ENSR | AECOM

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client/Project Name: **Source Area Investigation**	Project Location: **Henderson, NV**
Project Number: **04020-023-401**	Field Logbook No.:
Sampler (Print Name)/(Affiliation): Eric Nelson (ENSR)	Client Contact: **Robert Kennedy**, **2 Technology Park Dr**, **Westford, MA 01886-3140**
Signature:	Send Results/Report to: **Robert Kennedy**, **rkennedy@ensr.aecom.com** — TAT: 5D

Field Sample No./Identification	Date	Time	COMP	GRAB	Sample Container (Size/Mat'l)	Matrix	Preserv.	Field Filtered	Asbestos_EPA/540/R-97/028	HAC/MS Dioxin/Furans	Lab I.D.	Remarks
SA22-0.5	11/16/06	0830		X		Soil				X		
SA 20 - 0.5	11/16/06	1040		X		Soil				X		
SA 20 - 0.5D	11/16/06	—		X		Soil				X		MSDS
EB111606	11/16/06	1207		X		Water				X		
SA19-0.5	11/16/06	1315		X		Soil				X		

Container Type: P – Plastic; A – Amber Glass; G – Clear Glass; V – VOA Vial; O – Other; E – Encore

Preservation: 1 – HCl, 4°; 2 – H2SO4, 4°; 3 – HNO3, 4°; 4 – NaOH, 4°; 5 – NaOH/ZnAc, 4°; 6 – Na2S2O3, 4°; 7 – 4°

Matrix Codes: DW – Drinking Water; WW – Wastewater; GW – Groundwater; SW – Surface Water; ST – Storm Water; W – Water; S – Soil; SL – Sludge; SD – Sediment; SO – Solid; A – Air; L – Liquid; P – Product

Relinquished by: (Print Name)/(Affiliation) Eric Nelson (ENSR) — Signature:	Date: 11/16/06 Time: 1630	Received by: (Print Name)/(Affiliation) Brenda Mastrey — Signature:	Date: 11/17/06 Time: 1030
Relinquished by: (Print Name)/(Affiliation) — Signature:	Date: Time:	Received by: (Print Name)/(Affiliation) — Signature:	Date: Time:
Relinquished by: (Print Name)/(Affiliation) — Signature:	Date: Time:	Received by: (Print Name)/(Affiliation) — Signature:	Date: Time:

Analytical Laboratory (Destination):

~~EMSL Analytical, Inc.~~
~~Attn: Sample Receiving~~
~~107 Haddon Avenue~~
~~Westmont, NJ 08108~~

CAS-Houston

800-220-3675

Sample Shipped Via: UPS FedEx Courier Other

Temp blank: Yes No

J:\2006 Projects\04020 - KerrMcGee\023 Tronox Henderson\401 Source Area Field work\Chain of Custody_AECOM_EMSL.doc

White: Original (to Lab) Yellow: Lab Pink: Sampler

Serial No. 111606-12

Form 3

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY
Use for Sample and Blank Results

CLIENT ID.
SA22-0.5

Lab Name: Columbia Analytical Services Episode No.:

Lab Code: CAS Method: Screen(2) Lab Sample ID: E0600837-001

Client Name: ENSR Sample Wt/Vol: 10.329 g or mL: g

Matrix (Aqueous/Solid/Leachate): solid Initial Calibration Date: 11/04/04

Sample Receipt Date: 11/17/06 Instrument ID: AutoSpec-Ultima

Ext. Date: 11/17/06 GC Column ID: DB-5

Ext.Vol(ul):20.0 Inj.Vol(ul):1.0 Sample Data Filename: U27395#1

Analysis Date: 21-NOV-06 Time: 16:00:36 Blank Data Filename: U27394#1

Dilution Factor: 1 Cal. Ver. Data Filename: U27393#1

Concentration Units (pg/L or ng/Kg dry weight): ng/Kg % Moisture: 10.71

	DETECTION LIMITS	CONCENTRATION	TEF(1)	TEF-ADJUSTED CONCENTRATION
2,3,7,8-TCDD	0.073	*	X 1.0	*
1,2,3,7,8-PeCDD	0.052	0.070	X 1.0	7.03e-02
1,2,3,4,7,8-HxCDD	0.048	0.050	X 0.1	5.02e-03
1,2,3,6,7,8-HxCDD	0.043	0.159	X 0.1	1.59e-02
1,2,3,7,8,9-HxCDD	0.044	0.102	X 0.1	1.02e-02
1,2,3,4,6,7,8-HpCDD	0.046	0.735	X 0.01	7.35e-03
OCDD	0.157	3.430	X 0.0001	3.43e-04
2,3,7,8-TCDF	0.088	0.399	X 0.1	3.99e-02
1,2,3,7,8-PeCDF	0.045	0.420	X 0.05	2.10e-02
2,3,4,7,8-PeCDF	0.042	0.182	X 0.5	9.10e-02
1,2,3,4,7,8-HxCDF	0.039	0.819	X 0.1	8.19e-02
1,2,3,6,7,8-HxCDF	0.039	0.541	X 0.1	5.41e-02
1,2,3,7,8,9-HxCDF	0.046	0.208	X 0.1	2.08e-02
2,3,4,6,7,8-HxCDF	0.041	0.282	X 0.1	2.82e-02
1,2,3,4,6,7,8-HpCDF	0.067	1.882	X 0.01	1.88e-02
1,2,3,4,7,8,9-HpCDF	0.087	0.739	X 0.01	7.39e-03
OCDF	0.065	3.974	X 0.0001	3.97e-04
			Total:	4.73e-01

(1) World Health Organization (WHO) adopted TEF's, taken from: Van der Berg, et al: Toxic Equivalency Factor (TEFs) for PCBs, PCCDD, PCDFs for Humans and Wildlife (Environ Health Perspect. 106:775-792 (1988).

(2) This is a high resolution GC/MS screening method for PCDDs/PCDFs.

Form 3

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY
Use for Sample and Blank Results

CLIENT ID.
SA20-0.5

Lab Name: Columbia Analytical Services Episode No.:

Lab Code: CAS Method: Screen(2) Lab Sample ID: E0600837-002

Client Name: ENSR Sample Wt/Vol: 9.565 g or mL: g

Matrix (Aqueous/Solid/Leachate): solid Initial Calibration Date: 11/04/04

Sample Receipt Date: 11/17/06 Instrument ID: AutoSpec-Ultima

Ext. Date: 11/17/06 GC Column ID: DB-5

Ext.Vol(ul):20.0 Inj.Vol(ul):1.0 Sample Data Filename: U27396#1

Analysis Date: 21-NOV-06 Time: 16:48:42 Blank Data Filename: U27394#1

Dilution Factor: 1 Cal. Ver. Data Filename: U27393#1

Concentration Units (pg/L or ng/Kg dry weight): ng/Kg % Moisture: 11.23

	DETECTION LIMITS	CONCENTRATION	TEF(1)	TEF-ADJUSTED CONCENTRATION
2,3,7,8-TCDD	0.078	*	X 1.0	*
1,2,3,7,8-PeCDD	0.071	0.086	X 1.0	8.65e-02
1,2,3,4,7,8-HxCDD	0.051	0.211	X 0.1	2.11e-02
1,2,3,6,7,8-HxCDD	0.046	0.338	X 0.1	3.38e-02
1,2,3,7,8,9-HxCDD	0.047	0.351	X 0.1	3.51e-02
1,2,3,4,6,7,8-HpCDD	0.074	1.317	X 0.01	1.32e-02
OCDD	0.137	7.056	X 0.0001	7.06e-04
2,3,7,8-TCDF	0.129	0.220	X 0.1	2.20e-02
1,2,3,7,8-PeCDF	0.052	0.143	X 0.05	7.17e-03
2,3,4,7,8-PeCDF	0.048	0.089	X 0.5	4.44e-02
1,2,3,4,7,8-HxCDF	0.041	0.535	X 0.1	5.35e-02
1,2,3,6,7,8-HxCDF	0.041	0.442	X 0.1	4.42e-02
1,2,3,7,8,9-HxCDF	0.049	0.345	X 0.1	3.45e-02
2,3,4,6,7,8-HxCDF	0.044	0.361	X 0.1	3.61e-02
1,2,3,4,6,7,8-HpCDF	0.054	1.328	X 0.01	1.33e-02
1,2,3,4,7,8,9-HpCDF	0.069	0.805	X 0.01	8.05e-03
OCDF	0.129	3.376	X 0.0001	3.38e-04
			Total:	4.54e-01

(1) World Health Organization (WHO) adopted TEF's, taken from: Van der Berg, et al: Toxic Equivalency Factor (TEFs) for PCBs, PCCDD, PCDFs for Humans and Wildlife (Environ Health Perspect. 106:775-792 (1988).

(2) This is a high resolution GC/MS screening method for PCDDs/PCDFs.

Form 3

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY
Use for Sample and Blank Results

CLIENT ID.
SA20-0.5D

Lab Name: Columbia Analytical Services Episode No.:

Lab Code: CAS Method: Screen(2) Lab Sample ID: E0600837-003

Client Name: ENSR Sample Wt/Vol: 9.659 g or mL: g

Matrix (Aqueous/Solid/Leachate): solid Initial Calibration Date: 11/04/04

Sample Receipt Date: 11/17/06 Instrument ID: AutoSpec-Ultima

Ext. Date: 11/17/06 GC Column ID: DB-5

Ext.Vol(ul):20.0 Inj.Vol(ul):1.0 Sample Data Filename: U27397#1

Analysis Date: 21-NOV-06 Time: 17:36:49 Blank Data Filename: U27394#1

Dilution Factor: 1 Cal. Ver. Data Filename: U27393#1

Concentration Units (pg/L or ng/Kg dry weight): ng/Kg % Moisture: 12.70

	DETECTION LIMITS	CONCENTRATION	TEF(1)	TEF-ADJUSTED CONCENTRATION
2,3,7,8-TCDD	0.082	*	X 1.0	*
1,2,3,7,8-PeCDD	0.074	*	X 1.0	*
1,2,3,4,7,8-HxCDD	0.056	*	X 0.1	*
1,2,3,6,7,8-HxCDD	0.050	*	X 0.1	*
1,2,3,7,8,9-HxCDD	0.052	*	X 0.1	*
1,2,3,4,6,7,8-HpCDD	0.052	0.910	X 0.01	9.10e-03
OCDD	0.097	6.993	X 0.0001	6.99e-04
2,3,7,8-TCDF	0.080	*	X 0.1	*
1,2,3,7,8-PeCDF	0.054	*	X 0.05	*
2,3,4,7,8-PeCDF	0.050	*	X 0.5	*
1,2,3,4,7,8-HxCDF	0.045	0.172	X 0.1	1.72e-02
1,2,3,6,7,8-HxCDF	0.044	0.095	X 0.1	9.46e-03
1,2,3,7,8,9-HxCDF	0.053	*	X 0.1	*
2,3,4,6,7,8-HxCDF	0.047	*	X 0.1	*
1,2,3,4,6,7,8-HpCDF	0.055	0.543	X 0.01	5.43e-03
1,2,3,4,7,8,9-HpCDF	0.071	*	X 0.01	*
OCDF	0.107	1.398	X 0.0001	1.40e-04
			Total:	4.20e-02

(1) World Health Organization (WHO) adopted TEF's, taken from: Van der Berg, et al: Toxic Equivalency Factor (TEFs) for PCBs, PCCDD, PCDFs for Humans and Wildlife (Environ Health Perspect. 106:775-792 (1988).

(2) This is a high resolution GC/MS screening method for PCDDs/PCDFs.

Form 3

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY
Use for Sample and Blank Results

CLIENT ID.
SA19-0.5

Lab Name: Columbia Analytical Services Episode No.:

Lab Code: CAS Method: Screen(2) Lab Sample ID: E0600837-004

Client Name: ENSR Sample Wt/Vol: 10.020 g or mL: g

Matrix (Aqueous/Solid/Leachate): solid Initial Calibration Date: 11/04/04

Sample Receipt Date: 11/17/06 Instrument ID: AutoSpec-Ultima

Ext. Date: 11/17/06 GC Column ID: DB-5

Ext.Vol(ul):20.0 Inj.Vol(ul):1.0 Sample Data Filename: U27398#1

Analysis Date: 21-NOV-06 Time: 18:34:50 Blank Data Filename: U27394#1

Dilution Factor: 1 Cal. Ver. Data Filename: U27393#1

Concentration Units (pg/L or ng/Kg dry weight): ng/Kg % Moisture: 8.82

	DETECTION LIMITS	CONCENTRATION	TEF(1)	TEF-ADJUSTED CONCENTRATION
2,3,7,8-TCDD	0.070	7.426	X 1.0	7.43e+00
1,2,3,7,8-PeCDD	0.105	24.099	X 1.0	2.41e+01
1,2,3,4,7,8-HxCDD	0.110	17.947	X 0.1	1.79e+00
1,2,3,6,7,8-HxCDD	0.099	32.612	X 0.1	3.26e+00
1,2,3,7,8,9-HxCDD	0.102	37.309	X 0.1	3.73e+00
1,2,3,4,6,7,8-HpCDD	0.252	145.429	X 0.01	1.45e+00
OCDD	0.223	157.307	X 0.0001	1.57e-02
2,3,7,8-TCDF	1.689	357.802	X 0.1	3.58e+01
1,2,3,7,8-PeCDF	10.767	314.427	X 0.05	1.57e+01
2,3,4,7,8-PeCDF	10.059	128.464	X 0.5	6.42e+01
1,2,3,4,7,8-HxCDF	8.799	669.437	X 0.1	6.69e+01
1,2,3,6,7,8-HxCDF	8.699	425.764	X 0.1	4.26e+01
1,2,3,7,8,9-HxCDF	10.392	52.982	X 0.1	5.30e+00
2,3,4,6,7,8-HxCDF	9.285	216.800	X 0.1	2.17e+01
1,2,3,4,6,7,8-HpCDF	1.000	1676.277	X 0.01	1.68e+01
1,2,3,4,7,8,9-HpCDF	1.292	779.803	X 0.01	7.80e+00
OCDF	0.162	4873.315	X 0.0001	4.87e-01
			Total:	3.19e+02

(1) World Health Organization (WHO) adopted TEF's, taken from: Van der Berg, et al: Toxic Equivalency Factor (TEFs) for PCBs, PCCDD, PCDFs for Humans and Wildlife (Environ Health Perspect. 106:775-792 (1988).

(2) This is a high resolution GC/MS screening method for PCDDs/PCDFs.

SCF3w

Form 3

CLIENT ID.

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY
Use for Sample and Blank Results EB111606

Lab Name: Columbia Analytical Services Episode No.:

Lab Code: CAS Method: Screen(2) Lab Sample ID: E0600837-005

Client Name: ENSR Sample Wt/Vol: 1090 g or mL: mL

Matrix (Aqueous/Solid/Leachate): Aqueous Initial Calibration Date: 11/04/04

Sample Receipt Date: 11/17/06 Instrument ID: AutoSpec-Ultima

Ext. Date: 11/20/06 GC Column ID: DB-5

Ext.Vol(ul):20.0 Inj.Vol(ul):1.0 Sample Data Filename: U27416#1

Analysis Date: 22-NOV-06 Time: 21:16:19 Blank Data Filename: U27409#1

Dilution Factor: 1 Cal. Ver. Data Filename: U27408#1

Concentration Units (pg/L or ng/Kg dry weight): pg/L % Moisture:

	DETECTION LIMITS	CONCENTRATION	TEF(1)	TEF-ADJUSTED CONCENTRATION
2,3,7,8-TCDD	0.322	*	X 1.0	*
1,2,3,7,8-PeCDD	0.395	*	X 1.0	*
1,2,3,4,7,8-HxCDD	0.268	*	X 0.1	*
1,2,3,6,7,8-HxCDD	0.241	*	X 0.1	*
1,2,3,7,8,9-HxCDD	0.249	*	X 0.1	*
1,2,3,4,6,7,8-HpCDD	0.266	3.003	X 0.01	3.00e-02
OCDD	0.595	7.762	X 0.0001	7.76e-04
2,3,7,8-TCDF	0.906	7.121	X 0.1	7.12e-01
1,2,3,7,8-PeCDF	0.592	7.019	X 0.05	3.51e-01
2,3,4,7,8-PeCDF	0.553	3.356	X 0.5	1.68e+00
1,2,3,4,7,8-HxCDF	0.524	14.584	X 0.1	1.46e+00
1,2,3,6,7,8-HxCDF	0.518	10.463	X 0.1	1.05e+00
1,2,3,7,8,9-HxCDF	0.619	2.817	X 0.1	2.82e-01
2,3,4,6,7,8-HxCDF	0.553	4.876	X 0.1	4.88e-01
1,2,3,4,6,7,8-HpCDF	0.393	40.746	X 0.01	4.07e-01
1,2,3,4,7,8,9-HpCDF	0.508	13.509	X 0.01	1.35e-01
OCDF	0.473	99.481	X 0.0001	9.95e-03
			Total:	6.60e+00

(1) World Health Organization (WHO) adopted TEF's, taken from: Van der Berg, et al: Toxic Equivalency Factor (TEFs) for PCBs, PCCDD, PCDFs for Humans and Wildlife (Environ Health Perspect. 106:775-792 (1988).

(2) This is a high resolution GC/MS screening method for PCDDs/PCDFs.

SCF3w