Los Alamos National Laboratory
Environmental Programs Technical Area 21

Operated by the Los Alamos National Security, LLC, for DOE/NNSA

TA-21 - DP Aggregate
21-003-99

FAX TRANSMITTAL

TA 21-9000 Project Office
MS C349
699-9151/606-4065
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*Dioxin/Furan Sampling Results

TO: Katie Chamberlain FAX# 428-2567

Organization: NMED Phone:

FROM: Mark Thacker Return FAX# 606-0864

Phone: 699-1963

#Pages Incl. Cover 9

Message: Lets discuss early Monday.

Mark

10978

Sample ID: RE21-06-72611 **EPA Method 8290**

Client Data		Sample Data		Laboratory Data			
Name:	Los Alamos National Laboratory	Matrix:	Soil	Lab Sample:	27908-001	Date Received:	25-Jul-06
Project:	5608S	Sample Size:	10.9 g	QC Batch No.:	8225	Date Extracted:	27-Jul-06
Date Collected:	20-Jul-06	%Solids:	94.0	Date Analyzed DB-5:	28-Jul-06	Date Analyzed DB-225:	NA
Time Collected:	1500						

Analyte	Conc. (pg/g)	DL [a]	EMPC[b]	Qualifiers
2,3,7,8-TCDD	ND	0.159		
1,2,3,7,8-PeCDD	ND	0.304		
1,2,3,4,7,8-HxCDD	ND	0.225		
1,2,3,6,7,8-HxCDD	ND	0.244		
1,2,3,7,8,9-HxCDD	ND	0.227		
1,2,3,4,6,7,8-HpCDD	3.67			
OCDD	19.7			
2,3,7,8-TCDF	ND	0.146		
1,2,3,7,8-PeCDF	ND	0.131		
2,3,4,7,8-PeCDF	ND	0.148		
1,2,3,4,7,8-HxCDF	ND	0.121		
1,2,3,6,7,8-HxCDF	ND	0.122		
2,3,4,6,7,8-HxCDF	ND	0.124		
1,2,3,7,8,9-HxCDF	ND	0.170		
1,2,3,4,6,7,8-HpCDF	1.75			J
1,2,3,4,7,8,9-HpCDF	ND	0.157		
OCDF	3.31			J

	Labeled Standard	%R	LCL-UCL[d]	Qualifiers
IS	13C-2,3,7,8-TCDD	97.4	40 - 135	
	13C-1,2,3,7,8-PeCDD	74.1	40 - 135	
	13C-1,2,3,4,7,8-HxCDD	93.8	40 - 135	
	13C-1,2,3,6,7,8-HxCDD	91.6	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDD	88.9	40 - 135	
	13C-OCDD	69.3	40 - 135	
	13C-2,3,7,8-TCDF	96.8	40 - 135	
	13C-1,2,3,7,8-PeCDF	96.0	40 - 135	
	13C-2,3,4,7,8-PeCDF	87.3	40 - 135	
	13C-1,2,3,4,7,8-HxCDF	92.1	40 - 135	
	13C-1,2,3,6,7,8-HxCDF	86.4	40 - 135	
	13C-2,3,4,6,7,8-HxCDF	93.8	40 - 135	
	13C-1,2,3,7,8,9-HxCDF	92.5	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDF	89.9	40 - 135	
	13C-1,2,3,4,7,8,9-HpCDF	89.5	40 - 135	
	13C-OCDF	78.0	40 - 135	
CRS	37Cl-2,3,7,8-TCDD	102	40 - 135	

Totals			
Total TCDD	ND	0.159	
Total PeCDD	ND	0.304	
Total HxCDD	ND		0.978
Total HpCDD	6.83		
Total TCDF	ND	0.146	
Total PeCDF	0.271		
Total HxCDF	0.438		1.09
Total HpCDF	1.75		3.19

Footnotes

a. Sample specific estimated detection limit.
b. Estimated maximum possible concentration.
c. Method detection limit.
d. Lower control limit - upper control limit.

Analyst: JMH

Approved By: Martha M. Maier 31-Jul-2006 11:47

CONTRACT # :	PROJECT TITLE & LOCATION:	REPORT DATE: 7/20/06
DE-AC52-06NA25396	DP Aggregate Area at TA-21	Start Time: 0700 End Time: 1700

CONTRACTOR:	CONTRACTOR'S REPRESENTATIVES:
Accelerated Remediation Corporation (ARC)	Keith Tucker

AM WEATHER:	PM WEATHER:	PRECIPITATION:	MAX TEMP:	MIN. TEMP:
Clear, warm	p. cloudy, hot	none	NA	NA

ON-SITE PERSONNEL AND TASKS PERFORMED/AREA OF RESPONSIBILITY

TRADE/TITLE	EMPLOYER / ON-SITE		PERSONNEL	WORK DESCRIPTION
Field Team Leader	Portage	X	Randy Vigil	Responsible for implementation of field operations/ heavy equipment operator.
Task Manager/SSO	Portage	X	Curtis Schultz	Responsible for daily operations oversight and communications with LANS staff. As SSO, responsible for implementing site health and safety.
WMC	Portage		Brett Cummins	Responsible for all waste management activities.
WMC	Shaw		Doug Hopinkah	Responsible for all waste management activities.
Operator, field supervisor	Portage		Jared Pompeo	Heavy Equipment Operator, field activities implementation
Radiological Control Technician (RCT)	LANL		John Barton	Radiological sample screening and site monitoring.
Supervisor	Laguna	X	Andy Long	Laguna field operations manager
Sample Tech	Laguna	X	Larry Poncho	Field support/sampling/heavy equipment operator.
Sample Tech	Laguna	X	Franklin Silva	Field support/sampling/heavy equipment operator.
Sample Tech	Portage	X	Serafin (JR) Vigil	Field support/sampling/heavy equipment operator.
Sample Tech	Portage	X	Gabe Gallegos	Field support/sampling/heavy equipment operator.
Sample Tech	Portage	X	Antoinette Toya	Field support/sample preparation for SMO.

EQUIPMENT USED

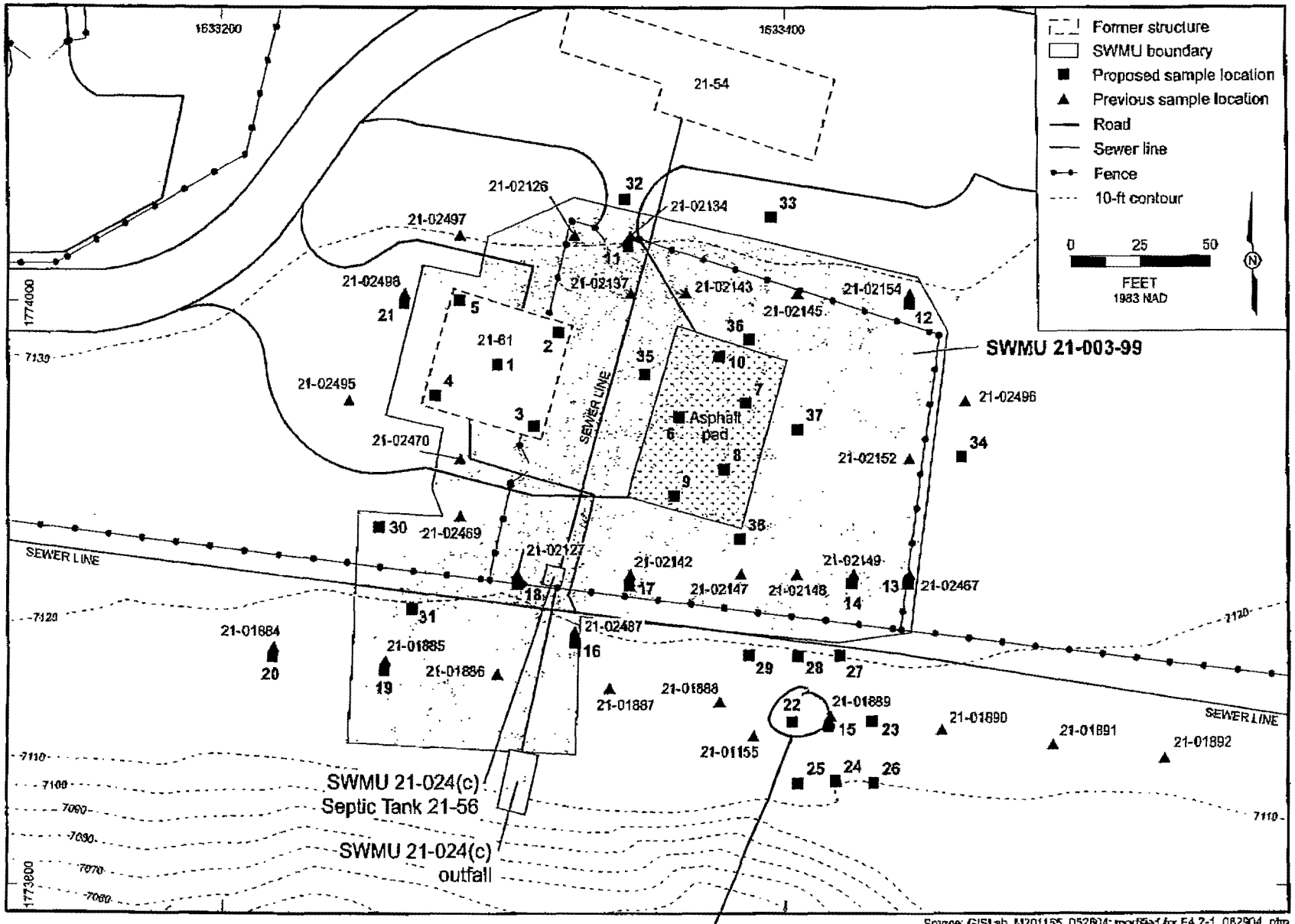
EQUIPMENT DESCRIPTION	# OF UNITS	ARRIVAL DATE	LAST SAFETY CHECK (OTHER THAN DAILY)	Comments
Skidsteer	1	6/29/06		
Water Truck	1	6/29/06		
PU Truck w/ fuel tank	1	6/29/06		
Back Hoe	1	6/29/06		

DESCRIPTION OF DAILY ACTIVITIES: Crew sampled locations #18 thru #28, 3 depths each, at SWMU 21-003-99. Samples bottled, labeled, and delivered to the SMO.

Sample location 22d (RE21-06-72611, 3.0ft to 3.5ft) was selected for the dioxin, furan, and HE extended suite analysis based on the highest PID reading at the site. Readings at location #18 were less than 1 ppm and the rad screening was less than twice background; similar to all other locations sampled to date. Consultation with Mark Thacker was called for at the point when the PID reading at the 1.5ft to 2.0ft interval (c) for location #22 was ~21 ppm. We then sampled at the 3.0ft to 3.5ft interval (d) for location #22 and the PID reading was at ~23 ppm. A sample was then taken at the 4.0ft to 4.3ft [refusal] interval (e). The PID reading was ~3 ppm; media was collected and turned in to the SMO for VOC's only to hopefully define nature and extent at that location.

JOB SAFETY

	YES	NO
SAFETY MEETING HELD TODAY?	X	
ANY LOST TIME ACCIDENTS? if YES, attach copy of completed report(s), OSHA 200 log, et al		X
TRENCHING/SCAFFOLDING/HIGH VOLTAGE ELECTRICAL/ELEVATED WORK PERFORMED? if YES, include copy of report(s) of inspection(s) performed by competent or qualified person(s)		X
ANY SPILLS OR HAZARDOUS WASTE RELEASED TO THE ENVIRONMENT? if YES, include copy of completed reports indicating response action(s) and notification(s)		X



Source: GISLab, M201155, 052604; modified for F4.2-1, 082904, ptm

Figure 4.2-1. SWMU 21-003-99 proposed sample locations

Sample location

DRAFT
DO NOT CITE OR QUOTE

December 2003
NAS Review Draft
www.epa.gov/ncea/dioxin

Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-*p*-Dioxin (TCDD) and Related Compounds

Part I: Estimating Exposure to Dioxin-Like Compounds

Volume 2: Properties, Environmental Levels, and Background Exposures

Exposure Assessment and Risk Characterization Group
National Center for Environmental Assessment - Washington Office
Office of Research and Development
U.S. Environmental Protection Agency
Washington, DC

Table 3-10. Mean PCDD and PCDF Concentrations in Canadian Soil from 1987 (ppt)[a]

Homologue Group	Soil Near Sludge Incinerator (n = 12)	Urban Background (n = 11)	Rural Background (n = 26)
TCDDs	69 (ND-430)	ND	ND
PeCDDs	81 (ND-540)	ND	ND
HxCDDs	9 (ND-70)	ND	ND
HpCDDs	43 (ND-300)	31 (ND-140)	ND
OCDDs	570 (ND-1,500)	1,461 (ND-11,000)	30 (ND-100)
Total CDDs	772 (ND-2,770)	1,492 (ND-11,140)	30 (ND-100)
TCDFs	ND	29 (ND-120)	ND
PeCDFs	ND	1 (ND-10)	ND
HxCDFs	ND	7 (ND-35)	ND
HpCDFs	ND	9 (ND-60)	ND
OCDFs	43 (ND-230)	16 (ND-160)	ND
Total CDFs	43 (ND-230)	65 (ND-262)	ND

[a] Data collected in 1987 in Ontario Canada; range presented in parentheses.

Source: Pearson et al. (1990).

Table 3-11. Dioxin/Furan Levels in Four Background Soil Samples from Elk River, Minnesota (ppt)[a]

Congener	Tilled (n=2)	Untilled (n=2)
2,3,7,8-TCDD	ND	ND
Total TCDD	ND	ND
1,2,3,7,8-PeCDD	ND	ND
Total PeCDD	ND-38	ND
1,2,3,4,7,8-HxCDD	ND	ND
1,2,3,6,7,8-HxCDD	ND	ND-14
1,2,3,7,8,9-HxCDD	ND-8.7	ND-9.9
Total HxCDD	12-99	29-53
1,2,3,4,6,7,8-HpCDD	37-360	78-300
Total HpCDD	62-640	150-530
OCDD	340-3300	680-2300
2,3,7,8-TCDF	ND	ND
Total TCDF	ND-1.2	ND
1,2,3,7,8-PeCDF	ND	ND
2,3,4,7,8-PeCDF	ND	ND
Total PeCDF	ND-41	18-45
1,2,3,4,7,8-HxCDF	ND	ND
1,2,3,6,7,8-HxCDF	ND	ND
2,3,4,6,7,8-HxCDF	ND	ND-7.1
1,2,3,7,8,9-HxCDF	ND	ND
Total HxCDF	6.7-86	20-150
1,2,3,4,6,7,8-HpCDF	11-80	26-72
1,2,3,4,7,8,9-HpCDF	ND	ND
Total HpCDF	30-260	30-82
OCDF	ND-270	60-120

[a] ND = Nondetected. Detection limits vary from 0.75 ppt to 2.9 ppt on a congener-specific basis.

Source: Reed et al. (1990).

Table 3-14. Mean Background CDD/CDF Profiles for Soil

2,3,7,8-Substituted CDD/CDFs	Rural Background[a]		Urban Background[b]		CDD/CDF Homologue Groups	Rural Background[c]		Urban Background[c]	
	Concentration (ppt)	Fraction of Total CDD/CDFs	Concentration (ppt)	Fraction of Total CDD/CDFs		Concentration (ppt)	Fraction of Total CDD/CDFs	Concentration (ppt)	Fraction of Total CDD/CDFs
2,3,7,8-TCDD	0.017	0.00019	0.87	0.00027	TCDD	2.1	0.0031	32	0.012
1,2,3,7,8-PeCDD	0.28	0.00030	2.4	0.00077	PeCDD	3.9	0.0057	19	0.0074
1,2,3,4,7,8-HxCDD	0.53	0.00057	2.7	0.00086	HxCDD	21	0.030	34	0.013
1,2,3,6,7,8-HxCDD	3.7	0.0039	5.3	0.0017	HpCDD	96	0.14	170	0.068
1,2,3,7,8,9-HxCDD	2.4	0.0025	5.1	0.0016	OCDD	470	0.68	2,100	0.83
1,2,3,4,6,7,8-HpCDD	72	0.077	99	0.031	TCDF	7.3	0.011	37	0.014
OCDD	630	0.68	2,700	0.86	PeCDF	10	0.015	37	0.014
2,3,7,8-TCDF	1.3	0.0014	2.3	0.00073	HxxCDF	18	0.027	22	0.0085
1,2,3,7,8-PeCDF	0.34	0.00037	1.8	0.00058	HpCDF	31	0.046	41	0.016
2,3,4,7,8-PeCDF	0.52	0.00056	3.2	0.0010	OCDF	28	0.041	36	0.014
1,2,3,4,7,8-HxCDF	1.0	0.0011	4.0	0.0013					
1,2,3,6,7,8-HxCDF	0.66	0.00071	3.6	0.0011					
1,2,3,7,8,9-HxCDF	0.40	0.00043	0.75	0.00024					
2,3,4,6,7,8-HxCDF	0.77	0.00083	2.6	0.00080					
1,2,3,4,6,7,8-HpCDF	18	0.019	17	0.0053					
1,2,3,4,7,8,9-HpCDF	0.59	0.00064	1.5	0.00046					
OCDF	40	0.043	23	0.0073					
TOTAL	770	0.83	2,900	0.91	TOTAL	680	1.00	2,600	1.00

[a] Based on data from Reed et al. (1990), BC Environment (1995), U.S. EPA (1996), MRI (1992), Tewhey Associates (1997), Rogowski et al. (1999), and Rogowski and Yake (1999)..

[b] Based on data from U.S. EPA (1996) NIH (1995); and Rogowski et al (1999).

[c] Based on data from Reed et al. (1990), Birmingham (1990), Pearson et al. (1990), BC Environment (1995), U.S. EPA (1985), U.S. EPA

Table 3-13 Number of Positive Soil Samples and COD/CDF Concentrations in Background, Urban, and Impacted Sites Near a Waste-to-Energy Facility in Ohio

	Background		Urban		Impacted	
	No. of Positive Samples	Mean Conc. (ppt) (nondetects = ½ LOD)	No. of Positive Samples	Mean Conc. (ppt) (nondetects = ½ LOD)	No. of Positive Samples	Mean Conc. (ppt) (nondetects = ½ LOD)
2,3,7,8-TCDD	2/3	0.39	15/18	2.27	3/3	28.5
1,2,3,7,8-PeCDD	0/3	0.14	18/18	6.58	3/3	180.0
1,2,3,4,7,8-HxCDD	1/3	0.35	18/18	6.14	3/3	142.3
1,2,3,6,7,8-HxCDD	3/3	0.82	18/18	10.9	3/3	137.8
1,2,3,7,8,9-HxCDD	3/3	1.23	18/18	10.8	3/3	201.6
1,2,3,4,6,7,8-HpCDD	3/3	17.7	18/18	190.1	3/3	765.2
OCDD	3/3	160.9	18/18	1560.2	3/3	1495.4
2,3,7,8-TCDF	0/3	0.45	18/18	4.12	3/3	85.9
1,2,3,7,8-PeCDF	0/3	0.17	17/18	5.50	3/3	139.6
2,3,4,7,8-PeCDF	1/3	0.21	17/18	7.56	3/3	199.9
1,2,3,4,7,8-HxCDF	1/3	0.19	15/18	8.06	3/3	198.8
1,2,3,6,7,8-HxCDF	3/3	0.52	17/18	8.12	3/3	209.1
1,2,3,7,8,9-HxCDF	0/3	0.15	6/18	0.51	3/3	11.6
2,3,4,6,7,8-HxCDF	3/3	0.64	18/18	6.99	3/3	156.7
1,2,3,4,6,7,8-HpCDF	3/3	4.06	18/18	41.7	3/3	641.0
1,2,3,4,7,8,9-HpCDF	1/3	0.27	16/18	3.82	3/3	57.9
OCDF	3/3	10.72	18/18	44.3	3/3	184.5
Mean Total I-TEQ_{DF}, ppt (nondetects = ½ LOD)	--	1.4	--	19.2	--	356.0
Mean Total I-TEQ_{DF}, ppt (nondetects = 0)	--	1.1	--	19.2	--	356.0
Mean Total TEQ_{DF}-WHO_{98}, ppt (nondetects = ½ LOD)	--	1.3	--	21.0	--	444.5
Mean Total TEQ_{DF}-WHO_{98}, ppt (nondetects = 0)	--	0.92	--	21.0	--	444.5