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

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CORPORATE REMEDIATION GROUP
An Alliance between
DuPont and URS Diamond

Barley Mill Plaza, Building 27
Wilmington, Delaware 19805

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1.0 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 monthly (August 2002) C-8 surface water sampling and the 3rd Quarter 2002 (3Q02) C-8 groundwater sampling that was performed in August and September 2002. Surface water and groundwater 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_2MHill 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 1.0 ug/l.

CH_2MHill 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 August 27th, 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.

Groundwater was sampled from seven monitoring wells on September 4th, 2002. Monitoring well P08-MW01 and N13-MW01 were not sampled during this sampling event because the wells were dry. No other changes to routine sampling protocols or other observations were recorded in the field notes during this sampling event.

In addition, groundwater from six production wells was sampled on August 13th or 26th, 2002. Sampling for these wells was done according to routine sampling protocols. A combined groundwater sample representative of all the wells in the DuPont-Lubeck Well Field, labeled West Wellfield 1, was also collected, and analyzed for C-8. Sampling this well field was not identified in the Groundwater Monitoring Plan for the facility nor was it recommended by the GIST for C-8 sampling. However, it was being sampled quarterly and analyzed for C-8 as required by the permit. Sampling of this well field on a monthly basis commenced in December 2001 through April 2002, and is now sampled quarterly.

The locations of the monitoring and production wells sampled are shown on Figure 1.1. This figure also shows the position of the DuPont-Lubeck Well Field that was sampled. Table 1.0 summarizes the well screen data and 3Q02 groundwater elevations measured for the monitoring wells. (Note that Table 1.0 has been reorganized to better display the data. This new format will be used in future surface water and groundwater monitoring reports.). A groundwater elevation map for 3Q02 was not generated because of the limited data set. However, the groundwater elevation map generated from data collected in February 2002 is provided in Figure 1.2 for reference (DuPont, 2002c).

Tables 1.1A and 1.1B provide the C-8 analytical results for surface water and groundwater, respectively. For each sampling point listed in these tables, historical data is summarized with the most recent results listed first. Figure 1.3 presents the C-8 concentration map for the wells and outfalls sampled for 3Q02. Laboratory analytical data reports and the Chain-of-Custody records are included in Appendix A and B respectively.

4.0 LOCAL LANDFILL

Figure 2.0 shows the location of the Local Landfill. On August 26th, 2002, Outfall 101 was sampled for C-8. Outfalls 004(Old), 004(New), and 005(Old)/SS1 005(New) were not sampled due to no-flow conditions. Sampling of these five outfalls is required by the Consent Order and the WV NPDES permit No. WV0076538. These five outfalls collect stormwater runoff and process water. The locations of the outfalls are shown on Figure 2.1.

On September 3rd, 2002 four monitoring wells (LLMW-4, -6, -9, and –10) were sampled for C-8. All wells were sampled following routine sampling protocols. Figure 2.1 shows the location of the monitoring wells sampled. Table 2.0 summarizes the well construction and groundwater elevation data for the monitoring wells. (Note that Table 2.0 has been reorganized to better display the data. This new format will be used in future surface water and groundwater monitoring reports.). Figure 2.2 presents the groundwater elevation map for September 2002.

Tables 2.1A and 2.1B present the C-8 analytical results for the 3Q02 surface water and groundwater samples, respectively. These tables include the historic data available for each location sampled. The data is presented with the most recent data first. Figure 2.3 provides the C-8 concentration map for the outfalls and monitoring wells for 3Q02. Laboratory analytical data reports and Chain-of-Custody records are provided in Appendices C and D, respectively. (Note that the sample for Outfall 101 was included on a Chain-of-Custody record with samples collected from Washington Works and therefore, the sample data was included with samples the from Washington Works laboratory analytical data report. As a result, the sample's chain-of-custody and data report is included in Appendices A and B.)

5.0 LETART LANDFILL

Figure 3.0 presents the Letart Landfill location map. On August 30th, 2002, sampling was conducted at Outfall 002. Outfall 003, Cap Runoff, and the Rt. 33 stream were not sampled due to no-flow conditions. Sampling of Outfalls 002 and 003 (both containing stormwater runoff) is required by the Consent Order and WV NPDES permit No. WV0076066. The Cap Runoff and Rt. 33 stream surface water locations are not required sampling points. The locations of the outfall samples are shown on Figure 3.1. The location of the Rt. 33 stream sample is near the property boundary to the west and is not shown in this figure.

Nine monitoring wells at Letart Landfill were sampled on August 26th through 29th, 2002. Monitoring well construction and groundwater elevation data for the 13 monitoring wells are presented in Table 3.0. (Note that Table 3.0 has been reorganized to better display the data. This new format will be used in future surface water and groundwater monitoring reports.). Figure 3.1 shows the locations of the monitoring wells. Figure 3.2 presents the August 2002 groundwater elevation map for the F-Zone aquifer.

Changes to routine sampling protocols were recorded in the field notes and are summarized below. Monitoring wells LMW-3, LMW-3A, and LMW-5A went dry during low-flow purging and could not be sampled. Monitoring well LMW-10 could not be sampled because the bladder pump failed.

The C-8 results for the 3Q02 surface water and groundwater samples are presented in Tables 3.1A and 3.1B, respectively. For each sampling point listed in these tables, historical data is summarized with the most recent results listed first. Figure 3.3A presents a C-8 concentration map for monitoring wells and outfalls for 3Q02. Figure 3.3B provides a C-8 concentration contour map for the F-zone, the underlying significant aquifer. Appendices E and F present the laboratory analytical data reports and the Chain-of-Custody records, respectively.

6.0 DRY RUN LANDFILL

Figure 4.0 shows the location of the Dry Run Landfill. On August 30th 2002, sampling for C-8 was attempted but Outfalls 001, 003, and 004 were not sampled due to no-flow conditions. (Outfall 002 is a required outfall sampling location as stated in WV NPDES permit No. WV0076244. However, it was a temporary relocation of outfall 001 and no longer exists). Outfall 001 collects stormwater and leachate. Outfalls 003 and 004 collect stormwater only. There are five additional non-required sampling locations that are sampled quarterly for C-8. These include Stream Samples #1 and #2, DR Leachate, Pond Underdrain, and Property Boundary. Sampling was attempted at Stream Samples #1 and #2, and Property Boundary, however samples were not collected due to no-flow conditions. The DR Leachate and Pond Underdrain locations were inadvertently not sampled. The locations of the surface water sampling points and monitoring wells are shown on Figure 4.1. The Property Boundary sample location is on the western property boundary and is not shown in this figure.

On August 28th, 2002 the eight monitoring wells were sampled. No changes from routine sampling protocols were identified in the field notes. The locations of the monitoring wells can be found on Figure 4.1.

Table 4.0 summarizes the monitoring well construction and groundwater elevation data for the monitoring wells. (Note that Table 4.0 has been reorganized to better display the data. This new format will be used in future surface water and groundwater monitoring reports.). Figure 4.2 presents the 3Q02 groundwater elevation map for the bedrock aquifer. Tables 4.1A and 4.1B present the C-8 analytical results for the 3Q02 surface water samples and groundwater samples, respectively. The data in these tables include historical data available for each location sampled. Figure 4.3 presents the C-8 concentration map for surface water for 3Q02 and Figure 4.4 presents the C-8 concentrations in bedrock groundwater for 3Q02. Laboratory analytical data reports and Chain-of-Custody records are provided in Appendices G and H, respectively.

7.0 REFERENCES

DuPont. 2002a. *One-Mile Radius Survey and C-8 Sampling Report and Ohio River Public Water Supply Sampling, DuPont Washington Works (December 2001-February 2002)* January 2002. DuPont Corporate Remediation Group and URS Diamond.

DuPont. 2002b. *Two-Mile Radius Survey and C-8 Sampling, DuPont Washington Works Facility/Local Landfill, West Virginia (March-May 2002)* August 2002. DuPont Corporate Remediation Group and URS Diamond.

DuPont. 2002c. *Compilation of Historical C-8 Data, DuPont Washington Works Main Plant and Landfills* January 2002. DuPont Corporate Remediation Group and URS Diamond.

DuPont. 2002d. *Proposed Groundwater Monitoring Plan for Washington Works Facility Plant and Landfills* January 2002. DuPont Corporate Remediation Group and URS Diamond.

TABLES

Table 1.0
Monitoring Well Construction and Groundwater Elevation Data
DuPont Washington Works Facility
Washington, WV

Monitoring Wells															
New Well ID	AE11-MW01	AM07-PW01	AO08-PW01	AX13-PW01	D08-MW01	E13-MW01	K16-PW01	L04-PW01	N13-MW01	P04-MW02	P08-MW01	Q04-MW02	R04-MW02	V05-PW01	Y14-MW01
Old Well ID	TW-74	336	331	335	TW-M5	TW-76	L4(354)	GALLERY	Ron's MW-5	TW-83	Ron's MW-4	Ron's MW-1	TW-85	RANNEY	TW-90
Surface Elevation (feet)	629.51	634.26	632.91	630.69	600.67	623.5	623.24	589.75	625.87	590.6	630.82	598.76	593.2	632	640.1
Total Depth (feet)	72	96	95	90		74			70	28	71	71	28	92	90
Well Diameter (inches)	2	18	18	18	4	2	18		2	2	2	2	2	NA	2
Slot Size (inches)	10					10.000				10.000			10.000		10.000
Screen Length (feet)	10	20	20	13		10		NA	5	10	5	10	10	1	10
Screen Interval (feet)	567.51 - 557.1	555.0 - 535.0	558.7 - 538.7	556.0-543.0		559.5 - 549.5			560.0-555.0	572.6 - 562.6	567.0-557.0	566.0 - 556.0	575.2 - 565.2	542.0 - 541.0	549.93 - 539.93
Groundwater Elevation (feet)															
December-02	567.59	*	*		562.73	559.32	*	*		570.56		560.88	574.89	*	560.63
January-02	566.59	*	*	*	562.69	559.15	*	*	559.92	570.12	560.10	560.05	574.67	*	560.00
February-02	564.77	*	*	*	562.09	560.07	*	*	**	571.56	*	559.45	575.64	*	559.24
March-02	566.50	*	*	*	562.51	558.62	*	*	**	571.34	**	560.40	575.25	*	559.19
May-02	567.11	*	*	*	562.71	558.79	*	*	**	572.23	**	559.77	575.38	*	559.52
August-02	568.18	*	*	*	564.55	560.26	*	*	**	609.81	**	563.77	573.56	*	560.90

*Groundwater elevations not measured.
**Well was dry.

000115

Table 1.1A
Summary of Analytical Results:
C-8 in Surface Water
DuPont Washington Works Facility
Washington, WV

Sample	Date	C-8 (ug/l)
OUTLET 001	8/27/02	2.94
	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	8/27/02	2.56
	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	0.436
	4/11/01	1.5
	3/21/01	8.54
	2/14/01	1.74
OUTLET 003	8/27/02	0.268
	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

000116

Table 1.1A
Summary of Analytical Results:
C-8 in Surface Water
DuPont Washington Works Facility
Washington, WV

Sample	Date	C-8 (ug/l)
OUTFALL 005	8/27/02	12.4
	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
	11/26/01	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
OUTLET 007	8/27/02	0.207
	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	8/27/02	6.73
	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).

000117

Table 1.1B
Summary of Analytical Results:
C-8 in Groundwater
DuPont Washington Works Facility
Washington, WV

Sample	Date	C-8 (ug/l)
AE11-MW01	9/04/02	1.92
	5/23/02	1.25
	4/29/02	1.22
	3/26/02	2.82
	2/22/02	1.45
	1/28/02	1.2
	2/2/99	0.69 L
	11/10/98	0.41
AM07-PW01	8/26/02	0.335
	5/17/02	0.247
	4/16/02	0.159
	3/21/02	0.171
	2/14/02	0.129
	1/22/02	0.131
	11/20/00	0.24
	8/16/00	0.071 J
	5/12/99	0.578
	2/3/99	0.082 B
	11/18/98	1.9 L
	6/19/98	0.4
	6/2/97	0.79
	4/2/96	0.48
AO08-PW01	8/26/02	0.420
	5/17/02	0.499
	4/16/02	0.497
	3/21/02	0.568
	2/14/02	0.439
	1/22/02	0.355
	11/20/00	0.4
	11/20/00 (dup)	0.26
	8/15/00	0.167
	5/12/99	0.307
	6/19/98	1
	6/2/97	0.55
	4/2/96	0.52
AX13-PW01	8/26/02	0.834
	5/17/02	0.911
	4/16/02	1.42
	3/21/02	1.22
	2/14/02	1.03
D08-MW01	9/04/02	0.117
	5/23/02	0.551
	4/29/02	0.424
	3/26/02	0.262
	2/22/02	1.27
	1/28/02	0.582
E13-MW01	9/04/02	2.39
	5/23/02	2.47
	4/29/02	2.44
	3/28/02	1.62
	2/22/02	2.32
	1/28/02	2.11
	5/12/99	0.882
	2/2/99	0.59 L
	11/11/98	2

Table 1.1B
Summary of Analytical Results:
C-8 in Groundwater
DuPont Washington Works Facility
Washington, WV

Sample	Date	C-8 (ug/l)
K16-PW01	8/26/02	9.71
	5/17/02	12.4
	4/16/02	13.2
	3/21/02	17.2
	2/14/02	12.00
	1/22/02	10.5
	11/20/00	7.5
	2/9/99	16.2
	11/18/98	0.46 L
L04-PW01	8/13/02	3.06
	5/21/02	15.1
	4/18/02	16.1
	3/21/02	40.9
	2/7/02	23.5
	1/15/02	30.9
	7/11/01	0.202
	4/11/01	3.99
	11/20/00	13.8
	2/7/99	5.89
	11/18/98	7.9 J
	11/18/98 (dup)	3.9 J
N04-MW01	1/28/02	689
N13-MW01	9/04/02	Dry-no sample
	5/23/02	Dry-no sample
	4/29/02	Dry-no sample
	3/28/02	Dry-no sample
	2/25/02	57.8
	2/2/99	29.6L
	11/11/98	<0.1
P04-MW02	9/04/02	34400
	5/23/02	42400
	4/29/02	36500
	3/26/02	32300
	2/25/02	26800
	1/28/02	23600
	1/25/01	12600
	2/6/99	13600
	11/12/98	8300
P08-MW01	9/04/02	Dry-no sample
	5/23/02	Dry-no sample
	4/29/02	Dry-no sample
	3/28/02	Pump problems-no sample
	2/25/02	20.7
	2/4/99	43.4
	11/13/98	36
Q04-MW02	9/04/02	32.2
	5/23/02	1480
	4/29/02	1210
	3/26/02	2070
	2/25/02	1590
	1/28/02	1480
	2/4/99	994
	11/13/98	660

Table 1.1B
Summary of Analytical Results:
C-8 in Groundwater
DuPont Washington Works Facility
Washington, WV

Sample	Date	C-8 (ug/l)
R04-MW02	9/04/02	66500
	5/23/02	68100
	4/29/02	56300
	3/26/02	54400
	2/25/02	43600
	1/28/02	47500
	1/25/01	13800
	2/6/99	9420
	11/12/98	1300
V05-PW01	8/13/02	34.8
	5/21/02	35.8
	4/18/02	37.6
	3/21/02	40.9
	2/7/02	25.10
	1/15/02	29.0
	7/11/01	11.4
	4/11/01	5.48
	11/20/00	13.7
	2/7/99	12.4
	2/7/99 (dup)	3.95
	11/18/98	0.66 L
Y14-MW01	9/04/02	18.4
	5/23/02	15.3
	4/29/02	13.9
	3/28/02	15.5
	2/22/02	10.9
	1/28/02	12.7
	2/2/99	4.95 L
	11/10/98	12
West Well Field (1)	8/13/02	6.41
	5/21/02	7.09
	4/16/02	6.69
	3/21/02	7.72
	2/7/02	5.77
	1/15/02	6.52
	7/11/01	2.31
	4/11/01	1.58

J = estimated value (below laboratory quantification limit)
L = possible low bias result (relative to QA/QC)
B= compound detected in QC blank
Note: Analytical method changed as of November 2001 (see Section 2.0 for details).

Table 2.0
Monitoring Well Construction and Groundwater Elevation Data
Local Landfill
Washington, WV

Monitoring Wells				
Parameters	LLMW-4	LLMW-6	LLMW-9	LLMW-10
Surface Elevation (feet)	844.7	793.2	788.54	805.94
Total Depth (feet)	155	90	80	87
Well Diameter (inches)	4	4	4	4
Slot Size (inches)	0.02	0.020	0.020	0.020
Screen Length (feet)	20	20	20	20
Screen Interval (feet)	717.2-697.2	723.2-703.2	728.54-708.54	738.94-718.94
Groundwater Elevation (feet)				
December-02	692.55	719.69	727.78	720.67
January-02	715.39	720.41	728.06	720.51
February-02	715.28	719.76	728.01	720.73
March-02	715.31	722.00	728.12	720.0
May-02	712.08	718.45	728.48	721.81
August-02	712.67	716.70	728.24	722.97

Table 2.1A
Summary of Analytical Results:
C-8 in Surface Water
Local Landfill
Washington, WV

Sample	Date	C-8 (ug/l)
OUTFALL 004 (New)	8/26/02	No-flow conditions
	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)	8/26/02	No-flow conditions
	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)	8/26/02	No-flow conditions
	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	8/26/02	No-flow conditions
	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	8/26/02	70.3
	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).

Table 2.1B
Summary of Analytical Results:
C-8 in Groundwater
Local Landfill
Washington, WV

Sample	Date	C-8 (ug/l)
LLMW-4	9/03/02	63.5
	5/20/02	55.7
	3/28/02	47.2
	2/25/02	50.2
	1/27/02	58.4
	12/13/01	54.60
	5/16/2001	1.4
	5/11/2000	10
	5/19/1999	16.2
	5/27/1998	26
	4/11/1996	39
LLMW-6	9/03/02	13.7
	5/20/02	18.6
	3/28/02	11.5
	2/25/02	10.1
	1/27/02	12.2
	12/13/01	11.90
	5/16/2001	3
	5/10/2000	1.42
	5/19/1999	1.32
	5/27/1998	9
	4/11/1996	15
LLMW-9	9/03/02	NQ
	5/20/02	NQ
	3/28/02	NQ
	2/25/02	NQ
	1/27/02	NQ
	12/13/01	ND
	5/16/2001	0.039 J
	5/10/2000	<0.029
	5/20/1999	0.046 J
	5/27/1998	<0.1
	4/11/1996	0.14
LLMW-10	9/03/02	0.357
	5/20/02	0.56
	3/28/02	0.698
	2/25/02	1.12
	1/27/02	0.162
	12/13/01	0.133
	5/20/1999	0.15
	5/28/1998	0.22

J= estimated value (below laboratory quantitation limit)
ND= Not Detected at or above the limit of detection (LOD)
NQ= Not Quantifiable. Detected at a concentration above the LOD and below the limit of quantification (LOQ).
Note: Analytical method changed as of November 2001 (see Section 2.0 for details).

Table 3.0
Monitoring Well Construction and Groundwater Elevation Data
Letart Landfill
Letart, WV

	Monitoring Wells												
Parameters	LMW-1	LMW-7	LMW-8	LMW-3	LMW-3A	LMW-4	LMW-5A	LMW-2A	LMW-5B	LMW-6	LMW-9	LMW-10	LMW-11
Surface Elevation (feet)	766.53	770.24	777.06	673.1	672.61	649.17	645.23	778.53	644.39	754.22	774.85	732.37	774.34
Total Depth (feet)	33	35	38.5	30	60.1	28	28	180.8	72	183	225	189.85	161.5
Well Diameter (inches)	2	4	4	2	4	2	4	4	4	4	4	4	4
Slot Size (inches)					0.010		0.010	0.010	0.01	0.010	0.010	0.010	0.010
Screen Length (feet)	5	10	9	5	5	5	10	30	20	30	20	20	25
Screen Interval (feet)	738.53-733.53	745.24-735.24	748.06-739.06	650.1-645.1	619.61-614.61	626.17-621.17	627.23-621.23	628.53-598.53	594.39-574.39	608.22-576.22	572.85-552.85	562.52-542.52	637.84-612.84
	Groundwater Elevation (feet)												
December-02	752.75	749.73	745.04	646.95	618.04	628.22	619.97	NA	597.07	NA	NA	NA	NA
January-02	752.95	752.25	746.76	648.32	617.40	642.93	619.51	622.93	597.40	583.01	552.12	543.37	619.58
February-02	752.78	751.87	745.05	648.20	616.01	640.13	618.85	622.97	597.10	582.72	551.96	543.36	620.70
March-02	752.23	751.56	746.24	648.60	615.44	643.44	618.36	623.18	597.62	582.57	551.79	543.39	620.99
May-02	747.87	751.16	745.41	643.37	613.09	640.67	615.51	619.94	594.83	580.20	548.24	541.39	619.41
August-02	749.58	751.49	744.95	643.16	613.36	633.61	615.37	620.10	594.42	580.57	549.51	541.26	619.65

000124

Table 3.1A
Summary of Analytical Results:
C-8 in Surface Water
Letart Landfill
Letart, WV

Sample	Date	C-8 (ug/l)
002(LEACHATE BASIN)	8/30/02	2050
	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	8/30/02	No-Flow Conditions
	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	8/30/02	No-Flow Conditions
	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	8/30/02	No-Flow Conditions
	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.

Table 3.1B
Summary of Analytical Results:
C-8 in Groundwater
Letart Landfill, Letart, WV

F-Zone Wells		
Sample	Date	C-8 (ug/l)
LMW-2A	8/27/02	676
	5/24/02	922
	3/29/02	717
	2/24/02	714
	1/26/02	740.0
	12/11/01	830
	7/19/2001	242
	1/30/2001	423
	10/5/2000	248
	7/25/2000	275
	4/3/2000	306
	1/14/2000	453
	10/21/1999	370
	7/20/1999	350
	5/28/1998	990
	7/23/1997	460
	4/17/1996	460
	9/20/1994	270
	3/15/1994	260
	11/22/1991	63
	3/22/1991	50
LMW-5B	8/27/02	1480
	5/21/02	1720
	3/27/02	1810
	3/27/02 (dup)	1850
	2/23/02	1460
	2/23/02(dup)	1490
	1/26/02	1780
	1/26/02 (dup)	1890
	12/11/01	1880
	7/20/2001	483
	7/20/01(dup)	592
	1/31/2001	615
	10/5/2000	1190. J
	10/5/00 (dup)	780
	7/25/2000	900. J
	4/3/2000	1100
	4/3/00 (dup)	1020
	1/14/2000	1030
	10/21/1999	1750
	10/21/99 (dup)	1700
	7/20/1999	445
	7/23/1997	480
	9/20/1994	530
	3/15/1994	1200
	11/22/1991	380
	3/22/1991	340
LMW-6	8/27/02	10.5
	5/24/02	20.7
	3/29/02	14.8
	2/24/02	14.9
	1/26/02	18.1
	12/11/01	15.8
	1/13/2000	9.4
	5/28/1998	30
	11/22/1991	24
	3/22/1991	25

Table 3.1B
Summary of Analytical Results:
C-8 in Groundwater
Letart Landfill, Letart, WV

F-Zone Wells		
Sample	**Date**	**C-8 (ug/l)**
LMW-9	8/29/02	0.479
	5/24/02	0.715
	3/27/02	0.631
	2/23/02	0.617
	1/26/02	0.875
	12/10/01	0.845
	10/7/1992	0.2
LMW-10	8/29/02	Pump problems-Not sampled
	5/21/02	0.298
	3/27/02	0.136
	2/23/02	0.126
	1/26/02	0.133
	12/13/01	0.134
LMW-11	8/27/02	0.058
	5/21/02	0.069
	3/29/02	0.119
	2/24/02	0.112
	1/26/02	0.159
	12/11/01	0.128
D/E-Zone Wells		
Sample	**Date**	**C-8 (ug/l)**
LMW-3A	8/26/02	Dry no sample
	5/24/02	134
	3/27/02	132
	2/23/02	101
	1/26/02	98.6
	12/11/01	100
	7/19/1999	60.3
	11/22/1991	350
	3/22/1991	380
LMW-4	8/27/02	1410
	5/21/02	1690
	3/27/02	2620
	2/23/02	2250
	1/26/02	3060
	12/13/01	1580
	4/3/2000	272
	1/14/2000	172
	11/22/1991	830
	3/28/1991	690
LMW-5A	8/26/02	Dry no sample
	5/21/02	87.6
	3/27/02	93.6
	2/23/02	82.2
	1/26/02	99.3
	12/11/01	94.4
	11/22/1991	0.8
	3/22/1991	1.6
C-Zone Wells		
Sample	**Date**	**C-8 (ug/l)**
LMW-3	8/26/02	Dry no sample
	5/24/02	2270
	3/27/02	1760
	2/24/02	1920
	1/29/02	1700
	12/13/01	1520
	11/22/1991	1000
	3/22/1991	390

Table 3.1B
Summary of Analytical Results:
C-8 in Groundwater
Letart Landfill, Letart, WV

A-Zone Wells		
Sample	Date	C-8 (ug/l)
LMW-1	8/29/02	23000
	5/24/02	30500
	3/29/02	20600
	2/24/02	18400
	1/26/02	29400
	12/10/01	24600
	7/19/2001	6100
	1/31/2001	9190
	10/4/2000	10600
	7/24/2000	8990
	4/3/2000	13600
	1/13/2000	17400
	10/21/1999	12600
	7/20/1999	6920
	5/28/1998	24000
	7/23/1997	5100
	4/17/1996	1700
	11/22/1991	68
	3/22/1991	60
LMW-7	8/27/02	197
	5/24/02	567
	3/29/02	324
	2/24/02	180
	1/26/02	496
	12/10/01	334
	7/20/2001	242
	1/31/2001	249
	10/4/2000	231
	7/25/2000	158
	4/3/2000	211
	1/13/2000	219
	10/20/1999	339
	7/20/1999	78.3
	5/28/1998	260
	7/23/1997	53
	4/17/1996	15
	11/22/1991	0.1
LMW-8	8/29/02	3100
	5/24/02	4020
	3/29/02	3520
	2/23/02	2230
	1/26/02	3930
	12/10/01	3240
	7/19/2001	1120
	1/30/2001	2650
	10/4/2000	2300
	7/24/2000	2160
	4/3/2000	2180
	1/13/2000	2100
	10/20/1999	3260
	7/20/1999	1790
	5/28/1998	2700
	7/23/1997	2000
	4/17/1996	2200
	11/22/1991	280

J = estimated value (below laboratory quantitation limit).
Note: Analytical method changed as of November 2001 (see Section 2.0 for details).

Table 4.0
Monitoring Well Construction and Groundwater Elevation Data
Dry Run Landfill
Lubeck, WV

	Monitoring Wells							
Parameters	**DRMW-14**	**DRMW-13**	**DRMW-13A**	**DRMW-12**	**DRMW-12A**	**DRMW-12B**	**DRMW-6A**	**DRMW-15**
Surface Elevation (feet)	936.14	720.6	720.3	730.5	730.3	730.5	744.93	730.87
Total Depth (feet)	260	35	11	35	17	15	12.2	45
Well Diameter (inches)	10	4	4	4	4	4	2	2
Slot Size (inches)	NA	0.010	0.010	0.010	0.010	0.010		0.010
Screen Length (feet)	NA	15	5	15	5	10		20
Screen Interval (feet)	NA	700.6-685.6	714.3-709.3	710.5-695.5	718.3-713.3	725.5-715.5		705.87-685.87
	Groundwater Elevation (feet)							
December-02	754.09	712.08	714.68	724.68	727.63	728.00	738.28	716.10
January-02	757.99	712.44	717.30	725.53	728.83	729.03	738.76	716.50
February-02	754.87	711.73	714.49	725.68	728.32	728.59	738.73	716.33
March-02	755.45	715.24	717.01	726.02	729.22	729.47	739.22	717.02
May-02	753.18	710.46	714.43	723.39	726.86	727.32	738.72	713.47
August-02	753.37	708.57	711.35	721.05	723.40	723.89	736.08	712.41

Table 4.1A
Summary of Analytical Results:
C-8 in Surface Water
Dry Run Landfill
Lubeck, WV

Sample	Date	C-8 (ug/l)
OUTLET 001	8/30/02	No-flow conditions
	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	8/30/02	No-flow conditions
	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	8/30/02	No-flow conditions
	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	8/30/02	No-flow conditions
	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	8/30/02	No-flow conditions
	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

Table 4.1A
Summary of Analytical Results:
C-8 in Surface Water
Dry Run Landfill
Lubeck, WV

Sample	Date	C-8 (ug/l)
STREAM SAMPLING POINT#2	8/20/02	No-flow conditions
	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
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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Table 4.1B
Summary of Analytical Results:
C-8 in Groundwater
Dry Run Landfill, Lubeck, WV

Sample	Date	C-8 (ug/l)
DRMW-12	8/28/02	0.0626
	5/22/02	0.0817
	3/30/02	0.0929
	2/20/02	0.11
	1/25/02	0.116
	12/12/01	0.086
	7/19/2000	0.16
	7/21/1999	0.134
	5/26/1998	<0.10
	7/22/1997	<0.1
	4/10/1996	<0.1
DRMW-12A	8/28/02	0.0880
	5/22/02	0.0832
	3/30/02	0.0785
	2/20/02	0.125
	1/25/02	0.168
	12/12/01	0.158
	7/19/2000	0.128
	7/21/1999	0.081 J
	5/26/1998	<0.10
	7/22/1997	<0.1
	4/10/1996	<0.1
DRMW-12B	8/28/02	NQ
	5/22/02	NQ
	3/30/02	NQ
	3/30/02 (dup)	NQ
	2/20/02	NQ
	1/25/02	0.073
	1/25/02 (dup)	0.085
	12/12/01	0.215
	7/20/2000	ND (0.029)
	7/21/1999	5.4
	6/16/1998	<0.1
DRMW-13	8/28/02	13.1
	5/22/02	16.9
	3/30/02	12.6
	2/20/02	11.5
	1/25/02	16.5
	12/12/01	9.86
	7/20/2000	9.8
	7/21/1999	3.6
	5/26/1998	9.2
	7/22/1997	7
DRMW-13A	8/28/02	5.14
	5/22/02	2.31
	3/30/02	4.0
	2/20/02	3.73
	1/25/02	5.97
	12/12/01	6.4
	7/20/2000	9.9
	7/21/1999	0.070 J
	5/26/1998	8.7
	7/22/1997	15
	4/10/1996	8.2
	4/10/1996 (dup)	11

000132

Table 4.1B
Summary of Analytical Results:
C-8 in Groundwater
Dry Run Landfill, Lubeck, WV

Sample	Date	C-8 (ug/l)
DRMW-14	8/28/02	NQ
	5/22/02	NQ
	3/30/02	NQ
	2/20/02	NQ
	1/27/02	NQ
	12/12/01	NQ
	7/20/2000	0.115
	7/21/1999	2.5
	6/16/1998	<0.1
	7/21/1997	<0.1
	4/10/1996	<0.1
DRMW-15	8/28/02	3.99
	5/22/02	5.0
	3/30/02	4.91
	2/20/02	3.65
	1/27/02	4.35
	12/12/01	4.94
	7/20/2000	0.763
	7/21/1999	0.263
DRMW-6A	8/28/02	0.785
	5/22/02	1.24
	3/30/02	0.843
	2/20/02	0.822
	1/27/02	0.824
	12/12/01	1.04
	7/20/2000	0.212
	7/21/1999	0.096
	5/26/1998	0.27
	7/22/1997	0.36
	4/10/1996	0.19

ND = Not Detected at or above the limit of detection (LOD).
The listed LOD is approximate and varies by instrument and over time.
NQ = Not Quantifiable. Detected at a concentration above the LOD and below the limit of quantification (LOQ).
J = estimated value (below laboratory quantitation limit).
Note: Analytical method changed as of November 2001 (see Section 2.0 for details).

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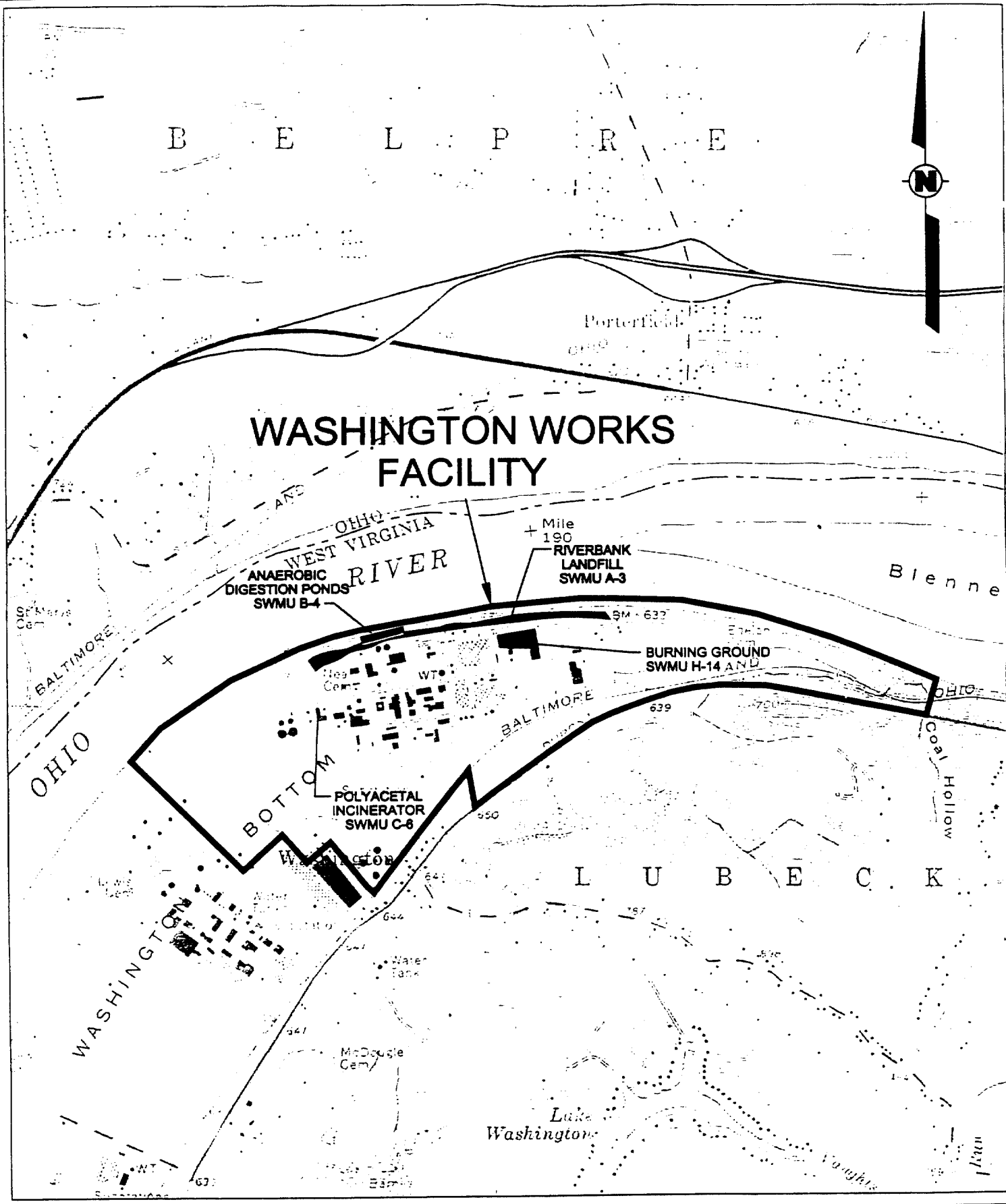
FIGURES



000136

Source: MAP TAKEN FROM THE LUBECK, WV USGS QUADRANGLE

DUPONT

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Barley Mill Plaza, Building 27
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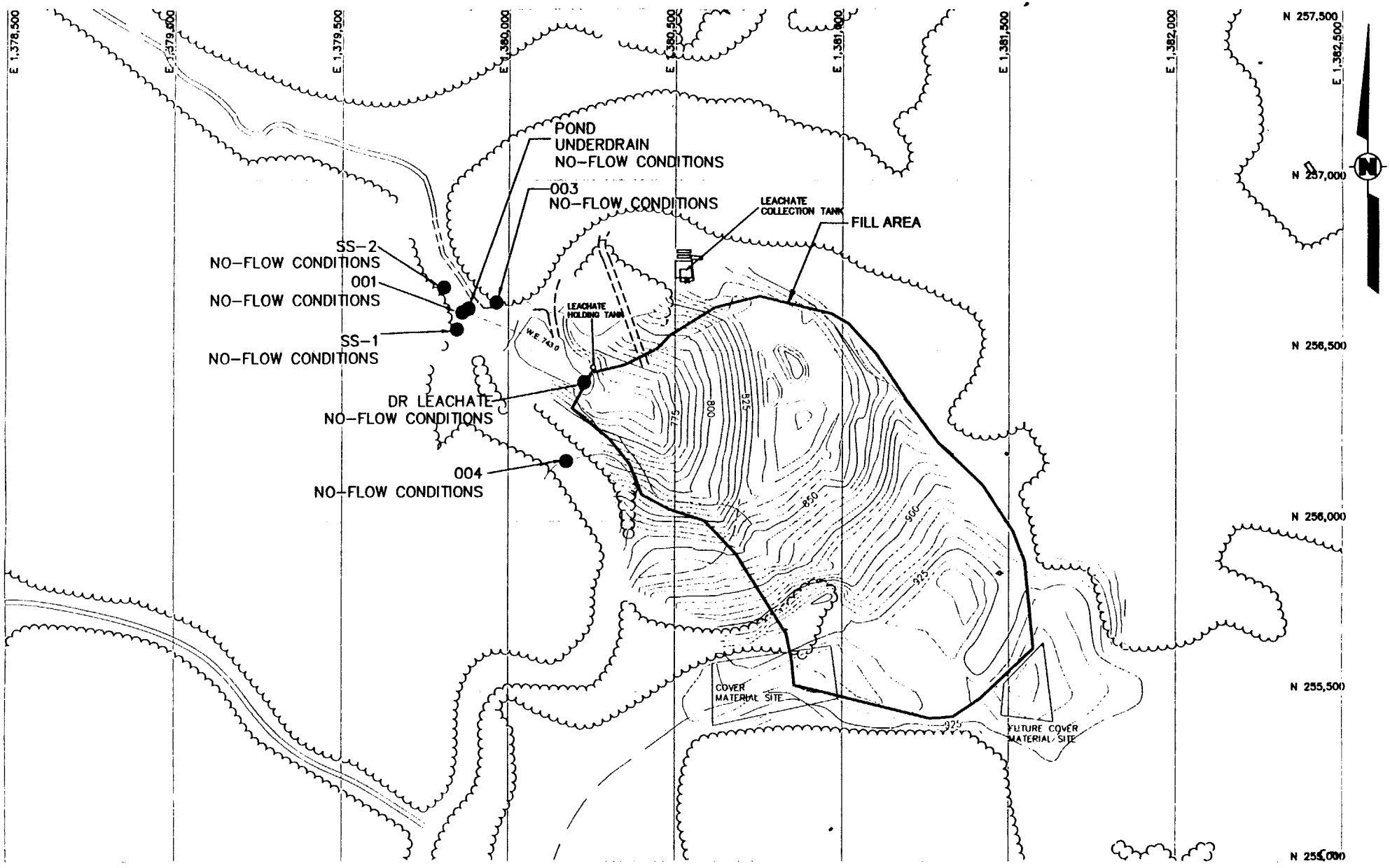
SITE LOCATION MAP

DuPont Washington Works Facilit
Washington, West Virginia

SCALE	DESIGNED	DRAWN	CAD FILE NO.
Not to scale	DEL	DEL	7422A00
DATE	CHECKED	APPROVED	FIGURE
9/27/01	M. HOULDAY		1.0



LEGEND

● SURFACE WATER SAMPLE LOCATION

66.6 CONCENTRATION C-8 (ug/l)

SCALE

400 0 400'

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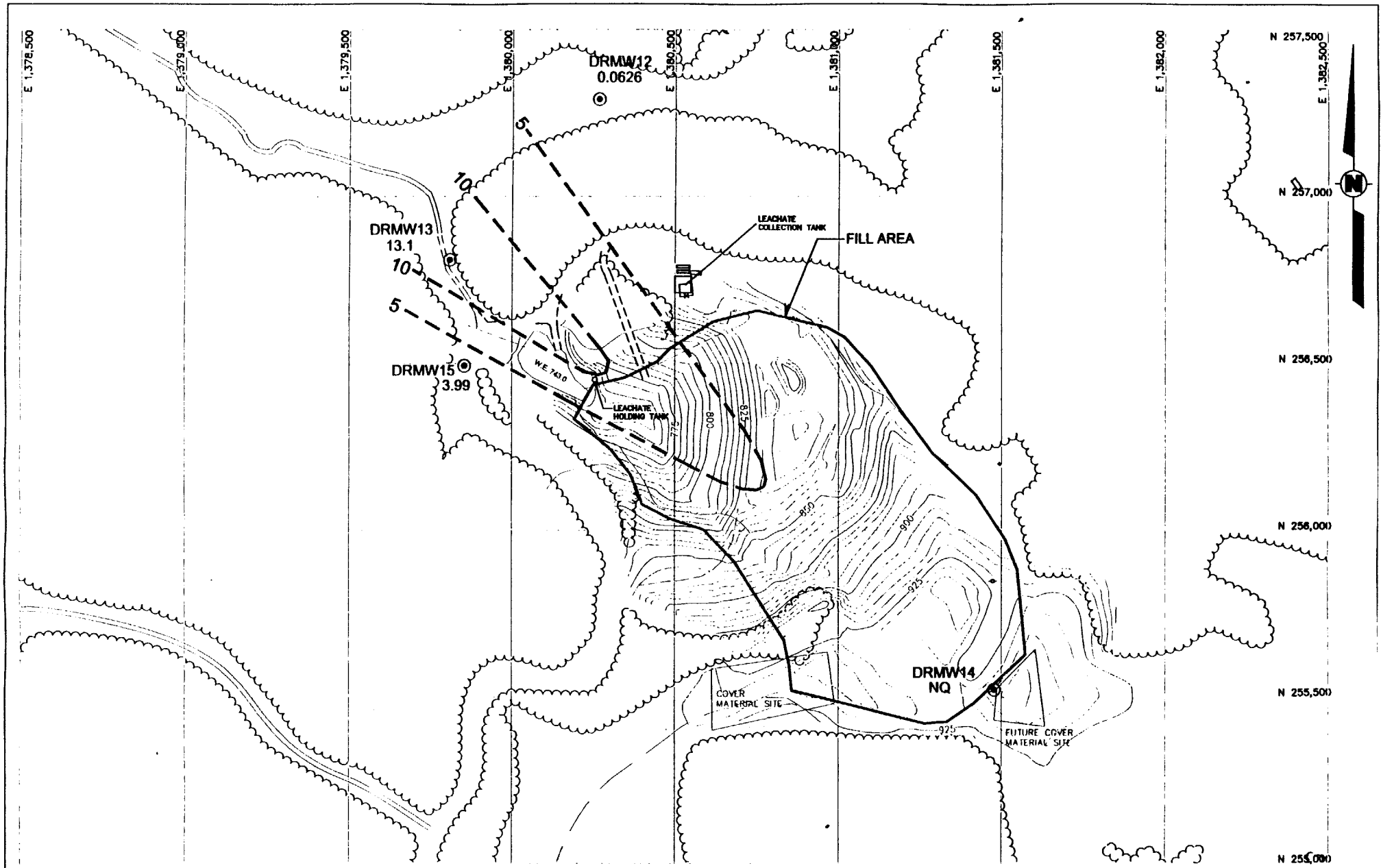
Barley Mill Plaza, Building 27
Wilmington, Delaware 19805

C-8 IN SURFACE WATER
3Q02

Dry Run Landfill
DuPont Washington Works
Lubeck, West Virginia

SCALE	DESIGNED	DRAWN	CAD FILE NO.
As shown	K. DAVIS	D.H. ENGLISH	7422A019
DATE	CHECKED	APPROVED	FIGURE
10/11/2002			4.3



LEGEND

⊙ 0.55 BEDROCK MONITOR WELL CONCENTRATION C-8 (ug/l)

—— 5 —— ESTIMATED LINE OF ISOCONCENTRATION (C-8)

000138

SCALE

400 0 400'

DUPONT

Corporate Remediation Group

An Alliance between DuPont and URS Diamond

Barley Mill Plaza, Building 27
Wilmington, Delaware 19805

C-8 IN GROUNDWATER
BEDROCK WELLS – 3Q02

Dry Run Landfill
DuPont Washington Works
Lubeck, West Virginia

SCALE	DESIGNED	DRAWN	CAD FILE NO.
As shown	K. DAVIS	D.H. ENGLISH	7422A020
DATE	CHECKED	APPROVED	FIGURE
10/14/2002	K. DAVIS		4.4

APPENDICES

APPENDIX A

LABORATORY ANALYTICAL DATA REPORTS

WASHINGTON WORKS FACILITY

Exygen™ RESEARCH
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Report

Analytical Results Washington Works C8 Sampling 8/02

DuPont Sample Identification	APFO (ng/L)
WWK-Z-Outfall-001	2940
WWK-Z-Outfall-002	2560
WWK-Z-Outfall-003	268
WWK-Z-Outfall-005	12400
WWK-Z-Outfall-007	207
WWK-Z-Outfall-105	6730
WWK-Z-Outfall-002-2	2510
WWK-Z-EQBLK-1	NQ

Limit of Detection (LOD) for the procedure is appoximately 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 tha 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.

000143

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State College, PA 16801, USA
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Analytical Results Washington Works Sampling 9/02

DuPont Sample Identification	APFO (ng/L)
WWK-G-AE11-MW01	1920
WWK-G-DO8-MW01	117
WWK-G-E13-MW01	2390
WWK-G-PO4-MW02	34400000
WWK-G-QO4-MW02	32200
WWK-G-RO4-MW02	66500000
WWK-G-Y14-MW01	18400
WWK-K-EQBLK-2	ND

Limit of Detection (LOD) for the procedure is appoximately 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 tha 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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Analytical Results Washington Works C8 Sampling 8/02

DuPont Sample Identification	APFO (ng/L)
WWK-G-Well 331	420
WWK-G-Well 336	335
WWK-G-West Wellfield #4	9710
WWK-G-AX13-PW01	834
WWK-K-FBLK-2	ND
LCL-Z-Outlet 101	70300

Limit of Detection (LOD) for the procedure is appoximately 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 tha 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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Analytical Results Washington Works C8 Sampling 8/02

DuPont Sample Identification	APFO (ng/L)
WWK-G-Gallery	3060
WWK-G-Ranney	34800
WWK-G-West Wellfield #1	6410
WWK-K-FBLK1	ND

Limit of Detection (LOD) for the procedure is appoximately 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 tha 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.

000146

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APPENDIX B

CHAIN-OF-CUSTODY RECORDS

WASHINGTON WORKS FACILITY

Exygen RESEARCH

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 - Dupont
BMP Bldg 27 Lane PK Rt 141
Wilmington, DE 19805

Phone:

Fax:

Sampler: [illegible]

Project Manager (Name & E-mail Address):
Mike Avcom
Michael.D.Avcom@USA.dupont.com

Project Name:
CB Sampling 8/02

P.O. #: LBIO-64506 Release No. EX070

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	lot # 210001				pH bottle 1	pH bottle 2
L 33604-1	WWK-Z-Outfall-001	8-27-02	1100	X				642262 / 641317	X	X				8.8	8.5
L 33604-2	WWK-Z-Outfall-002	8-27-02	1031	X				642263 / 641315	X	X				8.3	8.3
L 33604-3	WWK-Z-Outfall-003	8-27-02	1045	X				642260 / 642264	X	X				8.3	8.3
L 33604-4	WWK-Z-Outfall-005	8-27-02	1010	X				642258 / 642259	X	X				8.2	8.1
L 33604-5	WWK-Z-Outfall-007	8-27-02	1023	X				642257 / 642261	X	X				8.1	8.2
L 33604-6	WWK-Z-Outfall-105	8-27-02	1130 1022	X	1130			642253 / 642255	X	X				7.6	7.4
L 33604-7	WWK-Z-Outfall-002-2	8-27-02	1031	X				641524 / 642256	X	X				7.5	7.6
L 33604-8	WWK-Z-EQBLK-1	8-27-02	1010	X				641523 / 642254	X	X				8.1	8.5

LAB USE ONLY

CHAIN OF CUSTODY

Relinquished by	Date	Time
[illegible]	8/27/2002	1400
[illegible]	8/27/02	1400

Cooler ID # CBRW124 Cooler Temp. (°C) 0.7

Received by	Date	Time
[illegible]	8-27-02	0700
[illegible]	8/28/02	1020

LAB USE ONLY

ANALYSES REQUESTED

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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0009

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PROJECT INFORMATION

Client (name & address): Adam AP Services. Dupont
BMP Bldg 27 Lane. PK Rt 141
Wilmington, DE 19805

Phone: 302-892-1698

Fax:

Sampler: Tilton, Kendall

Project Manager (Name & E-mail Address): Mike Arcuri
Michael.D.Arcuri@USA.dupont.com

Project Name: LB Sampling 8/02

P.O. #: LB10-64506 Release No EX070

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	lot # 210014				pH bottle 1	pH bottle 2
L 33632-1	WWK-G-AE11-MW01	09/04/02	1332	X		2	water	641764/642271	X	X				7.9	7.7
L 33632-2	WWK-G-D08-MW01		1407	X		2		641762/642269	X	X				7.7	7.9
L 33632-3	WWK-G-E13-MW01		1438	X		2		641768/642265	X	X				7.8	7.7
L 33632-4	WWK-G-P04-MW02		1023	X		2		641318/642266	X	X				5.8	5.7
L 33632-5	WWK-G-Q04-MW02		1048	X		2		641761/642267	X	X				6.4	6.7
L 33632-6	WWK-G-R04-MW02		1118	X		2		641770/642268	X	X				6.4	6.5
L 33632-7	WWK-G-Y14-MW01		1303	X		2		641765/641760	X	X				7.4	7.4
	~~WWK-G-H13-MW01~~			X				~~641769/641757~~	X	X					

LAB USE ONLY

no sample we on [illegible]

CHAIN OF CUSTODY

Relinquished by	Date	Time
[signature]	8/7/02	1400
Lucinda M. Tilton	08/07	1900
	09/04/02	

Cooler ID # [illegible] Cooler Temp. (°C) 1.1

Received by	Date	Time
Lucinda M. Tilton	08/24/02	0800
[signature]	09/05/02	1030

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 method Standard

OTHER INFORMATION

000150

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Exygen RESEARCH

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

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PROJECT INFORMATION

Client (name & address):
Adam AP Services - Dupont
BMP Bldg 27 Lanc. PK Rt 141
Wilmington, DE 19805

Phone: 302-892-1698

Fax:

Sampler: Tilton, Kendall

Project Manager (Name & E-mail Address):
Mike Aucoin
Michael.D.Aucoin@USA.dupont.com

Project Name:
CB Sampling 8/02

P.O. #: LBIO-64506 Release No EX070

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	lot # 210014				pH bottle 1	pH bottle 2
	~~WWK-K-FOB-MW01~~							~~641767 / 641767~~	~~X~~	~~X~~					
L 33632-8	WWK-K-EQBLK-2	09/04/02	1350	X		2	water	641316 / 641763	X	X				7.9	8.0

LAB USE ONLY

CHAIN OF CUSTODY

Relinquished by	Date	Time
[signature]	8/7/2002	1400
Jennifer M. Tilton	09/04/02	1900

Cooler ID # CRawson Cooler Temp. (°C) 1.1

Received by	Date	Time
Jennifer M. Tilton	09/04/02	1900
	GMT	
	08/26/02	
[signature]	08/26/02	1030

LAB USE ONLY

OTHER INFORMATION

000151

PROJECT REQUIREMENTS

Results Deadline:

Laboratory Report Options:

- ☐ Sample results only
- ☐ Add case narrative
- ☐ Add quality control summary
- ☐ Add calibration summary
- ☐ Add raw data
- ☒ Other Method Standard

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PROJECT INFORMATION

Client (name & address):
ADam AP Services - Dupont
BMP Bldg 27 Lanc. PK Rt 141
Wilmington, DE 19805

Phone: 302-892-1698

Fax:

Sampler: [illegible]

Project Manager (Name & E-mail Address):
Mike Aucoin
Michael.D.Aucoin@usa.dupont.com

Project Name:
C8 Sampling 8/02

P.O. #: L-BIO-6456 Release No EX07

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	lot # 121402	Lot # 2/00014			pH bottle 1	pH bottle 2
L 33602-1	WWK-G-Well 331	8-26-02	1350	X		2		825480/825479	X	X				8.9	8.7
L 33602-2	WWK-G-Well 336	8-26-02	1315	X		2		825481/825482	X	X				8.4	8.3
L 33602-3	WWK-G-West Wellfield #4	8-26-02	1200	X		2		642272/642275	X		X			8.4	8.1
L 33602-4	WWK-G-AX13-PW01	8-26-02	1330	X		2		642272/642274	X		X			8.6	8.9
L 33602-5	WWK-K-FBLK-2	8-26-02	1330	X		2		642273/642276	X		X			4.0	9.2
L 33602-6	LCL-2-Outlet 101	08/26/02	1130			2		825934/825937	X	X				8.7	8.8

LAB USE ONLY

CHAIN OF CUSTODY

Relinquished by	Date	Time
[illegible]	8/27/2002	1400
[illegible]	8/27/02	1400

Cooler ID # [illegible] Cooler Temp. (°C) 0.8

Received by	Date	Time
[illegible]	8-27-02	1600
[illegible]	08/27/02	1125

LAB USE ONLY

OTHER INFORMATION

000152

PROJECT REQUIREMENTS

Results Deadline:

Laboratory Report Options:

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

0009

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PROJECT INFORMATION

Client (name & address):
Adam AP Services – Dupont
BMP Bldg 27 Lane Pk Rt 141
Wilmington, DE 19805

Phone: 302-892-2198

Fax:

Sampler: Barbara J. Noon

Project Manager (Name & E-mail Address):
Mike Avcin
Michael.D.Avcin@USA.dupont.com

Project Name:
C8 Sampling Oka

P.O. #: LBIo-64506 Release No EX070

Quotation #:

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

SAMPLE ANALYSIS

	ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	lot # 2/0001				pH bottle 1	pH bottle 2
L	33554-1	WWK-G-Gallery	8-13-02	1150	✓				641321 / 641319	X	X				6.5	6.8
L	33554-2	WWK-G-Ramey	8-13-02	1114	✓				641320 / 641323	X	X				7.3	7.3
L	33554-3	WWK-G-West Wellfield	8-13-02	1135	✓				641322 / 641325	X	X				7.2	7.3
		#1														
		~~WWK-K-F~~ omitted														
L	33554-4	WWK-K-FOLK-1	8-13-02	1135	✓				641326 / 641324	X	X				7.8	8.2

LAB USE ONLY

CHAIN OF CUSTODY

Relinquished by	Date	Time
[signature]	8/13/2002	1400
Barbara J. Noon	8-13-02	1400

Cooler ID # Cooler 123 Cooler Temp. (°C) 1.1

Received by	Date	Time
B J Noon	8-13-02	1045
[signature]	08/14/02	1120

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 INFORMATION

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APPENDIX C

LABORATORY ANALYTICAL DATA REPORTS

LOCAL LANDFILL

Exygen RESEARCH
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Report

Analytical Results Local Landfill C8 Sampling 9/02

DuPont Sample Identification	APFO (ng/L)
LCL-G-MW-4	63500
LCL-G-MW-6	13700
LCL-G-MW-9	NQ
LCL-G-MW-10	357
LCL-K-EQBLK-2	ND

Limit of Detection (LOD) for the procedure is appoximately 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 tha 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.

000156

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APPENDIX D

CHAIN-OF-CUSTODY RECORDS

LOCAL LANDFILL

Exygen RESEARCH

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

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Page ____ of ____

PROJECT INFORMATION

Client (name & address): ADAM AP Services - Dupont
BMP Bldg 27 Lanc. Pk Rt 141
Wilmington, DE 19805
Phone: 302-892-1698
Fax:
Sampler: Tilton, Kendall

Project Manager (Name & E-mail Address): Mike Aucon
Michael.D.Aucon@USA.Dupont.com
Project Name: C8 Sampling 8/02
P.O. #:
Quotation #:

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

SAMPLE ANALYSIS

	ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	lot # 2100014				pH 6.Hr 1	pH 6.Hr 2
L	33627-1	LCL-G-MW-4	09/03/02	1426	X		2	water	641735, 641736	X	X				8.6	8.5
L	33627-2	LCL-G-MW-6		1456	X		2		641737, 641738	X	X				9.1	8.9
L	33627-3	LCL-G-MW-9		1525	X		2		641739, 641740	X	X				8.9	9.0
L	33627-4	LCL-G-MW-10		1346	X		2		641741, 641742	X	X				8.7	8.8
L	33627-5	LCL-K-EQBLK-2		1330	X		2		641743, 641744	X	X				9.2	9.1

LAB USE ONLY

CHAIN OF CUSTODY

Relinquished by	Date	Time
Kendall M. Tilton	09/03/02	17:30

Cooler ID # CL000043 Cooler Temp. (°C) 0.8

Received by	Date	Time
[signature]	09/04/02	1100

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 Method Standard

OTHER INFORMATION:

APPENDIX E

LABORATORY ANALYTICAL DATA REPORTS

LETART LANDFILL

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Report

Analytical Results LeTart Landfill C8 Sampling 8/02

DuPont Sample Identification	APFO (ng/L)
LTL-Z-Outlet 002	2050000
LTL-K-EQBLK-1	ND

Limit of Detection (LOD) for the procedure is appoximately 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 tha 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.

000162

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Analytical Report

Analytical Results LeTart Landfill C8 Sampling 8/02

DuPont Sample Identification	APFO (ng/L)
LTL-G-LMW-4	1410000
LTL-G-LMW-6	10500
LTL-G-LMW-7	197000
LTL-K-EQBLK-3	ND
LTL-G-LMW-2A	676000
LTL-G-LMW-11	57.7
LTL-G-LMW-5B	1480000
LTL-G-LMW-5B-2	1340000

Limit of Detection (LOD) for the procedure is appoximately 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 tha 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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Exygen™ RESEARCH
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Analytical Report

Analytical Results LeTart Landfill C8 Sampling 8/02

DuPont Sample Identification	APFO (ng/L)
LTL-K-EQBLK-2	ND
LTL-G-LMW-1	23000000
LTL-G-LMW-8	3100000
LTL-G-LMW-9	479

Limit of Detection (LOD) for the procedure is appoximately 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 tha 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.

000164

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APPENDIX

APPENDIX F

CHAIN-OF-CUSTODY RECORDS

LETART LANDFILL

Exygen RESEARCH

CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

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PROJECT INFORMATION

Client (name & address):
ADOM AP Services - Dupont
BMP Bldg 27 Lanc. PK Rt 141
Wilmington, DE 19805

Phone: 302-892-1698

Fax:

Sampler: [illegible]

Project Manager (Name & E-mail Address):
M.K. Aucoin
Michael.D.Aucoin@USA.dupont.com

Project Name:
CB Sampling 8/02

P.O. #: LBIO-64506 Release No EX069

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	lot # 21 [illegible]				pH bottle #1	pH bottle #2
L 33620-1	LTL-Z-Outlet 002	11/4/5	8:30:02	X				641727 / 641730	X	X				7.9	7.9
	LTL-Z-Outlet 003							641637 / 641638	X	X					
	LTL-W-RT 33 Stream sample							641632 / 641636	X	X					
	LTL-Z-CAP Runoff							641633 / 641631	X	X					
L 33620-2	LTL-K-EQBLK-1	8-30-02	1145	X				641635 / 641634	X	X				8.7	8.7

LAB USE ONLY

CHAIN OF CUSTODY

Relinquished by	Date	Time
[illegible]	8/7/02	1300
[illegible]	8/30/02	1400

Cooler ID # [illegible] Cooler Temp. (°C) 2.1

Received by	Date	Time
[illegible]	8/30/02	1400
[illegible]	[illegible]	2315

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

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0003

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Page ____ of ____

PROJECT INFORMATION

Client (name & address):
ADam AP Services – Dupont
BMP Bldg 27 Lanc. Pk Rt 141
Wilmington, DE 19805

Phone: 302-892-1698

Fax:

Sampler: Tilton, Kendall

Project Manager (Name & E-mail Address):
Mike Aucoin
Michael.D.Aucoin@USA.dupont.com

Project Name:
C8 Sampling 8/02

P.O. #: LBIo-64506 Release No EX069

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	lot # 210014				pH Ex. #1	pH Ex. #2
L33643-1	LTL-G-LMW-4	08/27/02	1230	X		2	Water	641725/641723	X	X				7.2	7.2

LAB USE ONLY

ANALYSES REQUESTED

CHAIN OF CUSTODY

Relinquished by	Date	Time
[signature]	8/27/02	1300
Lucinda M. Tilton	08/28/02	1730

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

Received by	Date	Time
Lucinda M. Tilton [signature]	08/26/02	0800
	8/29/2002	1430

LAB USE ONLY

PROJECT REQUIREMENTS

Results Deadline: Electronic Deliverable

Laboratory Report Options:

- ☐ Sample results only
- ☐ Add case narrative
- ☐ Add quality control summary
- ☐ Add calibration summary
- ☐ Add raw data
- ☒ Other Method Blank

OTHER INFORMATION

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PROJECT INFORMATION

Client (name & address):
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BMP Bldg 27 Lanc. Pk Rt 141
Wilmington, DE 19805

Phone: 302-892-1698
Fax:
Sampler: Tilton, Kendall

Project Manager (Name & E-mail Address):
Mike Aucoin
Michael.D.Aucoin@USA.dupont.com

Project Name: LB Sampling 8/02
P.O. #: LB10-64546 Release No. EX069
Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-147	lot # 21 DR019				PH Bottle 1	PH Bottle 2
L33613-2	LTC-G-LMW-6	08/27/02	1728	X		1	water	641776 / ~~641775~~	X	X				8.1	—
L33613-3	LTC-G-LMW-7	↓	1645	X		2	↓	641781 / 641779	X	X				7.8	2.8
L33613-4	LTC-K-EQBLK-3	↓	1639	X		~~2~~ 1	↓	641782 / ~~641780~~	X	X				8.8	—
								[illegible] 8/29/2002							

LAB USE ONLY

0010

CHAIN OF CUSTODY

Relinquished by	Date	Time
[signature]	8/27/2002	1300
Lucinda M. Tilton	08/28/02	1730

Cooler ID # CRunner 110 [illegible] 8/29/2002 Cooler Temp. (°C) 0.>

Received by	Date	Time
Lucinda M. Tilton	08/28/02	0800
[signature]	8/29/2002	1030

LAB USE ONLY

OTHER INFORMATION

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ANALYSES REQUESTED

PROJECT REQUIREMENTS

Results Deadline:

Laboratory Report Options:
- ☐ Sample results only
- ☐ Add case narrative
- ☐ Add quality control summary
- ☐ Add calibration summary
- ☐ Add raw data
- ☒ Other Electronic Delivery

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PROJECT INFORMATION

Client (name & address):
ADam AP Services - Dupont
BMP Bldg 27 Lab. PK Rt 141
Wilmington, DE 19805

Phone: 302-892-1698

Fax:

Sampler: Tilton, Kendall

Project Manager (Name & E-mail Address):
M.K. Aucon
Michael.D.Aucon@USA.dupont.com

Project Name:
LB Sampling 8/02

P.O. #: LB10-64506 Release No EX069

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	lot # 210014				pH bottle	pH bottle
L33613-5	LTL-G-LMW-2A	08/27/02	1544	X		2	Water	641530 / 641529	X	X				8.3	8.3
L33613-6	LTL-G-LMW-11	08/27/02	1447	X		2	Water	641521 / 641528	X	X				9.0	9.0
~~(LMW)~~	~~LTL-G-LMW-1~~							~~641520 / 641527~~	X	X					
~~(LMW)~~	~~LTL-G-LMW-8~~							~~641525 / 641519~~	X	X					
~~(LMW)~~	~~LTL-G-LMW-3A~~							~~641522 / 641526~~	X	X					
~~(LMW)~~	~~LTL-G-LMW-5A~~							~~641777 / 641771~~	X	X					
L33613-7	LTL-G-LMW-5B	08/27/02	1402	X		2	Water	641778 / 641772	X	X				8.3	8.3
L33613-8	LTL-G-LMW-5B-2	08/27/02	1402	X		2	Water	641774 / 641773	X	X				8.3	8.3

LAB USE ONLY

(Void these lines.)

0011

CHAIN OF CUSTODY

Relinquished by	Date	Time
[signature]	8/27/2002	1300
Lucinda Milton	08/27/02	1730

Cooler ID # ~~Cruise~~ 110 Cooler Temp. (°C) 0

Received by	Date	Time
Lucinda Milton	08/28/02	0800
[signature]	8/29/2002	1030

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 Electronic Deliverable Method 54 attached

OTHER INFORMATION

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PROJECT INFORMATION

Client (name & address):
ADam - AP Services - Dupont
BMP Bldg 27 Lab. R Rt 141
Wilmington, DE 19805

Phone: 302-892-1698

Fax:

Sampler: Tilton, Kendall

Project Manager (Name & E-mail Address):
Mike Aucoin
Michael.D.Aucoin@VH.dupont.com

Project Name:
CR Sampling Blcr

P.O. #: LSIo-64506 Release No. EX69

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	EC-143	Lot # 210004				pH bottle 1	pH bottle 2
L 33616-1	LTL-K-EABLK-2	08/29/02	1210	X		02	water	641729 / ~~641732~~	X	X				8.9	-
L 33616-2	LTL-G-LMW-1		1350	X		2		641520 / 641527	X	X				7.1	7.0
L 33616-3	LTL-G-LMW-8		1215	X		2		641525 / 641519	X	X				7.3	7.4
	~~LTL-G-LMW-3A~~			X				~~641522 / 641526~~	X	X					
	~~LTL-G-LMW-5A~~			X				~~641777 / 641771~~	X	X					

LMW NOSX. 2 & 3 and 5A - well dry.

LAB USE ONLY

0009

CHAIN OF CUSTODY

Relinquished by	Date	Time
[illegible]	8/7/02	1300
Lucinda M. Tilton	08/29/02	1900

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

Received by	Date	Time
Lucinda M. Tilton	08/30/03	0800
[illegible]	08/30/03	1030

LAB USE ONLY

OTHER INFORMATION

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PROJECT REQUIREMENTS

Results Deadline:

Laboratory Report Options:

- ☐ Sample results only
- ☐ Add case narrative
- ☐ Add quality control summary
- ☐ Add calibration summary
- ☐ Add raw data
- ☒ Other Electronic Deliverable

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PROJECT INFORMATION

Client (name & address):
ADam APServices – Dupont
BMP Bldg 27 Lanc. PK Rt 141
Wilmington, DE 19805

Phone: 302-892-1698

Fax:

Sampler: Tilton, Kendall

Project Manager (Name & E-mail Address):
Mike Aucoin
Michael.D.Aucoin@USA.dupont.com

Project Name:
LB Sampling 8/02

P.O. #: LB10-64506 Release No. EX069

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	PC-143	lot # 210001Y				pH bottle #1	
L 33616-4	LTL-G-LMW-9	08/29/02	1142	X		1	Water	~~641723~~ / 641733	X	X				7.2	
~~L 33616-5~~	~~LTL-K-EQBLK-3~~	~~08/29/02~~		X		1	water	641730	X	X				~~3.4~~	
	@ MA 08/30/02														
	~~Sample Cancelled~~														

TAB USE ONLY

0010

CHAIN OF CUSTODY

Relinquished by	Date	Time
[signature]	8/29/2002	1300
Lucinda M. Tilton	08/29/02	1900

Cooler ID # Cooler 110 Cooler Temp. (°C) 0.7

Received by	Date	Time
Lucinda M. Tilton	08/29/02	1800
[signature]	08/30/02	1030

TAB 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 Method Standard

OTHER INFORMATION

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PROJECT INFORMATION

Client (name & address): ADAM AP Services – Dupont
BMP Bldg 27 Lanc. Pk Rt 141
Wilmington, DE 19805

Phone: 302-892-1698

Fax:

Sampler: Tilton, Kendall

Project Manager (Name & E-mail Address): Mike Aucom
Michael.D.Aucom@USA.dupont.com

Project Name: CB Sampling 8/02

P.O. #: LBIO-64506 Release No EX069

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143 lot # 210001H						
	LIB-C-1 pm-3			X			Water	641231 / 641234		X					

LAB USE ONLY

No Sample Limit

0011

CHAIN OF CUSTODY

Relinquished by	Date	Time
[signature]	8/1/02	1300

Cooler ID # Crawville Cooler Temp. (°C) ____

Received by	Date	Time
Lucinda M. Tilton	08/26/02	0800

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 Electronic Deliverable

OTHER INFORMATION

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PROJECT INFORMATION

Client (name & address): ADAM AI Services - Dupont
BMP Bldg 27 Lanc. Pk Rt 141
Wilmington, DE 19805

Phone: 302-892-1698

Fax:

Sampler: Tilton, Kendall

Project Manager (Name & E-mail Address): Mike Aucoin
Michael.D.Aucoin@USA.dupont.com

Project Name: CB Sampling 8/02

P.O. #: LBIO-64506 Release No EX069

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	lot # 210004					
	LTL-G-LMW-10			X			Water	641706/641719	X	X					

LAB USE ONLY

No Sample LMT

0012

CHAIN OF CUSTODY

Relinquished by	Date	Time
[signature]	8/7/02	1300

Cooler ID # CRuzzillo Cooler Temp. (°C) ____

Received by	Date	Time
Lucinda M. Tilton	08/8/02	0800

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 Method Standard Chain of Custody

OTHER INFORMATION

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APPENDIX G

LABORATORY ANALYTICAL DATA REPORTS

DRY RUN LANDFILL

Exygen™ RESEARCH
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Proven Results.

Analytical Report

Analytical Results Dry Run Landfill C8 Sampling 8/02

DuPont Sample Identification	APFO (ng/L)
DRL-G-DRMW6A	785
DRL-G-DRMW12	62.6
DRL-G-DRMW12A	88.0
DRL-G-DRMW12B	NQ
DRL-G-DRMW13	13100
DRL-G-DRMW13A	5140
DRL-G-DRMW14	NQ
DRL-G-DRMW15	3990
DRL-G-DRMW13-2	14600
DRL-K-EQBLK-3	ND

Limit of Detection (LOD) for the procedure is appoximately 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 tha 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

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PROJECT INFORMATION

Client (name & address):
ADam AP Services - Dupont
BMP Bldg 27 Lane PK Rt 141
Wilmington, DE 19805

Phone: 302-892-1698

Fax:

Sampler: Tilton, Kendall

Project Manager (Name & E-mail Address):
Mike Aucoin
Michael. D. Aucoin@USA.dupont.com

Project Name:
C8 Sampling 8/02

P.O. #: LBIO-64506 Release No EX066

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	lot # 210002 14				pH before	pH after
L33612-1	DRL-G-DRMW6A	08/28/02	1715	X		2	Water	641602 / 642244	X	X				7.6	7.6
L33612-2	DRL-G-DRMW12		1312	X		2		641596 / 642243	X	X				7.7	7.7
L33612-3	DRL-G-DRMW12A		1238	X		2		642241 / 642242	X	X				7.5	7.5
L33612-4	DRL-G-DRMW12B		1358	X		2		641592 / 641601	X	X				7.5	[illegible]
L33612-5	DRL-G-DRMW13		1530	X		2		641597 / 641600	X	X				[illegible]	7.3
L33612-6	DRL-G-DRMW13A		1603	X		2		641591 / 641594	X	X				7.6	7.6
L33612-7	DRL-G-DRMW14		1152	X		2		641593 / 641598	X	X				7.8	7.8
L33612-8	DRL-G-DRMW15		1625	X		2		641595 / 641599	X	X				5.8	5.8

LAB USE ONLY

ANALYSES REQUESTED

0009

CHAIN OF CUSTODY

Relinquished by	Date	Time
[signature]	8/2/02	1000
Lucinda M. Tilton	08/28/02	1830

Cooler ID # Cooler 17 Cooler Temp. (°C) 0.5

Received by	Date	Time
Lucinda M. Tilton	08/28/02	2080
[signature]	8/29/02	1030

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 Method Standard Electronic Deliverable

OTHER INFORMATION

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CHAIN OF CUSTODY/ANALYSIS REQUEST FORM

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PROJECT INFORMATION

Client (name & address): ADam AP Services - Dupont
BMP Bldg 27 Lanc. Pk R141
Wilmington, DE 19805

Phone: 302-892-1698

Fax:

Sampler: Tilton, Kendall

Project Manager (Name & E-mail Address): Mike Aucoin
Michael.D.Aucoin@USA.dupont.com

Project Name: LB Sampling 8/02

P.O. #: LBIO-64506 Release No EX066

Quotation #:

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

SAMPLE ANALYSIS

ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab	Composite	Number of Containers	Specify Matrix	Comments	FC-143	lot # 210224				pH Bottle 1	pH Bottle 2
L33612-9	DRL-G-DRMW-13-2	08/28/02	1530	X		2	water	641616/641621	X	X				9.4	9.4
L33612-10	DRL-K-EQBLK-3	08/28/02	1642	X		2	water	641619/641615	X	X				8.6	8.6

LAB USE ONLY

CHAIN OF CUSTODY

Relinquished by	Date	Time
[signature]	8/27/2002	1000
Lucindam. Tilton	08/28/02	1830

Cooler ID # Cooler Temp. (°C) 0.5

Received by	Date	Time
Lucindam. Tilton	08/26/02	0800
[signature]	8/29/2002	1030

LAB USE ONLY

OTHER INFORMATION

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PROJECT REQUIREMENTS

Results Deadline:

Laboratory Report Options:

- ☐ Sample results only
- ☐ Add case narrative
- ☐ Add quality control summary
- ☐ Add calibration summary
- ☐ Add raw data
- ☒ Other Method Standard

0010