601206	QC	101			
Cd	ICP	26-Mar	8601206	QC	107			
Cd	ICP	26-Mar	8601206	QC	101			
Cd	ICP	23-Apr	8603008	QC	103			
Cd	ICP	23-Apr	8603008	QC	104			
Cd	ICP	23-Apr	8603008	QC	104			
Cd	ICP	16-May	8603176	QC	102			
Cd	ICP	16-May	8603176	QC	100			
Cd	ICP	11-Aug	8707086	QC	104			
Cd	ICP	11-Aug	8707086	QC	104			
Cd	ICP	26-Mar	8601206	-04		86 a		
Cd	ICP	26-Mar	8601206	-07		85 p		
Cd	ICP	19-Aug	8707086	-05		66 p		
Cd	ICP	16-May	8603176	-03		65 p		
Cd	ICP	23-Apr	8603008	-01		60 p		
Cd	ICP	26-Mar	8601206	-08			NC p	
Cd	ICP	26-Mar	8601206	-05			NC a	

TABLE A.4-6 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN SOLID SAMPLES

Parameter	Method	Analysis Date	SAM Workorder	SAM Fraction	QC Check % Recovery	Matrix Spike % Recovery	Duplicate Analyses % RPD	Reagent Blanks (ug/ml)
Cd	ICP	23-Apr	8603008	-01			0.63 a	
Cd	ICP	16-May	8603176	-02			NC	
Cd	ICP	19-Aug	8707086	-02			NC p	
Cd	ICP	27-Feb	8601205	Blank				<.002
Cd	ICP	26-Mar	8601206	Blank				<.002
Cd	ICP	19-Aug	8707086	Blank				<.002
Cd	ICP	27-Feb	8601205	Blank				<.002
Cd	ICP	16-May	8603176	Blank				<.002
Cd	ICP	23-Apr	8603008	Blank				<.002
Mean					102	72	0.6	
RSD (%)					2.6	16.8		
Cr	ICP	24-Feb	8601205	QC	98			
Cr	ICP	24-Feb	8601205	QC	98			
Cr	ICP	27-Feb	8601205	QC	98			
Cr	ICP	27-Feb	8601205	QC	98			
Cr	ICP	27-Feb	8601205	QC	98			
Cr	ICP	27-Feb	8601205	QC	101			
Cr	ICP	26-Mar	8601206	QC	99			
Cr	ICP	26-Mar	8601206	QC	100			
Cr	ICP	26-Mar	8601206	QC	96			
Cr	ICP	26-Mar	8601206	QC	100			
Cr	ICP	23-Apr	8603008	QC	105			
Cr	ICP	23-Apr	8603008	QC	105			
Cr	ICP	23-Apr	8603008	QC	99			
Cr	ICP	16-May	8603176	QC	102			
Cr	ICP	16-May	8603176	QC	101			
Cr	ICP	11-Aug	8707086	QC	105			

TABLE A.4-6 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN SOLID SAMPLES

Parameter	Method	Analysis Date	SAM Workorder	SAM Fraction	QC Check % Recovery	Matrix Spike % Recovery	Duplicate Analyses % RPD	Reagent Blanks (ug/ml)
Cr	ICP	11-Aug	8707086	QC	106			
Cr	ICP	27-Feb	8601205	-13A		90 a		
Cr	ICP	26-Mar	8601206	-04		90 a		
Cr	ICP	26-Mar	8601206	-07		85 p		
Cr	ICP	16-May	8603176	-03		81 p		
Cr	ICP	23-Apr	8603008	-01		79 p		
Cr	ICP	19-Aug	8707086	-05		77 p		
Cr	ICP	24-Feb	8601205	-12A			2.7 p	
Cr	ICP	27-Feb	8601205	-12A			2.7 p	
Cr	ICP	26-Mar	8601206	-08			NC p	
Cr	ICP	26-Mar	8601206	-05			0 a	
Cr	ICP	23-Apr	8603008	-01			0.0 a	
Cr	ICP	16-May	8603176	-02			NC	
Cr	ICP	19-Aug	8707086	-02			37 p	
Cr	ICP	24-Feb	8601205	Blank				<.005
Cr	ICP	27-Feb	8601205	Blank				<.005
Cr	ICP	26-Mar	8601206	Blank				<.005
Cr	ICP	27-Feb	8601205	Blank				<.005
Cr	ICP	19-Aug	8707086	Blank				<.005
Cr	ICP	16-May	8603176	Blank				<.005
Cr	ICP	23-Apr	8603008	Blank				*.006
Mean					101	84	8.5	
RSD (%)					3.0	6.7		
Hg	AA	06-Mar	8601206	QC	105			
Hg	AA	06-Mar	8601206	QC	100			
Hg	AA	06-Mar	8601206	QC	100			
Hg	AA	06-Mar	8601206	QC	100			

TABLE A.4-6 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN SOLID SAMPLES

Parameter	Method	Analysis Date	SAM Workorder	SAM Fraction	QC Check % Recovery	Matrix Spike % Recovery	Duplicate Analyses % RPD	Reagent Blanks (ug/ml)
Hg	AA	25-Apr	8603008	QC	92			
Hg	AA	25-Apr	8603008	QC	96			
Hg	AA	30-Apr	8603008	QC	100			
Hg	AA	06-May	8603176	QC	92			
Hg	AA	06-May	8603176	QC	92			
Hg	AA	06-May	8603176	QC	100			
Hg	AA	12-Aug	8707086	QC	103			
Hg	AA	12-Aug	8707086	QC	93			
Hg	AA	12-Aug	8707086	QC	90			
Hg	AA	06-Mar	8601206	-08C		100 p		
Hg	AA	30-Apr	8603008	-02		100		
Hg	AA	19-Aug	8707086	-05		80 p		
Hg	AA	06-Mar	8601206	-08C			NC p	
Hg	AA	25-Apr	8603008	-01			2.7 a	
Hg	AA	25-Apr	8603008	Blank				<.0002
Hg	AA	06-May	8603176	Blank				<.0001
Hg	AA	06-May	8603176	Blank				<.0001
Hg	AA	25-Apr	8603008	Blank				<.0002
Hg	AA	19-Aug	8707086	Blank				<.0002
Hg	AA	30-Apr	8603008	Blank				<.0002
Hg	AA	06-May	8603176	Blank				<.0001
Mean					97	93	2.7	
RSD (%)					5.0	12.4		
Pb	AA	07-Mar	8601206	QC	100			
Pb	AA	07-Mar	8601206	QC	100			
Pb	AA	07-Mar	8601206	QC	95			
Pb	ICP	23-Apr	8603008	QC	99			

TABLE A.4-6 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN SOLID SAMPLES

Parameter	Method	Analysis Date	SAM Workorder	SAM Fraction	QC Check % Recovery	Matrix Spike % Recovery		Duplicate Analyses % RPD		Reagent Blanks (ug/ml)
Pb	ICP	23-Apr	8603008	QC	93					
Pb	ICP	23-Apr	8603008	QC	100					
Pb	ICP	16-May	8603176	QC	88					
Pb	ICP	16-May	8603176	QC	89					
Pb	AA	11-Aug	8707086	QC	100					
Pb	AA	11-Aug	8707086	QC	102					
Pb	AA	19-Aug	8707086	-02		100	a			
Pb	AA	19-Aug	8707086	-05		92	p			
Pb	ICP	23-Apr	8603008	-01		81	p			
Pb	ICP	16-May	8603176	-03		75	p			
Pb	AA	10-Mar	8601206	-07C						
Pb	AA	10-Mar	8601206	-04C						
Pb	AA	10-Mar	8601206	-08C				NC	p	
Pb	ICP	23-Apr	8603008	-01				NC	a	
Pb	ICP	16-May	8603176	-02				NC		
Pb	ICP	23-Apr	8603008	Blank						<.08
Pb	AA	19-Aug	8707086	Blank						*.004
Pb	AA	19-Aug	8707086	Blank				0.0	a	
Pb	ICP	16-May	8603176	Blank						<.08
Mean					97	87		0.0		
RSD (%)					5.2	12.8				
Se	AA	09-Mar	8601206	QC	96					
Se	AA	09-Mar	8601206	QC	98					
Se	AA	09-Mar	8601206	QC	100					
Se	ICP	23-Apr	8603008	QC	105					
Se	ICP	23-Apr	8603008	QC	101					
Se	ICP	23-Apr	8603008	QC	106					

TABLE A.4-6 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN SOLID SAMPLES

Parameter	Method	Analysis Date	SAM Workorder	SAM Fraction	QC Check % Recovery	Matrix Spike % Recovery	Duplicate Analyses % RPD	Reagent Blanks (ug/ml)
Se	ICP	16-May	8603176	QC	101			
Se	ICP	16-May	8603176	QC	97			
Se	AA	11-Aug	8607086	QC	92			
Se	AA	11-Aug	8607086	QC	90			
Se	AA	11-Aug	8607086	QC	86			
Se	AA	11-Aug	8607086	QC	88			
Se	AA	09-Mar	8601206	-07		62 p		
Se	AA	09-Mar	8601206	-04		23 a		
Se	AA	09-Mar	8601206	-04		79 a,d		
Se	AA	19-Aug	8607086	-02		120 a,d		
Se	AA	19-Aug	8607086	-05		87 p		
Se	AA	19-Aug	8607086	-02		76 a		
Se	ICP	16-May	8603176	-03		69 p		
Se	AA	09-Mar	8601206	-08C			NC	
Se	AA	09-Mar	8601206	-04C			NC	
Se	ICP	23-Apr	8603008	-01			1.9 a	
Se	ICP	16-May	8603176	-02			NC	
Se	ICP	23-Apr	8603008	Blank				<.08
Se	AA	19-Aug	8607086	Blank				<.002
Se	AA	09-Mar	8601206	Blank				<.002
Se	ICP	16-May	8603176	Blank				<.08
Mean					97	74	1.9	
RSD (%)					6.7	39.5		

a - analytical spike or duplicate

p - predigestion spike or duplicate

TABLE A.4-6 (Continued)

QC SAMPLE RESULTS FOR METALS ANALYSES IN SOLID SAMPLES

Parameter	Method	Analysis Date	SAM Workorder	SAM Fraction	QC Check % Recovery	Matrix Spike % Recovery	Duplicate Analyses % RPD	Reagent Blank (ug/ml)

d - spiked sample recovery after 1:10 dilution

NC - RPD not calculated if both values are less than five times the detection limit

TABLE A.4-7

Gross α/β QA/QC 12-18-85

		Net Activities α	Net Activities β	
I.	**Duplicate Samples**			
1)	860048 SB-11-C	6.5 ±6.2	16.8 ±4.1	pCi/g
		7.6 ±5.8	10.0 ±3.9	pCi/g
2)	860260 - 03A	3.3 ±2.4	7.2 ±2.2	pCi/L
		3.5 ±2.3	5.6 ±2.1	pCi/L
II.	**Duplicate Counts**	<1.6	<4.2	pCi/L
	860259 - 02A	3.6 ±4.0	<4.2	pCi/L
III.	**Samples Spiked with 10uL ^{241}Am + 0.5 mL ^{90}Sr Standard Solutions**			
1)	860259 - 02A + Mixed Spike (corrected for sample volume = 65 mL)	21.0 ±5.2	131.1 ±7.7	pCi/L
	Mixed spike alone	2.4 ±0.3	9.6 ±0.5	pCi/spike
	860259 - 02A alone	<1.6	<4.2	pCi/L
2)	860038 SB-6-D + Mixed Spike (corrected for sample mass = 0.10158g)	87.9 ±10.5	113.6 ±7.0	pCi/g
	Mixed spike alone	1.7 ±0.3	7.2 ±0.5	pCi/spike
	860038, SB-6-D alone	12.4 ±7.9	19.5 ±4.3	pCi/g
IV.	**DIW Blanks, Duplicate Samples**			
	0.5 L	<0.4	<0.7	pCi/L
	0.5 L	<0.4	<0.7	pCi/L

TABLE A.4-7 (Continued)

V. Stock Standard Solutions

		α	β	Date Counted
Am	1)	2.18 ±0.3	0.55 ±0.3	8/18
	2)	2.34 ±0.3	0.76 ±0.3	9/9
Sr-90	1)	<0.4	6.52 ±0.4	8/19
	2)	<0.4	7.53 ±0.5	9/6
Mixed	1)	1.69 ±0.3	7.22 ±0.5	8/18
	2)	2.40 ±0.3	9.56 ±0.5	9/6

VI. Standard Instrument Check Sources (1 minute counts)

		α	β
C14	1986 Avg.	-	59019 ±1025 (1.7%)
			58878
	1 Jul	-	58540
			59038
	13 Aug	-	58636
Pb-210	1986	1189 ±73 (6.1%)	2266 ±223 (9.8%)
		1144	2203
	1 Jul	1106	2055
		1133	2098
	13 Aug	1226	1995

TABLE A.4-8

AIR FORCE GAMMA CS-137 QA/QC

I.	EPA-LV Interlab Unknown CS-137 Meas.	11.2 ±2.0	pCi/L	(6/30)
	EPA Reported Actual	10 ±5	pCi/L	
II.	Duplicate Counts			Detector
	1) 860038 SB-6-D	<46	pCi/kg	Lo-Pro
	(97.0 g (in teflon jar))	<41	pCi/kg	Lo-Pro
	2) 860258-01A	<10.7	pCi/kg	Lo-Pro
		<9.9	pCi/kg	Lo-Pro
	3) 860259-02A	<12.6	pCi/kg	Hi-Pro
		<12.9	pCi/kg	Hi-Pro
III.	CS-137 Std in Teflon Jar			
	8-13	238169	pCi	Hi-Pro
	8-22	239918	pCi	Hi-Pro
	8-13	235603	pCi	Lo-Pro
	8-22	240559	pCi	Lo-Pro
	Activity based in known std. concen.	237498	pCi	
IV.	1) DIW Blank in Teflon Jar	<71 pCi/kg		Lo-Pro
	0.093 kg in Teflon Jar	<100 pCi/kg		Hi-Pro
	2) DIW Blank in Marinelli Beaker	<3.4 pCi/kg		Lo-Pro
	(1.00 ug)			

CS-137 Standard in Marinelli Beaker

Net cps		
Lo-Pro	Hi-Pro	Date
-	8.41	3/10
-	8.17	6/9
11.63	-	6/10
-	8.03	8/28
11.16	-	8/29
-	7.98	10/24
11.40	-	10/25
11.57	7.87	10/27
11.38	-	12/3
11.43 ±0.18	8.09 ±0.21	Avg.

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W.O. 86-01-205

RADIAN
CORPORATION

CHAIN OF CUSTODY RECORD

Field Sample No. 860024

Company Sampled/Address AIR FORCE PLANT 4

Sample Point Description SB-4

Stream Characteristics: N/A

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name PETER A WATERBEUS Date/Time Sampled 1/27/87 @ 1430

Amount of Sample Collected 1 VOA

Sample Description JP-4 FUEL

Store at: ☐ Ambient ☐ 5°C ☐ −10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards JP-4 FUEL

☐ Hazardous sample (see below) ☐ Non-hazardous sample

☐ Toxic	☐ Skin irritant	☐ Flammable (FP< 40°C)
☐ Pyrophoric	☐ Lachrymator	☐ Shock sensitive
☐ Acidic	☐ Biological	☐ Carcinogenic - suspect
☐ Caustic	☐ Peroxide	☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name RAS

Received By Julie Tundsa Date Received 1-28-86 Time 1230

Transported By PW Lab Sample No. 8601205

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Form V

Q. C. Report No. 1-

SPIKE SAMPLE RECOVERY

LAB NAME Radian Analytical CASE NO. Plant 4

DATE 2-27-86 EPA Sample No. —

Lab Sample ID No. 8601205-13A

Units ug/ml

Matrix Soil

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. Aluminum	75-125				
2. Antimony	-				
3. Arsenic	-				
4. Barium	-				
5. Beryllium	-				
6. Cadmium	-				
7. Calcium	-				
8. Chromium	-	0.94	0.04	1.00	90
9. Cobalt	-				
10. Copper	-				
11. Iron	-				
12. Lead	-				
13. Magnesium	-				
14. Manganese	-				
15. Mercury	-				
16. Nickel	-				
17. Potassium	-				
18. Selenium	-				
19. Silver	-				
20. Sodium	-				
21. Thallium	-				
22. Tin	-				
23. Vanadium	-				
24. Zinc	-				
Other:					
Cyanide	-				

[1] %R = [(SSR - SR)/SA] x 100

"R"- out of control

Comments:

Form VI

Q. C. Report No. 1—

DUPLICATES

Matrix

LAB NAME Radian

DATE 2-27-86

CASE NO. Plant 4

EPA Sample No. —

Lab Sample ID No. 8601205-12A

Units ug/ml

Matrix H2O

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. Aluminum				
2. Antimony				
3. Arsenic				
4. Barium				
5. Beryllium				
6. Cadmium				
7. Calcium				
8. Chromium		7.3	7.5	2.7
9. Cobalt				
10. Copper				
11. Iron				
12. Lead				
13. Magnesium				
14. Manganese				
15. Mercury				
16. Nickel				
17. Potassium				
18. Selenium				
19. Silver				
20. Sodium				
21. Thallium				
22. Tin				
23. Vanadium				
24. Zinc				
Other:				
Cyanide				

* Out of Control

To be added at a later date.

[2] RPD = [|S - D|/((S + D)/2)] x 100

[1] - Non calculable RPD due to value(s) less than CRDL

For Workorders: 8602001
8602015
8602019

Form II

Q. C. Report No. 1

INITIAL AND CONTINUING CALIBRATION VERIFICATION[3]

LAB NAME Radian CASE NO. Plant4

SOW NO.

DATE 2-27-86 UNITS ug/ml

Compound	Initial Calib.[1]			Continuing Calibration[2]					
Metals[4]:	True Value	Found	%R	True Value	Found	%R	Found	%R	Method[4]
1. Aluminum									
2. Antimony									
3. Arsenic									
4. Barium	1.00	0.99	99	1.00	1.00	100	0.99	99	P
5. Beryllium									
6. Cadmium	1.00	1.00	100	1.00	1.03	103	1.00	100	P
7. Calcium									
8. Chromium	1.00	0.98	98	1.00	1.01	101	0.98	98	P
9. Cobalt									
10. Copper									
11. Iron									
12. Lead									
13. Magnesium									
14. Manganese									
15. Mercury									
16. Nickel									
17. Potassium									
18. Selenium									
19. Silver	1.00	0.99	99	1.00	1.01	101	0.99	99	P
20. Sodium									
21. Thallium									
22. Tin									
23. Vanadium									
24. Zinc									
Other:									
Cyanide									

[1] Initial Calibration Source _____ [2] Continuing Calibration Source _____

[3] Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

[4] Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

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Form II cont

Q. C. Report No. 1

INITIAL AND CONTINUING CALIBRATION VERIFICATION[3]

LAB NAME Radian CASE NO. Plant 4

SOW NO. —

DATE 2-27-86 UNITS ug/ml

Compound	Initial Calib.[1]			Continuing Calibration[2]					
Metals[4]:	True Value	Found	%R	True Value	Found	%R	Found	%R	Method[4]
1. Aluminum									
2. Antimony									
3. Arsenic									
4. Barium				1.00	0.99	99			P
5. Beryllium									
6. Cadmium				1.00	1.00	100			P
7. Calcium									
8. Chromium				1.00	0.98	98			P
9. Cobalt									
10. Copper									
11. Iron									
12. Lead									
13. Magnesium									
14. Manganese									
15. Mercury									
16. Nickel									
17. Potassium									
18. Selenium									
19. Silver				1.00	0.99	99			P
20. Sodium									
21. Thallium									
22. Tin									
23. Vanadium									
24. Zinc									
Other:									
Cyanide									

[1] Initial Calibration Source _____ [2] Continuing Calibration Source _____

[3] Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

[4] Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

Form III

Q. C. Report No. 1

BLANKS

LAB NAME Radian CASE NO. Plant 4

DATE 2-27-86 UNITS ug/ml

Matrix H2O

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2
Metals:							
1. Aluminum							
2. Antimony							
3. Arsenic							
4. Barium	<.001	<.001	0.001*	<.001		0.001*	<.001
5. Beryllium							
6. Cadmium	<.002	<.002	<.002	<.002		<.002	<.002
7. Calcium							
8. Chromium	<.005	<.005	<.005	<.005		<.005	<.005
9. Cobalt							
10. Copper							
11. Iron							
12. Lead							
13. Magnesium							
14. Manganese							
15. Mercury							
16. Nickel							
17. Potassium							
18. Selenium							
19. Silver	<.002	0.013	0.008*	<.002		<.002	<.002
20. Sodium							
21. Thallium							
22. Tin							
23. Vanadium							
24. Zinc							
Other:							
Cyanide							

* Value is < 5 x IDL

7 244

Organics QA / QC

Work order: 8601205

Volatile Organics DETECTION LIMITS

COMPOUND	METHOD DETECTION LIMIT -04,-05	-06	-07,-08 -11→-13
Chloromethane	1.0	1.0	1.0
Bromomethane	14.75	14.75	14.75
Vinyl Chloride	2.25	2.25	2.25
Chloroethane	6.5	6.5	6.5
Methylene Chloride	3.125	3.125	3.125
Trichlorofluoromethane	1.25	1.25	1.25
1,1-Dichloroethene	1.625	1.625	1.625
1,1-Dichloroethane	0.875	0.875	0.875
Trans-1,2-Dichloroethene	1.25	1.25	1.25
Chloroform	2.75	0.625	0.625
1,2-Dichloroethane	0.375	0.375	0.375
1,1,1-Trichloroethane	0.375	0.375	0.375
Carbon Tetrachloride	1.5	1.5	1.5
Bromodichloromethane	1.25	1.25	1.25
1,2-Dichloropropane	0.5	0.5	0.5
Trichloroethene	1.5	1.5	2.63
Dibromochloromethane	1.125	1.125	1.125
2-Chloroethylvinyl Ether	1.625	1.625	1.625
Bromoform	2.5	2.5	2.5
Tetrachloroethene	1.63	0.375	2.13
Chlorobenzene	3.125	3.125	3.125
1,3-Dichlorobenzene	4.0	4.0	4.0
1,2-Dichlorobenzene	1.875	1.875	1.875
1,4-Dichlorobenzene	3.0	3.0	3.0

Work order: 8601205

DETECTION LIMITS

VOLATILE ORGANICS

METHOD 8020

COMPOUND	DETECTION LIMIT ug/kg 04->08	-11->-15					
BENZENE	25.0	114					
TOLUENE	681	830					
ETHYLBENZENE	25.0	136					
CHLOROBENZENE	25.0	25.0					
1,4-DICHLOROBENZENE	37.5	37.5					
1,3-DICHLOROBENZENE	50.0	50.0					
1,2-DICHLOROBENZENE	50.0	50.0					
P-XYLENE	25.0	111					
M-XYLENE	250	155					
O-XYLENE	25.0	124					

VOA RESULTS

LAB # Systech Envir.	
CLIENT NAME	
SAMPLE ID	

EPA METHOD 601	DATE: ANALYST: INSTRUMENT:	EPA METHOD 602	DATE: 1/3/86 ANALYST: JSC INSTRUMENT: Delsi
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane		Benzene	N2
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene		Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

LAB # REAGENT BLANK - TG 1:50
CLIENT NAME
SAMPLE ID

EPA METHOD 601	DATE: ANALYST: INSTRUMENT:	EPA METHOD 602	DATE: 11/3/86 ANALYST: INSTRUMENT:
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane		Benzene	0.91
Bromomethane		Toluene	6.64
Vinyl Chloride		Ethyl benzene	1.59
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	0.89
Trans-1,2-Dichloroethene		M-Xylene	1.24
Chloroform		O-Xylene	0.99
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane			
Trans-1,3-Dichloropropene			
Trichloroethene			
Dibromochloromethane			
1,1,2-Trichlorethane			
cis-1,3-Dichloropropene			
2-Chloroethylvinyl ether			
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

SURROGATE RECOVERIES:

601
Bromochloromethane
2-Bromo-1-Chloropropane
1,4-Dichlorobutane

602
a,a,a,-Trifluorotoluene

VOA RESULTS

LAB # System Blank
CLIENT NAME
SAMPLE ID

EPA METHOD 601	DATE: ANALYST: INSTRUMENT:	EPA METHOD 602	DATE: 1/30/86 ANALYST: CP INSTRUMENT: Delta
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane		Benzene	ND
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene		Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

	EPA Method 601	EPA Method 602
LAB #	REAGENT BLANK	TG 1:50
CLIENT NAME		
SAMPLE ID		

EPA METHOD 601		EPA METHOD 602	
DATE:		DATE: 1/30/86	
ANALYST:		ANALYST: G	
INSTRUMENT:		INSTRUMENT: [illegible]	

COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane		Benzene	
Bromomethane		Toluene	5.45
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichloroflurometnane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane			
Trans-1,3-Dichloropropene			
Trichloroethene			
Dibromochloromethane			
1,1,2-Trichlorethane			
cis-1,3-Dichloropropene			
2-Chloroethylvinyl ether			
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

SURROGATE RECOVERIES:

601
- Bromochloromethane ______
- 2-Bromo-1-Chloropropane ______
- 1,4-Dichlorobutane ______

602
- a,a,a,-Trifluorotoluene ______

VOA RESULTS

LAB # SYSTEM BLANK
CLIENT NAME
SAMPLE ID

EPA METHOD 601	DATE: 1/24/86 ANALYST: JSG INSTRUMENT: Hewlett	EPA METHOD 602	DATE: ANALYST: INSTRUMENT:
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane	ND	Benzene	
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene		Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

LAB # REAGENT BLANK - MeOH 1:5
CLIENT NAME
SAMPLE ID

EPA METHOD 601	DATE: 1/29/86 ANALYST: CJ INSTRUMENT: Hermes	EPA METHOD 602	DATE: ANALYST: INSTRUMENT:
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane		Benzene	
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene	0.13	Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane	0.17		
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

LAB # SYSTEM BLANK
CLIENT NAME
SAMPLE ID

EPA METHOD 601	DATE: 11/28/86 ANALYST: JSC INSTRUMENT: Hermes	EPA METHOD 602	DATE: ANALYST: INSTRUMENT:
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane	ND	Benzene	
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene		Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

LAB # REAGENT BLANK — Meoh 1:5
CLIENT NAME
SAMPLE ID

EPA METHOD 601	DATE: 1/28/88 ANALYST: CL INSTRUMENT: Hermes	EPA METHOD 602	DATE: ANALYST: INSTRUMENT:
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane		Benzene	
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform	0.22	O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene		Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane	0.13		
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

LAB # SYSTEM BLANK
CLIENT NAME
SAMPLE ID

EPA METHOD 601	DATE: 1/30/96 ANALYST: JSG INSTRUMENT Bernadette	EPA METHOD 602	DATE: ANALYST: INSTRUMENT:
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane	No	Benzene	
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene		Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

LAB # REAGENT BLANK — MeOH 1:5
CLIENT NAME
SAMPLE ID

EPA METHOD 601	DATE: 11/30/86 ANALYST: RP INSTRUMENT: Bendix	EPA METHOD 602	DATE: ANALYST: INSTRUMENT:
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane	ND	Benzene	
Bromomethane	↓	Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichloroflurомethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene		Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene	↓		

DAILY QUALITY CONTROL

EPA QC WP 483 Conc 2 + EPA QC WP 781 Conc 3

1/28/86 G G

	CERTIFIED VALUE (mg/L)	ANALYZED VALUE	% REC
Chloromethane			
Bromomethane			
Vinyl chloride			
Chloroethane			
Methylene chloride	9.2	8.7	95
Trichlorofluoromethane			
1,1-Dichloroethene	10.0	8.6	86
1,1-Dichloroethane			
trans-1,2-Dichloroethene	5.4		
Chloroform	43.0	55.7	130
1,2-Dichloroethane	27.6	24.6	89
1,1,1-Trichloroethane	14.3	14.7	103
Carbon tetrachloride	20.0	19.5	97
Bromodichloromethane	7.9	8.7	111
1,2-Dichloropropane	8.0	8.2	102
Trichloroethene	22.2	22.9	103
Dibromochloromethane	16.7	15.0	90
1,1,2-Trichloroethane			
cis-1,3-Dichloropropene			
2-Chloroethylvinyl ether			
Bromoform	9.9	10.6	107
1,1,2,2-Tetrachloroethane	10.0		
Tetrachloroethylene	6.2		
Chlorobenzene	8.2	7.8	96
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

DAILY QUALITY CONTROL

EPA QC WP 483 Conc 2 + EPA QC WP 781 Conc 3

1/21/96

	CERTIFIED VALUE (mg/L)	G/B ANALYZED VALUE	G/B % REC
Chloromethane			
Bromomethane			
Vinyl chloride			
Chloroethane			
Methylene chloride	9.2	~~9.4~~ 10.1	102 / 110
Trichlorofluoromethane			
1,1-Dichloroethene	10.0	9.0 / 10.2	90 / 102
1,1-Dichloroethane			
trans-1,2-Dichloroethene	5.4		
Chloroform	43.0	65.1 / 57.5	151 / 134
1,2-Dichloroethane	27.6	25.5 / 25.8	92 / 94
1,1,1-Trichloroethane	14.3	15.9 / 16.2	111 / 113
Carbon tetrachloride	20.0	21.1 / 22.2	105 / 111
Bromodichloromethane	7.9	8.7 / 8.2	110 / 104
1,2-Dichloropropane	8.0	7.9 / 8.2	99 / 102
Trichloroethene	22.2	24.5 / 22.9	110 / 103
Dibromochloromethane	16.7	15.2 / 16.2	91 / 97
1,1,2-Trichloroethane			
cis-1,3-Dichloropropene			
2-Chloroethylvinyl ether			
Bromoform	9.9	11.3 / 9.7	114 / 97
1,1,2,2-Tetrachloroethane	10.0		
Tetrachloroethylene	6.2		
Chlorobenzene	8.2	10.5 / 9.1	103 / 110
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

DAILY QUALITY CONTROL

RAS GC LAB

DATE: 1/30/86		SPIKED VALUE (ug/L)	ANALYZED VALUE (ug/L)			% RECOVERY		
	INSTRUMENT		D			D		
	ANALYST		G			G		
TEST METHOD	COMPOUND							
EPA 601	Chloromethane	16.2						
	Chloroethane	28.1						
	Methylene Chloride	26.3						
	1,1-Dichloroethylene	45.0						
	Trans-1,2-Dichloroethylene	12.5						
	Carbon Tetrachloride	60.0						
	Dichlorobromomethane	40.0						
	1,1,2-Trichloroethane	33.8						
EPA 602	Benzene	30.7	33.5			109		
	Toluene	4.1	4.4			107		
	Ethylbenzene	11.5	11.3			99		
	P-Xylene	19.1	20.5			105		
	M-Xylene	42.6	45.0			106		
	O-Xylene	10.6	10.5			99		
EPA 608		(ug/g)		(ug/g)				
	Aroclor 1242	58.7						
	Aroclor 1260	56.8						

DAILY QUALITY CONTROL

EPA QC WP 483 Conc 2 + EPA QC WP 781 Conc 3

1/30/86 G/B G/B

	CERTIFIED VALUE (mg/L)	ANALYZED VALUE	% REC
Chloromethane			
Bromomethane			
Vinyl chloride			
Chloroethane			
Methylene chloride	9.2	9.6/9.9	104/108
Trichlorofluoromethane			
1,1-Dichloroethene	10.0	8.8/8.7	88/87
1,1-Dichloroethane			
trans-1,2-Dichloroethene	5.4		
Chloroform	43.0	65.1/49.1	151/114
1,2-Dichloroethane	27.6	24.5/23.7	89/86
1,1,1-Trichloroethane	14.3	14.6/13.9	102/96
Carbon tetrachloride	20.0	20.4/18.5	102/93
Bromodichloromethane	7.9	8.8/8.2	111/103
1,2-Dichloropropane	8.0	8.4/8.1	104/101
Trichloroethene	22.2	24.2/20.3	109/92
Dibromochloromethane	16.7	15.5/16.6	93/100
1,1,2-Trichloroethane			
cis-1,3-Dichloropropene			
2-Chloroethylvinyl ether			
Bromoform	9.9	10.3/8.8	104/89
1,1,2,2-Tetrachloroethane	10.0		
Tetrachloroethylene	6.2		
Chlorobenzene	8.2	10.6/8.1	129/99
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

DAILY QUALITY CONTROL

RAS GC LAB

DATE: 11/31/86		SPIKED VALUE (ug/L)	ANALYZED VALUE (ug/L)			% RECOVERY		
	INSTRUMENT		D			D		
	ANALYST		G			G		
TEST METHOD	COMPOUND							
EPA 601	Chloromethane	16.2						
	Chloroethane	28.1						
	Methylene Chloride	26.3						
	1,1-Dichloroethylene	45.0						
	Trans-1,2-Dichloroethylene	12.5						
	Carbon Tetrachloride	60.0						
	Dichlorobromomethane	40.0						
	1,1,2-Trichloroethane	33.8						
EPA 602	Benzene	30.7	33.6			109		
	Toluene	4.1	4.0			97		
	Ethylbenzene	11.5	10.4			91		
	P-Xylene	19.1	18.9			99		
	M-Xylene	42.6	43.2			101		
	O-Xylene	10.6	8.7			82		
EPA 608		(ug/g)		(ug/g)				
	Aroclor 1242	58.7						
	Aroclor 1260	56.8						

Surrogate Recoveries

Lab #: 8601205-04B
Sample ID: 86009
Date: 1-28-86
Instrument: G

601 / 8010
Bromochloromethane: 108%, 120%
2-Bromo-1-Chloropropane: 99%, 111%

602 / 8C2
a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8601205-05B
Sample ID: 8600111
Date: 1-28-86
Instrument: G

601/8010
Bromochloromethane: 109%
2-Bromo-1-Chloropropane: 96%

602/802
a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8601205-06B
Sample ID: 860012
Date: 1-30-86
Instrument: B

601 / 8010
Bromochloromethane: 124%
2-Bromo-1-Chloropropane: 103%

602 / 802
a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8601205-07B
Sample ID: 860013
Date: 1-29-86
Instrument: G

601/8010
Bromochloromethane: 109%
2-Bromo-1-Chloropropane: 114%

602/802
a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8601205-08B
Sample ID: 8600014
Date: 1-29-86
Instrument: G

601 / 8010
Bromochloromethane: 115%
2-Bromo-1-Chloropropane: 117%

602/802
a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8601205-11B
Sample ID: 860022
Date: 1-29-86
Instrument: G

601/8010
Bromochloromethane: 111%
2-Bromo-1-Chloropropane: 114%

602/802
a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8601205-12B
Sample ID: 8600004
Date: 1-29-86
Instrument: G

601 / 8010
Bromochloromethane: 105%
2-Bromo-1-Chloropropane: 119%

602 / 802
a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8601205-13B
Sample ID: 860005
Date: 1-29-86
Instrument: G

601 / 8010
Bromochloromethane: 109%
2-Bromo-1-Chloropropane: 139%

602 / 8020
a,a,a-Trifluorotoluene:

Surrogate Recoveries

Lab #: 8601205-04B
Sample ID: 860009
Date: 1-30-86
Instrument: D

601 / 8010
Bromochloromethane:
2-Bromo-1-Chloropropane:

602/802
a,a,a-Trifluorotoluene: 103%

Surrogate Recoveries

Lab #: 8601205-05B
Sample ID: 860011
Date: 1-30-86
Instrument: D

601 / 8010
Bromochloromethane:
2-Bromo-1-Chloropropane:

602 / 802
a,a,a-Trifluorotoluene: 100%, 101%

Surrogate Recoveries

Lab #: 8601205-008
Sample ID: 860012
Date: 1-30-86
Instrument: D

601 / 8010
Bromochloromethane:
2-Bromo-1-Chloropropane:

602 / 802
a,a,a-Trifluorotoluene: 94%

Surrogate Recoveries

Lab #: 8601205-07B
Sample ID: 860013
Date: 1-30-86
Instrument: D

601 / 8010
Bromochloromethane:
2-Bromo-1-Chloropropane:

602/ 802
a,a,a-Trifluorotoluene: 98%

Surrogate Recoveries

Lab #: 8601205-08B
Sample ID: 860014
Date: 1-30-86
Instrument: D

601 / 8010
Bromochloromethane:
2-Bromo-1-Chloropropane:

602 / 802
a,a,a-Trifluorotoluene: 103%

Surrogate Recoveries

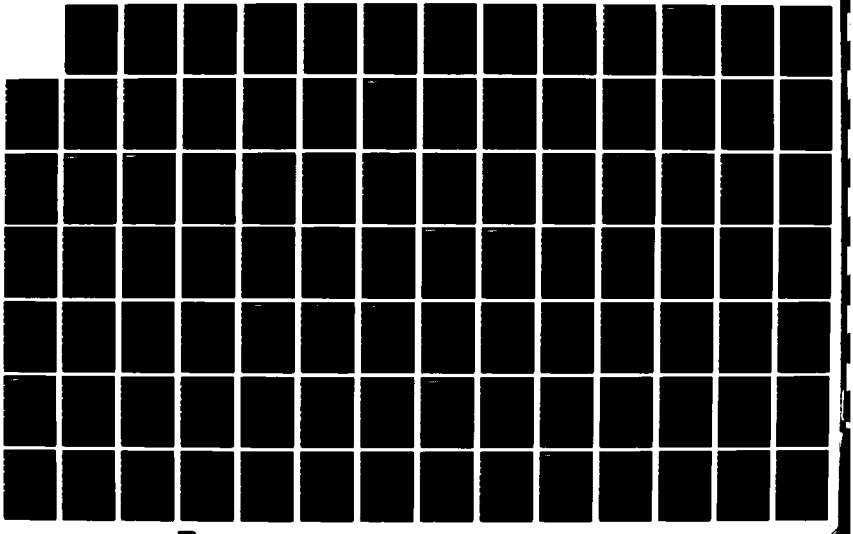
Lab #: 8601205-11B
Sample ID: 860022
Date: 1-31-86
Instrument: D

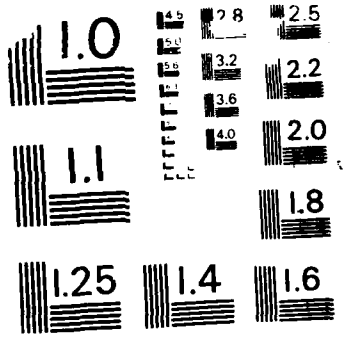
601 / 8010
Bromochloromethane:
2-Bromo-1-Chloropropane:

602 / 802
a,a,a-Trifluorotoluene: 103%

AD-A198 447 INSTALLATION RESTORATION PROGRAM PHASE 2 CONFIRMATION/QUANTIFICATION STAG (U) RADIAN CORP AUSTIN TX DEC 87 F33615-83-D-4001 4/5

UNCLASSIFIED F/G 24/7 NL





Surrogate Recoveries

Lab #: 8601205-12B
Sample ID: 860004
Date: 1-31-86
Instrument: D

601 / 8010
Bromochloromethane:
2-Bromo-1-Chloropropane:

602 / 802
a,a,a-Trifluorotoluene: 105%

Surrogate Recoveries

Lab #: 8600205-13B
Sample ID: 860005
Date: 1-31-86
Instrument: D

601 / 8010
Bromochloromethane:
2-Bromc-1-Chloropropane:

602 / 802
a,a,a-Trifluorotoluene: 110%

Surrogate Recoveries

Lab #: 8601205-14B
Sample ID: 8600019
Date: 1-31-86
Instrument: D

601 / 8010
Bromochloromethane:
2-Bromo-1-Chloropropane:

602/ 802
a,a,a-Trifluorotoluene: 103%

Surrogate Recoveries

Lab #: 8601205-15B
Sample ID: 8600021
Date: 1-31-86
Instrument: D

601/8010
Bromochloromethane:
2-Bromo-1-Chloropropane:

602/502
a,a,a-Trifluorotoluene: 110%

RADIAN
CORPORATION

SPIKE RECOVERY P

EPA Method 602
Volatile Organics

1/2/82
4
D

SAMPLE # 860125-113
UNITS PLANT 4
860022

1:50
5ml 2.0g→5ml TG

COMPOUND	SSR	SR	SA	%R
Benzene	40.3	ND P	30.7	131
Toluene	8.2		4.1	201
Ethyl benzene	14.6		11.5	127
1,4-Dichlorobenzene				
1,3-Dichlorobenzene				
1,2-Dichlorobenzene				
O-Xylene	12.1		10.6	114
M-Xylene	56.2		42.6	132
P-Xylene	2516	✓	19.1	134
Chlorobenzene				

P INTERFERENCES IN TG ALREADY SUBTRACTED OUT

SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added

RADIAN
CORPORATION

SPIKE RECOVERY

EPA METHOD 601 Volatile Organics	860205-67B PLANT 4 860013 5ml 1:5				1/29/86 C F			
COMPOUNDS	SSR	SR	SA	%R	SSR	SR	SA	%R
Chloromethane								
Bromomethane								
Vinyl chloride								
Chloroethane								
Methylene chloride	7.4		9.2	81				
Trichlorofluoromethane								
1,1-Dichloroethene	9.1		10.0	91				
1,1-Dichloroethane								
trans-1,2-Dichloroethene	5.7		5.4	106				
Chloroform	43.5		43.0	101				
1,2-Dichloroethane	34.1		27.6	124				
1,1,1-Trichloroethane	15.8		14.3	110				
Carbon Tetrachloride	24.3		20.0	121				
Bromodichloroemethane	6.6		7.9	84				
1,2-Dichloropropane	8.10		8.10	100				
Trichloroethene	25.8		22.2	116				
Dibromochloromethane	13.6		16.7	81				
1,1,2-Trichloroethane								
cis-1,2-Dichloropropene								
2-Chlorethylvinyl ether								
Bromoform	8.0		9.9	81				
1,1,2,2-Tetrachloreothane			10.0					
Tetrachlorethylene			6.2					
Chlorobenzene	8.2		8.2	100				
1,3-Dichlorobenzene								
1,2-Dichlorobenzene								
1,4-Dichlorobenzene								

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

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CORPORATION

Work order: 8601205-04B
Sample ID: 86009

DUPLICATE ANALYSIS

EPA Method ~~601~~ 8010 Volatile Organics ug/kg						
COMPOUND	RUN#1	RUN#2	RPD	RUN#1	RUN#2	RPD
Chloromethane	ND	ND	NC			
Bromomethane						
Vinyl chloride						
Chloroethane						
Methylene chloride						
Trichlorofluoromethane						
1,1-Dichloroethene						
1,1-Dichloroethane						
trans-1,2-Dichloroethene						
Chloroform						
1,2-Dichloroethane						
1,1,1-Trichloroethane						
Carbon Tetrachloride						
Bromodichloroemethane						
1,2-Dichloropropane						
Trichloroethene						
Dibromochloromethane						
1,1,2-Trichloroethane						
cis-1,2-Dichloropropene						
2-Chloroethylvinyl ether						
Bromoform						
1,1,2,2-Tetrachloreothane						
Tetrachlorethylene						
Chlorobenzene						
1,3-Dichlorobenzene						
1,2-Dichlorobenzene						
1,4-Dichlorobenzene						

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2)/2} \times 100$$

RPD= Relative Percent Difference

RADIAN
CORPORATION

DUPLICATE ANALYSIS

Sample ID: 860011

EPA METHOD ~~602~~ 8020

VOLATILE ORGANICS

SAMPLE # 8601205-05B

UNITS ug/kg

COMPOUND	RUN#1	RUN#2	RPD
Benzene	ND	ND	NC
Toluene	↓	↓	↓
Ethyl benzene			
1,4-Dichlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
O-Xylene			
M-Xylene			
P-Xylene			
Chlorobenzene	↓	↓	↓

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2)/2} \times 100$$

RPD= Relative Percent Difference

ICP, Oil and Grease QA/QC

UNITS ug/ml or ug/g

PLANT 4 86-01-205 12,13 (metals) 14,15 (oil and grease)

ELEMENT	ANALYSIS DATE	QC DATA			DUPLICATE ANALYSIS				SPIKE RECOVERY					BLANKS
		FOUND VALUE	TRUE VALUE	%R	SAMP#	SAMP	DUPL	RPD	SAMP#	SR	SSR	SA	%R	
					dig dup									cal bl
Cr	2-24-86	0.98	1.00	98	12A	7.3 ug/g	7.5 ug/g	2.7						<.005
	idl=.005	0.98	1.00	98					an sp 13A	.036	.94	1.00	90	prepol <.005
														cal bl <.005
Oil and Grease	2-14-86	197	200	99										
	idl = 1													

an dup=analytical duplicate an sp=analytical spike dig dup=pre-digest duplicate dig sp=pre-digest spike
idl = instrument detection limit *=value is less then five times the instrument detection limit NC=not calculable

W.O. 86-01-205, 206

RADIAN
CORPORATION

CHAIN OF CUSTODY RECORD

Field Sample No. S 860001 → 860023

Company Sampled/Address AIR FORCE PLANT 4
Sample Point Description HM-100 → HM-106 AND SB-1 → SB-4

Stream Characteristics: N/A
Temperature ______ **Flow** ______ **pH** ______
Visual Observations/Comments ______

Collector's Name PETER A WATERREUS **Date/Time Sampled** 1/20/86 → 1/26/86
Amount of Sample Collected 23 500ml glass wide mouth jars + 19 VOAS
Sample Description SOIL
Store at: ☐ Ambient ☐ 5°C ☐ −10°C ☒ Other 0°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards NOTE ALL SAMPLES (SB-1 → SB-4) probably have Fuel (JP-4)

☐ Hazardous sample (see below) ☐ Non-hazardous sample

☐ Toxic ☐ Skin irritant ☐ Flammable (FP< 40°C)
☐ Pyrophoric ☐ Lachrymator ☐ Shock sensitive
☐ Acidic ☐ Biological ☐ Carcinogenic - suspect
☐ Caustic ☐ Peroxide ☐ Radioactive
☐ Other ______

Sample Allocation/Chain of Possession:

Organization Name RAS
Received By [signature] **Date Received** 1-28-86 **Time** 1230
Transported By PW **Lab Sample No.** 8601205, 206
Comments 860019 + 860021 (3 VOAs) to GC Lab
Inclusive Dates of Possession ______

Organization Name ______
Received By ______ **Date Received** ______ **Time** ______
Transported By ______ **Lab Sample No.** ______
Comments ______
Inclusive Dates of Possession ______

Organization Name ______
Received By ______ **Date Received** ______ **Time** ______
Transported By ______ **Lab Sample No.** ______
Comments ______
Inclusive Dates of Possession ______

W.O. 86-01-206
samples 01-03
ICPES DATA
QA/QC

Form II - pg 1

Q. C. Report No. #3

INITIAL AND CONTINUING CALIBRATION VERIFICATION[3]

LAB NAME Radian CASE NO. Plant 4

SOW NO.

DATE 3-26-86 UNITS ug/ml

Compound	Initial Calib.[1]			Continuing Calibration[2]					
Metals:	True Value	Found	%R	True Value	Found	%R	Found	%R	Method[4]
1. Aluminum									
2. Antimony									
3. Arsenic									
4. Barium	1.00	0.99	99	1.00	0.96	96	0.97	97	P
5. Beryllium									
6. Cadmium	1.00	0.96	96	1.00	1.01	101	1.01	101	P
7. Calcium									
8. Chromium	1.00	0.96	96	1.00	0.99	99	1.00	100	P
9. Cobalt									
10. Copper									
11. Iron									
12. Lead									
13. Magnesium									
14. Manganese									
15. Mercury									
16. Nickel									
17. Potassium									
18. Selenium									
19. Silver	1.00	0.98	98	1.00	1.03	103	1.03	103	P
20. Sodium									
21. Thallium									
22. Tin									
23. Vanadium									
24. Zinc									
Other:									
Cyanide									

[1] Initial Calibration Source _____ [2] Continuing Calibration Source _____

[3] Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

[4] Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

W.O. 86-01-206
samples 01-08
ICPES DATA

Form II -pg 2

Q. C. Report No. #3

INITIAL AND CONTINUING CALIBRATION VERIFICATION[3]

LAB NAME Radian CASE NO. Plant 4

SOW NO.

DATE 3-26-86 UNITS ug/ml

Compound	Initial Calib.[1]			Continuing Calibration[2]					
Metals:	True Value	Found	%R	True Value	Found	%R	Found	%R	Method[4]
1. Aluminum									
2. Antimony									
3. Arsenic									
4. Barium				1.00	0.99	99			P
5. Beryllium									
6. Cadmium				1.00	1.07	107			P
7. Calcium									
8. Chromium				1.00	1.00	100			P
9. Cobalt									
10. Copper									
11. Iron									
12. Lead									
13. Magnesium									
14. Manganese									
15. Mercury									
16. Nickel									
17. Potassium									
18. Selenium									
19. Silver				1.00	1.03	103			P
20. Sodium									
21. Thallium									
22. Tin									
23. Vanadium									
24. Zinc									
Other:									
Cyanide									

[1] Initial Calibration Source _____ [2] Continuing Calibration Source _____

[3] Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

[4] Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

W.O. 86-01-206
samples 01-08
ICPES DATA

Form III #3

Q. C. Report No. Plant 4

BLANKS

LAB NAME Radian CASE NO. Plant 4

DATE 3-26-86 UNITS µg/ml

Matrix water

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2
Metals:							
1. Aluminum							
2. Antimony							
3. Arsenic							
4. Barium	<.001	<.001	<.001	<.001		0.008	
5. Beryllium							
6. Cadmium	<.002	<.002	<.002	<.002		<.002	
7. Calcium							
8. Chromium	<.005	<.005	<.005	<.005		<.005	
9. Cobalt							
10. Copper							
11. Iron							
12. Lead							
13. Magnesium							
14. Manganese							
15. Mercury							
16. Nickel							
17. Potassium							
18. Selenium							
19. Silver	<.002	0.014	0.017	0.019		<.002	
20. Sodium							
21. Thallium							
22. Tin							
23. Vanadium							
24. Zinc							
Other:							
Cyanide							

analytical spike
sample 36-01-206-04

Form V

Q. C. Report No. #3

SPIKE SAMPLE RECOVERY

analytical

LAB NAME Radian

CASE NO. Plant 4

DATE 3-26-86

EPA Sample No.

Lab Sample ID No.

Units ug/ml

Matrix water

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. Aluminum	75-125				
2. Antimony	-				
3. Arsenic	-				
4. Barium	-	0.96	0.046	1.00	91
5. Beryllium	-				
6. Cadmium	-	0.86	<.002	1.00	86
7. Calcium	-				
8. Chromium	-	0.92	0.018*	1.00	90
9. Cobalt	-				
10. Copper	-				
11. Iron	-				
12. Lead	-				
13. Magnesium	-				
14. Manganese	-				
15. Mercury	-				
16. Nickel	-				
17. Potassium	-				
18. Selenium	-				
19. Silver	-	0.98	0.027	1.00	95
20. Sodium	-				
21. Thallium	-				
22. Tin	-				
23. Vanadium	-				
24. Zinc	-				
Other:					
Cyanide	-				

[1] %R = [(SSR - SR)/SA] x 100

"R" - out of control

Comments: * value is less than 5 x idl

W.O. 86-01-206

Sample 86-01-206-07

Form V

Q. C. Report No. #3

SPIKE SAMPLE RECOVERY

LAB NAME Radian pre-digest CASE NO. Plant 4

DATE 3-26-86 EPA Sample No.

Lab Sample ID No. 86-01-206-07

Units ~~ug/ml~~

Matrix water

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. Aluminum	75-125				
2. Antimony	-				
3. Arsenic	-				
4. Barium	-	17	0.031	20	85
5. Beryllium	-				
6. Cadmium	-	0.43	0.004*	0.50	85
7. Calcium	-				
8. Chromium	-	1.7	<.005	2.0	85
9. Cobalt	-				
10. Copper	-				
11. Iron	-				
12. Lead	-				
13. Magnesium	-				
14. Manganese	-				
15. Mercury	-				
16. Nickel	-				
17. Potassium	-				
18. Selenium	-				
19. Silver	-	0.22	0.005*	0.25	86
20. Sodium	-				
21. Thallium	-				
22. Tin	-				
23. Vanadium	-				
24. Zinc	-				
Other:					
Cyanide	-				

[1] %R = [(SSR - SR)/SA] x 100

"R" - out of control

Comments: * value is less than 5X IDL

W.O. 86-01-206

sample 86-01-206-05

Form VI

Q. C. Report No. #3

DUPLICATES analytical

LAB NAME Radian

DATE 3-26-86

CASE NO. Plant 4

EPA Sample No.

Lab Sample ID No. 86-01-206-05

Units µg/ml

Matrix water

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. Aluminum				
2. Antimony				
3. Arsenic				
4. Barium		0.15	0.15	0
5. Beryllium				
6. Cadmium		<.002	0.004 *	NC
7. Calcium				
8. Chromium		0.016 *	0.016 *	0
9. Cobalt				
10. Copper				
11. Iron				
12. Lead				
13. Magnesium				
14. Manganese				
15. Mercury				
16. Nickel				
17. Potassium				
18. Selenium				
19. Silver		0.016	0.017	6.1
20. Sodium				
21. Thallium				
22. Tin				
23. Vanadium				
24. Zinc				
Other:				
Cyanide				

* Out of Control

To be added at a later date.

[2] RPD = [|S - D|/((S + D)/2)] x 100

[1] - Non calculable RPD due to value(s) less than CRDL

* value is less than 5 x idl.

W.O. 86-01-206

sample 86-01-206-08

Form VI

Q. C. Report No. #3

DUPLICATES

LAB NAME Radian pre-digest CASE NO. Plant 4

EPA Sample No.

DATE 3-26-86 Lab Sample ID No 86-01-206-08

Units ug/ml

Matrix water

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. Aluminum				
2. Antimony				
3. Arsenic				
4. Barium		0.33	0.27	20
5. Beryllium				
6. Cadmium		0.008*	0.003*	83
7. Calcium				
8. Chromium		0.017*	0.014*	19
9. Cobalt				
10. Copper				
11. Iron				
12. Lead				
13. Magnesium				
14. Manganese				
15. Mercury				
16. Nickel				
17. Potassium				
18. Selenium				
19. Silver		0.016	0.018	12
20. Sodium				
21. Thallium				
22. Tin				
23. Vanadium				
24. Zinc				
Other:				
Cyanide				

* Out of Control

To be added at a later date.

[2] RPD = [|S - D|/((S + D)/2)] x 100

[1] - Non calculable RPD due to value(s) less than CRDL

* value is less than 5 x idl

UNITS µg/ml

Plant 4 86-01-206 01-08 AA QA/QC DATA

ELEMENT	ANALYSIS DATE	QC DATA			DUPLICATE ANALYSIS				SPIKE RECOVERY					BLANKS
		FOUND VALUE	TRUE VALUE	%R	SAMP#	SAMP	DUPL	RPD	SAMP#	SR	SSR	SA	%R	
As	3-10-86	.043	.040	108	pd dup 206-08c	<.003	<.003	NC	pd sp 206-07c	<.003	.019	.020	95	dig bl <.003
	idl = .003								an sp 206-07c	<.003	.020	.020	100	cal bl <.003
Hg	3-6-86	.0050	.0050	100	pd dup 206-08c	<.0002	<.0002	NC	pd sp 206-08c	<.0002	.0020	.0020	100	dig bl <.0002
	idl = .0002	.0040	.0040	100										
		.0042	.0040	105										
		.0040	.0040	100										
Pb	3-7-86	.043	.043	100	pd dup 206-08c	.006*	.003*	67	pd sp 206-07c	.007	.023	.030	80	dig bl <.001
	idl = .001	.043	.043	100					an sp 206-04c	*.003	.023	.024	88	cal bl <.001
		.041	.043	95										cal bl <.001
Se	3-9-86	.050	.050	100	pd dup 206-08c	<.002	<.002	NC	pd sp 206-07c	<.003	.0063	.010	62	cal bl <.002
	idl = .002	.049	.050	98	an dup 206-04c	<.002	<.002	NC	an sp 206-04c	<.003	.0054	.024	23	dig bl <.002
		.048	.050	96					an sp 1:10 dilution 206-04c	<.003	.019	.024	79	cal bl <.002

an dup=analytical duplicate an sp=analytical spike dig dup=pre-digest duplicate dig sp=pre-digest spike
idl = instrument detection limit *=value is less then five times the instrument detection limit NC=not calculable

RADIAN CORPORATION

CHAIN OF CUSTODY RECORD

Field Sample No. 880025

Company Sampled/Address AIR FORCE PLANT 4

Sample Point Description P-20 AND P-21 MUD PITS

Stream Characteristics: NA

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name PETER A WATERBERG Date/Time Sampled 2/22/88 1520-1530

Amount of Sample Collected 2-500ml glass AND 4-VOAS

Sample Description DRILLING MUD

Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☒ Hazardous sample (see below) ☐ Non-hazardous sample

☒ Toxic	☐ Skin irritant	☐ Flammable (FP< 40°C)
☐ Pyrophoric	☐ Lachrymator	☐ Shock sensitive
☐ Acidic	☐ Biological	☐ Carcinogenic - suspect
☐ Caustic	☐ Peroxide	☐ Radioactive

☐ Other returned to [illegible]

Sample Allocation/Chain of Possession:

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. 88-03-005

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Form II

Q. C. Report No. _____

INITIAL AND CONTINUING CALIBRATION VERIFICATION[3]

LAB NAME Radian Corp. CASE NO. 8603008

SDG NO. Plant 4

A.DATE 4-23-86 UNITS ug/ml

Compound	Initial Calib.[1]			Continuing Calibration[2]					
Metals:	True Value	Found	%R	True Value	Found	%R	Found	%R	Method[4]
1. Aluminum									
2. Antimony									
3. Arsenic	1.0	1.13	113	1.0	1.19	119	1.13	113	P
4. Barium	1.0	1.04	104	1.0	1.03	103	1.01	101	P
5. Beryllium									
6. Cadmium	1.0	1.04	104	1.0	1.04	104	1.03	103	P
7. Calcium									
8. Chromium	1.0	1.05	105	1.0	1.05	105	0.991	99	P
9. Cobalt									
10. Copper									
11. Iron									
12. Lead	1.0	0.994	99	1.0	0.997	100	0.934	93	P
13. Magnesium									
14. Manganese									
15. Mercury									
16. Nickel									
17. Potassium									
18. Selenium	1.0	1.06	106	1.0	1.01	101	1.05	105	P
19. Silver	1.0	0.774	77	1.0	0.771	77	0.758	76	P
20. Sodium									
21. Thallium									
22. Tin									
23. Vanadium									
24. Zinc									
Other: _____									
Cyanide									

[1] Initial Calibration Source _____ [2] Continuing Calibration Source _____

[3] Control Limits: Mercury and Tin. 80-120; All Other Compounds 90-110

[4] Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

Form III

Q. C. Report No. _____

BLANKS

LAB NAME Radian Corp. CASE NO. 86003008

A. DATE 4-23-86 UNITS ug/ml

Matrix _____

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2
Metals:							
1. Aluminum							
2. Antimony							
3. Arsenic	*0.0161	*0.105	*0.100			<0.000	
4. Barium	*0.001	*0.003	<0.001			*0.002	
5. Beryllium							
6. Cadmium	<0.002	<0.002	*0.010			<0.002	
7. Calcium							
8. Chromium	*0.008	*0.011	<0.005			*0.006	
9. Cobalt							
10. Copper							
11. Iron							
12. Lead	<0.080	<0.080	<0.080			<0.080	
13. Magnesium							
14. Manganese							
15. Mercury							
16. Nickel							
17. Potassium							
18. Selenium	<0.080	<0.080	<0.080			<0.080	
19. Silver	0.012	0.013	<0.002			*0.003	
20. Sodium							
21. Thallium							
22. Tin							
23. Vanadium							
24. Zinc							
Other: _____							
Cyanide							

Form V

Q. C. Report No. _____

SPIKE SAMPLE RECOVERY

LAB NAME Radian Corp. CASE NO. 8603008

DATE 4-23-86 ~~SDG Sample No.~~ predigest

Lab Sample ID No. -01

Units ug/ml

Matrix _____

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. Aluminum	75-125				
2. Antimony	-				
3. Arsenic	-	1.62	1.56	NA	NC
4. Barium	-	21.8	18.4	2.0	170
5. Beryllium	-				
6. Cadmium	-	3.24	3.21	0.05	60
7. Calcium	-				
8. Chromium	-	0.189	0.031	0.2	79
9. Cobalt	-				
10. Copper	-				
11. Iron	-				
12. Lead	-	0.593	*0.187	0.5	81
13. Magnesium	-				
14. Manganese	-				
15. Mercury	-				
16. Nickel	-				
17. Potassium	-				
18. Selenium	-	2.19	2.11	NA	NC
19. Silver	-	0.284	0.041	0.25	97
20. Sodium	-				
21. Thallium	-				
22. Tin	-				
23. Vanadium	-				
24. Zinc	-				
Other:					
Cyanide	-				

[1] %R = [(SSR - SR)/SA] x 100

"R"- out of control

Comments: As and Se are not in spiking dilution

Form VI

Q. C. Report No. _____

DUPLICATES

LAB NAME Radian Corp. CASE NO. 81003008

~~EPA Sample No.~~ anal

DATE 4-23-86 Lab Sample ID No. -01

Units ug/ml

Matrix

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. Aluminum				
2. Antimony				
3. Arsenic		1.56	1.61	3.2
4. Barium		18.4	18.4	0
5. Beryllium				
6. Cadmium		3.21	3.19	0.63
7. Calcium				
8. Chromium		0.031	0.031	0
9. Cobalt				
10. Copper				
11. Iron				
12. Lead		*0.187	*0.170	9.5
13. Magnesium				
14. Manganese				
15. Mercury				
16. Nickel				
17. Potassium				
18. Selenium		2.11	2.07	1.9
19. Silver		0.041	0.036	13.0
20. Sodium				
21. Thallium				
22. Tin				
23. Vanadium				
24. Zinc				
Other:				
Cyanide				

* ~~Out of Control~~ < 5x's IDL

To be added at a later date.

[2] RPD = [|S - D|/((S + D)/2)] x 100

[1] - Non calculable RPD due to value(s) less than CRDL

Compiled 4-30-86

QUALITY CONTROL DATA SUMMARY

Workorder 8603008 Client Plant 4 Units ug/ml

PARAMETER	ANALYSIS DATE	CALIBRATION VERIFICATION STDS. FOUND	TRUE	%R	DUPLICATE ANALYSIS SAMP#	SAMP	DUPL	RPD	SPIKE RECOVERY SAMP#	SSR	SR	SA	%R	BLANKS
Hg(-01)	4-25-86	0.0046	0.005	92	-01A	3.7	3.6	2.7						<0.0002 P
		0.0048	0.005	96										<0.0002
Hg(-02)	4-30-86	0.005	0.005	100					-03A	0.60	0.10	0.50	100	<0.0002 P

RPD = [(/S-D/)/((S+D)/2)]x100
RPD = Relative Percent Difference
NC = Noncalculable

SPIKE %R = [(SSR-SR)/SA]x100
* = Value is less than five times the instrument detection limit
IDL = Instrument Detection Limit

A = Analytical
P = Predigestion

Volatile Organics 8600317b DETECTION LIMITS

COMPOUND	METHOD 601 -01,-02		METHOD DETECTION LIMIT ug/l
Chloromethane	0.08		
Bromomethane	1.18		
Vinyl Chloride	0.18		
Chloroethane	0.52		
Methylene Chloride	0.25		
Trichlorofluoromethane	0.10		
1,1-Dichloroethene	0.13		
1,1-Dichloroethane	0.07		
Trans-1,2-Dichloroethene	0.10		
Chloroform	0.05		
1,2-Dichloroethane	0.03		
1,1,1-Trichloroethane	0.03		
Carbon Tetrachloride	0.12		
Bromodichloromethane	0.10		
1,2-Dichloropropane	0.04		
Trichloroethene	0.12		
Dibromochloromethane	0.09		
2-Chloroethylvinyl Ether	0.13		
Bromoform	0.20		
Tetrachloroethene	0.03		
Chlorobenzene	0.25		
1,3-Dichlorobenzene	0.32		
1,2-Dichlorobenzene	0.15		
1,4-Dichlorobenzene	0.24		

DETECTION LIMITS

VOLATILE ORGANICS

METHOD 602

ug/l 8100317a

COMPOUND	DETECTION LIMIT -01,-02						
BENZENE	0.2						
TOLUENE	0.2						
ETHYLBENZENE	0.2						
CHLOROBENZENE	0.2						
1,4-DICHLOROBENZENE	0.3						
1,3-DICHLOROBENZENE	0.4						
1,2-DICHLOROBENZENE	0.4						

QUALITY CONTROL DATA SUMMARY

Compiled 5-20-86

Workorder 8605176 Client Plant 4 Units ug/ml

PARAMETER	ANALYSIS DATE	CALIBRATION VERIFICATION STDS.			DUPLICATE ANALYSIS				SPIKE RECOVERY					BLANKS
		FOUND	TRUE	%R	SAMP#	SAMP	DUPL	RPD	SAMP#	SSR	SR	SA	%R	
Hg	5-6-86	0.0023	0.0025	92										P <0.0001
Samples -02,-03		0.0023	0.0025	92										P <0.0001
		0.0025	0.0025	100										P <0.0001
7 302														

RPD = [(/S-D/)/((S+D)/2)]x100
RPD = Relative Percent Difference
NC = Noncalculable

SPIKE %R = [(SSR-SR)/SA]x100
* = Value is less than five times the instrument detection limit
IDL = Instrument Detection Limit

A = Analytical
P = Predigestion

... was used for the standards and blanks:

RADIAN
CORPORATION

86-03-21

CHAIN OF CUSTODY RECORD

860025
Field Sample No. 860026

Company Sampled/Address AIR FORCE PLANT 4
Sample Point Description P-20 AND P-21 MUD PITS

Stream Characteristics: NA
Temperature _____ Flow _____ pH _____
Visual Observations/Comments _____

Collector's Name PETER A WATERBEUS Date/Time Sampled 2/28/86 1520-1530
Amount of Sample Collected 2-500ml glass AND 4-VOAS
Sample Description DRILLING MUD
Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 4°C

☐ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____
soil

☐ Hazardous sample (see below) ☐ Non-hazardous sample

☐ Toxic	☐ Skin irritant	☐ Flammable (FP< 40°C)
☐ Pyrophoric	☐ Lachrymator	☐ Shock sensitive
☐ Acidic	☐ Biological	☐ Carcinogenic - suspect
☐ Caustic	☐ Peroxide	☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:
Organization Name RAS -
Received By Jane Lundsten PAW Date Received 3-3-86 Time 0900
Transported By _____ Lab Sample No. _____
Comments VOAs to GLC
Inclusive Dates of Possession _____

Organization Name _____
Received By _____ Date Received _____ Time _____
Transported By _____ Lab Sample No. 86-03-021
Comments _____
Inclusive Dates of Possession _____

Organization Name _____
Received By _____ Date Received _____ Time _____
Transported By _____ Lab Sample No. _____
Comments _____
Inclusive Dates of Possession _____

86-03-176

mud P-23624, EPT...
WATER P-22, 601, 602

RADIAN CORPORATION

CHAIN OF CUSTODY RECORD

Field Sample No. _____

Company Sampled/Address Plant 4
Sample Point Description mud sample

Stream Characteristics:
Temperature — **Flow** — **pH** _____
Visual Observations/Comments mud slurry samples

Collector's Name Toby Walters **Date/Time Sampled** 3-20-86 1400 hrs
Amount of Sample Collected 4 500 mL, 10 40 mL VOA vials
Sample Description _____
Store at: ☐ Ambient ☐ 5°C ☐ −10°C ☐ Other _____

☐ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____
run for 624 (purgeables) and EP Toxicity - Ignitability

☐ Hazardous sample (see below) ☐ Non-hazardous sample

☐ Toxic	☐ Skin irritant	☐ Flammable (FP< 40°C)
☐ Pyrophoric	☐ Lachrymator	☐ Shock sensitive
☐ Acidic	☐ Biological	☐ Carcinogenic - suspect
☐ Caustic	☐ Peroxide	☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:
Organization Name RAS
Received By _____ **Date Received** _____ **Time** _____
Transported By RW **Lab Sample No.** 8603176
Comments _____
Inclusive Dates of Possession _____

Organization Name _____
Received By _____ **Date Received** _____ **Time** _____
Transported By _____ **Lab Sample No.** _____
Comments _____
Inclusive Dates of Possession _____

Organization Name _____
Received By _____ **Date Received** _____ **Time** _____
Transported By _____ **Lab Sample No.** _____
Comments _____
Inclusive Dates of Possession _____

Form II

Q. C. Report No. _____

INITIAL AND CONTINUING CALIBRATION VERIFICATION[3]

LAB NAME _____ CASE NO. 8603176-02-03

SDG NO. _____

ADATE 8-10-86 UNITS ug/ml

Compound	Initial Calib.[1]			Continuing Calibration[2]					
Metals:	True Value	Found	%R	True Value	Found	%R	Found	%R	Method[4]
1. Aluminum									
2. Antimony									
3. Arsenic	1.0	0.968	97	1.0	0.993	99			P
4. Barium	1.0	1.032	103	1.0	1.023	103			P
5. Beryllium									
6. Cadmium	1.0	1.015	102	1.0	1.004	100			P
7. Calcium									
8. Chromium	1.0	1.071	107	1.0	1.007	101			P
9. Cobalt									
10. Copper									
11. Iron									
12. Lead	1.0	0.879	88	1.0	0.891	89			P
13. Magnesium									
14. Manganese									
15. Mercury									
16. Nickel									
17. Potassium									
18. Selenium	1.0	1.014	101	1.0	0.974	97			P
19. Silver	1.0	0.964	96	1.0	0.947	95			P
20. Sodium									
21. Thallium									
22. Tin									
23. Vanadium									
24. Zinc									
Other: _____									
Cyanide									

[1] Initial Calibration Source _____ [2] Continuing Calibration Source _____

[3] Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

[4] Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

Form III

Q. C. Report No. _____

BLANKS

LAB NAME _____ CASE NO. 86B176-02-0

ADATE 5-16-86 UNITS ug/ml

Matrix _____

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2
Metals:							
1. Aluminum						60100	
2. Antimony							
3. Arsenic	<0.06	<0.06				<0.06	
4. Barium	<0.001	<0.001				<0.001	
5. Beryllium							
6. Cadmium	<0.002	<0.002				<0.002	
7. Calcium							
8. Chromium	<0.005	<0.005				<0.005	
9. Cobalt							
10. Copper							
11. Iron							
12. Lead	<0.08	<0.08				<0.08	
13. Magnesium							
14. Manganese							
15. Mercury							
16. Nickel							
17. Potassium							
18. Selenium	<0.08	<0.08				<0.08	
19. Silver	<0.002	<0.002				<0.002	
20. Sodium							
21. Thallium							
22. Tin							
23. Vanadium							
24. Zinc							
Other:							
Cyanide							

Form V

Q. C. Report No. _____

SPIKE SAMPLE RECOVERY

LAB NAME _____

A.DATE 5-16-86

CASE NO. 8003176
EPA Sample No. digestion
Lab Sample ID No. 403
Units ug/ml

Matrix _____

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:					
1. Aluminum	75-125				
2. Antimony	-				
3. Arsenic	-	0.583	*0.003	0.7	74
4. Barium	-	9.916	0.151	12	81
5. Beryllium	-				
6. Cadmium	-	0.089	*0.005	0.13	65
7. Calcium	-				
8. Chromium	-	0.547	*0.019	0.605	81
9. Cobalt	-				
10. Copper	-				
11. Iron	-				
12. Lead	-	0.1001	<0.08	0.80	75
13. Magnesium	-				
14. Manganese	-				
15. Mercury	-				
16. Nickel	-				
17. Potassium	-				
18. Selenium	-	*0.103	<0.08	0.15	69
19. Silver	-	0.467	0.013	0.460	76
20. Sodium	-				
21. Thallium	-				
22. Tin	-				
23. Vanadium	-				
24. Zinc	-				
Other:					
Cyanide	-				

[1] %R = [(SSR - SR)/SA] x 100

"R" - out of control

Comments: * - Value less than 5 x's the IDL.

Form VI

Q. C. Report No. ______

DUPLICATES

LAB NAME ______________

A DATE 5-16-86

CASE NO. 8603176
~~EPA Sample No.~~ digestion
Lab Sample ID No. 02
Units ug/ml

Matrix ______

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. Aluminum				
2. Antimony				
3. Arsenic		<0.06	<0.06	NC
4. Barium		0.096	0.103	7.0
5. Beryllium				
6. Cadmium		*0.003	<0.002	NC
7. Calcium				
8. Chromium		*0.021	*0.025	NC1
9. Cobalt				
10. Copper				
11. Iron				
12. Lead		<0.08	<0.08	NC
13. Magnesium				
14. Manganese				
15. Mercury				
16. Nickel				
17. Potassium				
18. Selenium		<0.08	<0.08	
19. Silver		*0.009	*0.008	NC1
20. Sodium				
21. Thallium				
22. Tin				
23. Vanadium				
24. Zinc				
Other:				
Cyanide				

~~Value of Control~~

To be added at a later date.

[2] RPD = [|S - D|/((S + D)/2)] x 100

[1] - Non calculable RPD due to value(s) less than CRDL (NC)

NC1 - non calculable due to values less than 5 times the IDL.

Volatile Organics 8603176

DETECTION LIMITS

COMPOUND	METHOD 601 -01,-02		METHOD DETECTION LIMIT ug/l
Chloromethane	0.08		
Bromomethane	1.18		
Vinyl Chloride	0.18		
Chloroethane	0.52		
Methylene Chloride	0.25		
Trichlorofluoromethane	0.10		
1,1-Dichloroethene	0.13		
1,1-Dichloroethane	0.07		
Trans-1,2-Dichloroethene	0.10		
Chloroform	0.05		
1,2-Dichloroethane	0.03		
1,1,1-Trichloroethane	0.03		
Carbon Tetrachloride	0.12		
Bromodichloromethane	0.10		
1,2-Dichloropropane	0.04		
Trichloroethene	0.12		
Dibromochloromethane	0.09		
2-Chloroethylvinyl Ether	0.13		
Bromoform	0.20		
Tetrachloroethene	0.03		
Chlorobenzene	0.25		
1,3-Dichlorobenzene	0.32		
1,2-Dichlorobenzene	0.15		
1,4-Dichlorobenzene	0.24		

DETECTION LIMITS

VOLATILE ORGANICS

METHOD 602

ug/l 8600376

COMPOUND	DETECTION LIMIT -01,-02						
BENZENE	0.2						
TOLUENE	0.2						
ETHYLBENZENE	0.2						
CHLOROBENZENE	0.2						
1,4-DICHLOROBENZENE	0.3						
1,3-DICHLOROBENZENE	0.4						
1,2-DICHLOROBENZENE	0.4						

RADIAN
CORPORATION

SURROGATE RECOVERIES

LAB #: 8003170-01A

SAMPLE ID: P-22 Water

DATE: 3-27-86

INSTRUMENT: G

601/8010

BROMOCHLOROMETHANE: 97

2-BROMO-1-CHLOROPROPANE: 103

602/8020

a,a,a-TRIFLUOROTOLUENE: _____

RADIAN
CORPORATION

SURROGATE RECOVERIES

LAB #: 8003170-01B

SAMPLE ID: R22 Water

DATE: 3-27-86

INSTRUMENT: D

601/8010

BROMOCHLOROMETHANE: _____

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 101

VOA RESULTS

LAB # System Blank	
CLIENT NAME	
SAMPLE ID	

EPA METHOD 601	DATE: ANALYST: INSTRUMENT:	EPA METHOD 602	DATE: 3/27/92 ANALYST: CJ INSTRUMENT: Delta
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane		Benzene	ND
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene		Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

LAB # REAGENT BLANK	
CLIENT NAME	
SAMPLE ID	

EPA METHOD 601	DATE: ANALYST: INSTRUMENT:	EPA METHOD 602	DATE: 3/27/86 ANALYST: C4 INSTRUMENT: [illegible]
COMPOUND	**CONCENTRATION (ug/L)**	**COMPOUND**	**CONCENTRATION (ug/L)**
Chloromethane		Benzene	ND
Bromomethane		Toluene	↓
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichloroflurometbane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene		Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

LAB # SYSTEM BLANK
CLIENT NAME
SAMPLE ID

EPA METHOD 601	DATE: 3/27/86 ANALYST: J INSTRUMENT: Hermes	EPA METHOD 602	DATE: ANALYST: INSTRUMENT:
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
	ND		
Chloromethane		Benzene	
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene		Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

LAB # REAGENT BLANK

CLIENT NAME

SAMPLE ID

EPA METHOD 601	DATE: 3/27/82 ANALYST: INSTRUMENT:

COMPOUND	CONCENTRATION (ug/L)
Chloromethane	ND
Bromomethane	
Vinyl Chloride	
Chloroethane	
Methylene chloride	
Trichlorofluromethane	
1,1-Dichlorethene	
1,1-Dichlorethane	
Trans-1,2-Dichloroethene	
Chloroform	
1,2-Dichlorethane	
1,1,1-Trichlorethane	
Carbon tetrachloride	
Bromodichlormethane	
1,2-Dichloropropane	
Trans-1,3-Dichloropropene	
Trichloroethene	
Dibromochloromethane	
1,1,2-Trichlorethane	
cis-1,3-Dichloropropene	
2-Chloroethylvinyl ether	
Bromoform	
1,1,2,2-Tetrachlorethane	
Tetrachlorethylene	
Chlorobenzene	
1,3-Dichlorobenzene	
1,2-Dichlorobenzene	
1,4-Dichlorobenzene	

EPA METHOD 602	DATE: ANALYST: INSTRUMENT:

COMPOUND	CONCENTRATION (ug/L)
Benzene	
Toluene	
Ethyl benzene	
Chlorobenzene	
1,4-Dichlorobenzene	
1,3-Dichlorobenzene	
1,2-Dichlorobenzene	
P-Xylene	
M-Xylene	
O-Xylene	

SURROGATE RECOVERIES:

601

Bromochloromethane ________

2-Bromo-1-Chloropropane ________

1,4-Dichlorobutane ________

602

a,a,a,-Trifluorotoluene ________

DAILY QUALITY CONTROL
RAS GC LAB

DATE:	3/27/86	SPIKED VALUE (ug/L)	Analyzed Value	% Recovery		Analyzed Value	% Recovery
	INSTRUMENT		D	D		G	G
TEST METHOD	COMPOUND						
EPA 601	EPA WP 483 CONC. 2 AND WP 781 CONC.3						
	Methylene Chloride	9.2				7.8	84
	1,1-Dichloroethylene	10.0				8.2	82
	Trans-1,2-Dichloroethylene	5.4					
	Chloroform	43.0				67.1	156
	1,2-Dichloroethane	27.6				21.5	78
	1,1,1-Trichlorethane	14.3				16.6	116
	Carbon Tetrachloride	20.0				18.1	91
	Bromodichloromethane	7.9				8.3	106
	1,2-Dichloropropane	8.0				7.2	91
	Trichloroethene	22.2				23.0	104
	Dibromochloromethane	16.7				14.3	86
	Bromoform	9.9				10.0	101
	1,1,2,2-Tetrachloroethane	10.0					
	Tetrachloroethene	6.2					
	Chlorobenzene	8.2				8.5	104
EPA 602	EPA - WP 879 CONC.1						
	Benzene	30.7	35.2	115			
	Toluene	4.1	3.9	96			
	Ethylbenzene	11.5	11.0	95			
	P-Xylene	19.1	20.1	105			
	M-Xylene	42.6	84.1	197			
	O-Xylene	10.6	8.4	79			
EPA 608		(ug/g)					
	Aroclor 1242	58.7					
	Aroclor 1260	56.8					

@ POOR INTEGRATION

QUALITY CONTROL DATA SUMMARY

Compiled 5-20-86

Workorder 8602176 Client Plant 4 Units ug/ml

PARAMETER	ANALYSIS DATE	CALIBRATION VERIFICATION STDS. FOUND	TRUE	%R	DUPLICATE ANALYSIS SAMP#	SAMP	DUPL	RPD	SPIKE RECOVERY SAMP#	SSR	SR	SA	%R	BLANKS
Hg	5-16-86	0.0023	0.0025	92										P <0.0001
samples -C2, -C3		0.0023	0.0025	92										P <0.0001
		0.0025	0.0025	100										P <0.0001

4818

RPD = [(/S-D/)/((S+D)/2)]x100
RPD = Relative Percent Difference
NC = Noncalculable

SPIKE %R = [(SSR-SR)/SA]x100
* = Value is less than five times the instrument detection limit
IDL = Instrument Detection Limit

A = Analytical
P = Predigestion

100 mls of aliquot was used for the standards and blanks.
50 ml of aliquot was used for the samples.

Form II

Q. C. Report No. _____

INITIAL AND CONTINUING CALIBRATION VERIFICATION[3]

LAB NAME _____ CASE NO. 8603176-02,-03

SOW NO. _____

A DATE 5-16-86 UNITS ug/ml

Compound	Initial Calib.[1]			Continuing Calibration[2]					
Metals:	True Value	Found	%R	True Value	Found	%R	Found	%R	Method[4]
1. Aluminum									
2. Antimony									
3. Arsenic	1.0	0.968	97	1.0	0.993	99			P
4. Barium	1.0	1.032	103	1.0	1.023	102			P
5. Beryllium									
6. Cadmium	1.0	1.015	102	1.0	1.004	100			P
7. Calcium									
8. Chromium	1.0	1.021	102	1.0	1.007	101			P
9. Cobalt									
10. Copper									
11. Iron									
12. Lead	1.0	0.879	88	1.0	0.891	89			P
13. Magnesium									
14. Manganese									
15. Mercury									
16. Nickel									
17. Potassium									
18. Selenium	1.0	1.014	101	1.0	0.974	97			P
19. Silver	1.0	0.964	96	1.0	0.947	95			P
20. Sodium									
21. Thallium									
22. Tin									
23. Vanadium									
24. Zinc									
Other: _____									
Cyanide									

[1] Initial Calibration Source _____ [2] Continuing Calibration Source _____

[3] Control Limits: Mercury and Tin 80-120; All Other Compounds 90-110

[4] Indicate Analytical Method Used: P - ICP/Flame AA; F - Furnace

Form III

Q. C. Report No. _____

BLANKS

LAB NAME _____ CASE NO. 86B176-02,03

ADATE 5-16-86 UNITS ug/mL

Matrix _____

Preparation Compound	Initial Calibration Blank Value	Continuing Calibration Blank Value 1	2	3	4	Preparation Blank 1	2
Metals:							
1. Aluminum						60100	
2. Antimony							
3. Arsenic	<0.06	<0.06				<0.06	
4. Barium	<0.001	<0.001				<0.001	
5. Beryllium							
6. Cadmium	<0.002	<0.002				<0.002	
7. Calcium							
8. Chromium	<0.005	<0.005				<0.005	
9. Cobalt							
10. Copper							
11. Iron							
12. Lead	<0.08	<0.08				<0.08	
13. Magnesium							
14. Manganese							
15. Mercury							
16. Nickel							
17. Potassium							
18. Selenium	<0.08	<0.08				<0.08	
19. Silver	<0.002	<0.002				<0.002	
20. Sodium							
21. Thallium							
22. Tin							
23. Vanadium							
24. Zinc							
Other: _____							
Cyanide							

Form V

Q. C. Report No. _____

SPIKE SAMPLE RECOVERY

LAB NAME _____ CASE NO. 803176

A.DATE 5-16-86 EPA Sample No. digestion

Lab Sample ID No. 413

Units ug/ml

Matrix _____

Compound	Control Limit %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spiked Added (SA)	%R[1]
Metals:	80-120				
1. Aluminum	~~75-125~~				
2. Antimony	-				
3. Arsenic	-	0.583	*0.003	0.7	74
4. Barium	-	9.916	0.151	12	81
5. Beryllium	-				
6. Cadmium	-	0.089	*0.005	0.13	65
7. Calcium	-				
8. Chromium	-	0.547	*0.019	0.605	81
9. Cobalt	-				
10. Copper	-				
11. Iron	-				
12. Lead	-	0.1001	<0.08	0.80	75
13. Magnesium	-				
14. Manganese	-				
15. Mercury	-				
16. Nickel	-				
17. Potassium	-				
18. Selenium	-	*0.103	<0.08	0.15	69
19. Silver	-	0.467	0.013	0.460	76
20. Sodium	-				
21. Thallium	-				
22. Tin	-				
23. Vanadium	-				
24. Zinc	-				
Other:					
Cyanide	-				

[1] %R = [(SSR - SR)/SA] x 100

"R"- out of control

Comments: * - Value less than 5 x's the IDL.

Form VI

S. C. Report No. _____

DUPLICATES

LAB NAME _____

CASE NO. 8603176

~~EPA Sample No.~~ duplicate

A DATE 5-16-86

Lab Sample ID No. 82

Units ug/ml

Matrix _____

Compound	Control Limit[1]	Sample(S)	Duplicate(D)	RPD[2]
Metals:				
1. Aluminum				
2. Antimony				
3. Arsenic		<0.00	<0.00	NC
4. Barium		0.096	0.103	7.0
5. Beryllium				
6. Cadmium		*0.003	<0.002	NC
7. Calcium				
8. Chromium		*0.021	*0.025	NC1
9. Cobalt				
10. Copper				
11. Iron				
12. Lead		<0.08	<0.08	NC
13. Magnesium				
14. Manganese				
15. Mercury				
16. Nickel				
17. Potassium				
18. Selenium		<0.08	<0.08	
19. Silver		*0.009	*0.008	NC1
20. Sodium				
21. Thallium				
22. Tin				
23. Vanadium				
24. Zinc				
Other:				
Cyanide				

~~Mercury~~ ~~Cyanide~~

To be added at a later date.

[1] - Non calculable RPD due to value(s) less than CRDL (NC)

[2] RPD = [|S - D| / ((S + D)/2)] x 100

NC1 - non calculable due to values less than 5 times the IDL.

B - 12

VOA preserved with HCL

2 each mud P-22624, EP Tox
2 each mud P-23624, EP Tox
WATER P-22, 601, 602
(Did not receive water)

RADIAN CORPORATION

CHAIN OF CUSTODY RECORD

Field Sample No. WB3

Company Sampled/Address Plant 4

Sample Point Description mud sample

Stream Characteristics:

Temperature — Flow — pH

Visual Observations/Comments mud slurry samples

Collector's Name Toby Walters Date/Time Sampled 3-20-86 1400 hrs

Amount of Sample Collected 4 500 mL, 10 40 mL VOA-vials

Sample Description

Store at: ☐ Ambient ☐ 5°C ☐ −10°C ☐ Other

☐ Caution · No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions · Special Handling · Hazards

run for 624 (purgeables) and EP Toxicity - Ignitability

☐ Hazardous sample (see below) ☐ Non-hazardous sample

☐ Toxic	☐ Skin irritant	☐ Flammable (FP< 40°C)
☐ Pyrophoric	☐ Lachrymator	☐ Shock sensitive
☐ Acidic	☐ Biological	☐ Carcinogenic · suspect
☐ Caustic	☐ Peroxide	☐ Radioactive

☐ Other

Sample Allocation/Chain of Possession:

Organization Name RAS

Received By [signature] Date Received 3-26-86 Time 1430

Transported By TKW Lab Sample No. 86-03184

Comments P22: 2 VOAs } to SAC 3-26-86

Inclusive Dates of Possession P-23: 2 VOAs }

Organization Name Radian Analytical Services

Received By [signature] Date Received 3/27/86 Time 0930

Transported By Federal Lab Sample No.

Comments P-22 - 624's Both with headspace P-23 (602) both with headspace

Inclusive Dates of Possession

Organization Name

Received By Date Received Time

Transported By Lab Sample No.

Comments

Inclusive Dates of Possession

RADIAN CORPORATION

CHAIN OF CUSTODY RECORD

860029 →
860034

Field Sample No. ______

Company Sampled/Address AIR FORCE PLANT 4

Sample Point Description EDTA 6

Stream Characteristics: NA

Temperature ______ Flow ______ pH ______

Visual Observations/Comments ______

Collector's Name PETER A WATERREUS Date/Time Sampled 5/12/86

Amount of Sample Collected 12 VOAS, 12-500 ml GLASS

Sample Description SOIL

Store at: ☐ Ambient ☐ 5°C ☐ −10°C ☒ Other 4°C

☐ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards NOTED HYDROCARBON ODOR IN SAMPLES 860032 + 860033

☐ Hazardous sample (see below) ☐ Non-hazardous sample

☐ Toxic ☐ Skin irritant ☐ Flammable (FP< 40°C)
☐ Pyrophoric ☐ Lachrymator ☐ Shock sensitive
☐ Acidic ☐ Biological ☐ Carcinogenic - suspect
☐ Caustic ☐ Peroxide ☐ Radioactive
☐ Other ______

Sample Allocation/Chain of Possession:

Organization Name RAS

Received By [illegible] Date Received 5-13-86 Time 1000

Transported By PAW Lab Sample No. 8605072

Comments 1 500 ml [illegible] each [illegible] 5-13-86

Inclusive Dates of Possession ______

Organization Name ______

Received By ______ Date Received ______ Time ______

Transported By ______ Lab Sample No. ______

Comments ______

Inclusive Dates of Possession ______

Organization Name ______

Received By ______ Date Received ______ Time ______

Transported By ______ Lab Sample No. ______

Comments ______

Inclusive Dates of Possession ______

PLANT 4 CLIENT COPY
86-05-072

DAILY QUALITY CONTROL
RAS GC LAB

DATE:	5/04/86	SPIKED VALUE (ug/L)	Analyzed Value	% Recovery		Analyzed Value	% Recovery
	INSTRUMENT		D	D			
TEST METHOD	COMPOUND						
EPA 601	EPA WP 483 CONC. 2 AND WP 781 CONC.3						
	Methylene Chloride	9.2					
	1,1-Dichloroethylene	10.0					
	Trans-1,2-Dichloroethylene	5.4					
	Chloroform	43.0					
	1,2-Dichloroethane	27.6					
	1,1,1-Trichlorethane	14.3					
	Carbon Tetrachloride	20.0					
	Bromodichloromethane	7.9					
	1,2-Dichloropropane	8.0					
	Trichloroethene	22.2					
	Dibromochloromethane	16.7					
	Bromoform	9.9					
	1,1,2,2-Tetrachloroethane	10.0					
	Tetrachloroethene	6.2					
	Chlorobenzene	8.2					
EPA 602	EPA - WP 879 CONC.1						
	Benzene	30.7	38.7	126			
	Toluene	4.1	3.4	82			
	Ethylbenzene	11.5	9.4	82			
	P-Xylene	19.1					
	M-Xylene	42.6					
	O-Xylene	10.6					
EPA 608		(ug/g)					
	Aroclor 1242	58.7					
	Aroclor 1260	56.8					

DAILY QUALITY CONTROL
RAS GC LAB

DATE:	5/14/86	SPIKED VALUE (ug/L)	Analyzed Value	% Recovery		Analyzed Value	% Recovery
	INSTRUMENT		B	B			
TEST METHOD	COMPOUND						
EPA 601	EPA WP 483 CONC. 2 AND WP 781 CONC.3						
	Methylene Chloride	9.2					
	1,1-Dichloroethylene	10.0					
	Trans-1,2-Dichloroethylene	5.4					
	Chloroform	~~49.0~~ 12.0	12.2	102			
	1,2-Dichloroethane	~~27.6~~ 2.0	1.3	65			
	1,1,1-Trichlorethane	~~14.3~~ 1.4	1.5	109			
	Carbon Tetrachloride	~~20.0~~ 2.6	2.7	102			
	Bromodichloromethane	~~7.9~~ 2.0	1.9	93			
	1,2-Dichloropropane	8.0	3				
	Trichloroethene	~~22.2~~ 2.9	2.6	88			
	Dibromochloromethane	~~16.7~~ 2.6	2.7	104			
	Bromoform	~~8.0~~ 2.9	2.4	82			
	1,1,2,2-Tetrachloroethane	10.0					
	Tetrachloroethene	~~5.2~~ 1.6	1.6	100			
	Chlorobenzene	8.2					
EPA 602	EPA - WP 879 CONC.1						
	Benzene	30.7					
	Toluene	4.1					
	Ethylbenzene	11.5					
	P-Xylene	19.1					
	M-Xylene	42.6					
	O-Xylene	10.6					
EPA 608		(ug/g)					
	Aroclor 1242	58.7					
	Aroclor 1260	56.8					

DAILY QUALITY CONTROL
RAS GC LAB

DATE:	5/15/86	SPIKED VALUE (ug/L)	Analyzed Value	% Recovery		Analyzed Value	% Recover
	INSTRUMENT		G	G			
TEST METHOD	COMPOUND						
EPA 601	EPA WP 483 CONC. 2 AND WP 781 CONC.3						
	Methylene Chloride	9.2					
	1,1-Dichloroethylene	10.0					
	Trans-1,2-Dichloroethylene	5.4					
	Chloroform	~~43.0~~ 12.0	12.7	106			
	1,2-Dichloroethane	~~27.0~~ 2.0	1.5	74			
	1,1,1-Trichlorethane	~~14.3~~ 1.4	1.3	94			
	Carbon Tetrachloride	~~20.0~~ 2.6	2.3	90			
	Bromodichloromethane	~~7.9~~ 2.0	2.0	100			
	1,2-Dichloropropane	8.0					
	Trichloroethene	~~22.2~~ 2.9	2.5	86			
	Dibromochloromethane	~~16.7~~ 2.6	2.6	100			
	Bromoform	~~.9.9~~ 2.9	2.2	74			
	1,1,2,2-Tetrachloroethane	10.0					
	Tetrachloroethene	~~6.2~~ 1.6	1.1	100			
	Chlorobenzene	8.2					
EPA 602	EPA - WP 879 CONC.1						
	Benzene	30.7					
	Toluene	4.1					
	Ethylbenzene	11.5					
	P-Xylene	19.1					
	M-Xylene	42.6					
	O-Xylene	10.6					
EPA 608		(ug/g)					
	Aroclor 1242	58.7					
	Aroclor 1260	56.8					

VOA RESULTS

LAB # SYSTEM BLANK

CLIENT NAME

SAMPLE ID

EPA METHOD 601	DATE: 5/1/86 ANALYST: cl INSTRUMENT: [illegible]	EPA METHOD 602	DATE: ANALYST: INSTRUMENT:
COMPOUND	**CONCENTRATION (ug/L)**	**COMPOUND**	**CONCENTRATION (ug/L)**
Chloromethane	ND	Benzene	
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluoromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane			
Trans-1,3-Dichloropropene			
Trichloroethene			
Dibromochloromethane			
1,1,2-Trichlorethane			
cis-1,3-Dichloropropene			
2-Chloroethylvinyl ether			
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

SURROGATE RECOVERIES:

601

Bromochloromethane ______

2-Bromo-1-Chloropropane ______

1,4-Dichlorobutane ______

602

a,a,a,-Trifluorotoluene ______

VOA RESULTS

LAB # REAGENT BLANK	
CLIENT NAME	
SAMPLE ID	

EPA METHOD 601	DATE 5/14/86 ANALYST: CY INSTRUMENT Bartlett	EPA METHOD 602	DATE: ANALYST: INSTRUMENT:
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane		Benzene	
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluoromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane	1.26		
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene	0.55	Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene	0.34		
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

LAB # Reagent Blank - sheet 1.5
CLIENT NAME
SAMPLE ID

EPA METHOD 601	DATE: 5/15/92 ANALYST: CO INSTRUMENT: Bernette	EPA METHOD 602	DATE: ANALYST: INSTRUMENT:
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane		Benzene	
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluoromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane	1.78		
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene	1.03	Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene	0.32		
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

LAB # System Blank
CLIENT NAME
SAMPLE ID

EPA METHOD 601	DATE: ANALYST: INSTRUMENT:	EPA METHOD 602	DATE: 5/24/86 ANALYST INSTRUMENT
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane		Benzene	ND
Bromomethane		Toluene	
Vinyl Chloride		Ethyl benzene	
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluoromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	
Trans-1,2-Dichloroethene		M-Xylene	
Chloroform		O-Xylene	
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene		Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

VOA RESULTS

LAB # REAGENT BLANK - TG 1:50
CLIENT NAME
SAMPLE ID

EPA METHOD 601	DATE: ANALYST: INSTRUMENT:	EPA METHOD 602	DATE: 5/24/86 ANALYST: G INSTRUMENT: Q
COMPOUND	CONCENTRATION (ug/L)	COMPOUND	CONCENTRATION (ug/L)
Chloromethane		Benzene	3.72
Bromomethane		Toluene	3.77
Vinyl Chloride		Ethyl benzene	0.51
Chloroethane		Chlorobenzene	
Methylene chloride		1,4-Dichlorobenzene	
Trichlorofluoromethane		1,3-Dichlorobenzene	
1,1-Dichlorethene		1,2-Dichlorobenzene	
1,1-Dichlorethane		P-Xylene	0.77
Trans-1,2-Dichloroethene		M-Xylene	1.43
Chloroform		O-Xylene	1.03
1,2-Dichlorethane			
1,1,1-Trichlorethane			
Carbon tetrachloride			
Bromodichlormethane			
1,2-Dichloropropane		SURROGATE RECOVERIES:	
Trans-1,3-Dichloropropene		601	
Trichloroethene		Bromochloromethane	
Dibromochloromethane		2-Bromo-1-Chloropropane	
1,1,2-Trichlorethane		1,4-Dichlorobutane	
cis-1,3-Dichloropropene		602	
2-Chloroethylvinyl ether		a,a,a,-Trifluorotoluene	
Bromoform			
1,1,2,2-Tetrachlorethane			
Tetrachlorethylene			
Chlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
1,4-Dichlorobenzene			

RADIAN
CORPORATION

SURROGATE RECOVERIES

LAB #: 8605072-01

SAMPLE ID: 860028

DATE: 5-14-86 / 5-24-86

INSTRUMENT: B / D

601/8010

BROMOCHLOROMETHANE: 99% / 101%

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 100% / 102%

RADIAN
CORPORATION

SURROGATE RECOVERIES

LAB #: 8605072-02A

SAMPLE ID: 860030

DATE: 5/14/86 / 5-24-86

INSTRUMENT: B / D

601/8010

BROMOCHLOROMETHANE: 110% / 93%

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 92%

RADIAN
CORPORATION

SURROGATE RECOVERIES

LAB #: 8605072-03

SAMPLE ID: 860031

DATE: 5-14-86 / 5-24-86

INSTRUMENT: B / D

601/8010

BROMOCHLOROMETHANE: 104%

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 102%

RADIAN
CORPORATION

SURROGATE RECOVERIES

LAB #: 86-05-072-04

SAMPLE ID: 860032

DATE: 5-14-86/5-24-86

INSTRUMENT: 8 / D

601/8010

BROMOCHLOROMETHANE: 92 %

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 100 %

RADIAN
CORPORATION

SURROGATE RECOVERIES

LAB #: 8605072-05

SAMPLE ID: 860033

DATE: 5-14-86 / 5-24-86

INSTRUMENT: B / D

601/8010

BROMOCHLOROMETHANE: 92%

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 87%

RADIAN
CORPORATION

SURROGATE RECOVERIES

LAB #: 8605072-C6A

SAMPLE ID: 860034

DATE: 5-15-86 / 5-24-86

INSTRUMENT: B / D

601/8010

BROMOCHLOROMETHANE: 114%

2-BROMO-1-CHLOROPROPANE: _____

602/8020

a,a,a-TRIFLUOROTOLUENE: 99%

RADIAN
CORPORATION

DUPLICATE ANALYSIS

EPA Method 601 Volatile Organics	86-05-072-01 ug/kg			86-05-072-02		
COMPOUND	RUN#1	RUN#2	RPD	RUN#1	RUN#2	RPD
Chloromethane						
Bromomethane						
Vinyl chloride						
Chloroethane						
Methylene chloride						
Trichlorofluoromethane						
1,1-Dichloroethene						
1,1-Dichloroethane						
trans-1,2-Dichloroethene						
Chloroform						
1,2-Dichloroethane						
1,1,1-Trichloroethane	20	21	4.9	21	18	15
Carbon Tetrachloride						
Bromodichloroemethane						
1,2-Dichloropropane						
Trichloroethene						
Dibromochloromethane						
1,1,2-Trichloroethane						
cis-1,2-Dichloropropene						
2-Chloroethylvinyl ether						
Bromoform						
1,1,2,2-Tetrachloreothane						
Tetrachlorethylene						
Chlorobenzene						
1,3-Dichlorobenzene						
1,2-Dichlorobenzene						
1,4-Dichlorobenzene						

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2)/2} \times 100$$

RPD= Relative Percent Difference

RADIAN
CORPORATION

DUPLICATE ANALYSIS

EPA METHOD 602
VOLATILE ORGANICS

SAMPLE # 86-05-072-01

COMPOUND	RUN#1	RUN#2	RPD
Benzene	ND µg/kg	ND µg/kg	NC
Toluene	↓	↓	↓
Ethyl benzene			
1,4-Dichlorobenzene			
1,3-Dichlorobenzene			
1,2-Dichlorobenzene			
O-Xylene			
M-Xylene			
P-Xylene			
Chlorobenzene			

$$RPD = \frac{|R_1 - R_2|}{(R_1 + R_2)/2} \times 100$$

RPD= Relative Percent Difference

RADIAN
CORPORATION

SPIKE RECOVERY

EPA METHOD 601 Volatile Organics	860502-03A Plant 4 5/14/86 860031 RP B				1:5 dilution			
COMPOUNDS	SSR★	~~SR~~ SA	~~SA~~ SR	%R	SSR	SR	SA	%R
Chloromethane								
Bromomethane								
Vinyl chloride								
Chloroethane								
Methylene chloride								
Trichlorofluoromethane								
1,1-Dichloroethene								
1,1-Dichloroethane								
trans-1,2-Dichloroethene								
Chloroform	13.9	12.0	ND	116				
1,2-Dichloroethane	1.00	2.0	ND	50				
1,1,1-Trichloroethane	1.78	1.4	22.1	127				
Carbon Tetrachloride	4.22	2.6	ND	162				
Bromodichloroemethane	2.0	2.0	ND	100				
1,2-Dichloropropane								
Trichloroethene	2.8	2.9	ND	97				
Dibromochloromethane	2.5	2.6	ND	95				
1,1,2-Trichloroethane								
cis-1,2-Dichloropropene								
2-Chlorethylvinyl ether								
Bromoform	1.8	2.9	ND	61				
1,1,2,2-Tetrachloreothane								
Tetrachlorethylene	1.9	1.6	ND	119				
Chlorobenzene								
1,3-Dichlorobenzene								
1,2-Dichlorobenzene								
1,4-Dichlorobenzene								

★ - blank subtracted out already.

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

Compiled 6-20-86 RB

Workorder 86-05-072-01→06 Client PLANT 4 Units ug/ml (ug/g where noted)

PARAMETER	ANALYSIS DATE	CALIBRATION VERIFICATION STDS. FOUND	TRUE	%R	DUPLICATE ANALYSIS SAMP#	SAMP	DUPL	RPD	SPIKE RECOVERY SAMP#	SSR	SR	SA	%R	BLANKS
Hydrocarbon	6-11-86	208	208	100	M 072-05	14000 ug/g	14000 ug/g	0						
IDL = 1 ug/ml (aqueous)		230	208	110										
① 6 ug/g (for 5.0g sample)		206	208	99										
Oil and Grease	6-11-86				M 072-05	13000 ug/g	16000 ug/g	21						
idl = 1 ug/ml (aqueous)														
6 ug/g (for 5.0g sample)														
① Note - sample weights for Hydrocarbon ranged from 4.86g - 5.05g														
sample weights for oil and Grease ranged from 4.90g - 5.02g														

RPD = [(/S-D/)/((S+D)/2)]x100
RPD = Relative Percent Difference
NC = Noncalculable

SPIKE %R = [(SSR-SR)/SA]x100
* = Value is less than five times the Instrument detection limit
IDL = Instrument Detection Limit

A = Analytical
P = Predigestion

560501b

Received once 5/14/86
860029 →
860034

RADIAN CORPORATION

CHAIN OF CUSTODY RECORD

Field Sample No. 860034

Company Sampled/Address AIR FORCE PLANT 4
Sample Point Description EDTA 6

Stream Characteristics: N/A
Temperature ______ Flow ______ pH ______
Visual Observations/Comments ______

Collector's Name PETER A WATERREUS Date/Time Sampled 5/12/86
Amount of Sample Collected 12 VOAS, 12-500 ml GLASS
Sample Description SOIL
Store at: ☐ Ambient ☐ 5°C ☐ −10°C ☒ Other 4°C

☐ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards NOTED HYDROCARBON ODOR IN SAMPLES 860032 + 860033

☐ Hazardous sample (see below) ☐ Non-hazardous sample

☐ Toxic	☐ Skin irritant	☐ Flammable (FP< 40°C)
☐ Pyrophoric	☐ Lachrymator	☐ Shock sensitive
☐ Acidic	☐ Biological	☐ Carcinogenic - suspect
☐ Caustic	☐ Peroxide	☐ Radioactive
☐ Other ______		

Sample Allocation/Chain of Possession:

Organization Name RAS
Received By Jane Lindsey Date Received 5-13-86 Time 1000
Transported By PAW Lab Sample No. ______
Comments 1-500 ml jar of each sample to SAC - 5.13.86
Inclusive Dates of Possession ______

Organization Name RAS-SAC
Received By Wanda Brown Date Received 5/14/86 Time 9:15
Transported By Fed Ex Lab Sample No. ______
Comments ______
Inclusive Dates of Possession ______

Organization Name ______
Received By ______ Date Received ______ Time ______
Transported By ______ Lab Sample No. ______
Comments ______
Inclusive Dates of Possession ______

RADIAN
CORPORATION

CHAIN OF CUSTODY RECORD

Field Sample No. 860035-8

Company Sampled/Address AIR FORCE PLANT 4
Sample Point Description NARF AND BLDG 21 AREA SB-6 → SB-10

Stream Characteristics: N/A
Temperature _____ Flow _____ pH _____
Visual Observations/Comments _____

Collector's Name PETER A WATERREUS Date/Time Sampled 7/21 → 7/22/86
Amount of Sample Collected 11 MASON JARS
Sample Description SOIL
Store at: ☐ Ambient ☐ 5°C ☐ −10°C ☒ Other 4°C

☐ Caution · No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions · Special Handling · Hazards
SAMPLES 860041, 860042, 860043 STRONG HYDROCARBON ODOR

☐ Hazardous sample (see below) ☐ Non-hazardous sample

☐ Toxic	☐ Skin irritant	☐ Flammable (FP< 4
☐ Pyrophoric	☐ Lachrymator	☐ Shock sensitive
☐ Acidic	☐ Biological	☐ Carcinogenic · sus
☐ Caustic	☐ Peroxide	☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:
Organization Name RAS -
Received By [signature] Date Received 7-24-86 Time 0930
Transported By Fed Ex Lab Sample No. 3607086, 088
Comments _____
Inclusive Dates of Possession _____

Organization Name _____
Received By _____ Date Received _____ Time _____
Transported By _____ Lab Sample No. _____
Comments _____
Inclusive Dates of Possession _____

Organization Name _____
Received By _____ Date Received _____ Time _____
Transported By _____ Lab Sample No. _____
Comments _____
Inclusive Dates of Possession _____

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form II

Client ID Plant 4 Compiled 8-19-86

Workorder 8607086 Submitted

INITIAL AND CONTINUING CALIBRATION VERIFICATION[1]

Units ug/mL

Parameter	Run Date	Initial Calib. True	Found	%R	Continuing Calibration True	Found	%R	Found	%R	Found
HC	7-29-86	210	194	92						
Oil & G	7-29-86	210	186	89						
As	8-11-86	.043	.042	98	.043	.041	95			
Pb	8-11-86	.045	.045	100	.045	.046	102			
Se (#02)	8-11-86	.050	.044	88	.050	.046	92			
Se (#05)	8-11-86	.050	.045	90	.050	.043	86			
Hg	8-12-86	.0060	.0062	103	.0060	.0054	90	.0056	93	
Ag	8-11-86	2.00	1.86	93	2.00	1.87	94			
Ba	↓	2.00	2.10	105	2.00	2.14	107			
Cd	↓	2.00	2.08	104	2.00	2.08	104			
Cr	↓	2.00	2.10	105	2.00	2.11	106			

1. Control Limits for %R: ICPES _____

AA F _____

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form III

Client ID Plant 4

Workorder 8607086

Compiled 8-19-86

Submitted

Matrix EP extract

BLANKS

Units ug/ml.

Parameter	IDL	Initial Calibration Blank Value	Continuing Calibration Blank Value			Preparation Blank Value	
			1	2	3	1	2
As	.003	<.003				<.003	
Pb	.001	.003*	.002*			.004*	
Se	.002	<.002	<.002			<.002	
Se	.002	<.002	<.002				
Hg						<.0002	
Ag	.002	<.002	.00*			<.002	
Ba	.001	.001*	<.001			<.001	
Cd	.002	<.002	<.002			<.002	
Cr	.005	<.005	<.005			<.005	

1. IDL = Instrument Detection Limit
* Indicates value is less than 5X the IDL.

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form VI

Client ID Plant 4

Workorder 8607086

Compiled 8-19-86

Submitted

Matrix EP extract

DUPLICATES

Type analytical

Units ug/ml

Parameter	Sample No.	Control Limit	Sample (S)	Duplicate (D)	RPD[1]	RPD Flag
As	-02		<.003	<.003	NC	
Pb	-02		.015	.015	0	
Se	-02		<.002	<.002	NC	

* Indicates value is less than 5X IDL. (IDL=Instrument detection limit)

1. RPD=Relative percent difference=[|S-D|/((S+D)/2)]X100.
2. NC=Not calculable due to a value less than 5X the IDL.
   NC=Not calculable due to a value less than the CRDL. (Contract Required Detection Limit)
   ^ =RPD out of control limit for matrix duplicate, which may indicate non-homogeneity of the sample.

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form VI

Client ID Plant 4

Workorder 86070816

Compiled 8-19-86

Submitted

Matrix EP extract

DUPLICATES

Type digestion

Units ug/ml

Parameter	Sample No.	Control Limit	Sample (S)	Duplicate (D)	RPD[1]	RPD Flag[2]
Ag	-02		.017	.020	16	
Ba	↓		1.52	1.49	1.3	
Cd	↓		<.002	<.002	NC	
Cr	↓		.032	.022*	NC	

* Indicates value is less than 5X IDL. (IDL=instrument detection limit)

1. RPD=Relative percent difference=[|S-D|/((S+D)/2)]X100.
2. NC_1=Not calculable due to a value less than 5X the IDL.
   NC^1=Not calculable due to a value less than the CRDL. (Contract Required Detection Limit)
   ^ =RPD out of control limit for matrix duplicate, which may indicate non-homogeneity of the sample.

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form V

Client ID plant 4

Workorder 8607086

Compiled 8-19-86

Submitted

Matrix EP extract

SPIKED SAMPLE RECOVERY

Spiking method digestion

Units ug/ml

Parameter	Sample No.	Control Limit of %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	D.F.	%R[1]	%R Flag[2]
As	-02		.58	<.003	.70		83	
Pb	-05		.74	.006	.80		92	
Se	-05		.13	<.002	.15		87	
Hg	-05		.050	.034	.02	1:10	80	
Ag	-05		.38	.03	.60		58	
Ba	↓		10.3	.62	12		81	
Cd	↓		.086	<.002	.13		66	
Cr	↓		.53	.032	.65		77	

< Indicates value is less than 5X IDL. (IDL=Instrument detection limit)

[1] %R = Percent Recovery = [(SSR - SR)/SA] X 100

[2] a=For analytical spike: %R was within control limit only after sample dilution, which may indicate matrix interferences.

R=For matrix spike: %R was not within control limit, which may indicate matrix interferences.

B=Sample result was greater than 4 times spike added concentration, therefore spike added concentration is considered insignificant.

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form V

Client ID Plant 4

Workorder 8607086

Compiled 8-19-86

Submitted

Matrix EP Extract

SPIKED SAMPLE RECOVERY

Spiking method Analytical

Units ug/ml

Parameter	Sample No.	Control Limit of %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	D.F.	%R[1]	%R Flag[2]
As	-02		.019	<.003	.020		95	
Pb	-02		.040	.015	.025		100	
Se	-02		.019	<.003	.025		76	
			.30	<.03	.25	1:10	120	

Indicates value is less than 5X IDL. (IDL=Instrument detection limit)

. %R = Percent Recovery = [(SSR - SR)/SA] X 100

. a=For analytical spike: %R was within control limit only after sample dilution, which may indicate matrix interferences.

R=For matrix spike: %R was not within control limit, which may indicate matrix interferences.

B=Sample result was greater than 4 times spike added concentration, therefore spike added concentration is considered insignificant.

RADIAN
CORPORATION

CHAIN OF CUSTODY RECORD

Field Sample No. 860035-

Company Sampled/Address AIR FORCE PLANT 4

Sample Point Description NARF AND BLDG 21 AREA SB-6 → SB-10

Stream Characteristics: N/A

Temperature _____ Flow _____ pH _____

Visual Observations/Comments _____

Collector's Name PETER A WATERBEUS Date/Time Sampled 7/21 → 7/22/86

Amount of Sample Collected 11 MASON JARS

Sample Description SOIL

Store at: ☐ Ambient ☐ 5°C ☐ −10°C ☒ Other 4°C

☐ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

SAMPLES 860041, 860042, 860043 STRONG HYDROCARBON ODOR

☐ Hazardous sample (see below) ☐ Non-hazardous sample

☐ Toxic	☐ Skin irritant	☐ Flammable (FP<
☐ Pyrophoric	☐ Lachrymator	☐ Shock sensitive
☐ Acidic	☐ Biological	☐ Carcinogenic - su
☐ Caustic	☐ Peroxide	☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:

Organization Name RAS

Received By _____ Date Received 7-24-86 Time 0930

Transported By Fed Ex Lab Sample No. 3607086, 088

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

Organization Name _____

Received By _____ Date Received _____ Time _____

Transported By _____ Lab Sample No. _____

Comments _____

Inclusive Dates of Possession _____

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form II

Client ID Plant 4 Compiled 8-19-86

Workorder 8607086 Submitted

INITIAL AND CONTINUING CALIBRATION VERIFICATION[1]

Units ug/mL

Parameter	Run Date	Initial Calib. True	Found	%R	Continuing Calibration True	Found	%R	Found	%R	Found	%R
HC	7-29-86	210	194	92							
O&G	7-29-86	210	186	89							
As	8-11-86	.043	.042	98	.043	.041	95				
Pb	8-11-86	.045	.045	100	.045	.046	102				
Se (#02)	8-11-86	.050	.044	88	.050	.046	92				
Se (#05)	8-11-86	.050	.045	90	.050	.043	86				
Hg	8-12-86	.0060	.0062	103	.0060	.0054	90	.0056	93		
Ag	8-1-86	2.00	1.86	93	2.00	1.87	94				
Ba	↓	2.00	2.10	105	2.00	2.14	107				
Cd	↓	2.00	2.08	104	2.00	2.08	104				
Cr	↓	2.00	2.10	105	2.00	2.11	106				

1. Control Limits for %R: ICPES _____

AA F _____

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form III

Client ID Plant 4

Workorder 8607086

Compiled 8-19-86

Submitted

Matrix EP extract

BLANKS

Units ug/ml.

Parameter	IDL	Initial Calibration Blank Value	Continuing Calibration Blank Value			Preparation Blank Value	
			1	2	3	1	2
As	.003	<.003				<.003	
Pb	.001	.003*	.002*			.004*	
Se	.002	<.002	<.002			<.002	
Se	.002	<.002	<.002				
Hg						<.0002	
Ag	.002	<.002	.01*			<.002	
Ba	.001	.001*	<.001			<.001	
Cd	.002	<.002	<.002			<.002	
Cr	.005	<.005	<.005			<.005	

1. IDL = Instrument Detection Limit
* Indicates value is less than 5X the IDL.

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form VI

Client ID Plant 4

Workorder 8607086

Compiled 8-19-86

Submitted

Matrix EP extract

DUPLICATES

Type analytical

Units ug/ml

Parameter	Sample No.	Control Limit	Sample (S)	Duplicate (D)	RPD[1]	RPD Flag[2]
As	-02		<.003	<.003	NC	
Pb	-02		.015	.015	0	
Se	-02		<.002	<.002	NC	

* Indicates value is less than 5X IDL. (IDL=Instrument detection limit)

1. RPD=Relative percent difference=[|S-D|/((S+D)/2)]X100.
2. NC_1=Not calculable due to a value less than 5X the IDL.
   NC^1=Not calculable due to a value less than the CRDL. (Contract Required Detection Limit)
   ^ =RPD out of control limit for matrix duplicate, which may indicate non-homogeneity of the sample.

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form VI

Client ID Plant 4

Workorder 86070816

Compiled 8-19-86

Submitted

Matrix EP extract

DUPLICATES

Type digestion

Units ug/ml

Parameter	Sample No.	Control Limit	Sample (S)	Duplicate (D)	RPD[1]	RPD Flag[2]
Ag	-02		.017	.020	16	
Ba	↓		1.52	1.49	1.3	
Cd			<.002	<.002	NC	
Cr	↓		.032	.022*	NC	

* Indicates value is less than 5X IDL. (IDL=instrument detection limit)

1. RPD=Relative percent difference=[|S-D|/((S+D)/2)]X100.
2. NC_1=Not calculable due to a value less than 5X the IDL.
   NC^1=Not calculable due to a value less than the CRDL. (Contract Required Detection Limit)
   ^ =RPD out of control limit for matrix duplicate, which may indicate non-homogeneity of the sample.

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form V

Client ID plant 4

Workorder 8607086

Compiled 8-19-86

Submitted

Matrix EP extract

SPIKED SAMPLE RECOVERY

Spiking method digestion

Units ug/ml

Parameter	Sample No.	Control Limit of %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	D.F.	%R[1]	%R Flag[2]
As	-02		.58	<.003	.70		83	
Pb	-05		.74	.006	.80		92	
Se	-05		.13	<.002	.15		87	
Hg	-05		.050	.034	.02	1:10	80	
Ag	-05		.38	.03	.60		58	
Ba	↓		10.3	.62	12		81	
Cd	↓		.086	<.002	.13		66	
Cr	↓		.53	.032	.65		77	

Indicates value is less than 5X IDL. (IDL=Instrument detection limit)

. %R = Percent Recovery = [(SSR - SR)/SA] X 100

. a=For analytical spike: %R was within control limit only after sample dilution, which may indicate matrix interferences.

R=For matrix spike: %R was not within control limit, which may indicate matrix interferences.

B=Sample result was greater than 4 times spike added concentration, therefore spike added concentration is considered insignificant.

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form V

Client ID Plant 4

Workorder 8607086

Compiled 8-19-86

Submitted

Matrix EP Extract

SPIKED SAMPLE RECOVERY

Spiking method Analytical

Units ug/mL

Parameter	Sample No.	Control Limit of %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	D.F.	%R[1]	%R Flag[2]
As	-02		.019	<.003	.020		95	
Pb	-02		.040	.015	.025		100	
Se	-02		.019	<.003	.025		76	
			.30	<.03	.25	1:10	120	

Indicates value is less than 5X IDL. (IDL=Instrument detection limit)

. %R = Percent Recovery = [(SSR - SR)/SA] X 100

. a=For analytical spike: %R was within control limit only after sample dilution, which may indicate matrix interferences.

R=For matrix spike: %R was not within control limit, which may indicate matrix interferences.

B=Sample result was greater than 4 times spike added concentration, therefore spike added concentration is considered insignificant.

RADIAN
CORPORATION

CHAIN OF CUSTODY RECORD

Field Sample No. 860035-860045

Company Sampled/Address AIR FORCE PLANT 4
Sample Point Description NARF AND BLDG 21 AREA SB-6 → SB-10

Stream Characteristics: N/A
Temperature _____ Flow _____ pH _____
Visual Observations/Comments _____

Collector's Name PETER A WATERREUS Date/Time Sampled 7/21 → 7/22/86
Amount of Sample Collected 11 MASON JARS
Sample Description SOIL
Store at: ☐ Ambient ☐ 5°C ☐ −10°C ☒ Other 4°C

☐ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards
SAMPLES 860041, 860042, 860043 STRONG HYDROCARBON ODOR

☐ Hazardous sample (see below) ☐ Non-hazardous sample

☐ Toxic	☐ Skin irritant	☐ Flammable (FP< 40°C)
☐ Pyrophoric	☐ Lachrymator	☐ Shock sensitive
☐ Acidic	☐ Biological	☐ Carcinogenic - suspect
☐ Caustic	☐ Peroxide	☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:
Organization Name RAS
Received By [signature] Date Received 7-24-86 Time 0930
Transported By Fed Ex Lab Sample No. 860035, C88
Comments _____
Inclusive Dates of Possession _____

Organization Name _____
Received By _____ Date Received _____ Time _____
Transported By _____ Lab Sample No. _____
Comments _____
Inclusive Dates of Possession _____

Organization Name _____
Received By _____ Date Received _____ Time _____
Transported By _____ Lab Sample No. _____
Comments _____
Inclusive Dates of Possession _____

86 07 088
86 07 095

Gross Alpha/Gross Beta Analysis

Sample I.D.----------------SB-6-D SPIKE, 10 uL AM-241 + ~~1.0~~ 0.5 β mL SR-90

Contract Name--------------RAS-AIRFORCE, 8-19-86

Sample Size----------------	0.102	(S) L or g
Areal Density:		
Tare Weight:		
filter/planchet-------	7.1775	
filter/planchet+sample	7.2791	
sample weight---------	101.58	(P) mg
Original, Solid or Liquid:		
for solid:1, for liq:2--	1.00	(?)
Areal Density		
P/10.18(s) or P/19.63(l)	9.98	(A) mg/cm2
Sample Count Time:		
in Hours----------------	1.67	(T)
Background Count Time:		
in Hours----------------	10.00	(TB)

Self Absorption Factor:			Self Absorption Factor		
Alpha Count-------------	0.25	(WA)	Beta Counts---------	0.59	(WB)
Instrument Constant			Instrument Constant		
Alpha-------------------	0.02	(KA)	Beta----------------	0.02	(KB)
Total Counts:			Total Counts:		
Alpha-------------------	173.00	(CA)	Beta----------------	663	(CB)
Background Counts:			Background Counts:		
Alpha-------------------	57.00	(BA)	Beta----------------	544.00	(BB)
Calculated Net Rate:			Calculated Net Rate:		
Alpha (pCi/g)-----------	87.88	(DA)	Beta (pCi/g)--------	113.56	(DB)
Deviation:			Deviation:		
Alpha (pCi/g)-----------	10.52		Beta (pCi/g)--------	7.03	
Quantification Limit:			Quantification Limit:		
Alpha (pCi/g)-----------	15.04		Beta (pCi/g)--------	12.69	

Final Results:

Alpha (pCi/g)----------- 87.88 (10.5)   Beta (pCi/g)-------- 113.56 (7.0)

RADIAN
CORPORATION

86-07-088
86-07-09

Gross Alpha/Gross Beta Analysis

Sample I.D.----------MIXED STD - 10uL AM-241 + 0.5 mL SR-90

Contract Name----------RAS-AIRFORCE,8-18-86

Sample Size----------	1.000	(S) L or g			
Areal Density:					
Tare Weight:					
filter/planchet-------	7.2770				
filter/planchet+sample	7.2767				
sample weight---------	-0.33	(P) mg			
Original, Solid or Liquid:					
for solid:1, for liq:2--	2.00	(?)			
Areal Density					
P/10.18(s) or P/19.63(1)	-0.02	(A) mg/cm2			
Sample Count Time:					
in Hours----------	1.67	(T)			
Background Count Time:					
in Hours----------	10.00	(TB)			
Self Absorption Factor:			Self Absorption Factor		
Alpha Count----------	0.86	(WA)	Beta Counts---------	0.91	(WB)
Instrument Constant			Instrument Constant		
Alpha----------	0.02	(KA)	Beta----------	0.02	(KB)
Total Counts:			Total Counts:		
Alpha----------	117.00	(CA)	Beta----------	644	(CB)
Background Counts:			Background Counts:		
Alpha----------	57.00	(BA)	Beta----------	544.00	(BB)
Calculated Net Rate:			Calculated Net Rate:		
Alpha (pCi/L)----------	1.69	(DA)	Beta (pCi/L)--------	7.22	(DB)
Deviation:			Deviation:		
Alpha (pCi/L)----------	0.27		Beta (pCi/L)--------	0.46	
Quantification Limit:			Quantification Limit:		
Alpha (pCi/L)----------	0.44		Beta (pCi/L)--------	0.83	
Final Results:					
Alpha (pCi/L)----------	1.69 (0.3)		Beta (pCi/L)--------	7.22 (0.5)	

1.69 / 2.18 ~2%

7 360

8607 085
8607 095

RADIAN CORPORATION

Gross Alpha/Gross Beta Analysis

Sample I.D.----------0.5ML SR-90

Contract Name----------RAS-AIRFORCE,8-18-86

Sample Size----------	1.000	(S) L or g			
Areal Density:					
Tare Weight:					
filter/planchet-------	7.2007				
filter/planchet+sample	7.2003				
sample weight---------	-0.35	(P) mg			
Original, Solid or Liquid:					
for solid:1, for liq:2--	2.00	(?)			
Areal Density					
P/10.18(s) or P/19.63(1)	-0.02	(A) mg/cm2			
Sample Count Time:					
in Hours----------	1.67	(T)			
Background Count Time:					
in Hours----------	10.00	(TB)			
Self Absorption Factor:			Self Absorption Factor		
Alpha Count----------	0.86	(WA)	Beta Counts---------	0.91	(WB)
Instrument Constant			Instrument Constant		
Alpha----------	0.02	(KA)	Beta----------	0.02	(KB)
Total Counts:			Total Counts:		
Alpha----------	7.00	(CA)	Beta----------	590	(CB)
Background Counts:			Background Counts:		
Alpha----------	57.00	(BA)	Beta----------	544.00	(BB)
Calculated Net Rate:			Calculated Net Rate:		
Alpha (pCi/L)----------	-0.04	(DA)	Beta (pCi/L)--------	6.52	(DB)
Deviation:			Deviation:		
Alpha (pCi/L)----------	0.16		Beta (pCi/L)--------	0.44	
Quantification Limit:			Quantification Limit:		
Alpha (pCi/L)----------	0.44		Beta (pCi/L)--------	0.83	

Final Results: Note - Calculated Rate is below Detection Limit

Alpha (pCi/L)---------- < (0.4) Beta (pCi/L)-------- 6.52 (0.4)

86-07-038
86-07-095

RADIAN CORPORATION

Gross Alpha/Gross Beta Analysis

Sample I.D.----------10uL AM-241 STD

Contract Name----------RAS-AIRFORCE,8-18-86

Sample Size----------	1.000	(S) L or g			
Areal Density:					
Tare Weight:					
filter/planchet-------	7.2126				
filter/planchet+sample	7.2121				
sample weight---------	-0.46	(P) mg			
Original, Solid or Liquid:					
for solid:1, for liq:2--	2.00	(?)			
Areal Density					
P/10.18(s) or P/19.63(1)	-0.02	(A) mg/cm2			
Sample Count Time:					
in Hours----------	1.67	(T)			
Background Count Time:					
in Hours----------	10.00	(TB)			
Self Absorption Factor:			Self Absorption Factor		
Alpha Count----------	0.86	(WA)	Beta Counts---------	0.91	(WB)
Instrument Constant			Instrument Constant		
Alpha----------	0.02	(KA)	Beta----------	0.02	(KB)
Total Counts:			Total Counts:		
Alpha----------	148.00	(CA)	Beta----------	133	(CB)
Background Counts:			Background Counts:		
Alpha----------	57.00	(BA)	Beta----------	544.00	(BB)
Calculated Net Rate:			Calculated Net Rate:		
Alpha (pCi/L)----------	2.18	(DA)	Beta (pCi/L)--------	0.55	(DB)
Deviation:			Deviation:		
Alpha (pCi/L)----------	0.29		Beta (pCi/L)--------	0.25	
Quantification Limit:			Quantification Limit:		
Alpha (pCi/L)----------	0.44		Beta (pCi/L)--------	0.83	
Final Results:					
Alpha (pCi/L)----------	2.18 (0.3)		Beta (pCi/L)--------	0.55 (0.3)	

80 C7-085

CALCULATION SHEET FOR HI-PRO GAMMA SPECTRA

SAMPLE ID: DIW BLANK, 3-23-86 SAMPLE SIZE: 0.093 (KILOGRAM)

COUNTED IN: TEFLON JAR GEOMETRY CORRECTION: 0.000268698

COUNT TIME: 20000 (SECONDS) EFFICIENCY = -0.0462 + ENERGY* 0.001802 + ENER.^2*-0.000006032

BKGD CT = 72 MDA = 99.77 pCi/kg

MCA LABEL	PEAK ID	ENERGY	INTENSITY	DIS./CNT	SAMPLE: GROSS COUNTS	SAMPLE: NET COUNTS	BLANK BACKGROUND: GROSS COUNTS	BLANK BACKGROUND: NET COUNTS	ABS. NET	ACTIVITY in pCi per (KILOGRAM)
	Cs-137	661.60	0.84800	1.00283	72	42.17			42	99.8

CALCULATION SHEET FOR LO-PRO GAMMA SPECTRA

SAMPLE ID: CS-137 STD.8-27-86 SAMPLE SIZE: 1 (KILOGRAM)

COUNTED IN: TEFLON JAR GEOMETRY CORRECTION: 0.000373664

COUNT TIME: 20000 (SECONDS) EFFICIENCY = 0.029213 + ENERGY* 0.001673 + ENER.^2*-0.000000032

1536771 BKGD CT = 0 MDA = 240559.10 pCi/STD

MDA LABEL	PEAK ID	ENERGY	INTENSITY	DIS./CNT	SAMPLE: GROSS COUNTS	SAMPLE: NET COUNTS	BLANK BACKGROUND: GROSS COUNTS	BLANK BACKGROUND: NET COUNTS	ABS. NET	ACTIVITY in pCi per (KILOGRAM)
	Cs-137	661.60	0.84800	0.99202	0	1536771.00			1536771	240559.1

90-C7-C85

CALCULATION SHEET FOR HI-PRO GAMMA SPECTRA

SAMPLE ID: CS-137 STD. 8-22-6 SAMPLE SIZE: 1 (KILOGRAM)

COUNTED IN: TEFLON JAR GEOMETRY CORRECTION: 0.000268698

COUNT TIME: 20000 (SECONDS) EFFICIENCY = -0.0462 + ENERGY* 0.001802 + ENER.^2*-0.000000032

1090251 BKGD CT = 0 MDA = 239917.18 pCi/STD

MCA LABEL	PEAK ID	ENERGY	INTENSITY	DIS./CNT	SAMPLE: GROSS COUNTS	SAMPLE: NET COUNTS	BLANK BACKGROUND: GROSS COUNTS	BLANK BACKGROUND: NET COUNTS	ABS. NET	ACTIVITY in pCi per KILOGRAM
	Cs-137	661.60	0.84800	1.00283	0	1090251.00			1090251	239917.2

SC C1-08

CALCULATION SHEET FOR LO-PRO GAMMA SPECTRA

SAMPLE ID: BLANK DIW SAMPLE SIZE: 1 (KILOGRAM)

COUNTED IN: LAB "B" GEOMETRY CORRECTION: 0.000166346

COUNT TIME: 65000 (SECONDS) EFFICIENCY = 0.029213 + ENERGY* 0.001673 + ENER. 2*-0.000010032

BKGD CTS= 38 MDA = 3.39 pCi/L SAMPLE: BLANK BACKGROUND:

MDA LABEL	PEAK ID	ENERGY	INTENSITY	DIS. CNT	GROSS COUNTS	NET COUNTS	GROSS COUNTS	NET COUNTS	ABS. NET	ACTIVITY in pCi per (KILOGRAM)
	Cs-137	661.60	0.84800	0.79202	38	31.37	MDA		31	7.4

RADIAN
CORPORATION

CHAIN OF CUSTODY RECORD

Field Sample No. 760724 – 86004

Company Sampled/Address AIR FORCE PLANT 4

Sample Point Description FLARE AREA SD-11

Stream Characteristics: N/A

Temperature ______ **Flow** ______ **pH** ______

Visual Observations/Comments ______

Collector's Name PETER A WATERREUS **Date/Time Sampled** 7/24/86

Amount of Sample Collected 3 MASON JARS

Sample Description SOIL

Store at: ☐ Ambient ☐ 5°C ☐ −10°C ☒ Other 4°C

☐ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards ______

☐ Hazardous sample (see below) ☐ Non-hazardous sample

☐ Toxic	☐ Skin irritant	☐ Flammable (FP< 40°C)
☐ Pyrophoric	☐ Lachrymator	☐ Shock sensitive
☐ Acidic	☐ Biological	☐ Carcinogenic - suspect
☐ Caustic	☐ Peroxide	☐ Radioactive

☒ Other ALPHA, BETA, GAMMA

Sample Allocation/Chain of Possession:

Organization Name ______
Received By ______ **Date Received** ______ **Time** ______
Transported By ______ **Lab Sample No.** 86-07-095
Comments ______
Inclusive Dates of Possession ______

Organization Name ______
Received By ______ **Date Received** ______ **Time** ______
Transported By ______ **Lab Sample No.** ______
Comments ______
Inclusive Dates of Possession ______

Organization Name ______
Received By ______ **Date Received** ______ **Time** ______
Transported By ______ **Lab Sample No.** ______
Comments ______
Inclusive Dates of Possession ______

CALCULATION SHEET FOR LO-PRO GAMMA SPECTRA

SAMPLE ID: DIW BLANK, 8-22-86 SAMPLE SIZE: 0.093 (KILOGRAM)

COUNTED IN: TEFLON JAR GEOMETRY CORRECTION: 0.000373664

COUNT TIME: 20000 (SECONDS) EFFICIENCY = 0.029213 + ENERGY* 0.001673 + ENER.^2*-0.000000032

BKGD CT = 72 MDA = 70.97 pCi/kg

MCA LABEL	PEAK ID	ENERGY	INTENSITY	DIS./CNT	SAMPLE: GROSS COUNTS	SAMPLE: NET COUNTS	BLANK BACKGROUND: GROSS COUNTS	BLANK BACKGROUND: NET COUNTS	ABS. NET	ACTIVITY in pCi per (KILOGRAM)
	Cs-137	661.60	0.84800	0.99202	72	42.17			42	71.0

CALCULATION SHEET FOR LO-PRO GAMMA SPECTRA

SAMPLE ID: CS-137 STD,8-13-86 SAMPLE SIZE: 1 (KILOGRAM)

COUNTED IN: TEFLON JAR GEOMETRY CORRECTION: 0.000373664

COUNT TIME: 20000 (SECONDS) EFFICIENCY = 0.029213 + ENERGY* 0.001673 + ENER.^2*-0.0000003[illegible]

1505110 BKGD CT = 0 MDA = 235603.03 pCi/STD

MCA LABEL	PEAK ID	ENERGY	INTENSITY	DIS./CNT	SAMPLE: GROSS COUNTS	SAMPLE: NET COUNTS	BLANK BACKGROUND: GROSS COUNTS	BLANK BACKGROUND: NET COUNTS	ABS. NET	ACTIVITY in pCi per (KILOGRAM)
	Cs-137	661.60	0.84800	0.99202	0	1505110.00			1505110	235603.[illegible]

56 C7-093

CALCULATION SHEET FOR HI-RES GAMMA SPECTRA

SAMPLE ID: CS-137 STD, 8-13-6 SAMPLE SIZE: 1 (KILOGRAM)

COUNTED IN: TEFLON JAR GEOMETRY CORRECTION: 0.000288698

COUNT TIME: 20000 (SECONDS) EFFICIENCY = -0.0462 + ENERGY* 0.001302 + ENER. 2*-5.00-007

1082308 BKGD CT = 0 MDA = 238169.26 pCi/STD

MCA LABEL	PEAK ID	ENERGY	INTENSITY	DIS./CNT	SAMPLE: GROSS COUNTS	SAMPLE: NET COUNTS	BLANK BACKGROUND: GROSS COUNTS	BLANK BACKGROUND: NET COUNTS	ABS. NET	ACTIVITY in pCi per (KILOGRAM)
	Cs-137	661.60	0.84800	1.00283	0	1082308.00			1082308	238169.7

CALCULATION SHEET FOR HI-PRO GAMMA SPECTRA

SAMPLE ID: BLANK DIW   SAMPLE SIZE: 1 (KILOGRAM)

COUNTED IN: LMS "B"   GEOMETRY CORRECTION: 0.000119678

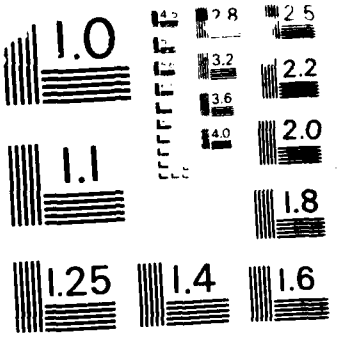
COUNT TIME: 65000 (SECONDS)   EFFICIENCY = -0.0462 + ENERGY* 0.001802 + ENER. 2*-0.[illegible]

BKGD CTS= 44   MDA = 5.10 pCi/L

					SAMPLE:		BLANK BACKGROUND:			ACTIVITY in pCi per
MCA LABEL	PEAK ID	ENERGY	INTENSITY	DIS./CNT	GROSS COUNTS	NET COUNTS	GROSS COUNTS	NET COUNTS	ABS. NET	KILOGRAM
	Cs-137	661.60	0.84800	1.00283	44	33.55	MDA		34	5.1

AD-A190 447 INSTALLATION RESTORATION PROGRAM PHASE 2 5/5
CONFIRMATION/QUANTIFICATION STAG (U) RADIAN CORP
AUSTIN TX DEC 87 F33615-83-D-4001

UNCLASSIFIED F/G 24/7 NL



MICROCOPY RESOLUTION TEST CHART

RADIAN
CORPORATION

86-07-088
86-07-095

Gross Alpha/Gross Beta Analysis

Sample I.D.----------10uL AM-241 STD

Contract Name----------RAS-AIRFORCE,8-18-86

Sample Size----------	1.000	(S) L or g			
Areal Density:					
Tare Weight:					
filter/planchet-------	7.2126				
filter/planchet+sample	7.2121				
sample weight---------	-0.46	(P) mg			
Original, Solid or Liquid:					
for solid:1, for liq:2--	2.00	(?)			
Areal Density					
P/10.18(s) or P/19.63(1)	-0.02	(A) mg/cm2			
Sample Count Time:					
in Hours----------	1.67	(T)			
Background Count Time:					
in Hours----------	10.00	(TB)			
Self Absorption Factor:			Self Absorption Factor		
Alpha Count----------	0.86	(WA)	Beta Counts---------	0.91	(WB)
Instrument Constant			Instrument Constant		
Alpha----------	0.02	(KA)	Beta----------	0.02	(KB)
Total Counts:			Total Counts:		
Alpha----------	148.00	(CA)	Beta----------	133	(CB)
Background Counts:			Background Counts:		
Alpha----------	57.00	(BA)	Beta----------	544.00	(BB)
Calculated Net Rate:			Calculated Net Rate:		
Alpha (pCi/L)----------	2.18	(DA)	Beta (pCi/L)--------	0.55	(DB)
Deviation:			Deviation:		
Alpha (pCi/L)----------	0.29		Beta (pCi/L)--------	0.25	
Quantification Limit:			Quantification Limit:		
Alpha (pCi/L)----------	0.44		Beta (pCi/L)--------	0.83	
Final Results:					
Alpha (pCi/L)----------	2.18 (0.3)		Beta (pCi/L)--------	0.55 (0.3)	

RADIAN
CORPORATION

Gross Alpha/Gross Beta Analysis

Sample I.D.----------0.5ML SR-90

Contract Name----------RAS-AIRFORCE,8-18-86

Sample Size----------	1.000	(S) L or g			
Areal Density:					
Tare Weight:					
filter/planchet-------	7.2007				
filter/planchet+sample	7.2003				
sample weight---------	-0.35	(P) mg			
Original, Solid or Liquid:					
for solid:1, for liq:2--	2.00	(?)			
Areal Density					
P/10.18(s) or P/19.63(1)	-0.02	(A) mg/cm2			
Sample Count Time:					
in Hours----------	1.67	(T)			
Background Count Time:					
in Hours----------	10.00	(TB)			
Self Absorption Factor:			Self Absorption Factor		
Alpha Count----------	0.86	(WA)	Beta Counts---------	0.91	(WB)
Instrument Constant			Instrument Constant		
Alpha----------	0.02	(KA)	Beta----------	0.02	(KB)
Total Counts:			Total Counts:		
Alpha----------	7.00	(CA)	Beta----------	590	(CB)
Background Counts:			Background Counts:		
Alpha----------	57.00	(BA)	Beta----------	544.00	(BB)
Calculated Net Rate:			Calculated Net Rate:		
Alpha (pCi/L)----------	-0.04	(DA)	Beta (pCi/L)--------	6.52	(DB)
Deviation:			Deviation:		
Alpha (pCi/L)----------	0.16		Beta (pCi/L)--------	0.44	
Quantification Limit:			Quantification Limit:		
Alpha (pCi/L)----------	0.44		Beta (pCi/L)--------	0.83	

Final Results: Note - Calculated Rate is below Detection Limit

Alpha (pCi/L)----------	< (0.4)	Beta (pCi/L)--------	6.52 (0.4)

RADIAN CORPORATION

Gross Alpha/Gross Beta Analysis

Sample I.D.----------MIXED STD - 10uL AM-241 + 0.5 mL SR-90

Contract Name----------RAS-AIRFORCE,8-18-86

Sample Size----------	1.000	(S) L or g			
Areal Density:					
Tare Weight:					
filter/planchet-------	7.2770				
filter/planchet+sample	7.2767				
sample weight---------	-0.33	(P) mg			
Original, Solid or Liquid:					
for solid:1, for liq:2--	2.00	(?)			
Areal Density					
P/10.18(s) or P/19.63(1)	-0.02	(A) mg/cm2			
Sample Count Time:					
in Hours----------	1.67	(T)			
Background Count Time:					
in Hours----------	10.00	(TB)			
Self Absorption Factor:			Self Absorption Factor		
Alpha Count----------	0.86	(WA)	Beta Counts---------	0.91	(WB)
Instrument Constant			Instrument Constant		
Alpha----------	0.02	(KA)	Beta----------	0.02	(KB)
Total Counts:			Total Counts:		
Alpha----------	117.00	(CA)	Beta----------	644	(CB)
Background Counts:			Background Counts:		
Alpha----------	57.00	(BA)	Beta----------	544.00	(BB)
Calculated Net Rate:			Calculated Net Rate:		
Alpha (pCi/L)----------	1.69	(DA)	Beta (pCi/L)--------	7.22	(DB)
Deviation:			Deviation:		
Alpha (pCi/L)----------	0.27		Beta (pCi/L)--------	0.46	
Quantification Limit:			Quantification Limit:		
Alpha (pCi/L)----------	0.44		Beta (pCi/L,--------	0.83	
Final Results:					
Alpha (pCi/L)----------	1.69 (0.3)		Beta (pCi/L)--------	7.22 (0.5)	

$\frac{1.69}{2.18}$ 77%

Gross Alpha/Gross Beta Analysis

Sample I.D.----------------SB-6-D SPIKE, 10 uL AM-241 + ~~1.0~~ 0.5 β mL SR-90

Contract Name--------------RAS-AIRFORCE, 8-19-86

Sample Size--------------- 0.102 (S) L or g

Areal Density:

Tare Weight:

filter/planchet------- 7.1775

filter/planchet+sample 7.2791

sample weight--------- 101.58 (P) mg

Original, Solid or Liquid:

for solid:1, for liq:2-- 1.00 (?)

Areal Density

P/10.18(s) or P/19.63(l) 9.98 (A) mg/cm2

Sample Count Time:

in Hours---------------- 1.67 (T)

Background Count Time:

in Hours---------------- 10.00 (TB)

Self Absorption Factor:			Self Absorption Factor		
Alpha Count-------------	0.25	(WA)	Beta Counts---------	0.59	(WB)
Instrument Constant			Instrument Constant		
Alpha-------------------	0.02	(KA)	Beta----------------	0.02	(KB)
Total Counts:			Total Counts:		
Alpha-------------------	173.00	(CA)	Beta----------------	663	(CB)
Background Counts:			Background Counts:		
Alpha-------------------	57.00	(BA)	Beta----------------	544.00	(BB)
Calculated Net Rate:			Calculated Net Rate:		
Alpha (pCi/g)-----------	87.88	(DA)	Beta (pCi/g)--------	113.56	(DB)
Deviation:			Deviation:		
Alpha (pCi/g)-----------	10.52		Beta (pCi/g)--------	7.03	
Quantification Limit:			Quantification Limit:		
Alpha (pCi/g)-----------	15.04		Beta (pCi/g)--------	12.69	

Final Results:

Alpha (pCi/g)----------- 87.88 (10.5)   Beta (pCi/g)-------- 113.56 (7.0)

RADIAN
CORPORATION

CHAIN OF CUSTODY RECORD

860049 →

Field Sample No. 860054

Company Sampled/Address AIR FORCE PLANT 4
Sample Point Description BLDG 21

Stream Characteristics: N/A
Temperature _____ Flow _____ pH _____
Visual Observations/Comments _____

Collector's Name PETER A WATERBEUS Date/Time Sampled 8/11 - 8/12/86
Amount of Sample Collected 6 MASON JARS
Sample Description SOIL
Store at: ☐ Ambient ☐ 5°C ☐ -10°C ☒ Other 0° C

☒ Caution - No more sample available ☐ Return unused portion of sample ☐ Discard unused portions

Other Instructions - Special Handling - Hazards _____

☐ Hazardous sample (see below) ☐ Non-hazardous sample

☐ Toxic	☐ Skin irritant	☐ Flammable (FP< 40°C)
☐ Pyrophoric	☐ Lachrymator	☐ Shock sensitive
☐ Acidic	☐ Biological	☐ Carcinogenic - suspect
☐ Caustic	☐ Peroxide	☐ Radioactive

☐ Other _____

Sample Allocation/Chain of Possession:
Organization Name RAS
Received By PAW Date Received 8 13 86 Time 1330
Transported By _____ Lab Sample No. 36C5055
Comments _____
Inclusive Dates of Possession _____

Organization Name _____
Received By _____ Date Received _____ Time _____
Transported By _____ Lab Sample No. _____
Comments _____
Inclusive Dates of Possession _____

Organization Name _____
Received By _____ Date Received _____ Time _____
Transported By _____ Lab Sample No. _____
Comments _____
Inclusive Dates of Possession _____

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form II

Client ID PLANT 4 Compiled 9-10-86

Workorder 86-08-058 Submitted 9-10-86

INITIAL AND CONTINUING CALIBRATION VERIFICATION[1]

Units µg/ml

Parameter	Run Date	Initial Calib.			Continuing Calibration						
		True	Found	%R	True	Found	%R	Found	%R	Found	%R
As	8-26-86	0.043	0.044	102	0.043	0.041	95	0.042	98	0.039	91
Pb	8-26-86	0.045	0.045	100	0.045	0.045	100	0.049	109		
Se	8-26-86	0.050	0.052	104	0.050	0.048	96	0.049	98	0.052	104
Hg	9-25-86	0.0060	0.0066	110	0.0060	0.0068	113				
Ag	8-28-86	2.00	2.18	109	2.00	2.19	110	2.17	108		
Ba	8-28-86	2.00	2.10	105	2.00	2.14	107	2.13	106		
Cd	"	2.00	2.03	102	2.00	2.11	106	2.11	106		
Cr	9-10-86	2.00	2.03	102	2.00	2.07	104	2.09	104		

1. Control Limits for %R: ICPES _____

AA F _____

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form III

Client ID PLANT 4

Workorder 86-08-095

Compiled 9-10-86

Submitted

Matrix aqueous

BLANKS

Units µg/ml

Parameter	IDL	Initial Calibration Blank Value	Continuing Calibration Blank Value			Preparation Blank Value	
			1	2	3	1	2
As	0.003	<0.003	<0.003			<0.003	
Pb	0.001	<0.001	<0.001			0.004*	
Se	0.002	<0.002	<0.002	<0.002	0.002*	0.005*	
Hg	0.0002					<0.0002	
Ag	0.002	<0.002	0.007*	0.018		0.003*	
Ba	0.001	<0.001	<0.001	0.002*		0.005	
Cd	0.002	<0.002	<0.002	<0.002		<0.002	
Cr	0.005	<0.005	<0.005	<0.005		<0.005	

1. IDL = Instrument Detection Limit
* Indicates value is less than 5X the IDL.

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form V

Client ID PLANT 4

Workorder 86-08-058

Compiled 9-10-86

Submitted

Matrix aqueous

SPIKED SAMPLE RECOVERY

Spiking method analytical

Units µg/ml

Parameter	Sample No.	Control Limit of %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	D.F.	%R[1]	%R Flag[2]
As	058-06		0.020	<0.003	0.020		100	
Pb	058-04		0.61	0.35	0.25		104	
Se	058-06		0.014	<0.002	0.020		70	
Se	058-06		.024	<0.02	.020	1:10	120	

* Indicates value is less than 5X IDL. (IDL=Instrument detection limit)

1. %R = Percent Recovery = [(SSR - SR)/SA] X 100
2. a=For analytical spike: %R was within control limit only after sample dilution, which may indicate matrix interferences.
   R=For matrix spike: %R was not within control limit, which may indicate matrix interferences.
   B=Sample result was greater than 4 times spike added concentration, therefore spike added concentration is considered insignificant.

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form V

Client ID PLANT 4

Workorder 86-08-058

Compiled 9-10-86

Submitted

Matrix aqueous

SPIKED SAMPLE RECOVERY

Spiking method pre-digestion

Units ug/ml

Parameter	Sample No.	Control Limit of %R	Spiked Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	D.F.	%R[1]	%R Flag
As	058-06	75-125	0.58	<0.003	0.70		83	
Pb	058-06	75-125	0.76	0.008	0.80		94	
Se	058-06	75-125	0.14	<0.002	0.15		93	
Hg	058-06	75-125	0.0044	0.0003*	0.0040		102	
Ag	058-05	75-125	0.45	0.004*	0.60		74	see blank R spike
Ba	058-05	75-125	9.54	0.16	12.0		78	
Cd	058-05	75-125	0.096	<0.002	0.13		74	see blank R spike
Ag	blank spike	75-125	0.49	0.003*	0.60		81	
Ba	blank spike	75-125	10.4	0.005	12.0		87	
Cd	blank spike	75-125	0.105	<0.002	0.13		81	
Cr	058-05	75-125	0.89	0.005*	1.00		88	

* Indicates value is less than 5X IDL. (IDL=Instrument detection limit)

1. %R = Percent Recovery = [(SSR - SR)/SA] X 100

2. a=For analytical spike: %R was within control limit only after sample dilution, which may indicate matrix interferences.

   R=For matrix spike: %R was not within control limit, which may indicate matrix interferences.

   B=Sample result was greater than 4 times spike added concentration, therefore spike added concentration is considered insignificant.

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form VI

Client ID PLANT 4

Workorder 86-08-058

Compiled 9-10-86

Submitted

Matrix aqueous

DUPLICATES

Type analytical

Units ug/ml

Parameter	Sample No.	Control Limit	Sample (S)	Duplicate (D)	RPD[1]	RPD Flag
Pb	058-04		0.35	0.36	2.8	
Se	058-04		<0.002	<0.002	NC	NC

* Indicates value is less than 5X IDL. (IDL=instrument detection limit)

1. RPD=Relative percent difference=[|S-D|/((S+D)/2)]X100.
2. NC_1=Not calculable due to a value less than 5X the IDL.
   NC[1]=Not calculable due to a value less than the CRDL. (Contract Required Detection Limit)
   ^ =RPD out of control limit for matrix duplicate, which may indicate non-homogeneity of the sample.

RADIAN ANALYTICAL SERVICES

QUALITY CONTROL DATA SUMMARY

Form VI

Client ID PLANT 4

Workorder 86-08-058

Compiled 9-10-86

Submitted

Matrix aqueous

DUPLICATES

Type pre digestion

Units ug/ml

Parameter	Sample No.	Control Limit	Sample (S)	Duplicate (D)	RPD[1]	RPD Flag[2]
As	058-05		0.003*	<0.003	NC	NC
Pb	058-05		0.043	0.086	67	
Se	058-05		<0.002	<0.002	NC	NC
Ag	058-04		0.015	0.019	24	
Ba	058-04		0.94	0.95	1.0	
Cd	058-04		0.008*	0.009*	NC	NC
Cr	058-04		0.018*	0.017*	NC	NC

* Indicates value is less than 5X IDL. (IDL=Instrument detection limit)

1. RPD=Relative percent difference=[|S-D|/((S+D)/2)]X100.
2. NC_1=Not calculable due to a value less than 5X the IDL.
   NC^1=Not calculable due to a value less than the CRDL. (Contract Required Detection Limit)
   ^ =RPD out of control limit for matrix duplicate, which may indicate non-homogeneity of the sample.

QUALITY CONTROL DATA SUMMARY

Submitted 9-10-86

Compiled LAH 9-10-86

Workorder 8608058 Client PLANT 4 Units below

units: ug/mL

PARAMETER	ANALYSIS DATE	CALIBRATION VERIFICATION STDS. FOUND	TRUE	%R	DUPLICATE ANALYSIS SAMP#	SAMP	DUPL	RPD	SPIKE RECOVERY SAMP#	SSR	SR	SA	%R	BLANKS
TCE/HC	8-22-86	313	310	101										

7 383

RPD = [(1S-D1)/((S+D)/2)] x 100
RPD = Relative Percent Difference
NC = Not calculable due to a value less than five times the IDL

SPIKE %R = [(SSR-SR)/SA] x 100
* = Value is less than five times the instrument detection limit
IDL = Instrument Detection Limit

A = Analytical
P = Predigestion
SSR = Spiked Sample Result
SR = Sample Result
SA = Spiked Added

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END

DATE

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