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NCBC GULFPORT
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LETTER REPORT REGARDING SEDIMENT REMOVAL ADJACENT TO CANAL ROAD
CULVERTS WITH TRANSMITTAL NCBC GULFPORT MS
4/30/2003
TETRA TECH



TETRA TECH NUS, INC.

661 Andersen Drive ■ Pittsburgh, Pennsylvania 15220-2745
(412) 921-7090 ■ FAX (412) 921-4040 ■ www.tetrattech.com

PITT-04-3-072

April 30, 2003

Project Number N4512

Commander, Southern Division
Naval Facilities Engineering Command
ATTN: Art Conrad (Code ES32)
2155 Eagle Drive
North Charleston, SC 29406

Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order 0278

Subject: Transmittal of Letter Report
Sediment Removal Adjacent to Canal Road Culverts
NCBC Gulfport, Mississippi

Dear Mr. Conrad:

Please find attached one (1) copy of the subject report. Copies of this work plan have also been submitted as indicated below.

If you have any questions or comments regarding this document, please call me at at (412) 921-8401 or Bob Fisher at (850) 385-9899.

Very truly yours,

Jason J. Brown
Task Order Manager
JJB/jjb

Enclosure

c: Mr. G. Crane, NCBC Gulfport (two hardcopies/pdf copy)
Mr. A. Hatfield, AFCEE, Brooks AFB (pdf copy)
Ms. D. Wroblewski (cover letter only)
Mr. M. Perry/File (one hardcopy)

**LETTER REPORT
FOR
SEDIMENT REMOVAL ADJACENT TO CANAL ROAD CULVERTS
NAVAL CONSTRUCTION BATTALION CENTER, GULFPORT, MISSISSIPPI**

INTRODUCTION

In advance of a culvert replacement project planned by the City of Gulfport, Mississippi, Tetra Tech NUS, Inc. (TtNUS) removed contaminated sediments bordering two adjacent culverts located as shown on Figure 1. Past storage of Herbicide Orange (HO) at the Naval Construction Battalion Center (NCBC) Gulfport, Mississippi resulted in the migration of dioxin-contaminated sediments from the NCBC into the area near the culverts. This Letter Report discusses the activities that were conducted to remove the contaminated sediment from channels adjacent to the road/culverts.

Field activities were not performed for clean closure purposes but to allow workers safe access to the area adjacent to the culverts during the culvert replacement project. Sampling data obtained from confirmation samples collected after the completion of excavation activities will be used at a future date when clean closure is sought for the other swampland areas affected by HO storage at the NCBC.

This report has been prepared by TtNUS for the Southern Division Naval Facilities Engineering Command under the Navy Comprehensive Long-Term Environmental Action Navy Program, Contract Number N62467-94-D-0888, Contract Task Order 0278.

PROJECT BACKGROUND

From 1968 to 1977, Site 8, an area located in the central portion of the NCBC Gulfport, was used by the United States Air Force for the storage of approximately 850,000 gallons of HO. As a result of the spills and leaks that occurred during the years of HO storage, dioxin migrated through the system of on-base drainage ditches to the off-base swampland located across 28th Street from Outfall 3 (see Figure 1) and to the east of Canal Road. The only chemical of concern is 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), which is a manufacturing impurity of HO. In this report, TCDD and other dioxins and furans are collectively referred to as "dioxins."

FIELD ACTIVITIES

Field activities to remove dioxin-contaminated sediment within and adjacent to the culverts were performed by a TtNUS subcontractor (Dixieland Enterprises, Inc. of Gulfport Mississippi).

- A cursory review revealed that a nominal amount of sediment was present within the culverts. Prior to excavation, the culverts were pressure washed to remove the sediment.
- A sediment recovery trap (SRT) was constructed at the easternmost (upstream) extent of the excavation. The SRT consists of a series of 2-cubic yard gabion baskets filled with gravel and lined with geotextile filter fabric.
- Sediment located on both ends (east and west) of the culverts was excavated. Sediment excavated to the east of the culverts was contained within a small channel that extended approximately 30 feet east of the road, averaged 12 feet in width, and was approximately 2 feet deep. Previous analytical results indicated that the western side of the culvert was not contaminated; however, a small portion of sediment directly adjacent to western side of the culverts was excavated as a conservative measure.
- The transportation vehicles (15-cubic yard dump trucks) were lined with plastic sheeting to prevent leaking of drainage from the saturated sediments. To prevent sediment from spilling from the sides of the truck, the truck was only filled to two thirds capacity before transport. The sediment was then transported to Site 8, Area A at the NCBC Gulfport as shown in Figure 2. Within Site 8, Area A, the sediment was placed within the bermed and lined material staging area used during the 2001 pilot-scale treatability study. During a future remedial action at Site 8, this material will be mixed with other dioxin-contaminated media, stabilized with Portland cement, and landfilled at Site 8.

Upon completion of excavation activities, TtNUS personnel collected two confirmatory samples – one to the east (08-SD-VS-117) and one to the west (08-SD-VS-118) of the culverts. The samples were collected directly adjacent to the culverts to help the City of Gulfport determine proper health and safety measures for their site workers during culvert replacement operations. At each location, a sediment grab sample was collected from a depth of 0 to 6 inches below ground surface using a stainless steel spoon, mixed in a stainless steel bowl, and transferred to sample jars for analysis. A description of the physical appearance of each sample and sampling location was recorded on the sample log sheets presented in Attachment 1. Prior to sampling, field personnel decontaminated the sampling equipment by washing and rinsing with Alconox®, rinsing with isopropyl alcohol, and finally rinsing with de-ionized water.

The samples were analyzed for dioxins using United States Environmental Protection Agency (USEPA) SW-846 Method 8290. Using these results, toxicity equivalent (TEQ) concentrations of TCDD were calculated in accordance with the Interim Report on Data Methods for Assessment of TCDD Risks

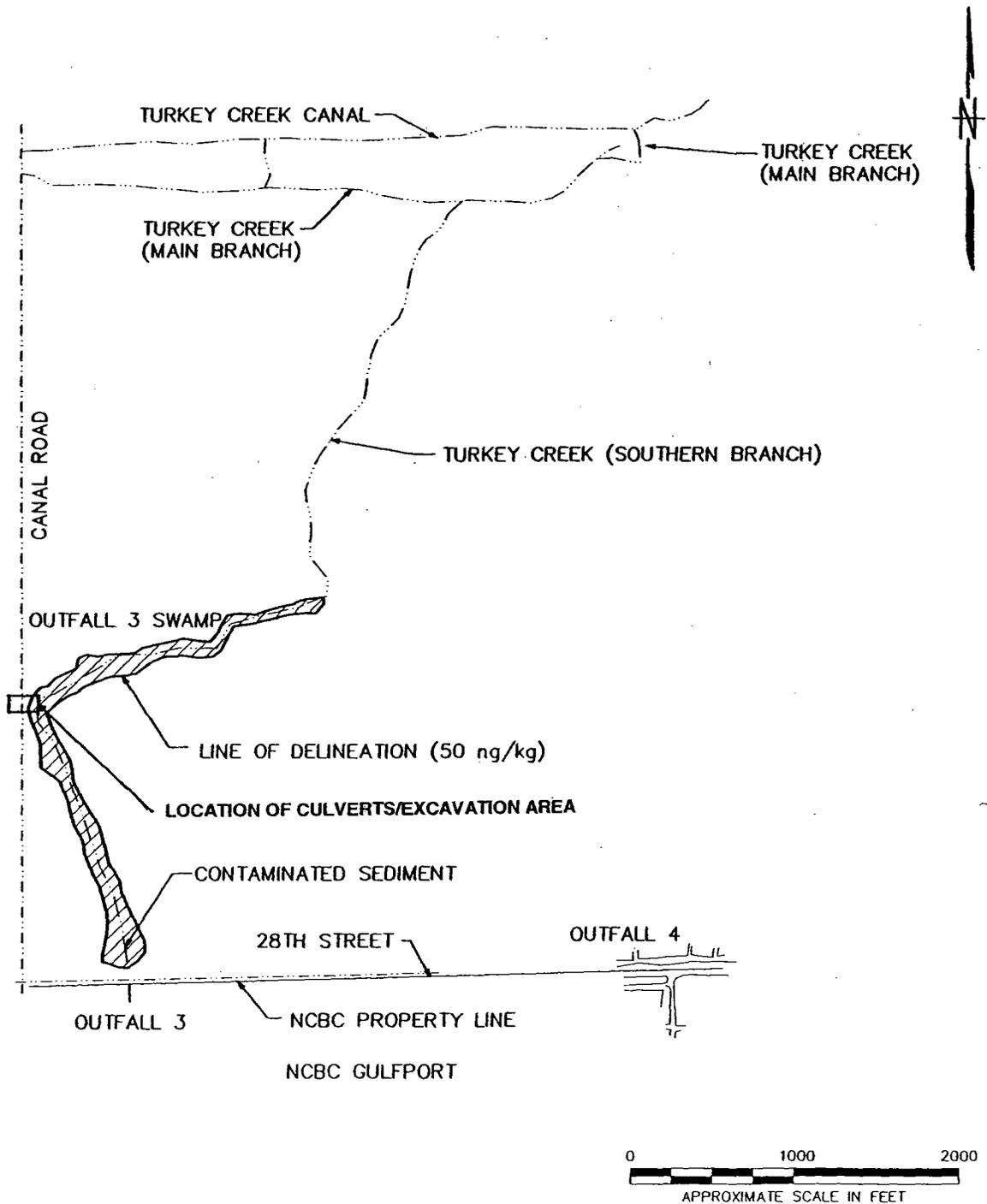
(USEPA, 1989). Resulting TEQ concentrations were 5.3 ng/kg for both samples. Analytical results for the individual dioxin/furan congeners are provided in Attachment 2.

The sample results indicate that the dioxin levels in the remaining sediments are slightly greater than the Mississippi Department of Environmental Quality Tier 1 Target Risk Goal (TRG) of 4.26 ng/kg for unrestricted (residential) use; however, the results are less than the restricted (industrial/occupational worker) TRG of 38 ng/kg.

REFERENCES

United States Environmental Protection Agency, 1989. Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and -dibenzofurans (CDDs and CDFs) and 1989 Update. Risk Assessment Forum, Washington, DC, EPA/625/3-89/016.

ACAD:0567CM37.dwg 03/07/03 HUB PIT



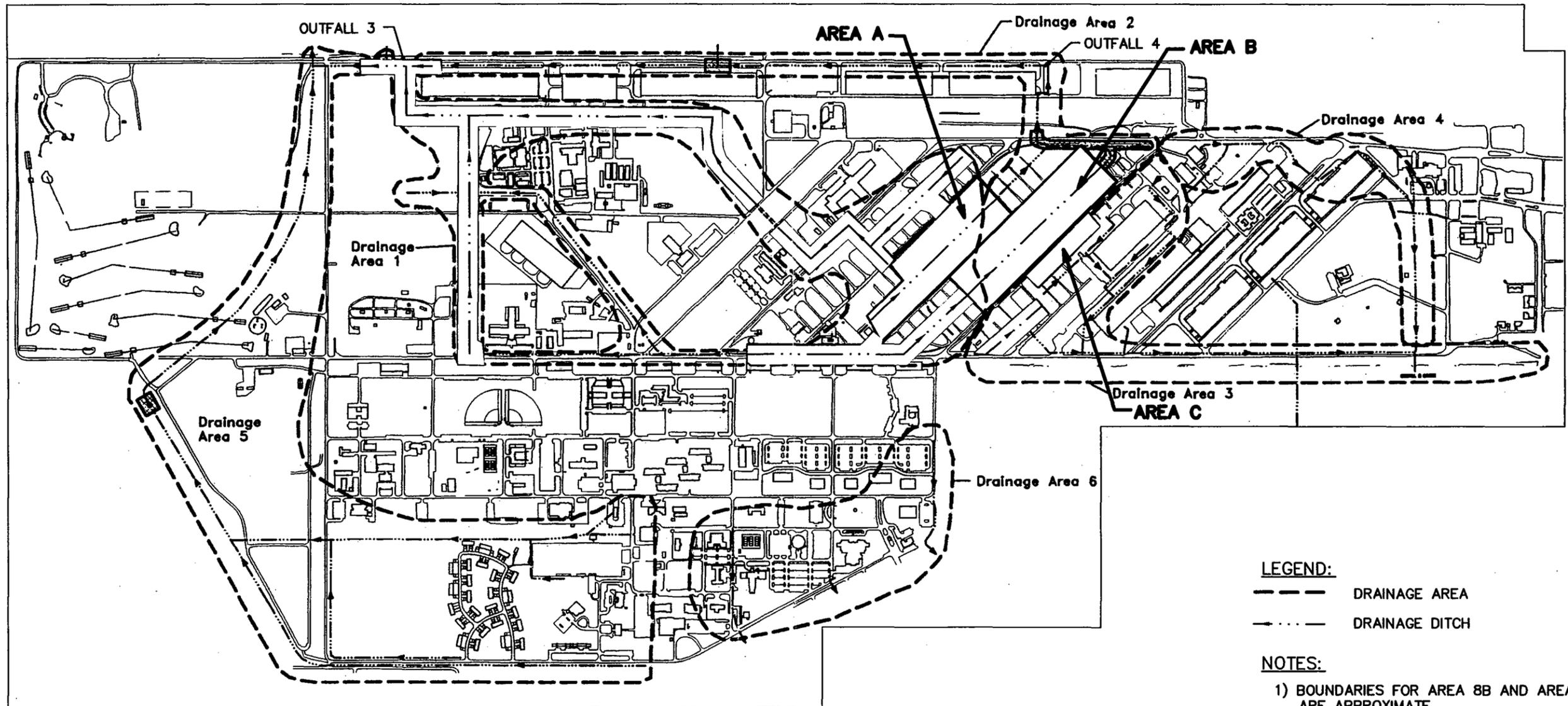
SOURCE: REMEDIATION GUIDANCE DOCUMENT, HARDING LAWSON ASSOCIATES, MARCH 2000.

DRAWN BY	DATE
HJB	3/7/03
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE	
AS NOTED	



CULVERT EXCAVATION AREA
NAVAL CONSTRUCTION BATTALION CENTER
GULFPORT, MISSISSIPPI

CONTRACT NO.	
0567	
APPROVED BY	DATE
APPROVED BY	DATE
FIGURE 1	

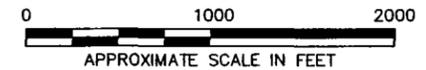


LEGEND:

- DRAINAGE AREA
- . - . - DRAINAGE DITCH

NOTES:

- 1) BOUNDARIES FOR AREA 8B AND AREA 8C ARE APPROXIMATE.
- 2) WIDTHS ACROSS DRAINAGE DITCHES ARE NOT TO SCALE.



SOURCE: REMEDIATION GUIDANCE DOCUMENT, HARDING LAWSON ASSOCIATES, MARCH 2000.

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES	DRAWN BY	DATE		CONTRACT NO.	
							HJB	3/7/03		0567	
							CHECKED BY	DATE		APPROVED BY	DATE
							COST/SCHED-AREA			APPROVED BY	DATE
							SCALE AS NOTED		LOCATION OF FORMER HERBICIDE ORANGE STORAGE AREA NAVAL CONSTRUCTION BATTALION CENTER GULFPORT, MISSISSIPPI		FIGURE 2

ATTACHMENT 1

SUPPORTING FIELD DOCUMENTATION



Project Site Name: NCBC Gulfport, Canal Road Culvert
Project No.: CTO 278, N4512

Excavation
Sample ID No.: 08-SD-VS-117
Sample Location: —
Sampled By: JJB
C.O.C. No.: 107 107

- Surface Soil
- Subsurface Soil
- Sediment
- Other: _____
- QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
04/01/03	0 to 6" bas	Tan/orange	clay, moist
Time: 1450			
Method: SW846-8290			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

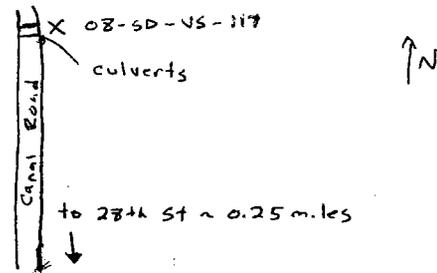
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
SW 846-8290 - Dioxins	4 oz jar	✓	

OBSERVATIONS / NOTES:

MAP:

Sample was collected directly adjacent to the culverts to the east



Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No.:



Project Site Name: NCBC Gulfport, Canal Road Culvert ^{Excavation} Sample ID No.: 08-SD-VS-118
 Project No.: CTO 278, N4512 Sample Location: -
 Sampled By: JJB
 C.O.C. No.: 107 107

Surface Soil
 Subsurface Soil
 Sediment
 Other: _____
 QA Sample Type: _____

Type of Sample:
 Low Concentration
 High Concentration

GRAB SAMPLE DATA:			
Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
04/01/03	0 to 6" bas	Tan/orange	clay, moist
Time: 1500			
Method: SW846-8290			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:				
Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:			
Analysis	Container Requirements	Collected	Other
SW 846-8290 - Dioxins	4 oz jar	✓	

OBSERVATIONS / NOTES:	MAP:
<p>Sample was collected directly west of the culverts (adjacent to them)</p> <p>08-SD-VS-118 → X</p>	<p>Canal Road</p> <p>culverts</p> <p>to 28th St ~ 0.25 miles</p> <p>↑ N</p>

Circle if Applicable:		Signature(s):
<input type="checkbox"/> MS/MSD	Duplicate ID No.:	

Chain of Custody Record

**SEVERN
TRENT
SERVICES**

Severn Trent Laboratories, Inc.

STL-4124 (1200)

Client TENUS Inc.		Project Manager Jason Brown		Date 04/01/03	Chain of Custody Number 107107
Address 661 Anderson Drive, Ste 500		Telephone Number (Area Code)/Fax Number 412-921-8401 412-759-5992 (cell)		Lab Number	
City Pittsburgh	State PA	Zip Code 15220	Site Contact J. Brown	Lab Contact Jagant Shringar	Page 1 of 1

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix				Containers & Preservatives							Analysis (Attach list if more space is needed)	Special Instructions/ Conditions of Receipt		
			Air	Aqueous	Sol.	Sol	Unpres.	H2SO4	HNO3	HCl	NaOH	Zinc/NaOH					
08-SD-VS-117	04/01/03	1450			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>											<div style="border: 1px solid black; border-radius: 50%; padding: 5px; display: inline-block;"> 7-day turn ★ 7-day turn ★ </div>
08-SD-VS-118	04/01/03	1500			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>											

Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown			Sample Disposal <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			(A fee may be assessed if samples are retained longer than 3 months)
--	--	--	--	--	--	--

Turn Around Time Required <input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input checked="" type="checkbox"/> 7 Days <input type="checkbox"/> 14 Days <input type="checkbox"/> 21 Days <input type="checkbox"/> Other _____			QC Requirements (Specify)		
--	--	--	---------------------------	--	--

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ATTACHMENT 2

ANALYTICAL RESULTS

PROJ_NO: 4512

SDG: 52220 MEDIA: SOIL DATA FRACTION: DIOX

nsample 08-SD-VS-117
 samp_date 4/1/2003
 lab_id 52220.01
 qc_type NM
 units NG/KG
 Pct_Solids 74.8
 DUP_OF:

nsample 08-SD-VS-118
 samp_date 4/1/2003
 lab_id 52220.02
 qc_type NM
 units NG/KG
 Pct_Solids 74.2
 DUP_OF:

Parameter	Result	Val Qual	Qual Code
1,2,3,4,6,7,8,9-OCDD	1192		
1,2,3,4,6,7,8,9-OCDF	6.101		
1,2,3,4,6,7,8-HPCDD	118.2		
1,2,3,4,6,7,8-HPCDF	1.85		
1,2,3,4,7,8,9-HPCDF	0.061	U	
1,2,3,4,7,8-HXCDD	0.272	U	W
1,2,3,4,7,8-HXCDF	0.272	J	Q
1,2,3,6,7,8-HXCDD	1.899		
1,2,3,6,7,8-HXCDF	0.054	U	
1,2,3,7,8,9-HXCDD	21.91		
1,2,3,7,8,9-HXCDF	0.069	U	
1,2,3,7,8-PECDD	0.065	U	
1,2,3,7,8-PECDF	0.04	U	
2,3,4,6,7,8-HXCDF	0.063	U	
2,3,4,7,8-PECDF	0.041	U	
2,3,7,8-TCDD	0.649		
2,3,7,8-TCDF	0.058	U	
TEQ	5.46		
TOTAL HPCDD	176.6		
TOTAL HPCDF	1.85		
TOTAL HXCDD	69.56		
TOTAL HXCDF	3.601		
TOTAL PECDD	1.997		
TOTAL PECDF	0.04	U	
TOTAL TCDD	1.482		
TOTAL TCDF	0.192		

Parameter	Result	Val Qual	Qual Code
1,2,3,4,6,7,8,9-OCDD	1522		
1,2,3,4,6,7,8,9-OCDF	5.105		
1,2,3,4,6,7,8-HPCDD	108.2		
1,2,3,4,6,7,8-HPCDF	2.454		
1,2,3,4,7,8,9-HPCDF	0.112	U	W
1,2,3,4,7,8-HXCDD	0.404		
1,2,3,4,7,8-HXCDF	0.301	J	Q
1,2,3,6,7,8-HXCDD	1.764		
1,2,3,6,7,8-HXCDF	0.053	U	
1,2,3,7,8,9-HXCDD	21.73		
1,2,3,7,8,9-HXCDF	0.067	U	
1,2,3,7,8-PECDD	0.062	U	
1,2,3,7,8-PECDF	0.049	U	
2,3,4,6,7,8-HXCDF	0.061	U	
2,3,4,7,8-PECDF	0.051	U	
2,3,7,8-TCDD	0.411		
2,3,7,8-TCDF	0.054	U	
TEQ	5.46		
TOTAL HPCDD	181.9		
TOTAL HPCDF	2.454		
TOTAL HXCDD	66.88		
TOTAL HXCDF	1.421		
TOTAL PECDD	5.113		
TOTAL PECDF	0.359		
TOTAL TCDD	2.341		
TOTAL TCDF	0.054	U	