

AR 226 - 1193

JULY 2002  
SURFACE WATER MONITORING REPORT  
FOR WASHINGTON WORKS FACILITY AND  
LOCAL, LETART AND DRY RUN LANDFILLS  
WASHINGTON, WV

Date: September 2002

Project No.: D6WW7423.01  
18983635.20000



CORPORATE REMEDIATION GROUP  
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Barley Mill Plaza, Building 27  
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## 10 INTRODUCTION

A multi-media consent order (Order No. GWR-2001-019) was entered into between the West Virginia Department of Environmental Protection (WVDEP), the West Virginia Department of Health and Human Resources – Bureau for Public Health (WVDHHR-BPH) and DuPont on November 15, 2001 (Consent Order). The Consent Order identified a series of requirements and tasks to be performed by the parties to determine whether there has been an impact on human health and the environment as a result of releases of ammonium perfluorooctanoate (C-8), CAS Number 3825-26-1, to the environment from DuPont operations at the Washington Works facility and the associated landfills (Local, Letart and Dry Run).

The Consent Order established the C-8 Groundwater Investigation Steering Team (GIST) to oversee investigations and activities that will be conducted to assess the presence and extent of C-8 in drinking water, groundwater, and surface water at and around the Washington Works facility and the Local, Letart and Dry Run Landfills.

**An** additional component of the Consent Order relates to the National Pollutant Discharge Elimination System (NPDES) permit sampling requirements. In this portion of the Consent Order, specific outfalls and outlets (outfalls) are to be sampled monthly for C-8 by DuPont.

Pursuant to Attachment A of the Consent Order, three tasks will be performed by DuPont and evaluated by the GIST, Tasks A, B, and C. Task A: Groundwater Use and Well Survey/Groundwater Monitoring has been completed (DuPont, 2002a; 2002b). Task B: Assessment of Existing Groundwater and Surface Water Monitoring Data includes the compilation of historical C-8 data, monitoring all wells at the landfills and the development of a Groundwater Monitoring Plan (GMP) for the Washington Works facility. The first part of the task, the historical C-8 data compilation report has been submitted to the GIST for evaluation (DuPont, 2002c). The second part of this task, monitoring C-8 in groundwater at the landfills, began in December 2001 and was performed monthly for four months and quarterly thereafter. The third part of the task, the proposed GMP for the Washington Works facility, was submitted to the GIST for evaluation (DuPont, 2002d) and groundwater sampling on the Washington Works facility began in January 2002. Groundwater sampling at the Washington Works facility was conducted monthly for four months and continues quarterly. Task C: Plume Identification/Groundwater Assessment is ongoing.

This report presents the results of the C-8 sampling that was performed in July 2002, Surface water results are presented for the Washington Works facility and the Local, Letart, and Dry Run Landfills.

## 2.0 C-8 ANALYTICAL REPORTING

The analytical method, method detection limit, and laboratory utilized for C-8 analysis has changed over time. Prior to 1991, DuPont performed C-8 analysis at the DuPont Experimental Station in Wilmington, Delaware. In 1991, when the RCRA Verification Investigation was conducted, the analysis was contracted to the CH<sub>2</sub>MHill Laboratory in Montgomery, Alabama. Both labs used a Gas Chromatography/Electron Capture Detector (GC-ECD) based analytical method with detection limits for C-8 that ranged from 0.1 to 1.0ug/l.

CH<sub>2</sub>MHill conducted C-8 analysis for DuPont into the fall of 1998 when the laboratory ceased operation. At that time, DuPont had completed one round of analysis for the RCRA Facility Investigation (RFI). The analytical work was transferred to Lancaster Laboratories, Lancaster, PA, for the RFI second round analysis in March 1999. Lancaster Laboratories continued to conduct C-8 analysis using GC-ECD for DuPont until October 2001, when development and testing was completed on a new analytical method developed by Exygen Research, Inc. (Exygen; located in State College, PA) that utilizes Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). DuPont adopted the regular use of LC/MS/MS for C-8 analysis in water in November 2001 and Exygen was contracted to perform the analyses for DuPont.

Exygen reports C-8 results for the laboratory replicate of each field sample. These results are evaluated for precision by comparing the field sample result to the corresponding laboratory replicate result.

- If both results are less than the practical quantitation limit (PQL), the replicate sample for that analyte is considered to have passed the precision criteria.
- If one or both results are between one and five times the PQL, the replicate is considered to have met the precision criteria if the two results differ by less than the PQL.
- If one result is less than the PQL and the other is not, and if the two results differed by a value less than the PQL, the replicate is said to have met the acceptance criteria.
- Finally, if both results are at least five times the PQL, the replicate is considered to have met the criteria if the relative percent difference (RPD) between the two results is less than or equal to 20%. The RPD is the absolute value of the difference of two measurements divided by their average.

When the precision criteria outlined above are met, Exygen reports the average of the field sample and lab replicate results reported by the laboratory. If criteria for precision are exceeded, Exygen reports the higher of the sample and lab replicate results. Finally, when one result (from the sample/lab replicate pair) is above the PQL and one below, the result that is above the PQLs is reported. C-8 results are recorded in the Corporate Environmental Database (CED) and are reported as FC-143 for consistency with historical results.

### 3.0 WASHINGTON WORKS FACILITY

Figure 1.0 shows the location of the Washington **Works** facility. On July 23<sup>rd</sup>, 2002, six outfalls were sampled for C-8 (001,002,003, 005,007, and 105). All of these outfalls collect process water and stormwater runoff. Sampling of these outfalls is required by the Consent Order and WV NPDES permit No. WV0001279. The locations of these outfalls are shown in Figure 1.1.

Table 1.0 provides the C-8 analytical results for surface water. For each sampling point listed in this table, historical data is summarized with the most recent results listed first. Figure 1.2 presents the C-8 concentration map for the outfalls sampled in July 2002. Laboratory analytical data reports and the Chain-of-Custody records are included in Appendix A and B, respectively.



## **TABLES**

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**Table 1.0**  
**Summary of Analytical Results:**  
**C-8 in Surface Water**  
**DuPont Washington Works Facility**  
**Washington, WV**

Sample	Date	C-8 (ug/l)
OUTLET 001	7/23/02	8.63
	6/25/02	17.9
	5/20/02	22.4
	4/16/02	19.7
	3/19/02	21.4
	2/5/02	9.43
	1/17/02	10.9
	12/20/01	3.720
OUTFALL 002	7/23/02	2.29
	6/25/02	3.86
	6/25/02 (dup)	3.81
	5/20/02	4.13
	4/16/02	2.45
	3/19/02	5.85
	2/5/02	4.66
	1/17/02	4.23
	12/20/01	1.980
	11/26/01*	4.84
	10/25/01	2.8
	9/19/01	0.118
	7/11/01	0.558
	6/14/01	0.594
	5/31/01	0.435
	4/11/01	1.5
	3/21/01	8.54
2/14/01	1.74	
OUTLET 003	7/23/02	0.291
	6/25/02	0.175
	5/20/02	0.503
	4/16/02	2.76
	3/19/02	2.91
	3/19/02 (dup)	2.81
	2/5/02	1.33
	1/17/02	0.956
	1/17/02 (dup)	3.99
	12/20/01	0.713
OUTFALL 005	7/23/02	19.2
	6/25/02	17.9
	5/20/02	98.6
	5/17/02	65.7
	4/16/02	3.8
	3/19/02	9.26
	2/5/02	141.0
	1/17/02	137.0
	12/20/01	31.40
	12/20/01(dup)	35.20
	11/28/01	915
	10/25/01	65.7
	9/19/01	2.86
	8/30/01	2.16
	7/11/01	120
	6/14/01	7.4
	5/31/01	1.43
	4/11/01	4.31
3/21/01	199	
2/14/01	153	

**Table 1.0**  
**Summary of Analytical Results:**  
**C-8 in Surface Water DuPont Washington Works Facility Washington, WV**

Sample	Date	C-8 (ug/l)
OUTLET 007	7/23/02	0.597
	6/25/02	0.284
	5/20/02	0.490
	4/16/02	0.567
	3/19/02	0.483
	2/5/02	0.320
	2/5/02(dup)	0.339
	1/17/02	0.871
	12/20/01	1.99
OUTLET 105	7/23/02	34.7
	6/25/02	3.86
	5/20/02	6.27
	4/16/02	15.9
	3/19/02	13.2
	2/5/02	14.6
	1/17/02	7.53
	12/20/01	9.78

Note: Analytical method changed as of November 2001 (see Section 2.0 for details).

**000452**

**Table 2.0**  
**Summary of Analytical Results:**  
**C-8 in Surface Water**  
**Local Landfill**  
**Washington, WV**

Sample	Date	C-8 (ug/l)
OUTFALL 004 (New)	7/1/02	11.2
	6/13/02	9.29
	5/21/02	No-flow conditions
	4/29/02	14.5
	3/26/02	14.6
OUTFALL 004 (Old)	7/1/02	11.6
	6/13/02	10.0
	5/21/02	No-flow conditions
	4/29/02	15
	3/26/02	1.54
	2/20/02	10.9
	1/24/02	11.4
	12/13/01	No-flow conditions
	9/27/2000	4.73
	12/10/1999	7.1
	6/3/1999	3.06
	6/2/1998	12
	5/29/1997	13
	4/2/1996	13
	2/16/1994	11
OUTFALL 005 (New)	7/1/02	No-flow conditions
	6/13/02	No-flow conditions
	5/21/02	No-flow conditions
	4/29/02	34.3
	3/26/02	16.0
OUTFALL 005 (Old)/SS1	7/1/02	32.1
	6/13/02	27.3
	5/21/02	No-flow conditions
	4/29/02	40.9
	3/26/02	39.0
	2/20/02	46.0
	1/11/02	51.4
	12/13/01	No-flow conditions
	9/27/2000	13.3
	12/10/1999	34
	6/3/1999	6.8
	6/2/1998	39
	5/29/1997	41
	4/2/1996	39
	2/16/1994	35
OUTLET 101	7/1/02	63.0
	6/13/02	38.0
	5/21/02	40.0
	4/29/02	48.2
	3/25/02	36.4
	2/20/02	63.10
	1/23/02	81.4
	12/13/01	82.40
	9/14/2000	12
	6/3/1999	15
6/2/1998	54	

Note: Analytical method changed as of November 2001 (see Section 2.0 for details).

**000453**

**Table 3.0  
Summary of Analytical Results:  
C-8 in Surface Water  
Letart Landfill  
Letart, WV**

<b>Sample</b>	<b>Date</b>	<b>C-8 (ug/l)</b>
002(LEACHATE BASIN)	7/30/02	1410
	6/28/02	Not Analyzed*
	5/30/02	1630
	4/30/02	443
	3/28/02	131
	2/19/02	355
	1/25/02	50.1
	12/14/01	36.1
	11/27/2001	53.2
	7/20/01	159
	7/25/2000	1350
	4/3/2000	1900
	1/14/2000	920
	10/21/1999	3240
003	7/30/02	No-Flow Conditions
	6/28/02	Not Analyzed*
	5/30/02	0.282
	4/30/02	0.0653
	3/28/02	0.198
	2/19/02	No-Flow Conditions
	1/25/02	0.148
	12/14/01	0.390
RT 33 STREAM	5/30/02	1,570
	4/30/02	0.845
	3/28/02	1.26
	2/19/02	3.92
	1/25/02	1.9
	7/20/2001	2.01
	7/31/2000	0.573
	7/20/1999	2.23
	7/23/1997	2
	4/17/1996	1.8
CAP RUNOFF	6/28/02	Not Analyzed*
	5/30/02	371
	4/30/02	279
	3/28/02	Not Sampled
	2/19/02	No-Flow Conditions
	1/25/02	119

Note: Analytical method changed as of November 2001 (see Section 2.0 for details).

\* Samples were taken at the respective surface water locations. However, due to an error by the courier, the samples arrived at the lab warm and were not analyzed.

**000454**

**Table 4.0**  
**Summary of Analytical Results:**  
**C-8 in Surface Water**  
**Dry Run Landfill**  
**Lubeck, WV**

Sample	Date	C-8 (ug/l)
OUTLET 001	7/31/02	No-flow conditions
	7/1/02	No-flow conditions
	6/28/02	No-flow conditions
	5/28/02	30.9
	4/24/02	41
	3/25/02	71.6
	2/25/02	43.9
	1/28/02	41.6
	12/12/01	No-flow conditions
	10/3/2000	31.5
	12/29/1999	66
	5/19/1998	17
	4/9/1996	86
OUTLET 003	7/1/02	25.3
	6/28/02	No-flow conditions
	5/28/02	No-flow conditions
	4/29/02	20.1
	3/26/02	6.77
	2/25/02	No-flow conditions
	1/28/02	No-flow conditions
	12/12/01	No-flow conditions
OUTLET 004	7/1/02	0.70
	6/28/02	No-flow conditions
	5/28/02	No-flow conditions
	4/27/02	No-flow conditions
	3/26/02	158
	2/25/02	No-flow conditions
	1/28/02	No-flow conditions
	12/12/01	No-flow conditions
PROPERTY BOUNDARY	5/28/02	9.41
	4/24/02	6.69
	3/25/02	22.8
	2/25/02	3.81
	1/28/02	11.1
	12/12/01	3.99
	10/3/2000	10.3
	12/29/1999	39
	7/14/1998	0.88
4/9/1996	9.9	
STREAM SAMPLING POINT#1	5/28/02	1.63
	4/24/02	0.932
	3/25/02	1.06
	2/25/02	0.850
	1/28/02	0.893
	12/12/01	1.19
	10/3/2000	0.758
	12/29/1999	0.54
	5/19/1998	1
STREAM SAMPLING POINT#2	5/28/02	51.0
	4/24/02	28.9
	3/25/02	66.6
	2/25/02	24.3
	1/28/02	42.4
	12/12/01	20.5
	10/3/2000	27.6
	12/29/1999	87
5/19/1998	4.6	

000455

**Table 4.0**  
**Summary of Analytical Results:**  
**C-8 in Surface Water**  
**Dry Run Landfill**  
**Lubeck, WV**

Sample	Date	C-8 (ug/l)
DRLEACHATE	5/28/02	150
	4/24/02	237
	3/25/02	334
	2/25/02	256
	1/28/02	398
	12/12/01	109
	10/3/2000	27.4
	12/29/1999	34
	5/19/1998	56
	7/22/1997	62
POND UNDERDRAIN	5/28/02	67.4
	4/24/02	33.4
	3/25/02	66.7
	2/25/02	37.1
	1/28/02	29.3
	12/12/01	35.4

Note: Analytical method changed as of November 2001 (see Section 2.0 for details).

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**000457**

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## FIGURES

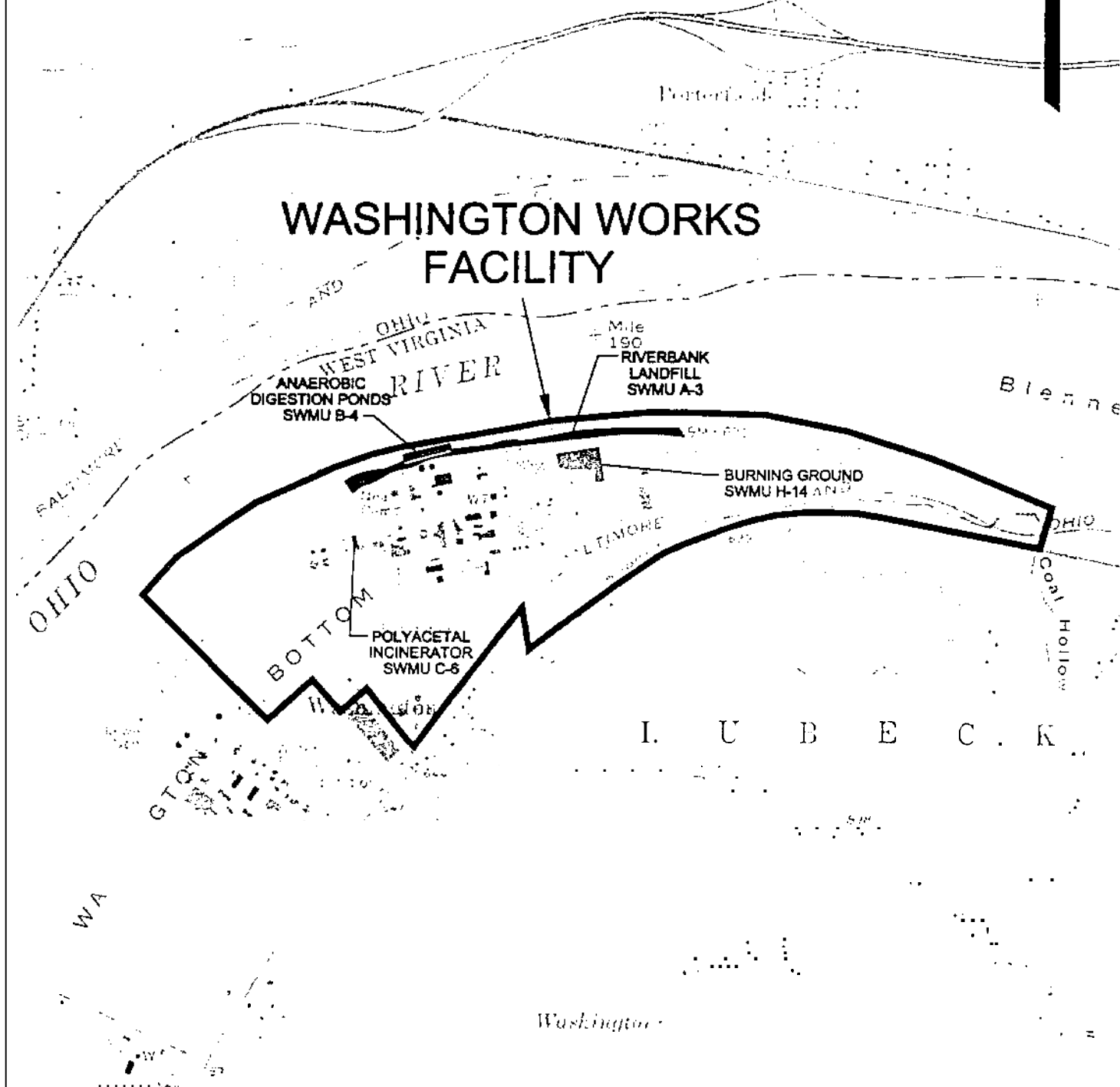
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B E L P R E



# WASHINGTON WORKS FACILITY



Source: MAP TAKEN FROM THE LUBECK, WV USCS QUADRANGLE



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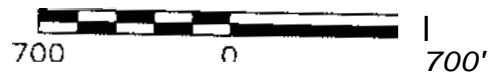
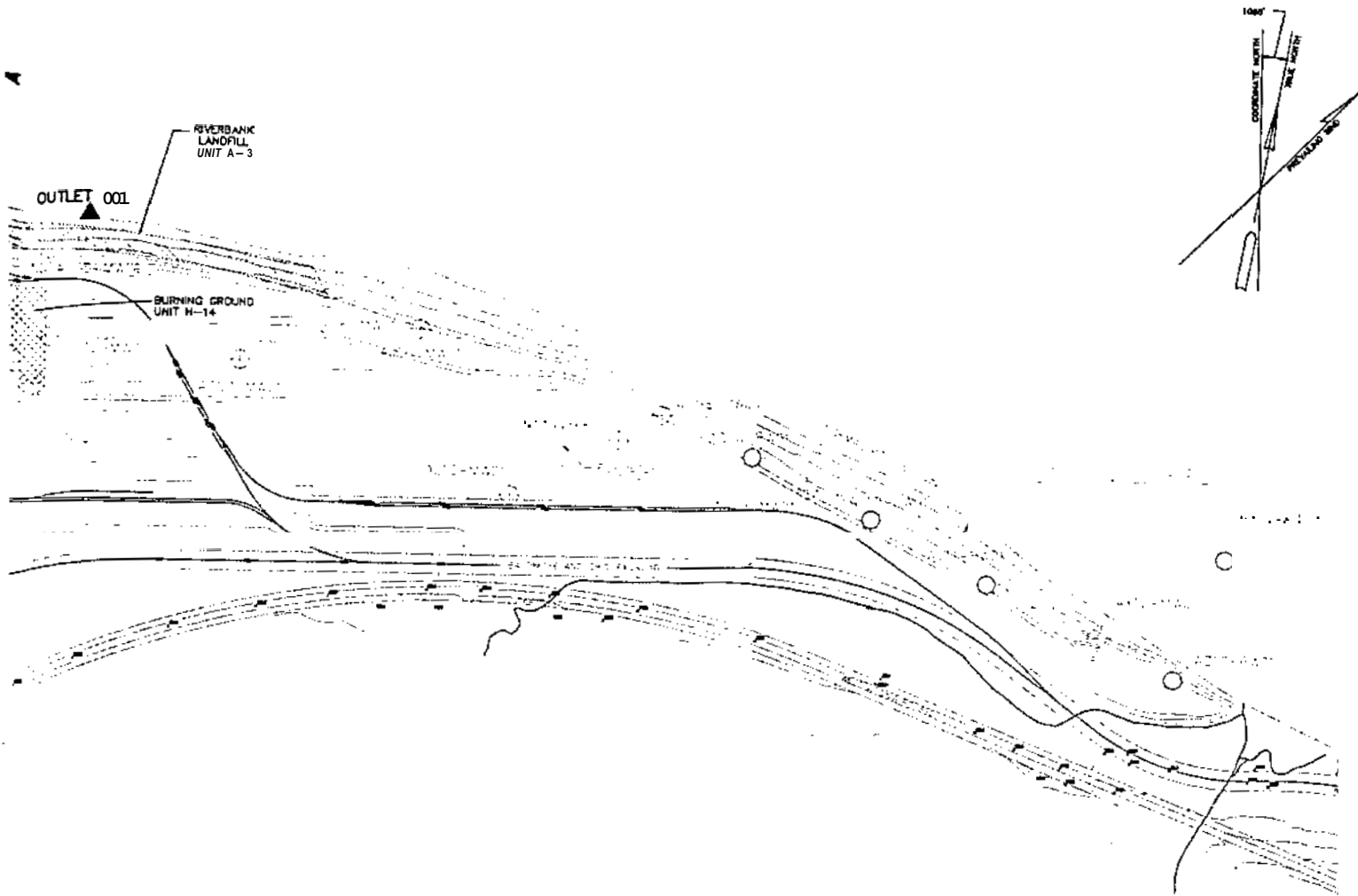
Barley Mill Plaza, Building 27  
Wilmington, Delaware 19805

## SITE LOCATION MAP

DuPont Washington Works Facility  
Washington, West Virginia

SCALE N d to scale	DESIGNED DEL	DRAWN DEL	CAD FILE NO. 7422A001
DATE 9/27/01	CHECKED DEL	APPROVED DEL	FIGURE 1.0

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DRAWN	
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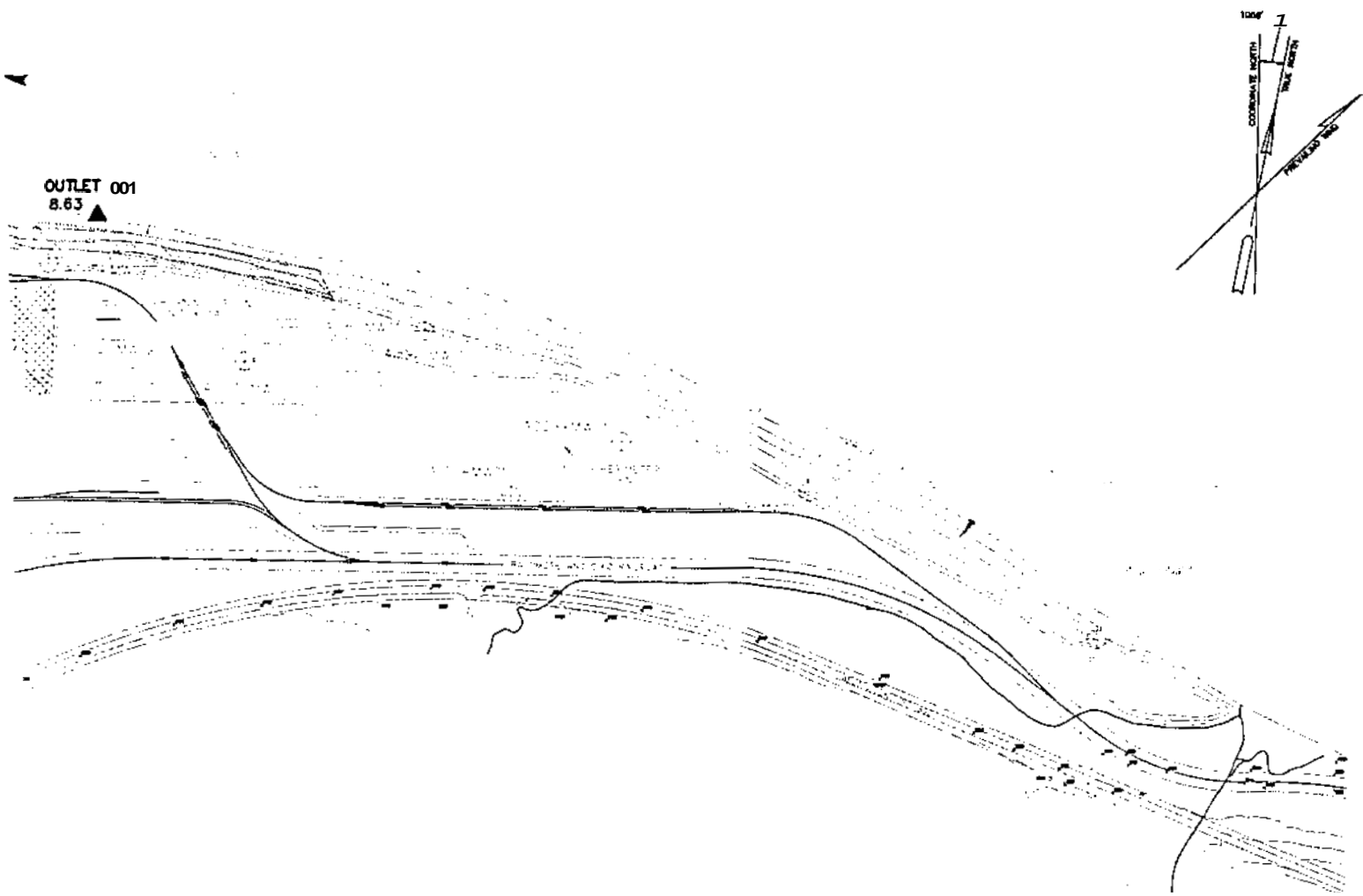
*An Alliance between  
DuPont and URS | Diamond*

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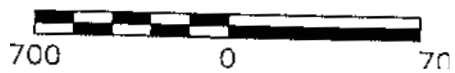
**SURFACE WATER  
SAMPLE LOCATION MAP**

DuPont Washington works Facility  
Washington, West Virginia

SCALE shown	DATE 02/2002	CAD FILE NO. FIG-1.1	FIGURE 1.1
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SCALE



DESIGNED	INITIALS
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ASH	
APPROVED (CONSTRUCTION)	



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C-8 IN SURFACE WATER  
JULY 2002

DuPont Washington Works Facility  
Washington, West Virginia

SCALE	DATE	CAD FILE NO.	FIGURE
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**000461**

B E L P R E



Porterfield  
OHIO

PROPERTY  
LINE

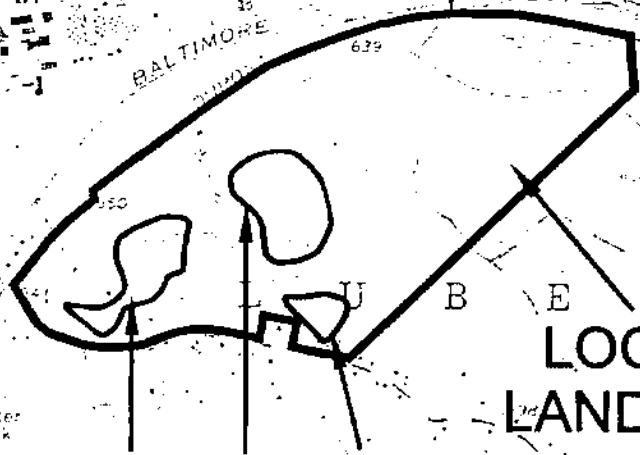
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RIVER

Mile  
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Blenne

BALTIMORE  
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BOTTOM



LOCAL  
LANDFILL

LANDFILL CELL  
PERIMETERS

Washington

WASHINGTON

Lake  
Washington



Quadrangle

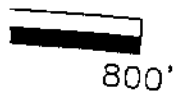
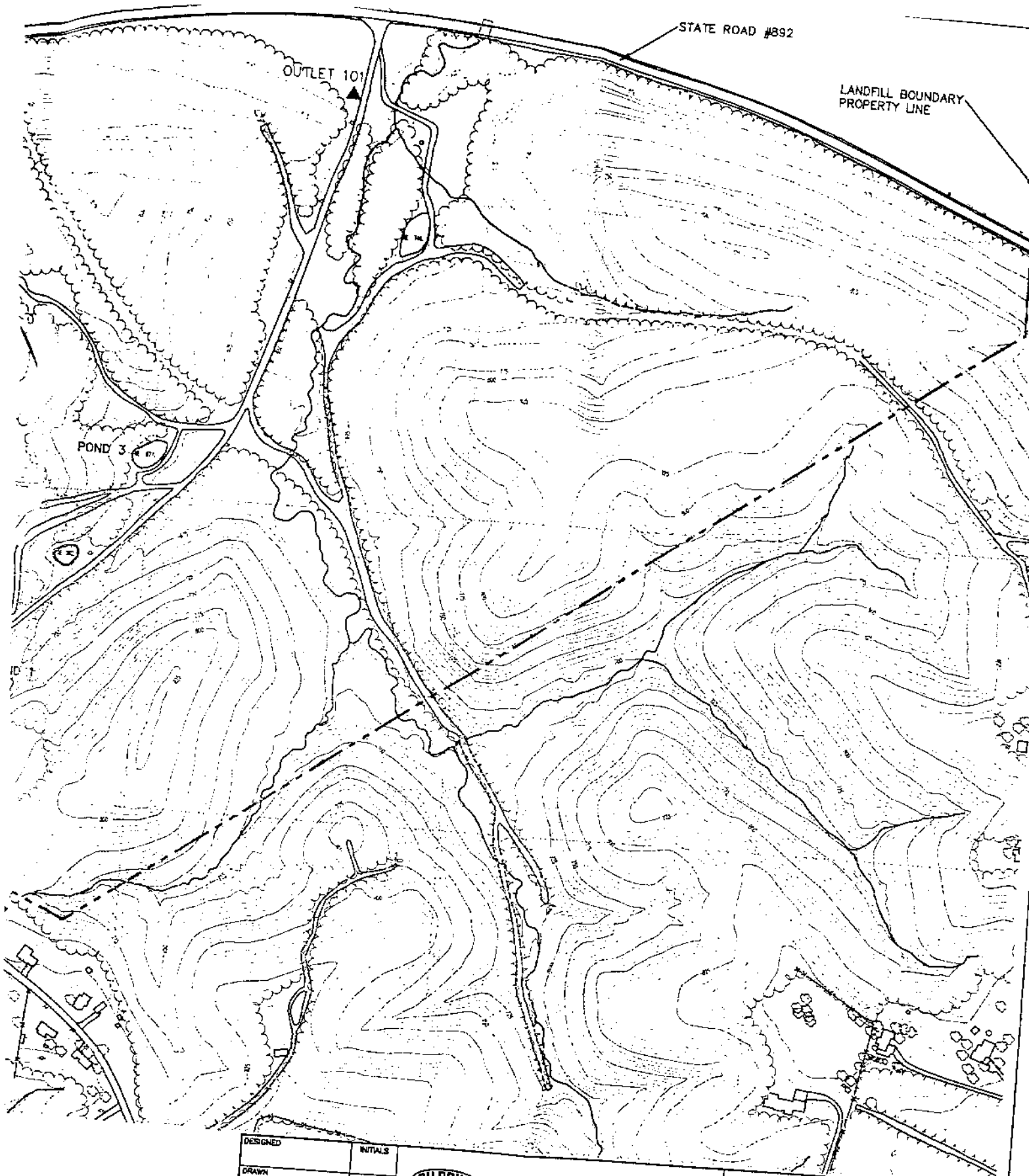


SITE LOCATION MAP

Wilmington, Delaware 19805

SCALE Not to scale	DRAWN O N	DEL	OHIO FILE NO. 7421A001
DATE 9/27/01	CHECKED W. HOLLOWAY		2.0

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000463

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DRAWN	
DEL CHECKED	
TDL	
APPROVED(DESIGN)	
APPROVED(CONSTRUCTION)	



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 Wilmington, Delaware 19805

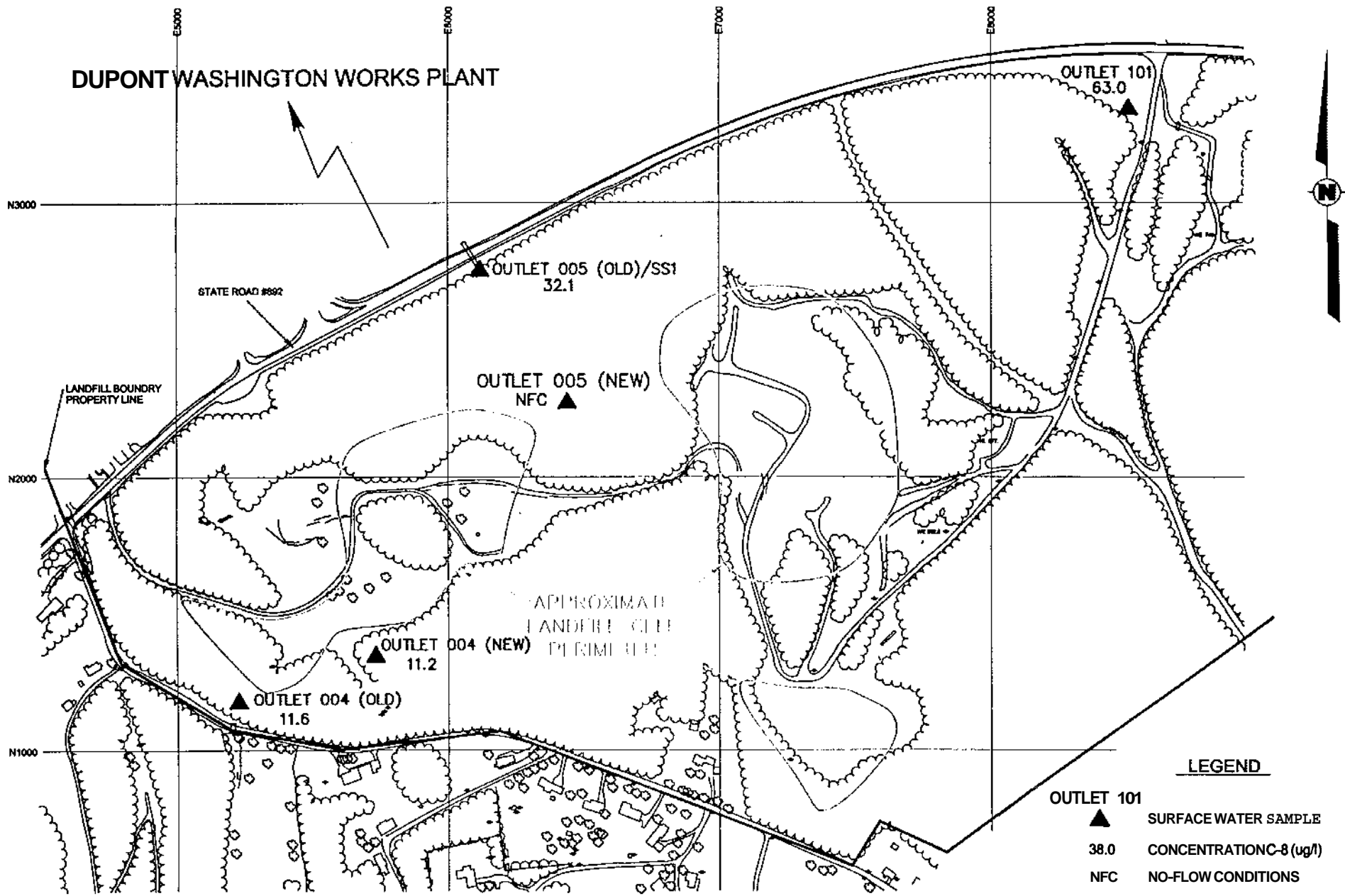


**SURFACE WATER  
 SAMPLE LOCATION MAP**

Local Landfill  
 Washington, West Virginia

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# DUPONT WASHINGTON WORKS PLANT

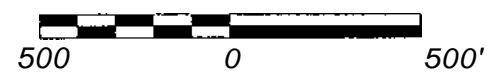


### LEGEND

- ▲ OUTLET 101 SURFACE WATER SAMPLE
- 38.0 CONCENTRATION C-8 (ug/l)
- NFC NO-FLOW CONDITIONS

000464

SCALE



**Corporate Remediation Group**  
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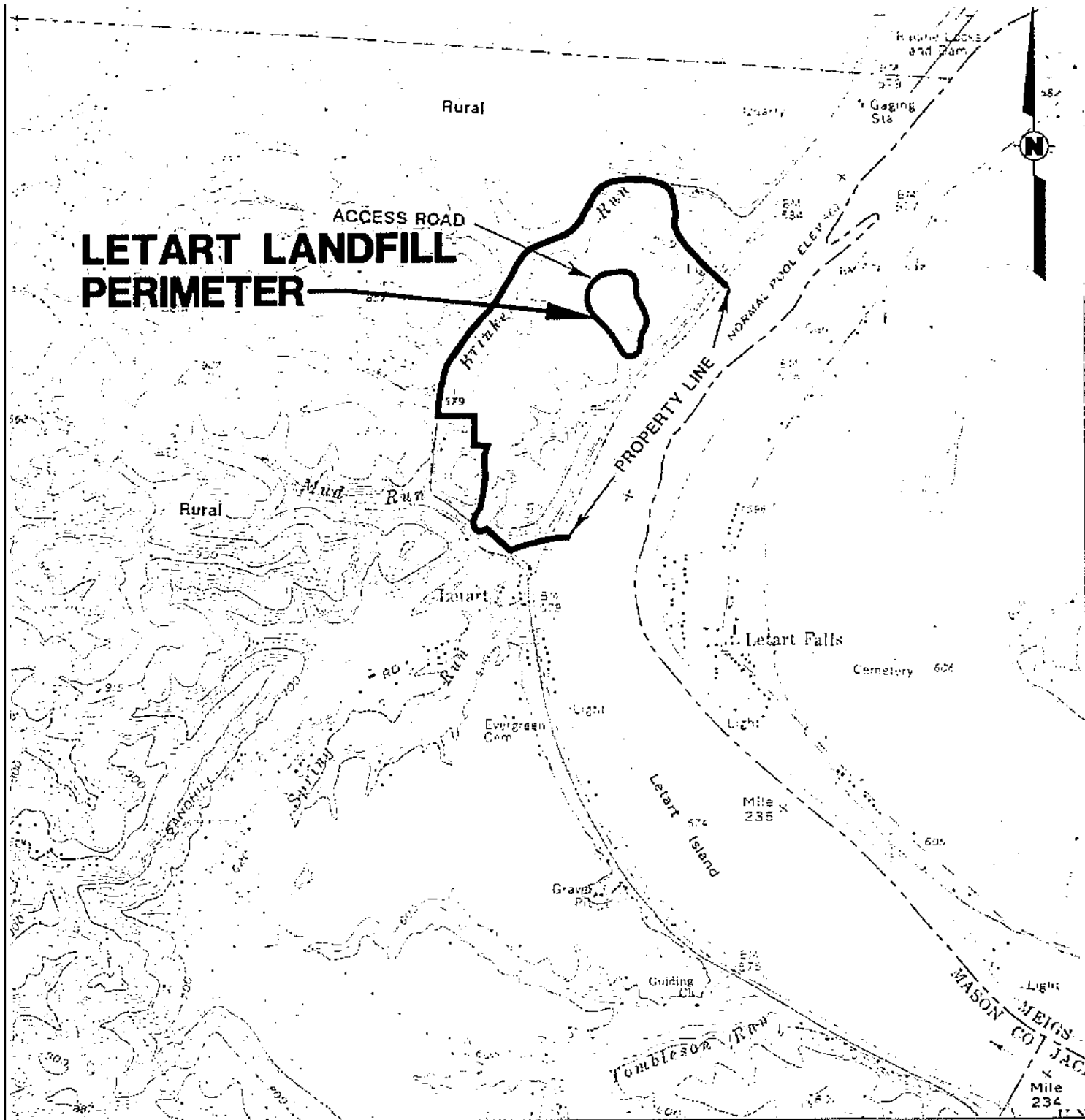
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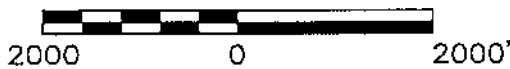
C-8 IN SURFACE WATER  
 JULY 2002

Local Landfill  
 Washington, WV

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DATE	CHECKED	APPROVED	FIGURE



SCALE



**Corporate Remediation Group**

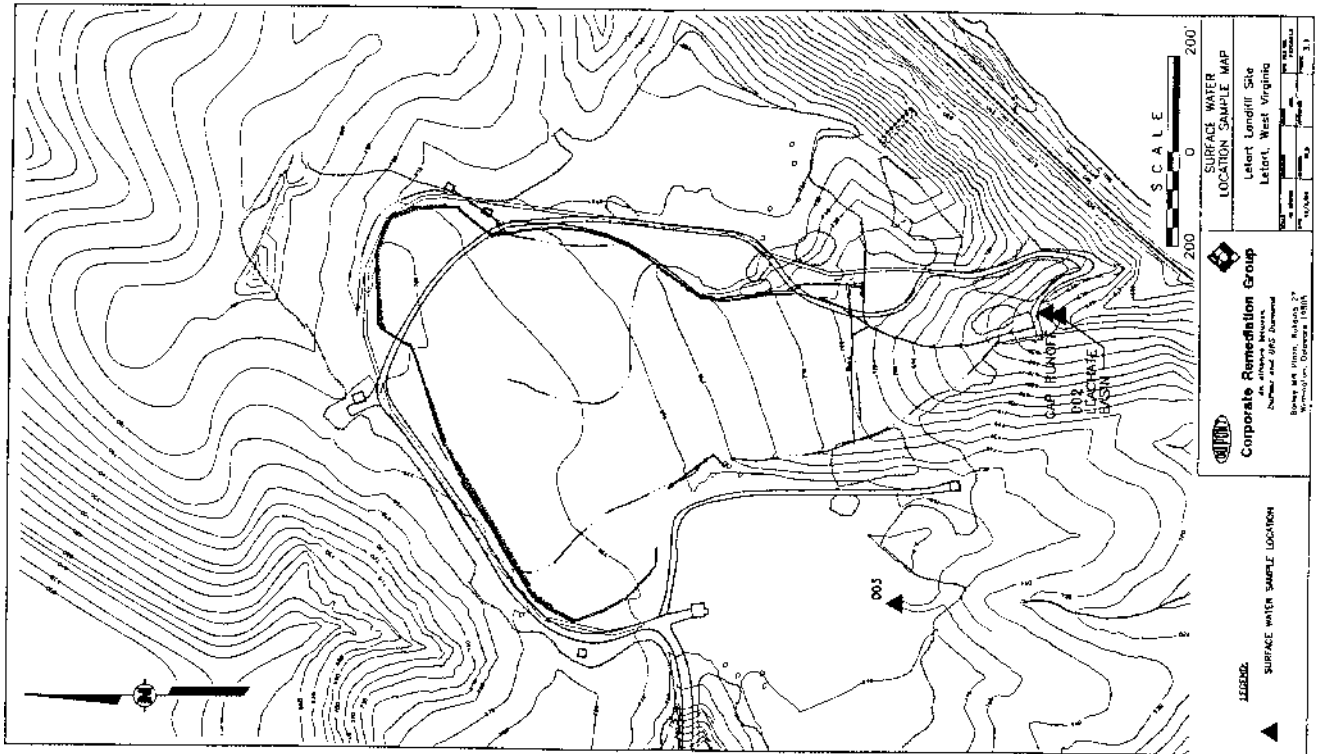
*An Alliance between  
Wont and The W-C Diamond Group*



**SITE LOCATION MAP**

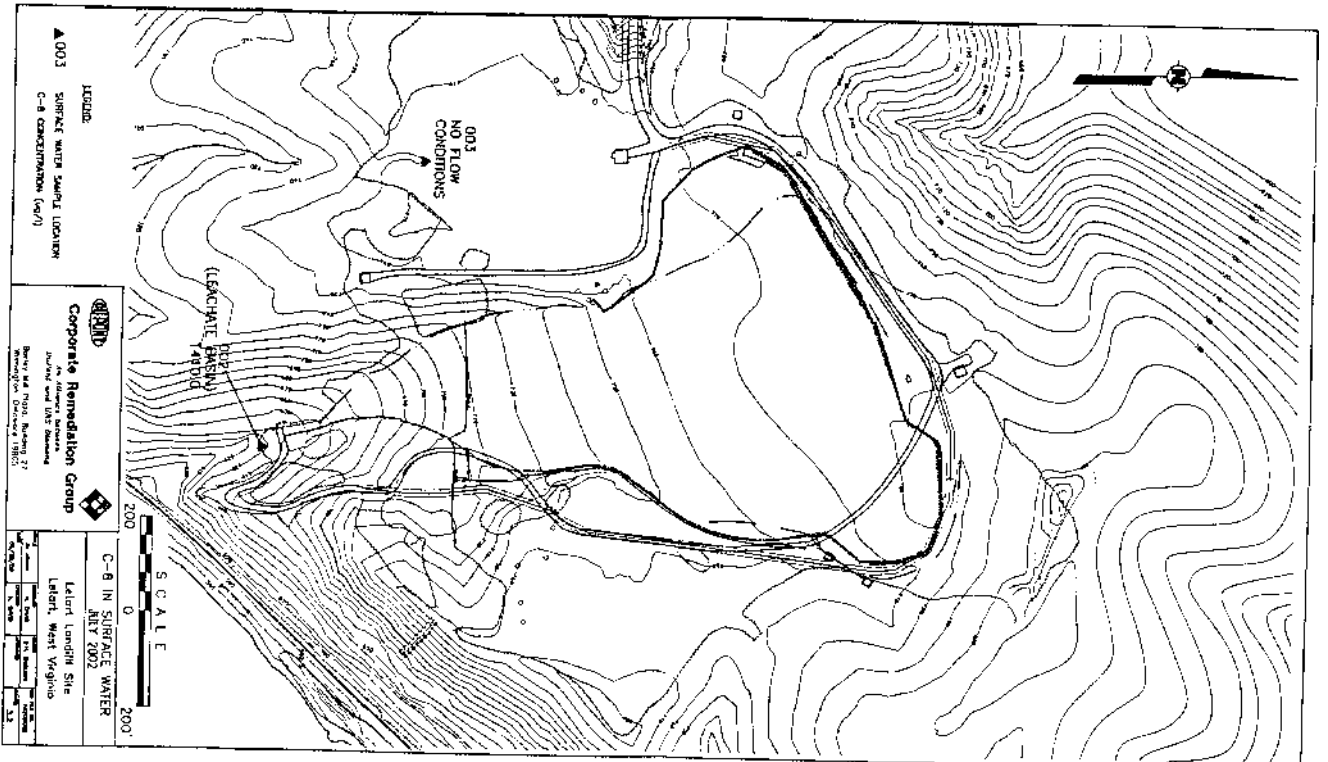
Letart Landfill Site  
Letart, WV

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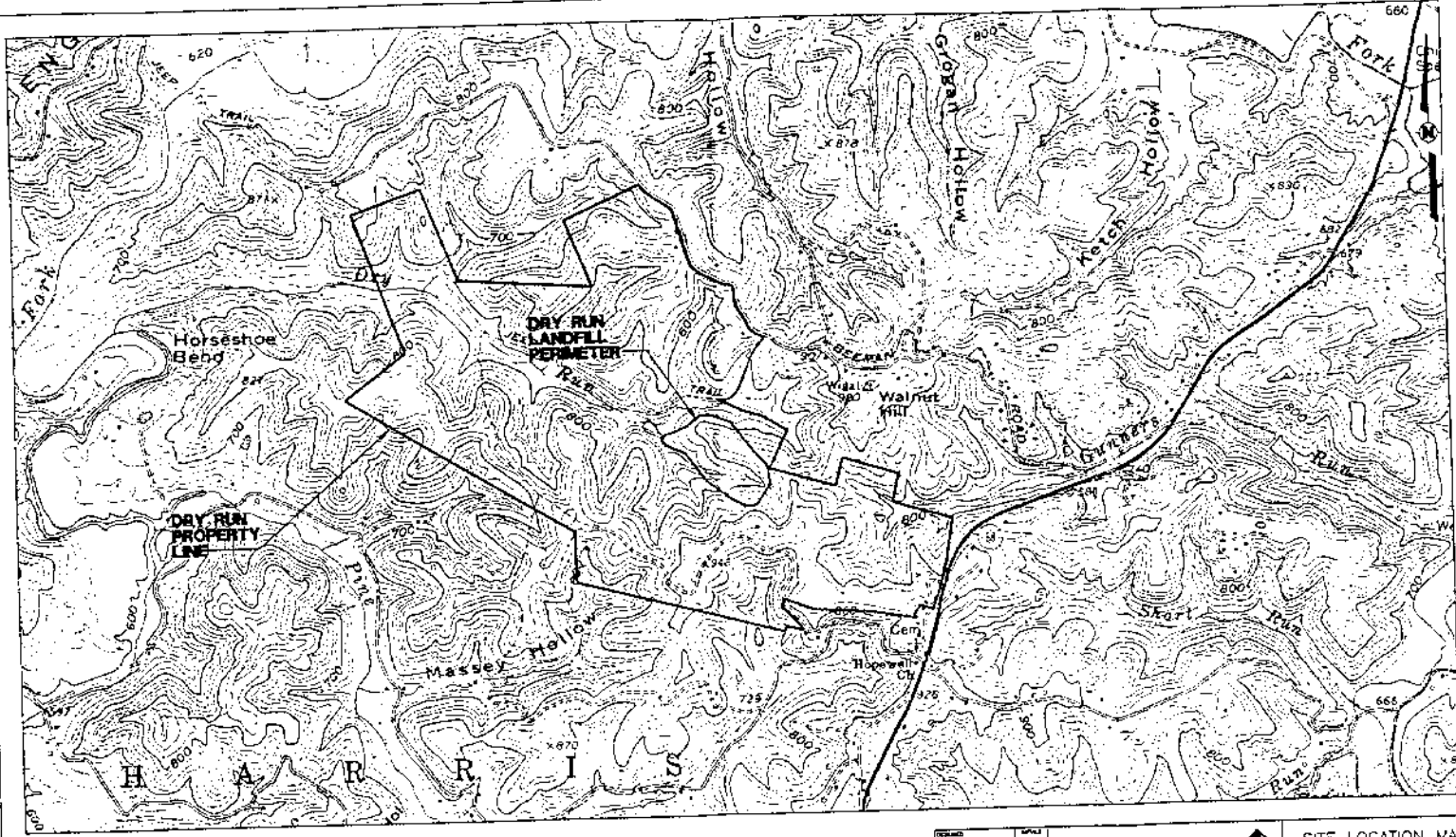


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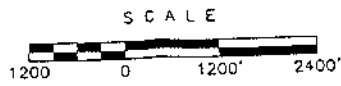




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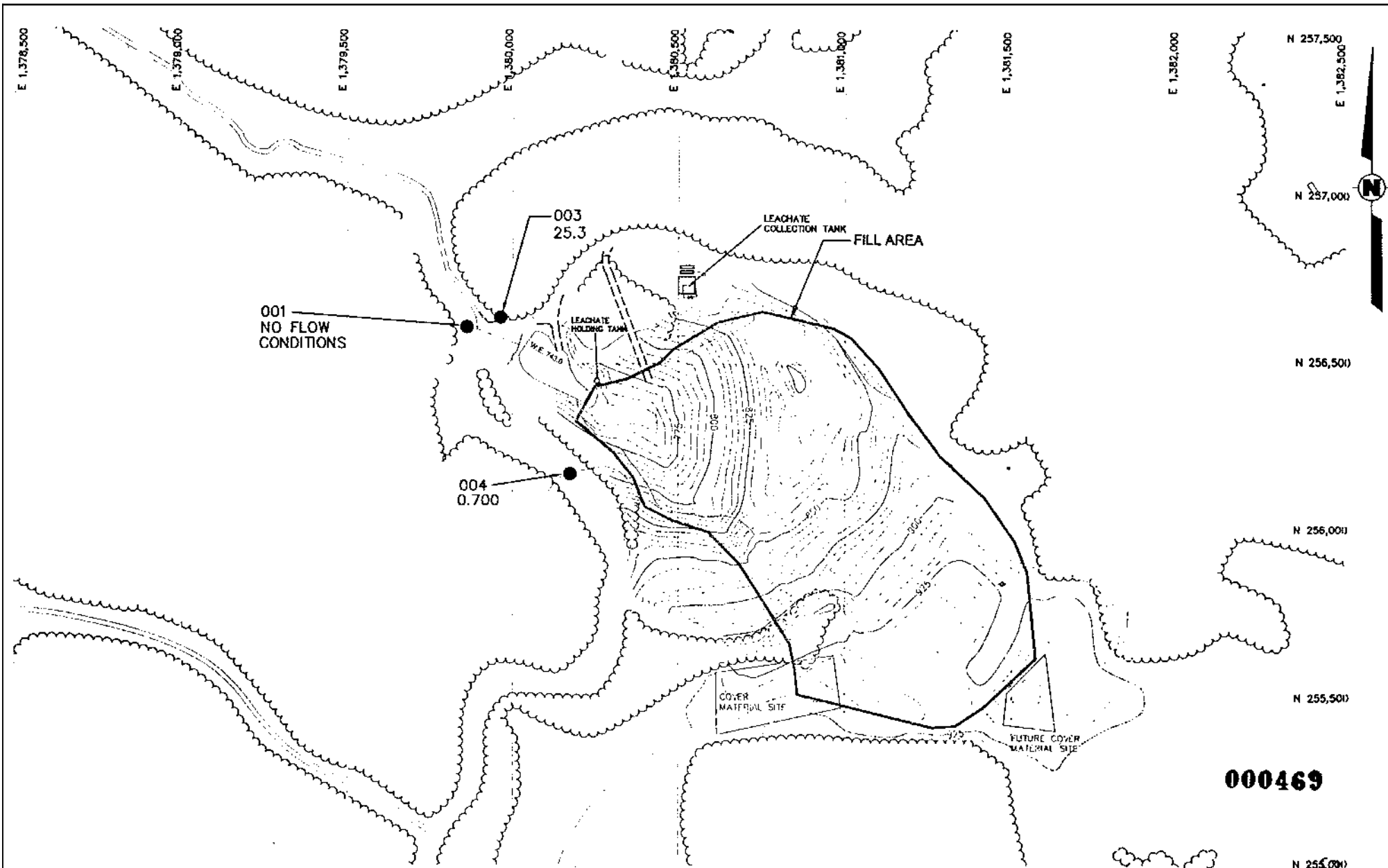
SOURCE: MAP TAKEN FROM THE LUBECK, WV USGS QUADRANGLE




**Corporate Remediation Group**  
 An Alliance Between  
 DuPont and WES DUMMICK  
 3015 Mt. P. 020, Building 27  
 Wilmington, Delaware 19805

**SITE LOCATION MAP**  
 Dry Run Landfill  
 Lubeck, West Virginia

000468




**000469**

**LEGEND**

- SURFACE WATER SAMPLE LOCATION
- 66.6 CONCENTRATION C-8 (ug/l)

**S C A L E**



 <b>Corporate Remediation Group</b> DuPont and URS Diamond	<b>C-8 IN SURFACE WATER</b> <b>JULY 2002</b>		
	Dry Run Landfill DuPont Washington Works Lubeck, West Virginia		
SCALE As shown	DESIGNED K. DAVES	DRAWN D.H. ENGLISH	Dwg FILE NO. 7422A019

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## **APPENDICES**

**000470**

**APPENDIX A**  
**LABORATORY ANALYTICAL DATA REPORTS**  
**WASHINGTON WORKS FACILITY**

**Analytical Results Washington Works C8 Sampling 7/02**

DuPont Sample Identification	APFO (ng/L)
WWK-Z-Outfall-001	8630
WWK-Z-Outfall-002	2290
WWK-Z-Outfall-003	291
WWK-Z-Outfall-005	19200
WWK-Z-Outfall-007	597
WWK-Z-Outfall-105	34700
WWK-Z-Outfall-007-2	544
WWK-K-EQBLK-1	ND

Limit of Detection (LOD) for the procedure is approximately 10 ng/L

Limit of Quantitation (LOQ) for the procedure is 50 ng/L

ND - Compound not detected

NQ - Compound detected at a level between the LOD and LOQ. Result is not quantifiable.

ND < LOD < NQ < LOQ

Results are calculated according to the following criteria

If the sample and laboratory duplicate are greater than 250 ng/L, and the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample and laboratory duplicate are less than 250 ng/L, and the absolute difference is less than 50, the average value is reported. If the absolute difference is greater than 50, the higher value is reported.

**000472**

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**APPENDIX B**  
**CHAIN-OF-CUSTODY RECORDS**  
**WASHINGTON WORKS FACILITY**

**000473**

### PROJECT INFORMATION

Client (name & address):

ANCOM AP Services - Dumont  
P.O. Box 1117, 27 Lane PA Rt 141  
Wilmington, DE 19805

Phone: 302-992-1698

Fax: \_\_\_\_\_

Sampler: Boulton J. Nunn

Project Manager (Name & E-mail Address):

Michelle Anderson  
Michelle.D.Anderson@ANCOM.com

Project Name:

CR Sampling 7/02

P.O. #: LRFO 64506 R. Leon Dr Ex062

Quotation #: \_\_\_\_\_

Please fill out this form *completely* to ensure correct analysis and proper handling of your samples.

### ANALYSES REQUESTED

FC-102	Lot # 12/14/02								

## SAMPLE ANALYSIS

EXYLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Comp site	Number of Containers	Specify Matrix	Comments					
133506-1	WVK-2-outfall-001	7-23-02	1310	X		2	Water	826025 / 826026	X	X			8.3 8.3
133506-2	WVK-2-outfall-002	7-23-02	1145	X		2		826031 / 826032	X	X			8.1 8.1
133506-3	WVK-2-outfall-003	7-23-02	1157	X		2		826029 / 826034	X	X			8.0 8.0
133506-4	WVK-2-outfall-005	7-23-02	1123	X		2		826016 / 826027	X	X			7.9 7.9
133506-5	WVK-2-outfall-005	7-23-02	1135	X		2		825821 / 825822	X	X			7.9 7.9
133506-6	WVK-2-outfall-105	7-23-02	1325	X		2		825814 / 825815	X	X			7.9 7.9
133506-7	WVK-2-outfall-C07-2	7-23-02	1135	X		2		825830 / 825835	X	X			8.0 8.0
133506-8	WVK-K-BAIKR-1	7-23-02	1325	X		2		825824 / 825823	X	X			8.5 8.5

## CHAIN OF CUSTODY

Relinquished by	Date	Time
<u>Boulton J. Nunn</u>	<u>7/10/02</u>	<u>0900</u>
<u>Boulton J. Nunn</u>	<u>7-23-02</u>	<u>1400</u>

Cooler ID # C1650059 Cooler Temp. (°C) 0.8

Received by	Date	Time
<u>Boulton J. Nunn</u>	<u>7-23-02</u>	<u>0930</u>

LAB USE ONLY

### PROJECT REQUIREMENTS

Results Deadline: \_\_\_\_\_

Laboratory Report Options:

- Sample results only
- Add case narrative
- Add quality control summary
- Add calibration summary
- Add raw data
- Other \_\_\_\_\_

### OTHER INFORMATION

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**APPENDIX C**  
**LABORATORY ANALYTICAL DATA REPORTS**  
**LOCAL LANDFILL**

**000475**

**Analytical Results Local Landfill C8 Sampling 7/02**

<b>DuPont Sample Identification</b>	<b>APFO (ng/L)</b>
LCL-K-EQBLK-1	238
LCL-Z-Outfall 004 Old West Stream	11600
LCL-2-Outfall004 New West Stream	11200
LCL-2-Outfall005 Old Central Stream	32100
LCL-Z-Outlet 101	63000

Limit of Detection (LOD) for the procedure is approximately 10 ng/L

Limit of Quantitation (LOQ) for the procedure is 50 ng/L

ND - Compound not detected

NQ - Compound detected at a level between the LOD and LOQ. Result is not quantifiable.

ND < LOD < NQ < LOQ

Results are calculated according to the following criteria

If the sample and laboratory duplicate are greater than 250 ng/L, and the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample and laboratory duplicate are less than 250 ng/L, and the absolute difference is less than 50, the average value is reported. If the absolute difference is greater than 50, the higher value is reported.

**000476**

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**APPENDIX D**  
**CHAIN-OF-CUSTODY RECORDS**  
**LOCAL LANDFILL**

**000477**

### PROJECT INFORMATION

Client (name & address):  
APS Services - Durant  
8110 Oldy 27 Lane RR #1-141  
Wilkesboro, NC 28695

Project Manager (Name & E-mail Address):  
Mike Wilson  
Michael.D.Aulon@VA-Durant.com

Phone: (302)-892-1298

Fax:

Sampler: Bartow Wilson

Project Name: LC Sampling Site

P.O. #: LBSA-6456 Klesse NB Exhale

Quotation #:

Please fill out this form completely to ensure correct analysis and proper handling of your samples.

### ANALYSES REQUESTED

<u>FC-143</u>	<u>lot # 121412</u>											

### SAMPLE ANALYSIS

EXYGEN#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments					
<u>L3143-1</u>	<u>LCL-K-EADLK-1</u>	<u>7-1-02</u>	<u>0900</u>			<u>2</u>	<u>Water</u>	<u>825993/825994</u>	<u>X</u>	<u>X</u>			

LAB USE ONLY

### CHAIN OF CUSTODY

Relinquished by	Date	Time
<u>Bartow Wilson</u>	<u>7-1-02</u>	<u>1400</u>

Cooler ID # C-10000 Cooler Temp. (°C) 10

Received by	Date	Time
<u>Bartow Wilson</u>	<u>7-1-02</u>	<u>0730</u>

LAB USE ONLY

### OTHER INFORMATION

### PROJECT REQUIREMENTS

Results Deadline: \_\_\_\_\_

#### Laboratory Report Options:

- Sample results only
- Add case narrative
- Add quality control summary
- Add calibration summary
- Add raw data
- Other \_\_\_\_\_

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# CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

Exygen Research Sample Receiving • 3117 Research Drive • State College, PA 16801, USA  
T: 814.231.8032 • F: 814.231.1580 • exygenresearch.com

**PROJECT INFORMATION**

Client (name & address): Adam AP Services - Durant  
2 E Side St Loc. R Rt 149  
1.1.1. DE 19805

Project Manager (Name & E-mail Address): Mike Avon  
Michael.D.Avon@vt.durant.com

Project Name: 18 Sampling Sta

Phone: (302)-892-1098

Fax: \_\_\_\_\_

Samp \_\_\_\_\_

P.O. #: LBIO-6456 Facility No. E1046

Please fill out this form completely to ensure correct analysis and proper handling of your samples.

**ANALYSES REQUESTED**

FC-1473	lot # 12442	PH Cell 1	PH Cell 2
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## SAMPLE ANALYSIS

ExLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments
613452	LCL-2-outfall 004 old (West Stream)	7/1/2006	0825			2	water	825999 / 826000

## CHAIN OF CUSTODY

Relinquished by	Date	Time
<u>B. J. Avon</u>	<u>07/01/06</u>	<u>1000</u>

Cooler ID # 1600060 Cooler Temp. (°C) 0.7

Received by	Date	Time
<u>[Signature]</u>	<u>07/01/06</u>	<u>0825</u>

**LABORATORY REQUIREMENTS**

Results Deadline: \_\_\_\_\_

Laboratory Report Options:

- Sample results only
- Add case narrative
- Add quality control summary
- Add calibration summary
- Add raw data
- Other \_\_\_\_\_

**000475**

LAB USE ONLY



**PROJECT INFORMATION**

Client (name & address):

ADAM APT Services - Dept

Project Manager (Name & E-mail Address):

Michael A. Duccini USA Dept. USA

Phone:

(717) - 842 - 1698

Fax:

Sampler:

[Signature]

Project Name:

L8 Sampling Station

P.O. #:

L820-64566 - Please No. EX046

Quotation #:

Please fill out this form completely to ensure correct analysis and proper handling of your samples.

**ANALYSES REQUESTED**

FC - 1143	lot # 121401																		

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**SAMPLE ANALYSIS**

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	No. Containers	Specify Matrix	Comments
L13434	LCL-2-offfall as old (Central Stream)	7/1/02	0850			2	water	825995 / 825996

LAB USE ONLY

**CHAIN OF CUSTODY**

Relinquished by	Date	Time
<u>[Signature]</u>	<u>07/1/02</u>	<u>1000</u>
<u>[Signature]</u>	<u>7-1-02</u>	<u>1400</u>

Cooler ID # L820060 Cooler Temp. (°C) 0.7

Received by	Date	Time
<u>[Signature]</u>	<u>7-1-02</u>	<u>1430</u>

LAB USE ONLY

**PROJECT REQUIREMENTS**

- Results Deadline:
- Laboratory Report Options:
- Sample results only
  - Add case narrative
  - Add quality control summary
  - Add calibration summary
  - Add raw data
  - Other

**OTHER INFORMATION**

**PROJECT INFORMATION**

Client (name & address): ABA's APS Services - DuPont  
BMP Bldg 27 Lax. - RR K7141  
11111 DE 19805

Project Manager (Name & E-mail Address): Mike - Aurin  
Michael.D.Aurin@USL.DuPont.com

Phone: (302)-892-1698

Fax: \_\_\_\_\_

Sampler: B.G. Noon

Project Name: CB Sampling Site

P.O. #: LBIO-64506 Release No. EX046

Quotation #: \_\_\_\_\_

Please fill out this form completely to ensure correct analysis and proper handling of your samples.

**ANALYSES REQUESTED**

FC-143	Lot # 12/14/02									

## SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments						
6334375	LCL-E-outlot 101	7-1-02	0900	X		2	Wak-	825523/825524	X	X				

LAB USE ONLY

## CHAIN OF CUSTODY

Relinquished by	Date	Time
<u>B.G. Noon</u>	<u>7-1-02</u>	<u>1400</u>

Cooler ID # 1100060 Cooler Temp. (°C) 0.1

Received by	Date	Time
<u>B.G. Noon</u>	<u>7-1-02</u>	<u>1400</u>

LAB USE ONLY

## PROJECT REQUIREMENTS

Results Deadline: \_\_\_\_\_

Laboratory Report Options:

- Sample results only
- Add case narrative
- Add quality control summary
- Add calibration summary
- Add raw data
- Other \_\_\_\_\_

**000482**

## OTHER INFORMATION

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**APPENDIX E**  
**LABORATORY ANALYTICAL DATA REPORTS**  
**LETART LANDFILL**

**000483**

Analytical Results **LeTart** Landfill C8 Sampling 7/02

DuPont Sample Identification	APFO (ng/L)
LTL-Z-Outlet002	1410000
LTL-K-EQBLK-1	ND

Limit of Detection (LOD) for the procedure is approximately 10 ng/L

Limit of Quantitation (LOQ) for the procedure is 50 ng/L

ND - Compound not detected

NQ - Compound detected at a level between the LOD and LOQ. Result is not quantifiable.

ND < LOD < NQ < LOQ

Results are calculated according to the following criteria

If the sample and laboratory duplicate are greater than 250 ng/L, and the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample and laboratory duplicate are less than 250 ng/L, and the absolute difference is less than 50, the average value is reported. If the absolute difference is greater than 50, the higher value is reported.

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**APPENDIX F**  
**CHAIN-OF-CUSTODY RECORDS**  
**LETART LANDFILL**

**000485**

PROJECT INFORMATION	
Client (name & address): <u>ADAM AP...</u> <u>...</u> <u>...</u>	Project Manager (Name & E-mail Address): <u>...</u> <u>...</u>
Phone: <u>...</u>	Project Name: <u>...</u>
Fax: <u>...</u>	P.O. #: <u>...</u>
Sampler: <u>...</u>	Quotation #: <u>...</u>

Please fill out this form *completely* to ensure correct analysis and proper handling of your samples.

ANALYSES REQUESTED					

## SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments						
L33531-1	LTL-2-outlet	7-31-02	1215	X		2	Water	825828 / 825829					8.1	8.1
	LTL-2-outlet	7-31-02	1215			2		825830 / 825831						
	LTL-2					2		825832 / 825833						
L33531-2	LTL-K-early	7-31-02	1215			2		825834 / 825835					8.9	8.9

LAB USE ONLY

## CHAIN OF CUSTODY

Relinquished by	Date	Time
<u>...</u>	7/31/02	0900
<u>Bal...</u>	7-31-02	
	8-1-02	1400

Cooler ID # C1300013 Cooler Temp. (°C) 0.2

Received by	Date	Time
<u>Bal...</u>	7-31-02	0900
<u>...</u>	8/1/02	1220

LAB USE ONLY

## PROJECT REQUIREMENTS

Results Deadline: \_\_\_\_\_

Laboratory Report Options:

- Sample results only
- Add case narrative
- Add quality control summary
- Add calibration summary
- Add raw data
- Other \_\_\_\_\_

OTHER INFORMATION

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**APPENDIX G**

**LABORATORY ANALYTICAL DATA REPORTS**

**DRY RUN LANDFILL**

**Analytical Results Dry Run Landfill C8 Sampling 7/02**

DuPont Sample identification	APFO (ng/L)
DRL-Z-Outlet 003	25300
DRL-Z-Outlet 004	700

Limit of Detection (LOD) for the procedure is approximately 10 ng/L

Limit of Quantitation (LOQ) for the procedure is 50 ng/L

ND - Compound not detected

NQ - Compound detected at a level between the LOD and LOQ. Result is not quantifiable.

ND < LOD < NQ < LOQ

Results are calculated according to the following criteria

If the sample and laboratory duplicate are greater than 250 ng/L, and the relative percent difference (RPD) is less than 20, the average value is reported. If the RPD is greater than 20, the higher value is reported.

If the sample and laboratory duplicate are less than 250 ng/L, and the absolute difference is less than 50, the average value is reported. If the absolute difference is greater than 50, the higher value is reported.

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**APPENDIX H**  
**CHAIN-OF-CUSTODY RECORDS**  
**DRY RUN LANDFILL**

**000489**

### PROJECT INFORMATION

Client (name & address):  
ADDON HP Services - August  
Blvd Bldg 27 Lane PK RI 1411  
Wilmington, DE 19805

Project Manager (Name & E-mail Address):  
Mr. W. ...  
Michael.D.American@USA.deposit.com

Project Name:  
CR Sampling 6/02

Phone: 301-892-1698

Fax: \_\_\_\_\_

Sampler: Bartolajj Noom

P.O. #: L120-64506 Release No. EX 053

Quotation #: \_\_\_\_\_

Please fill out this form *completely* to ensure correct analysis and proper handling of your samples.

### ANALYSES REQUESTED

FC-143	LOT # 12140								

## SAMPLE ANALYSIS

EXYLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments						
L138428-1	DRL-2-outlet 003	7/1/02	0925	X		2	Water	826.02 / 825.79	X	X			7.3	7.8

6000

LAB USE ONLY

## CHAIN OF CUSTODY

Cooler ID # C-200075 Cooler Temp. ("C) 0.5

Relinquished by	Date	Time
<u>Bartolajj Noom</u>	6/5/02	1400
<u>Bartolajj Noom</u>	7-1-02	1400

Received by	Date	Time
<u>Bartolajj Noom</u>	7-1-02	0900

LAB USE ONLY

### PROJECT REQUIREMENTS

Results Deadline: \_\_\_\_\_

Laboratory Report Options:

- Sample results only
- Add case narrative
- Add quality control summary
- Add calibration summary
- Add raw data
- Other \_\_\_\_\_

### OTHER INFORMATION



### PROJECT INFORMATION

Client (name & address):

ADDA APS Services - Dept  
1301 Ridge 17 Lane, PA 17111  
Lebanon, DE 19805  
 Phone: 302-892-1698

Project Manager (Name & E-mail Address):

Michael DeLeon  
Michael.DeLeon@adda.dept.com  
 Project Name: C-8 Sampling 6/08

Fax: \_\_\_\_\_  
 Sampler: B. O. Moore

P.O. #: LEB-64506 Release No. EX-052  
 Quotation #: \_\_\_\_\_

Please fill out this form *completely* to ensure correct analysis and proper handling of your samples.

### ANALYSES REQUESTED

## SAMPLE ANALYSIS

EXYLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	LT # 1214012	10% E. Th. 1	PH 10% 2
LEB-64506	DRL-2-Dufft cor	7/1/02	1000			2	soils	release/2-5-780				

LAB USE ONLY

## CHAIN OF CUSTODY

Relinquished by	Date	Time
<u>B. O. Moore</u>	<u>6/5/2002</u>	<u>1400</u>
<u>Michael DeLeon</u>	<u>7-1-02</u>	<u>1400</u>

### OTHER INFORMATION

Cooler ID #	Cooler Temp. (°C)	Received by	Date	Time
<u>C800075</u>	<u>2.5</u>	<u>B. O. Moore</u>	<u>7-1-02</u>	<u>1400</u>

LAB USE ONLY

### PROJECT REQUIREMENTS

Results Deadline: \_\_\_\_\_

Laboratory Report Options:

- Sample results only
- Add case narrative
- Add quality control summary
- Add calibration summary
- Add raw data
- Other \_\_\_\_\_

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