SDMS US EPA REGION V -1

SOME IMAGES WITHIN THIS DOCUMENT MAY BE ILLEGIBLE DUE TO BAD SOURCE DOCUMENTS.

SEP 10 1992

142893

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 9/4/92

SUBJECT: Review of Region V CLP Data
Received for Review on July 31, 1992

FROM: Charles T. Elly, Director (SSCRL)
Central Regional Laboratory
Patrick J. Chunilla for C.T. Elly

TO: Data User: PRC

We have reviewed the data for the following case(s).

SITE NAME: Waukegan Coke + Gas (IL) SMO Case No. 18320

EPA Data Set No. _____ No. of Samples 5 DU/Activity Numbers /

CRL No. _____

SMO Traffic No. PE 001 - 005

CLP Laboratory: Enseco Cal. Hrs. for Review 14+2=16

Following are our findings:

THE DATA ARE ACCEPTABLE WITH QUALIFICATIONS NOTED IN THE ATTACHED REVIEW. PE003 AND PE004 HAVE MATRIX INTERFERENCE PROBLEMS. - Patrick J. Chunilla 9/4/92

( ) Data are acceptable for use.
(X) Data are acceptable for use with qualifications.
( ) Data are preliminary - pending verification by laboratory.
( ) Data are unacceptable.

cc: Elenor McLean, Sample Mgmt. Office
Edward Kantor, EMSL-Las Vegas

Data Qualifiers

Contractor: ECAL
Case # 18320

Dioxins

This case consisted of 5 soil samples which were received in good condition and run without significant problems.

This reviewers comments are contained in the following narrative.

Revewied by M. Kaminsky
August 31,1992

Data Qualifiers

Contractor: ECAL
Case # 18320

Narrative

Below is a summary of the out-of-control audits and the possible effect on the data for this case:

1. Holding Times.
Extraction holding times for the reanalyzed samples PE002RE, PE002DRE, PE003RE, PE003SRE, and PE004RE, exceeding the contract holding times. ~~Positive detects should be considered as estimated (J) and nondetects should be considered as unusable (R).~~ THE DATA ARE NOT QUALIFIED ON THIS BASIS. - DJC 9-9-92

SAMPLE NUMBER	SAMPLE DATE	EXTRACTION DATE	ANALYSIS DATE
PE001	3-05-92	6-23-93	7-01-92
PE002	3-06-92		
PE003	3-17-92	6-23-92	7-01-92
PE004	3-17-92	6-23-92	7-01-92
PE005	3-18-92	6-23-92	7-01-92
PE002RE		7-15-92	7-22-92
PE002DRE		7-15-92	7-22-92
PE003RE		7-15-92	7-22-92
PE003S		6-23-92	7-01-92
PE003SRE		7-15-92	7-22-92
PE004RE		7-15-92	7-22-92

There is no mention in the laboratories case narrative what caused the reanalysis of sample PE002, as the original data was not included with this case.

This case was received by the USEPA on July 31,1992.

2. Toxicity Equivalence Summary.
All samples reported undetected dioxin and its congeners, therefore, no Toxicity Equivalence was calculated as all were 0.

3. Initial Calibration.
The initial calibration met all QC requirements.

4. Continuing Calibration.
The 2 continuing calibrations met all QC requirements.

5. Blanks.
The method blanks DFBLK1 and DFBLK2 were both clean. The associated samples are listed on forms 4DF.

Revewied by M. Kaminsky
August 31,1992

6. Total Homologue Concentration Summary.
No concentrations of the homologue were detected in any of the samples.

7. Matrix Spike Analysis and Sample Duplicate Analysis.
Sample PE003 was chosen by the laboratory for the matrix spike sample. All %REC met QC limits of 50-150% for matrix spike analysis. No matrix spike duplicate extraction or analysis were performed as specified in this contract.

8. Internal Standard Recoveries.
Samples PE003, PE003S and PE004 were reanalyzed due to suspected matrix effects. The reanalysis still produced recovery problems with these samples.

Sample number	# of Standards out of control
PE003	4
PE003RE	3
PE003S	4
PE003SRE	4
PE004	4
PE004RE	3

Therefore, a matrix effect is suspect. All positive hits for the associated compounds are to be considered as estimated (J), and all nondetects are to be considered as unusable (R).

9. Target Compound Identification and Quantitation.
For the TCl identification peak retention time and the ion ratio met the specified QC limits.

10. Field Duplicates.
Samples PE003 and PE004 are field duplicates of each other. Agreement is excellent, there were no detected dioxins in either sample.

11. Additional Problems.
The "Traffic Report & Chain of Custody Record" makes no mention as to the whereabouts of these samples from time of sampling until they were shipped to the laboratory on June 15,1992. The integrity and defensibility of this data set is in question without this information.

No additional problems with this data set were noted by this reviewer at this time.

Revewied by M. Kaminsky
August 31,1992

California Analytical
Laboratory

Enseco
A Corning Company

July 30, 1992

CASE NARRATIVE

ECAL
Case 18320
SDG PE001

RECEIVED
JUL 31 1992
US EPA CENTRAL REGIONAL LAB.
536 S. CLARK ST.
CHICAGO, ILLINOIS 60605

Mr. Chuck Elly
EPA Region Five, ESD
536 S. Clark Street
Tenth Floor, 5S CRL
Chicago, IL 60605

Dear Mr. Elly:

Enclosed is the sample data package and complete SDG File for Case number 18320, SDG number PE001. The verified time of samples receipt was officially established as 16 June 1992.

The samples were analyzed as low level, soil/solid material using the Statement of Work for Polychlorinated Dibenzo-p-dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs), Document Number DFLM01.0, including Revision DFLM01.1 (September 1991) under Contract Number 68D-20069. The samples were analyzed using Finnigan TSQ 4500's (ID = F13, F14).

Since isomer specificity for all 2,3,7,8-substituted PCDDs/PCDFs cannot be achieved on the 60m DB-5 column alone, when necessary, isomer specificity and the 50% chromatographic peak resolution criteria between the 1,2,3,4,7,8-HxCDD and 1,2,3,6,7,8-HxCDD will be achieved using an SP-2331 column. No 2,3,7,8-substituted isomers were detected in the SDG, therefore, SP-2331 second column confirmation was not required. Applicable data is attached. See pages 707-810.

Sample numbers in SDG PE001:

Initial Analysis	Reanalysis
PE001	
PE002	
PE002D	
PE003	PE003RE
PE003S	PE003SRE
PE004	PE004RE
PE005	

Enseco Incorporated
2544 Industrial Boulevard
West Sacramento, California 95691
916/372-1393 Fax: 916/372-7768

SDG Narrative
ECAL
Case 18320
SDG PE001

Anomalies

Samples PE003 and PE003S and PE004 were reanalyzed due to suspected matrix effects. Original analyses and re-analyses are submitted as billable samples. Initial analyses of PE003 had the following recoveries outside of control limits: ^{13}C-2,3,7,8-TCDF, ^{13}C-2,3,7,8-TCDD, ^{13}C-1,2,3,6,7,8-HxCDD and ^{37}Cl-2,3,7,8-TCDD. PE003RE had the following recoveries outside of control limits: ^{13}C-2,3,7,8-TCDF, ^{13}C-2,3,7,8-TCDD and ^{37}Cl-2,3,7,8-TCDD, therefore a matrix affect is suspected.

Initial analyses of PE003S had the following recoveries outside of control limits: ^{13}C-2,3,7,8-TCDF, ^{13}C-2,3,7,8-TCDD, ^{37}Cl-2,3,7,8-TCDD and 1,2,3,4,6,7,8-HpCDD. PE003SRE had the following recoveries outside of control limits: same as PE003S (see above).

Initial analyses of PE004 had the following recoveries outside of control limits :^{13}C-2,3,7,8-TCDF, ^{13}C-2,3,7,8-TCDD, ^{13}C-1,2,3,6,7,8-HxCDD and ^{37}Cl-2,3,7,8-TCDD. PE004RE had the following recoveries outside of control limits: ^{13}C-2,3,7,8-TCDF, ^{13}C-2,3,7,8-TCDD and ^{37}Cl-2,3,7,8-TCDD, therefore a matrix effect is suspected.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Shelly Eyraud
Shelly Eyraud
Manager of Low Resolution
Dioxin Services

7/30/92
Date

EPA

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

PCDD/PCDF Traffic Report & Chain of Custody Record

(For Dioxin CLP Analysis)

SAS No. (if applicable)

Case No. 18320

Sample Number	Double Sample	Region No.	Sampling Co.	4. Date Shipped: 06/15/92
Carrier: Fed Ex	7. Date Received -- Received by: 16 Jun 92			
Airbill Number: 2385	Laboratory Contract Number: 68D-20069	Unit Price: 633.00		
Sampler Signature	8. Transfer to	Date Received		
8. Type of Activity: RIFS, RD, RA, O&M, NPEDC, CLEM, REMA, REM, OIL, UST, SI, PRP, ST, FED, PA, SSI, LSI	Received by			
	Contract Number	Price		

Sample Number (from labels)	A Enter from Box 1	B RAS Analysis PCDD/PCDF	C Special Handling	D Regional Specific Tracking Number or Tag Numbers	E Station Location Number	F Mo/Day/Year/Time Sample Collection	G Sampler Initials	H Sample Condition on Receipt
PE001	5	X		S-046101	1WCP-SS-001	03/05/92 1020	RH	
PE002		X		S-046102	1WCP-SS-002	03/06/92 1010	RH	
PE003		X		S-046103	1WCP-TS-004	03/17/92 1110	RH	
PE004		X		S-046104	1WCP-TS-004D	03/17/92 1110	RH	
PE005		X		S-046105	1WCP-TS-005	03/18/92 1445	RH	final SDG sample

Shipment for Case complete? (Y/N) Y

Page 1 of 1

Additional Sampler Signatures

SDG = PE001

Chain of Custody Seal Number: 157365 & 157366

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
[signature]	06/15/92 1600	Fed Ex			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Received by: (Signature)	Date / Time	Received for Laboratory by: (Signature) [signature]	Date / Time: 6/16/92 0820	Remarks: Is custody seal intact? (Y)/N/none	

Split Samples ☐ Accepted (Signature) ☐ Declined

EPA Form 9110-5 (8-91)
DISTRIBUTION:
White - Region Copy Yellow - SMO Copy Pink - Lab Copy Gold - Lab Copy for Return to SMO

PCDD/PCDF

D 000507

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE No.

DFBLK1

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: METHOD BLANK

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 64582MB

Water Sample Prep: ~~Sepfunnel~~ SX 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 100 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Homologue	Peaks	Concentration	Q	EMPC/EDL
DIOXINS				
Total TCDD			U	0.041
Total PeCDD			U	0.027
Total HxCDD			U	0.11
Total HpCDD			U	0.069
FURANS				
Total TCDF			U	0.022
Total PeCDF			U	0.040
Total HxCDF			U	0.049
Total HpCDF			U	0.076

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis. The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE No.

DFBLK 2

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: METHOD BLANK

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 6458202MB15

Water Sample Prep: ~~Sepfunnel~~ SR 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: 100 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Homologue	Peaks	Concentration	Q	EMPC/EDL
DIOXINS				
Total TCDD			U	0.057
Total PeCDD			U	0.0516
Total HxCDD			U	0.20 SR 7/29/92
Total HpCDD			U	0.21
FURANS				
Total TCDF			U	0.036
Total PeCDF			U	0.080
Total HxCDF			U	0.19
Total HpCDF			U	0.33

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis
The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE No.

PE001

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-1

Sample wt/vol: 10.65 (g/mL) G Lab File ID: 6458201

Water Sample Prep: ~~Sepfunnel~~ 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 95 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Homologue	Peaks	Concentration	Q	EMPC/EDL
DIOXINS				
Total TCDD			U	0.096
Total PeCDD			U	0.087
Total HxCDD			U	0.25
Total HpCDD			U	0.15
FURANS				
Total TCDF			U	0.057
Total PeCDF			U	0.10
Total HxCDF			U	0.092
Total HpCDF			U	0.15

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis. The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE No.

PE002 RE

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-2

Sample wt/vol: 10.33 (g/mL) G Lab File ID: 6458202R15

Water Sample Prep: ~~Sepfunnel~~ se 7/29/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: 90 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Homologue	Peaks	Concentration	Q	EMPC/EDL
DIOXINS				
Total TCDD			U	0.058
Total PeCDD			U	0.059
Total HxCDD			U	0.20
Total HpCDD			U	0.31
FURANS				
Total TCDF			U	0.044
Total PeCDF			U	0.095
Total HxCDF			U	0.24
Total HpCDF			U	0.37

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis. The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO.

PE002DRE

Lab Name: ENSECO-CAL ANALYTICAL Contract: 68D-20069

Lab Code: ECAL Case No.: 18320 SAS No.: _____ SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-2DU

Sample wt/vol: 10.56 (g/mL) G Lab File ID: 6458202DR1S

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) % Solids: 90 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

CONCENTRATION UNITS: (ng/L or ug/Kg) UG/KG

HOMOLOGUE	PEAKS	CONCENTRATION	Q	EMPC/EDL
DIOXINS				
Total TCDD			U	0.064
Total PeCDD			U	0.062
Total HxCDD			U	0.18
Total HpCDD			U	0.28
FURANS				
Total TCDF			U	0.041
Total PeCDF			U	0.090
Total HxCDF			U	0.33
Total HpCDF			U	~~0.55~~ 0.29 SC 7/29/92

NOTE: Concentrations, EMPCs, and EDLs are calculated on a wet weight basis. The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE No.

PE003

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-3

Sample wt/vol: 10.33 (g/mL) G Lab File ID: 6458203

Water Sample Prep: ~~Sepfunnel~~ se 7/3, /92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 81 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Homologue	Peaks	Concentration	Q	EMPC/EDL
DIOXINS				
Total TCDD			U	0.48
Total PeCDD			U	0.37
Total HxCDD			U	0.33
Total HpCDD			U	0.26
FURANS				
Total TCDF			U	0.70
Total PeCDF			U	0.87
Total HxCDF			U	0.099
Total HpCDF			U	0.17

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis. The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE No.

PE003 RE

Lab Name: ENSECO - Cal Analytical Contract: DFLM01.0

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-3

Sample wt/vol: 10.23 (g/mL) G Lab File ID: 6458203RIS

Water Sample Prep: ~~Sepfunnel~~ SE 7/29/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: ~~100~~ 81 SE 7/29/92 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Homologue	Peaks	Concentration	Q	EMPC/EDL
DIOXINS				
Total TCDD			U	~~1.3~~ 1.2 RH 7/29/92
Total PeCDD			U	1.1
Total HxCDD			U	0.52
Total HpCDD			U	0.70
FURANS				
Total TCDF			U	1.2
Total PeCDF			U	1.9
Total HxCDF			U	0.30
Total HpCDF			U	0.51

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis. The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE No.

PE003S

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-3MS

Sample wt/vol: 10.16 (g/mL) G Lab File ID: 6458203MS

Water Sample Prep: ~~Sepfunnel~~ se 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 80 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Homologue	Peaks	Concentration	Q	EMPC/EDL
DIOXINS				
Total TCDD	1	2.1		
Total PeCDD	1	4.6		
Total HxCDD	1	5.9		
Total HpCDD	1	12		
FURANS				
Total TCDF	1	1.7 RA 7/27/92		
Total PeCDF	1	~~12~~ 5.4		
Total HxCDF	1	se 7/30/92 ~~3.4~~ 3.3		
Total HpCDF	1	se 7/30/92 ~~8.3~~ 5.4		

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis. The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE No.

PE0035RE

Lab Name: ENSECO - Cal Analytical Contract: 68D-20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL - (Soil/Water/Waste/Ash) Lab Sample ID: 64582-3MS

Sample wt/vol: 10.35 (g/mL) G Lab File ID: 64582-03MSRI

Water Sample Prep: ~~Sepfunnel~~ 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: 80 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Homologue	Peaks	Concentration	Q	EMPC/EDL
DIOXINS				
Total TCDD	1	1.9		
Total PeCDD	1	4.6		
Total HxCDD	1	4.2		
Total HpCDD	1	10		
FURANS				
Total TCDF	1	1.9		
Total PeCDF	1	4.6		
Total HxCDF	1	3.5		
Total HpCDF	1	5.5		

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis. The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE No.

PE004

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-4

Sample wt/vol: 10.58 (g/mL) G Lab File ID: 6458204

Water Sample Prep: ~~Sepfunnel~~ SC 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 91 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Homologue	Peaks	Concentration	Q	EMPC/EDL
DIOXINS				
Total TCDD			U	0.17
Total PeCDD			U	0.13
Total HxCDD			U	0.18
Total HpCDD			U	0.14
FURANS				
Total TCDF			U	0.25
Total PeCDF			U	0.31
Total HxCDF			U	0.063
Total HpCDF			U	0.11

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis. The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE No.

PE004RE

Lab Name: ENSECO - Cal Analytical Contract: ~~DPLM01.0~~ 68D-20069 RH 7/29/92

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-4

Sample wt/vol: 10.22 (g/mL) G Lab File ID: 6458204RIS

Water Sample Prep: ~~Sepfunnel~~ SE 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: 91 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Homologue	Peaks	Concentration	Q	EMPC/EDL
DIOXINS				
Total TCDD			U	1.6
Total PeCDD			U	1.2
Total HxCDD			U	0.77
Total HpCDD			U	0.99
FURANS				
Total TCDF			U	1.8
Total PeCDF			U	2.5
Total HxCDF			U	0.52
Total HpCDF			U	0.73

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis. The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE No.

PE005

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-5

Sample wt/vol: 10.23 (g/mL) G Lab File ID: 6458205

Water Sample Prep: ~~Sepfunnel~~ SX 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 90 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Homologue	Peaks	Concentration	Q	EMPC/EDL
DIOXINS				
Total TCDD			U	0.14
Total PeCDD			U	0.15
Total HxCDD			U	0.23
Total HpCDD			U	0.15
FURANS				
Total TCDF			U	0.15
Total PeCDF			U	0.22
Total HxCDF			U	0.085
Total HpCDF			U	0.14

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis. The total congener concentrations do not affect the TEF calculations.

3DFA

PCDD/PCDF SPIKED SAMPLE SUMMARY

EPA SAMPLE No.

PE003S

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash)

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Spike Added(PG)	Spiked Sample Concentration	Sample Concentration	% Rec#	QC Limits
2378-TCDD	25000	2.1	ND 0	85	50-150
2378-TCDF	25000	1.7	ND 0	69	50-150
12378-PeCDF	62500	5.4	ND 0	88	50-150
12378-PeCDD	62500	4.6	ND 0	75	50-150
123678-HxCDF	62500	3.3	ND 0	55	50-150
123678-HxCDD	62500	5.9	ND 0	96	50-150
1234678-HpCDF	62500	5.4	ND 0	88	50-150
1234678-HpCDD	62500	12	ND 0	195*	50-150
OCDD	125000	10	ND 0	81	50-150
OCDF	125000	11	ND 0	89	50-150

If an analyte is not detected in the unspiked sample, enter 0 (zero) as the "SAMPLE CONCENTRATION".

- Column to be used to flag values outside QC limits

QC limits are advisory.

3DFA

PCDD/PCDF SPIKED SAMPLE SUMMARY

EPA SAMPLE No.

PE0035 RE

Lab Name: ENSECO - Cal Analytical Contract: 68D-20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash)

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Spike Added(PG)	Spiked Sample Concentration	Sample Concentration	% Rec#	QC Limits
2378-TCDD	25000	1.9	0	79	50-150
2378-TCDF	25000	1.9	0	79	50-150
12378-PeCDF	62500	4.6	0	76	50-150
12378-PeCDD	62500	4.6	0	76	50-150
123678-HxCDF	62500	3.5	0	58	50-150
123678-HxCDD	62500	4.2	0	70	50-150
1234678-HpCDF	62500	5.5	0	91	50-150
1234678-HpCDD	62500	10	0	166*	50-150
OCDD	125000	10	0	83	50-150
OCDF	125000	11	0	91	50-150

If an analyte is not detected in the unspiked sample, enter 0 (zero) as the "SAMPLE CONCENTRATION".

- Column to be used to flag values outside QC limits

QC limits are advisory.

3DFB
PCDD/PCDF DUPLICATE SAMPLE SUMMARY

EPA SAMPLE NO.

PE002DRE

Name: ENSECO-CAL ANALYTICAL Contract: 68D-20069

Lab Code: ECAL Case No.: 18320 SAS No.: _____ SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash)

CONCENTRATION UNITS: (ng/L or ug/Kg) UG/KG

ANALYTE	SAMPLE CONCENTRATION	DUPLICATE CONCENTRATION	RPD	# QC LIMITS
2378-TCDD	0	0	0	50
2378-TCDF	0	0	0	50
12378-PeCDF	0	0	0	50
12378-PeCDD	0	0	0	50
23478-PeCDF	0	0	0	50
123478-HxCDF	0	0	0	50
123678-HxCDF	0	0	0	50
123478-HxCDD	0	0	0	50
123678-HxCDD	0	0	0	50
123789-HxCDD	0	0	0	50
234678-HxCDF	0	0	0	50
123789-HxCDF	0	0	0	50
1234678-HpCDF	0	0	0	50
1234678-HpCDD	0	0	0	50
1234789-HpCDF	0	0	0	50
OCDD	0	0	0	50
OCDF	0	0	0	50

If an analyte is not detected in either analysis, enter 0 (zero) as the concentration.

Column to be used to flag values outside QC limits.

QC limits are advisory

4DF

PCDD/PCDF METHOD BLANK SUMMARY

EPA SAMPLE No.

DFBLK1

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: METHOD BLANK

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 64582MB

Water Sample Prep: ~~Sepfunnel~~ 7/20/92 Date Extracted: 23 JUN 92

Date Analyzed: 01 JUL 92

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, SPIKES AND DUPLICATES:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
PE001	64582-1	6458201	07/01/92
PE003	64582-3	6458203	07/01/92
PE003S	64582-3MS	6458203MS	07/01/92
PE004	64582-4	6458204	07/01/92
PE005	64582-5	6458205	07/01/92

4DF

PCDD/PCDF METHOD BLANK SUMMARY

EPA SAMPLE NO.

DFBLK2

Lab Name: ENSECO-CAL ANALYTICAL Contract: 68D-20069

Lab Code: ECAL Case No.: 18320 SAS No.: _____ SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: METHOD BLANK

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 6458202MBIS

Water Sample Prep.: _____ (Sepf/Cont) Date Extracted: 15 JUL 92

Date Analyzed: 22 JUL 92

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, SPIKES, AND DUPLICATES:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
PE002RE	64582-2	6458202RIS	7/22/92
PE002DRE	64582-2D	6458202DRIS	7/22/92
PE003RE	64582-3	6458203RIS	7/22/92
PE003SRS	64582-3S	6458203MSRIS	7/22/92
PE004RE	64582-4	6458204RIS	7/22/92

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE No.

DFBLK1

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: METHOD BLANK

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 64582MB

Water Sample Prep: ~~Sepfunnel~~ SE 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 100 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Selected Ions	Peak Rt	Ion Ratio#	Concentration	Q	EMPC/EDL
2378-TCDD	320/322				U	0.041
2378-TCDF	304/306				U	0.022
12378-PeCDF	340/342				U	0.019
12378-PeCDD	356/358				U	0.027
23478-PeCDF	340/342				U	0.040
123478-HxCDF	374/376				U	0.048
123678-HxCDF	374/376				U	0.048
123478-HxCDD	390/392				U	0.082
123678-HxCDD	390/392				U	0.11
123789-HxCDD	390/392				U	0.066
234678-HxCDF	374/376				U	0.040
123789-HxCDF	374/376				U	0.049
1234678-HpCDF	408/410				U	0.049
1234678-HpCDD	424/426				U	0.069
1234789-HpCDF	408/410				U	0.076
OCDD	458/460				U	0.19
OCDF	442/444				U	0.15

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis.

Internal Standard	Selected Ions	Peak Rt	Ion Ratio#	Ion Ratio Limits	% Rec #	Recovery Limits
13C-2378-TCDF	316/318	16.05	0.80	0.65-0.89	38.53	25-150
13C-2378-TCDD	332/334	16.32	0.83	0.65-0.89	40.05	25-150
13C-123678-HxCDD	402/404	20.50	1.30	1.05-1.43	46.72	25-150
13C-1234678-HpCDF	420/422	21.23	1.01	0.88-1.20	42.76	25-150
13C-OCDD	470/472	26.18	0.91	0.76-1.01	26.30	25-150
37Cl-2378-TCDD	328/NA	16.33	NA	NA	32.34	25-150

- Column to be used to flag values outside QC limits

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE No.

DFBLK1

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: METHOD BLANK

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 64582MB

Water Sample Prep: ~~Sepfunnel~~ SC 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 100 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Concentration	TEF		TEF-Adjusted Concentration
2378-TCDD	0.0	x 1.0	=	0.0
2378-TCDF	0.0	x 0.1	=	0.0
12378-PeCDF	0.0	x 0.05	=	0.0
12378-PeCDD	0.0	x 0.5	=	0.0
23478-PeCDF	0.0	x 0.5	=	0.0
123478-HxCDF	0.0	x 0.1	=	0.0
123678-HxCDF	0.0	x 0.1	=	0.0
123478-HxCDD	0.0	x 0.1	=	0.0
123678-HxCDD	0.0	x 0.1	=	0.0
123789-HxCDD	0.0	x 0.1	=	0.0
234678-HxCDF	0.0	x 0.1	=	0.0
123789-HxCDF	0.0	x 0.1	=	0.0
1234678-HpCDF	0.0	x 0.01	=	0.0
1234678-HpCDD	0.0	x 0.01	=	0.0
1234789-HpCDF	0.0	x 0.01	=	0.0
OCDD	0.0	x 0.001	=	0.0
OCDF	0.0	x 0.001	=	0.0
		Total	=	0.0

NOTE: Do not include EMPC and EDL in the TEF-adjusted Concentration

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 ug/Kg for any solid matrix or greater than 7 ug/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE No.

DFBLK2

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: METHOD BLANK

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 64582.02MBIS

Water Sample Prep: ~~Sepfunnel~~ SC 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: 100 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Selected Ions	Peak Rt	Ion Ratio#	Concentration	Q	EMPC/EDL
2378-TCDD	320/322				U	0.057
2378-TCDF	304/306				U	0.036
12378-PeCDF	340/342				U	0.035
12378-PeCDD	356/358				U	~~0.051~~ 0.061
23478-PeCDF	340/342				U	0.080
123478-HxCDF	374/376				U	0.18
123678-HxCDF	374/376				U	0.17
123478-HxCDD	390/392				U	0.20
123678-HxCDD	390/392				U	0.19
123789-HxCDD	390/392				U	0.16
234678-HxCDF	374/376				U	0.15
123789-HxCDF	374/376				U	0.19
1234678-HpCDF	408/410				U	0.22
1234678-HpCDD	424/426				U	0.21
1234789-HpCDF	408/410				U	0.33
OCDD	458/460				U	1.2
OCDF	442/444				U	0.63

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis.

Internal Standard	Selected Ions	Peak Rt	Ion Ratio#	Ion Ratio Limits	% Rec #	Recovery Limits
13C-2378-TCDF	316/318	14.77	0.77	0.65-0.89	84.60	25-150
13C-2378-TCDD	332/334	15.08	0.84	0.65-0.89	81.66	25-150
13C-123678-HxCDD	402/404	19.02	1.38	1.05-1.43	84.66	25-150
13C-1234678-HpCDF	420/422	20.52	1.10	0.88-1.20	62.36	25-150
13C-OCDD	470/472	23.97	0.86	0.76-1.01	55.14	25-150
37Cl-2378-TCDD	328/NA	15.06	NA	NA	56.02	25-150

- Column to be used to flag values outside QC limits

FORM I PCDD-1 02/92

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE No.

DFBLK 2

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: METHOD BLANK

Sample wt/vol: 10.0 (g/mL) G Lab File ID: 6458202MB15

Water Sample Prep: ~~Sepfunnel~~ 8 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: 100 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Concentration	TEF		TEF-Adjusted Concentration
2378-TCDD	0.0	x 1.0	=	0.0
2378-TCDF	0.0	x 0.1	=	0.0
12378-PeCDF	0.0	x 0.05	=	0.0
12378-PeCDD	0.0	x 0.5	=	0.0
23478-PeCDF	0.0	x 0.5	=	0.0
123478-HxCDF	0.0	x 0.1	=	0.0
123678-HxCDF	0.0	x 0.1	=	0.0
123478-HxCDD	0.0	x 0.1	=	0.0
123678-HxCDD	0.0	x 0.1	=	0.0
123789-HxCDD	0.0	x 0.1	=	0.0
234678-HxCDF	0.0	x 0.1	=	0.0
123789-HxCDF	0.0	x 0.1	=	0.0
1234678-HpCDF	0.0	x 0.01	=	0.0
1234678-HpCDD	0.0	x 0.01	=	0.0
1234789-HpCDF	0.0	x 0.01	=	0.0
OCDD	0.0	x 0.001	=	0.0
OCDF	0.0	x 0.001	=	0.0
		Total	=	0.0

NOTE: Do not include EMPC and EDL in the TEF-adjusted Concentration

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 ug/Kg for any solid matrix or greater than 7 ug/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE No.

PE001

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-1

Sample wt/vol: 10.65 (g/mL) G Lab File ID: 6458201

Water Sample Prep: Sepfunnel Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 95 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Selected Ions	Peak Rt	Ion Ratio#	Concentration	Q	EMPC/EDL
2378-TCDD	320/322				U	0.096
2378-TCDF	304/306				U	0.057
12378-PeCDF	340/342				U	0.047
12378-PeCDD	356/358				U	0.087
23478-PeCDF	340/342				U	0.10
123478-HxCDF	374/376				U	0.090
123678-HxCDF	374/376				U	0.090
123478-HxCDD	390/392				U	0.19
123678-HxCDD	390/392				U	0.25
123789-HxCDD	390/392				U	0.15
234678-HxCDF	374/376				U	0.09
123789-HxCDF	374/376				U	0.07
1234678-HpCDF	408/410				U	0.097
1234678-HpCDD	424/426				U	0.15
1234789-HpCDF	408/410				U	0.15
OCDD	458/460				U	0.21
OCDF	442/444				U	0.14

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis.

Internal Standard	Selected Ions	Peak Rt	Ion Ratio#	Ion Ratio Limits	% Rec #	Recovery Limits
13C-2378-TCDF	316/318	16.10	0.81	0.65-0.89	44.42	25-150
13C-2378-TCDD	332/334	16.37	0.84	0.65-0.89	42.22	25-150
13C-123678-HxCDD	402/404	20.55	1.26	1.05-1.43	43.96	25-150
13C-1234678-HpCDF	420/422	22.28	1.00	0.88-1.20	41.97	25-150
13C-OCDD	470/472	26.25	0.89	0.76-1.01	34.80	25-150
37Cl-2378-TCDD	328/NA	16.38	NA	NA	36.03	25-150

- Column to be used to flag values outside QC limits

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE No.

PE001

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-1

Sample wt/vol: 10.65 (g/mL) G Lab File ID: 6458201

Water Sample Prep: ~~Sepfunnel~~ 3/3.1/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 95 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Concentration	TEF	TEF-Adjusted Concentration
2378-TCDD	0.0	x 1.0 =	0.0
2378-TCDF	0.0	x 0.1 =	0.0
12378-PeCDF	0.0	x 0.05 =	0.0
12378-PeCDD	0.0	x 0.5 =	0.0
23478-PeCDF	0.0	x 0.5 =	0.0
123478-HxCDF	0.0	x 0.1 =	0.0
123678-HxCDF	0.0	x 0.1 =	0.0
123478-HxCDD	0.0	x 0.1 =	0.0
123678-HxCDD	0.0	x 0.1 =	0.0
123789-HxCDD	0.0	x 0.1 =	0.0
234678-HxCDF	0.0	x 0.1 =	0.0
123789-HxCDF	0.0	x 0.1 =	0.0
1234678-HpCDF	0.0	x 0.01 =	0.0
1234678-HpCDD	0.0	x 0.01 =	0.0
1234789-HpCDF	0.0	x 0.01 =	0.0
OCDD	0.0	x 0.001 =	0.0
OCDF	0.0	x 0.001 =	0.0
		Total =	0.0

NOTE: Do not include EMPC and EDL in the TEF-adjusted Concentration

If the Total Toxic Equivalent Concentration of the sample is greater tha 7 ng/L for an aqueous sample, greater than 0.7 ug/Kg for any solid matri or greater than 7 ug/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE No.

PE002RE

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-2

Sample wt/vol: 10.33 (g/mL) G Lab File ID: 6458202R15

Water Sample Prep: ~~Sepfunnel~~ SE 7/29/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: 90 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Selected Ions	Peak Rt	Ion Ratio#	Concentration	Q	EMPC/EDL
2378-TCDD	320/322				U	0.058
2378-TCDF	304/306				U	0.044
12378-PeCDF	340/342				U	0.042
12378-PeCDD	356/358				U	0.059
23478-PeCDF	340/342				U	0.095
123478-HxCDF	374/376				U	0.23
123678-HxCDF	374/376				U	0.22
123478-HxCDD	390/392				U	0.20
123678-HxCDD	390/392				U	0.18
123789-HxCDD	390/392				U	0.16
234678-HxCDF	374/376				U	0.20
123789-HxCDF	374/376				U	0.24
1234678-HpCDF	408/410				U	0.24
1234678-HpCDD	424/426				U	0.31
1234789-HpCDF	408/410				U	0.37
OCDD	458/460				U	1.4
OCDF	442/444				U	0.92

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis.

Internal Standard	Selected Ions	Peak Rt	Ion Ratio#	Ion Ratio Limits	% Rec #	Recovery Limits
13C-2378-TCDF	316/318	14.82	0.80	0.65-0.89	65.54	25-150
13C-2378-TCDD	332/334	15.12	0.84	0.65-0.89	72.28	25-150
13C-123678-HxCDD	402/404	19.03	1.39	1.05-1.43	84.72	25-150
13C-1234678-HpCDF	420/422	20.72	1.11	0.88-1.20	64.00	25-150
13C-OCDD	470/472	24.00	0.83	0.76-1.01	49.84	25-150
37Cl-2378-TCDD	328/NA	15.13	NA	NA	57.80	25-150

- Column to be used to flag values outside QC limits

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE No.

PE002RE

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-2

Sample wt/vol: 10.33 (g/mL) G Lab File ID: 6458202R15

Water Sample Prep: ~~Sepfunnel~~ SCF 7/29/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: 90 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Concentration	TEF	TEF-Adjusted Concentration
2378-TCDD	0.0	x 1.0 =	0.0
2378-TCDF	0.0	x 0.1 =	0.0
12378-PeCDF	0.0	x 0.05 =	0.0
12378-PeCDD	0.0	x 0.5 =	0.0
23478-PeCDF	0.0	x 0.5 =	0.0
123478-HxCDF	0.0	x 0.1 =	0.0
123678-HxCDF	0.0	x 0.1 =	0.0
123478-HxCDD	0.0	x 0.1 =	0.0
123678-HxCDD	0.0	x 0.1 =	0.0
123789-HxCDD	0.0	x 0.1 =	0.0
234678-HxCDF	0.0	x 0.1 =	0.0
123789-HxCDF	0.0	x 0.1 =	0.0
1234678-HpCDF	0.0	x 0.01 =	0.0
1234678-HpCDD	0.0	x 0.01 =	0.0
1234789-HpCDF	0.0	x 0.01 =	0.0
OCDD	0.0	x 0.001 =	0.0
OCDF	0.0	x 0.001 =	0.0
		Total =	0.0

NOTE: Do not include EMPC and EDL in the TEF-adjusted Concentration

If the Total Toxic Equivalent Concentration of the sample is greater tha 7 ng/L for an aqueous sample, greater than 0.7 ug/Kg for any solid matri or greater than 7 ug/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.

PE002DRE

Lab Name: ENSECO-CAL ANALYTICAL Contract: 68D-20069

Lab Code: ECAL Case No.: 18320 SAS No.: _____ SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-2DU

Sample wt/vol: 10.56 (g/mL) G Lab File ID: 64582002DR15

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) % Solids: 90 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

CONCENTRATION UNITS: (ng/L or ug/Kg) UG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO #	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322				U	0.064
2378-TCDF	304/306				U	0.041
12378-PeCDF	340/342				U	0.040
12378-PeCDD	356/358				U	0.062
23478-PeCDF	340/342				U	0.090
123478-HxCDF	374/376				U	0.32
123678-HxCDF	374/376				U	0.30
123478-HxCDD	390/392				U	0.18
123678-HxCDD	390/392				U	0.16
123789-HxCDD	390/392				U	0.14
234678-HxCDF	374/376				U	0.28
123789-HxCDF	374/376				U	0.33
1234678-HpCDF	408/410				U	~~0.35~~ 0.18
1234678-HpCDD	424/426				U	0.28
1234789-HpCDF	408/410				U	~~0.55~~ 0.29
OCDD	458/460				U	1.0
OCDF	442/444				U	0.56

NOTE: Concentrations, EMPCs, and EDLs are calculated on a wet weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO #	ION RATIO LIMITS	% REC #	RECOVERY LIMITS
13C-2378-TCDF	316/318	14.80	0.79	0.65-0.89	73.12	25-150
13C-2378-TCDD	332/334	15.06	0.82	0.65-0.89	74.94	25-150
13C-123678-HxCDD	402/404	19.02	1.25	1.05-1.43	83.96	25-150
13C-1234678-HpCDF	420/422	20.52	1.13	0.88-1.20	65.62	25-150
13C-OCDD	470/472	23.95	0.85	0.76-1.01	56.44	25-150
37Cl-2378-TCDD	328/NA	15.10	NA	NA	61.32	25-150

Column to be used to flag values outside QC limits

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.

PE002DRE

Name: ENSECO-CALANALYTICAL Contract: 68D-20069

Lab Code: ECAL Case No.: 18320 SAS No.: _____ SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-2DU

Sample wt/vol: 10.56 (g/mL) G Lab File ID: 64582D02DR15

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) % Solids: 90 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

CONCENTRATION UNITS: (ng/L or ug/Kg) UG/KG

ANALYTE	CONCENTRATION	TEF		TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.0	x 1.0	=	0.0
2378-TCDF	0.0	x 0.1	=	0.0
12378-PeCDF	0.0	x 0.05	=	0.0
12378-PeCDD	0.0	x 0.5	=	0.0
23478-PeCDF	0.0	x 0.5	=	0.0
123478-HxCDF	0.0	x 0.1	=	0.0
123678-HxCDF	0.0	x 0.1	=	0.0
123478-HxCDD	0.0	x 0.1	=	0.0
123678-HxCDD	0.0	x 0.1	=	0.0
123789-HxCDD	0.0	x 0.1	=	0.0
234678-HxCDF	0.0	x 0.1	=	0.0
123789-HxCDF	0.0	x 0.1	=	0.0
1234678-HpCDF	0.0	x 0.01	=	0.0
1234678-HpCDD	0.0	x 0.01	=	0.0
1234789-HpCDF	0.0	x 0.01	=	0.0
OCDD	0.0	x 0.001	=	0.0
OCDF	0.0	x 0.001	=	0.0
		Total	=	0.0

NOTE: Do not include EMPC or EDL values in the TEF-adjusted Concentration.

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 ug/Kg for any solid matrix, or greater than 7 ug/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE No.

PE003

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-3

Sample wt/vol: 10.33 (g/mL) G Lab File ID: 6458203

Water Sample Prep: ~~Sepfunnel~~ SC 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 81 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Selected Ions	Peak Rt	Ion Ratio#	Concentration	Q	EMPC/EDL
2378-TCDD	320/322				U	0.48
2378-TCDF	304/306				U	0.70
12378-PeCDF	340/342				U	0.41
12378-PeCDD	356/358				U	0.37
23478-PeCDF	340/342				U	0.87
123478-HxCDF	374/376				U	0.096
123678-HxCDF	374/376				U	0.096
123478-HxCDD	390/392				U	0.25
123678-HxCDD	390/392				U	0.33
123789-HxCDD	390/392				U	0.20 SC 7/30/92
234678-HxCDF	374/376				U	0.0980
123789-HxCDF	374/376				U	0.0899
1234678-HpCDF	408/410				U	0.11 ng/kg
1234678-HpCDD	424/426				U	0.26
1234789-HpCDF	408/410				U	0.17
OCDD	458/460				U	0.26
OCDF	442/444				U	0.22

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis.

Internal Standard	Selected Ions	Peak Rt	Ion Ratio#	Ion Ratio Limits	% Rec #	Recovery Limits
13C-2378-TCDF	316/318	16.12	0.87	0.65-0.89	5.19 *	25-150
13C-2378-TCDD	332/334	16.42	0.69	0.65-0.89	6.60 *	25-150
13C-123678-HxCDD	402/404	20.58	1.28	1.05-1.43	21.59 *	25-150
13C-1234678-HpCDF	420/422	22.32	0.99	0.88-1.20	33.82	25-150
13C-OCDD	470/472	26.28	0.89	0.76-1.01	39.29	25-150
37Cl-2378-TCDD	328/NA	16.43	NA	NA	4.83 *	25-150

- Column to be used to flag values outside QC limits

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE No.

PE003

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-3

Sample wt/vol: 10.33 (g/mL) G Lab File ID: 6458203

Water Sample Prep: ~~Sepfunnel~~ SC 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 81 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Concentration	TEF	TEF-Adjusted Concentration
2378-TCDD	0.0	x 1.0 =	0.0
2378-TCDF	0.0	x 0.1 =	0.0
12378-PeCDF	0.0	x 0.05 =	0.0
12378-PeCDD	0.0	x 0.5 =	0.0
23478-PeCDF	0.0	x 0.05 = 29/25/92	0.0
123478-HxCDF	0.0	x 0.1 =	0.0
123678-HxCDF	0.0	x 0.1 =	0.0
123478-HxCDD	0.0	x 0.1 =	0.0
123678-HxCDD	0.0	x 0.1 =	0.0
123789-HxCDD	0.0	x 0.1 =	0.0
234678-HxCDF	0.0	x 0.1 =	0.0
123789-HxCDF	0.0	x 0.1 =	0.0
1234678-HpCDF	0.0	x 0.01 =	0.0
1234678-HpCDD	0.0	x 0.01 =	0.0
1234789-HpCDF	0.0	x 0.01 =	0.0
OCDD	0.0	x 0.001 =	0.0
OCDF	0.0	x 0.001 =	0.0
		Total =	0.0

NOTE: Do not include EMPC and EDL in the TEF-adjusted Concentration

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 ug/Kg for any solid matrix or greater than 7 ug/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE No.

PE003RE

Lab Name: ENSECO - Cal Analytical Contract: DFLM01.0

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-3

Sample wt/vol: 10.23 (g/mL) G Lab File ID: 6458203RIS

Water Sample Prep: ~~Sepfunnel~~ SC 7/29/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: ~~100~~ 81 RH 7/10/92 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Selected Ions	Peak Rt	Ion Ratio#	Concentration	Q	EMPC/EDL
2378-TCDD	320/322				U	~~1.3~~ 1.2 RH 7/
2378-TCDF	304/306				U	1.2
12378-PeCDF	340/342				U	0.85
12378-PeCDD	356/358				U	1.1
23478-PeCDF	340/342				U	1.9
123478-HxCDF	374/376				U	0.29
123678-HxCDF	374/376				U	0.26
123478-HxCDD	390/392				U	0.52
123678-HxCDD	390/392				U	0.48
123789-HxCDD	390/392				U	0.41
234678-HxCDF	374/376				U	~~0.30~~ 0.29 RH 7/
123789-HxCDF	374/376				U	~~0.24~~ 0.30
1234678-HpCDF	408/410				U	0.33
1234678-HpCDD	424/426				U	0.70
1234789-HpCDF	408/410				U	0.51
OCDD	458/460				U	1.1
OCDF	442/444				U	0.64

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis.

Internal Standard	Selected Ions	Peak Rt	Ion Ratio#	Ion Ratio Limits	% Rec #	Recovery Limits
13C-2378-TCDF	316/318	14.80	0.78	0.65-0.89	3.74*	25-150
13C-2378-TCDD	332/334	15.10	0.90*	0.65-0.89	4.88*	25-150
13C-123678-HxCDD	402/404	19.03	1.44*	1.05-1.43	32.22	25-150
13C-1234678-HpCDF	420/422	20.72	1.13	0.88-1.20	45.38	25-150
13C-OCDD	470/472	24.00	0.89	0.76-1.01	51.08	25-150
37Cl-2378-TCDD	328/NA	15.12	NA	NA	4.08*	25-150

- Column to be used to flag values outside QC limits

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE No.

PE003 RE

Lab Name: ENSECO - Cal Analytical Contract: DFLM01.0

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-3

Sample wt/vol: 10.23 (g/mL) G Lab File ID: 6458203 RIS

Water Sample Prep: ~~Sepfunnel~~ SE 7/29/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: ~~100~~ 81 SE 7/29/92 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Concentration	TEF	TEF-Adjusted Concentration
2378-TCDD	0.0	x 1.0 =	0.0
2378-TCDF	0.0	x 0.1 =	0.0
12378-PeCDF	0.0	x 0.05 =	0.0
12378-PeCDD	0.0	x 0.5 =	0.0
23478-PeCDF	0.0	x ~~0.05~~ 0.5 =	0.0
123478-HxCDF	0.0	x 0.1 RH 7/29/92	0.0
123678-HxCDF	0.0	x 0.1 =	0.0
123478-HxCDD	0.0	x 0.1 =	0.0
123678-HxCDD	0.0	x 0.1 =	0.0
123789-HxCDD	0.0	x 0.1 =	0.0
234678-HxCDF	0.0	x 0.1 =	0.0
123789-HxCDF	0.0	x 0.1 =	0.0
1234678-HpCDF	0.0	x 0.01 =	0.0
1234678-HpCDD	0.0	x 0.01 =	0.0
1234789-HpCDF	0.0	x 0.01 =	0.0
OCDD	0.0	x 0.001 =	0.0
OCDF	0.0	x 0.001 =	0.0
		Total =	0.0

NOTE: Do not include EMPC and EDL in the TEF-adjusted Concentration

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 ug/Kg for any solid matrix or greater than 7 ug/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE No.

PE003S

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-3MS

Sample wt/vol: 10.16 (g/mL) G Lab File ID: 645823MS

Water Sample Prep: ~~Sepfunnel~~ SX 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 80 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Selected Ions	Peak Rt	Ion Ratio#	Concentration	Q	EMPC/EDL
2378-TCDD	320/322	16.40	0.70	2.1		
2378-TCDF	304/306	16.12	0.49*	1.7		
12378-PeCDF	340/342	19.97	1.27	5.4		
12378-PeCDD	356/358	18.50	1.57	4.6		
23478-PeCDF	340/342				U	
123478-HxCDF	374/376				U	
123678-HxCDF	374/376	20.12	1.29	3.3		
123478-HxCDD	390/392				U	
123678-HxCDD	390/392	20.57	1.39	5.9		
123789-HxCDD	390/392				U	
234678-HxCDF	374/376				U	
123789-HxCDF	374/376				U	
1234678-HpCDF	408/410	22.30	0.99	5.4		
1234678-HpCDD	424/426	23.13	0.97	12		
1234789-HpCDF	408/410				U	
OCDD	458/460	26.30	0.91	10		
OCDF	442/444	26.48	0.89	11		

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis.

Internal Standard	Selected Ions	Peak Rt	Ion Ratio#	Ion Ratio Limits	% Rec #	Recovery Limits
13C-2378-TCDF	316/318	16.12	0.83	0.65-0.89	7.67*	25-150
13C-2378-TCDD	332/334	16.40	0.66	0.65-0.89	9.62*	25-150
13C-123678-HxCDD	402/404	20.57	1.19	1.05-1.43	26.55	25-150
13C-1234678-HpCDF	420/422	22.30	0.96	0.88-1.20	38.86	25-150
13C-OCDD	470/472	26.48	0.89	0.76-1.01	57.59	25-150
37Cl-2378-TCDD	328/NA	16.40	NA	NA	8.18*	25-150

- Column to be used to flag values outside QC limits

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE No.

PE003S

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-3MS

Sample wt/vol: 10.16 (g/mL) G Lab File ID: 6458203MS

Water Sample Prep: ~~Sepfunnel~~ SCF 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 80 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Concentration	TEF	TEF-Adjusted Concentration
2378-TCDD	2.1	x 1.0 =	2.1
2378-TCDF	1.7	x 0.1 =	0.17
12378-PeCDF	5.4	x 0.05 =	0.27
12378-PeCDD	4.6	x 0.5 =	2.3
23478-PeCDF	0.0	x 0.05 =	0.0
123478-HxCDF	0.0	x 0.1 =	0.0
123678-HxCDF	3.3	x 0.1 =	0.33
123478-HxCDD	0.0	x 0.1 =	0.0
123678-HxCDD	5.9	x 0.1 =	0.59
123789-HxCDD	0.0	x 0.1 =	0.0
234678-HxCDF	0.0	x 0.1 =	0.0
123789-HxCDF	0.0	x 0.1 =	0.0
1234678-HpCDF	5.4	x 0.01 =	0.054
1234678-HpCDD	12	x 0.01 =	0.12
1234789-HpCDF	0.0	x 0.01 =	0.0
OCDD	10	x 0.001 =	0.01
OCDF	11	x 0.001 =	0.011
		Total =	6.0

NOTE: Do not include EMPC and EDL in the TEF-adjusted Concentration

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 ug/Kg for any solid matrix or greater than 7 ug/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE No.

PE0033RE

Lab Name: ENSECO - Cal Analytical Contract: 68D-20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-3MS

Sample wt/vol: 10.35 (g/mL) G Lab File ID: 64582-03MSRI

Water Sample Prep: ~~Sepfunnel~~ sx 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: 80 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Selected Ions	Peak Rt	Ion Ratio#	Concentration	Q	EMPC/EDL
2378-TCDD	320/322	15.17	0.85	1.9		
2378-TCDF	304/306	14.85	0.68	1.9		
12378-PeCDF	340/342	16.67	1.39	4.6		
12378-PeCDD	356/358	17.20	1.55	4.6		
23478-PeCDF	340/342				U	
123478-HxCDF	374/376				U	
123678-HxCDF	374/376	18.67	1.15	3.5		
123478-HxCDD	390/392				U	
123678-HxCDD	390/392	19.08	1.23	4.2		
123789-HxCDD	390/392				U	
234678-HxCDF	374/376				U	
123789-HxCDF	374/376				U	
1234678-HpCDF	408/410	20.60	1.08	5.5		
1234678-HpCDD	424/426	21.33	1.04	10		
1234789-HpCDF	408/410				U	
OCDD	458/460	24.07	0.98	10		
OCDF	442/444	24.18	0.89	11		

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis.

Internal Standard	Selected Ions	Peak Rt	Ion Ratio#	Ion Ratio Limits	% Rec #	Recovery Limits
13C-2378-TCDF	316/318	14.85	0.68	0.65-0.89	5.94*	25-150
13C-2378-TCDD	332/334	15.17	0.88	0.65-0.89	7.16*	25-150
13C-123678-HxCDD	402/404	19.08	1.38	1.05-1.43	28.70	25-150
13C-1234678-HpCDF	420/422	20.60	1.17	0.88-1.20	37.42	25-150
13C-OCDD	470/472	24.05	0.90	0.76-1.01	35.76	25-150
37Cl-2378-TCDD	328/NA	15.17	NA	NA	5.14*	25-150

- Column to be used to flag values outside QC limits

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE No.

PE0033RE

Lab Name: ENSECO - Cal Analytical Contract: 68D-20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-3MS

Sample wt/vol: 10.35 (g/mL) G Lab File ID: 64582023MSRI

Water Sample Prep: ~~Sepfunnel~~ SC 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: 80 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Concentration	TEF	TEF-Adjusted Concentration
2378-TCDD	1.9	x 1.0 =	1.9
2378-TCDF	1.9	x 0.1 =	0.19
12378-PeCDF	4.6	x 0.05 =	0.23
12378-PeCDD	4.6	x 0.5 =	2.3
23478-PeCDF	0	x ~~0.05~~ 0.5 = RH 7/21/92	0
123478-HxCDF	0	x 0.1 =	0
123678-HxCDF	3.5	x 0.1 =	0.35
123478-HxCDD	0	x 0.1 =	0
123678-HxCDD	4.2	x 0.1 =	0.42
123789-HxCDD	0	x 0.1 =	0
234678-HxCDF	0	x 0.1 =	0
123789-HxCDF	0	x 0.1 =	0
1234678-HpCDF	5.5	x 0.01 =	0.055
1234678-HpCDD	10	x 0.01 =	0.10
1234789-HpCDF	0	x 0.01 =	0
OCDD	10	x 0.001 =	0.01
OCDF	11	x 0.001 =	0.011
		Total =	5.57

NOTE: Do not include EMPC and EDL in the TEF-adjusted Concentration

If the Total Toxic Equivalent Concentration of the sample is greater tha 7 ng/L for an aqueous sample, greater than 0.7 ug/Kg for any solid matri or greater than 7 ug/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE No.

PE004

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-4

Sample wt/vol: 10.58 (g/mL) G Lab File ID: 6458204

Water Sample Prep: ~~Sepfunnel~~ SE 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 91 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Selected Ions	Peak Rt	Ion Ratio#	Concentration	Q	EMPC/EDL
2378-TCDD	320/322				U	0.17
2378-TCDF	304/306				U	0.25
12378-PeCDF	340/342				U	0.14
12378-PeCDD	356/358				U	0.13
23478-PeCDF	340/342				U	0.31
123478-HxCDF	374/376				U	0.061
123678-HxCDF	374/376				U	0.061
123478-HxCDD	390/392				U	0.14
123678-HxCDD	390/392				U	0.18
123789-HxCDD	390/392				U	0.11
234678-HxCDF	374/376				U	0.0835
123789-HxCDF	374/376				U	0.05163
1234678-HpCDF	408/410				U	0.073
1234678-HpCDD	424/426				U	0.14
1234789-HpCDF	408/410				U	0.11
OCDD	458/460				U	0.22
OCDF	442/444				U	0.18

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis.

Internal Standard	Selected Ions	Peak Rt	Ion Ratio#	Ion Ratio Limits	% Rec #	Recovery Limits
13C-2378-TCDF	316/318	16.08	0.86	0.65-0.89	4.98*	25-150
13C-2378-TCDD	332/334	16.37	0.73	0.65-0.89	7.13*	25-150
13C-123678-HxCDD	402/404	20.57	1.22	1.05-1.43	23.49*	25-150
13C-1234678-HpCDF	420/422	22.30	1.01	0.88-1.20	29.65	25-150
13C-OCDD	470/472	26.27	0.94	0.76-1.01	27.51	25-150
37Cl-2378-TCDD	328/NA	16.37	NA	NA	5.24*	25-150

- Column to be used to flag values outside QC limits

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE No.

PE004

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-4

Sample wt/vol: 10.58 (g/mL) G Lab File ID: 6458204

Water Sample Prep: ~~Sepfunnel~~ Se 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 91 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Concentration	TEF	TEF-Adjusted Concentration
2378-TCDD	0.0	x 1.0 =	0.0
2378-TCDF	0.0	x 0.1 =	0.0
12378-PeCDF	0.0	x 0.05 =	0.0
12378-PeCDD	0.0	x 0.5 =	0.0
23478-PeCDF	0.0	x 0.05 =	0.0
123478-HxCDF	0.0	x 0.1 =	0.0
123678-HxCDF	0.0	x 0.1 =	0.0
123478-HxCDD	0.0	x 0.1 =	0.0
123678-HxCDD	0.0	x 0.1 =	0.0
123789-HxCDD	0.0	x 0.1 =	0.0
234678-HxCDF	0.0	x 0.1 =	0.0
123789-HxCDF	0.0	x 0.1 =	0.0
1234678-HpCDF	0.0	x 0.01 =	0.0
1234678-HpCDD	0.0	x 0.01 =	0.0
1234789-HpCDF	0.0	x 0.01 =	0.0
OCDD	0.0	x 0.001 =	0.0
OCDF	0.0	x 0.001 =	0.0
		Total =	0.0

NOTE: Do not include EMPC and EDL in the TEF-adjusted Concentration

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 ug/Kg for any solid matrix or greater than 7 ug/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE No.

PE004RE

Lab Name: ENSECO - Cal Analytical Contract: 68D-20069

Lab Code: ECAL Case No: 18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-4

Sample wt/vol: 10.22 (g/mL) G Lab File ID: 6458204RIS

Water Sample Prep: ~~Sepfunnel~~ SE 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: 91 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) SE 7/30/92 Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Selected Ions	Peak Rt	Ion Ratio#	Concentration	Q	EMPC/EDL
2378-TCDD	320/322				U	1.6
2378-TCDF	304/306				U	1.8
12378-PeCDF	340/342				U	1.1
12378-PeCDD	356/358				U	1.2
23478-PeCDF	340/342				U	2.5
123478-HxCDF	374/376				U	0.51
123678-HxCDF	374/376				U	0.47
123478-HxCDD	390/392				U	0.77
123678-HxCDD	390/392				U	0.71
123789-HxCDD	390/392				U	0.61
234678-HxCDF	374/376				U	0.43
123789-HxCDF	374/376				U	0.52
1234678-HpCDF	408/410				U	0.47
1234678-HpCDD	424/426				U	0.99
1234789-HpCDF	408/410				U	0.73
OCDD	458/460				U	1.9
OCDF	442/444				U	1.2

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis.

Internal Standard	Selected Ions	Peak Rt	Ion Ratio#	Ion Ratio Limits	% Rec #	Recovery Limits
13C-2378-TCDF	316/318	14.82	0.91*	0.65-0.89	3.54*	25-150
13C-2378-TCDD	332/334	15.13	1.08*	0.65-0.89	4.56*	25-150
13C-123678-HxCDD	402/404	19.03	1.40	1.05-1.43	22.52*	25-150
13C-1234678-HpCDF	420/422	20.57	1.13	0.88-1.20	31.66	25-150
13C-OCDD	470/472	24.02	0.95	0.76-1.01	33.14	25-150
37Cl-2378-TCDD	328/NA	15.15	NA	NA	3.42*	25-150

- Column to be used to flag values outside QC limits

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE No.

PE004RE

Lab Name: ENSECO - Cal Analytical Contract: 68D-20069

Lab Code: ECAL Case No: 18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-4

Sample wt/vol: 10.22 (g/mL) G Lab File ID: 6458204RIS

Water Sample Prep: ~~Sepfunnel~~ Sc 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 15 JUL 92

Injection Volume: 2 (uL) %Solids: 91 Date Analyzed: 22 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Concentration	TEF	TEF-Adjusted Concentration
2378-TCDD	0.0	x 1.0 =	0.0
2378-TCDF	0.0	x 0.1 =	0.0
12378-PeCDF	0.0	x 0.05 =	0.0
12378-PeCDD	0.0	x 0.5 =	0.0
23478-PeCDF	0.0	x ~~0.05~~ =	0.0
123478-HxCDF	0.0	x 0.1 0.5 =	0.0
123678-HxCDF	0.0	x 0.1 =	0.0
123478-HxCDD	0.0	x 0.1 =	0.0
123678-HxCDD	0.0	x 0.1 =	0.0
123789-HxCDD	0.0	x 0.1 =	0.0
234678-HxCDF	0.0	x 0.1 =	0.0
123789-HxCDF	0.0	x 0.1 =	0.0
1234678-HpCDF	0.0	x 0.01 =	0.0
1234678-HpCDD	0.0	x 0.01 =	0.0
1234789-HpCDF	0.0	x 0.01 =	0.0
OCDD	0.0	x 0.001 =	0.0
OCDF	0.0	x 0.001 =	0.0
		Total =	0.0

NOTE: Do not include EMPC and EDL in the TEF-adjusted Concentration

If the Total Toxic Equivalent Concentration of the sample is greater tha 7 ng/L for an aqueous sample, greater than 0.7 ug/Kg for any solid matri or greater than 7 ug/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE No.

PE005

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-5

Sample wt/vol: 10.23 (g/mL) G Lab File ID: 6458205

Water Sample Prep: ~~Sepfunnel~~ SE 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 90 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Selected Ions	Peak Rt	Ion Ratio#	Concentration	Q	EMPC/EDL
2378-TCDD	320/322				U	0.14
2378-TCDF	304/306				U	0.15
12378-PeCDF	340/342				U	0.10
12378-PeCDD	356/358				U	0.15
23478-PeCDF	340/342				U	0.22
123478-HxCDF	374/376				U	0.082
123678-HxCDF	374/376				U	0.082
123478-HxCDD	390/392				U	0.17
123678-HxCDD	390/392				U	0.23
123789-HxCDD	390/392				U	0.14 SE 9/24/92
234678-HxCDF	374/376				U	0.085 69
123789-HxCDF	374/376				U	0.089 85
1234678-HpCDF	408/410				U	0.088
1234678-HpCDD	424/426				U	0.15
1234789-HpCDF	408/410				U	0.14
OCDD	458/460				U	0.24
OCDF	442/444				U	0.20

NOTE: Concentrations, EMPCs, and EDLs calculated on a wet weight basis.

Internal Standard	Selected Ions	Peak Rt	Ion Ratio#	Ion Ratio Limits	% Rec #	Recovery Limits
13C-2378-TCDF	316/318	16.12	0.77	0.65-0.89	32.90	25-150
13C-2378-TCDD	332/334	16.42	0.84	0.65-0.89	36.57	25-150
13C-123678-HxCDD	402/404	20.58	1.27	1.05-1.43	48.05	25-150
13C-1234678-HpCDF	420/422	22.30	1.01	0.88-1.20	49.27	25-150
13C-OCDD	470/472	26.25	0.90	0.76-1.01	52.84	25-150
37Cl-2378-TCDD	328/NA	16.42	NA	NA	28.93	25-150

- Column to be used to flag values outside QC limits

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE No.

PE005

Lab Name: ENSECO - Cal Analytical Contract: 68D/20069

Lab Code: ECAL Case No:18320 SAS No: SDG No.: PE001

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 64582-5

Sample wt/vol: 10.23 (g/mL) G Lab File ID: 6458205

Water Sample Prep: ~~Sepfunnel~~ 7/30/92 Date Received: 16 JUN 92

Concentrated Extract Volume: 100 (uL) Date Extracted: 23 JUN 92

Injection Volume: 2 (uL) %Solids: 90 Date Analyzed: 01 JUL 92

GC Column: DB-5 ID: 0.32 (mm) Dilution Factor: 1.0

Concentration Units: (ng/L or ug/Kg) ug/Kg

Analyte	Concentration	TEF	TEF-Adjusted Concentration
2378-TCDD	0.0	x 1.0 =	0.0
2378-TCDF	0.0	x 0.1 =	0.0
12378-PeCDF	0.0	x 0.05 =	0.0
12378-PeCDD	0.0	x 0.5 =	0.0
23478-PeCDF	0.0	x 0.05 =	0.0
123478-HxCDF	0.0	x 0.1	0.0
123678-HxCDF	0.0	x 0.1 =	0.0
123478-HxCDD	0.0	x 0.1 =	0.0
123678-HxCDD	0.0	x 0.1 =	0.0
123789-HxCDD	0.0	x 0.1 =	0.0
234678-HxCDF	0.0	x 0.1 =	0.0
123789-HxCDF	0.0	x 0.1 =	0.0
1234678-HpCDF	0.0	x 0.01 =	0.0
1234678-HpCDD	0.0	x 0.01 =	0.0
1234789-HpCDF	0.0	x 0.01 =	0.0
OCDD	0.0	x 0.001 =	0.0
OCDF	0.0	x 0.001 =	0.0
		Total =	0.0

NOTE: Do not include EMPC and EDL in the TEF-adjusted Concentration

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 ug/Kg for any solid matrix or greater than 7 ug/Kg for a chemical waste sample, then second column confirmation of the results may be required.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

ESD Central Regional Laboratory
Data Tracking Form for Contract Samples

Data Set No. _____ CERCLIS No. IL

Case No. 18320 Site Name Location: Waukegan Coke & Gas

Contractor or EPA Lab: Enseco Cal Data User: PRC

No. of Samples: 5 Date Samples or Data Received: 7-31-92

Have Chain-of-Custody records been received? YES ✓ NO ____
Have traffic reports or packing lists been received? YES ✓ NO ____
If no, are traffic report or packing list numbers written on the chain-of-custody record? YES ____ NO ____
If no, which traffic report or packing list numbers are missing?

Are basic data forms in? YES ✓ NO ____
No. of samples claimed: 5 No. of samples received: 5

Received by: Lynette Burnett Date: 7-31-92

Received by LSSS: DMM Date: 7-31-92

Review started: 7-26-92 Reviewer Signature: [illegible]

Total time spent on review: 14 Date review completed: 8-31-92

Copied by: Eric Miller Date: 9-3-92

Mailed to user by: D Harris Date: 9-4-92

DATA USERS:
Please fill in the blanks below and return this form to:
Sylvia Griffin, Data Mgmt. Coordinator, Region V, SSCRL

Data received by: Mildred Jarbrough Date: SEP 10 1992

Data review received by: _____ Date: _____
Inorganic Data Complete [ ] Suitable for Intended Purpose [ ] ✓ if OK
Organic Data Complete [ ] Suitable for Intended Purpose [ ] list
Dioxin Data Complete [ ] Suitable for Intended Purpose [ ] prblms
SAS Data Complete [ ] Suitable for Intended Purpose [ ] below.
PROBLEMS: Please indicate reasons why data are not suitable for your uses.

Received by Data Mgmt. Coordinator for Files Date: _____