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FEBRUARY 2003
SURFACE WATER MONITORING REPORT
FOR WASHINGTON WORKS FACILITY AND
LOCAL, LETART AND DRY RUN LANDFILLS
WASHINGTON, WV

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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 West Virginia National Pollutant Discharge Elimination System (WV 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 were performed by DuPont and evaluated by the GIST, Tasks A, B, and C. Task A: Groundwater Use and Well Survey/Groundwater Monitoring was completed (DuPont, 2002a; 2002b). Task B: Assessment of Existing Groundwater and Surface Water Monitoring Data included compiling of historical C-8 data, monitoring all wells at the landfills and developing a Groundwater Monitoring Plan (GMP) for the Washington Works facility. The first part of the task, the historical C-8 data compilation report was 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, developing a GMP for the Washington Works facility, was submitted to the GIST (DuPont, 2002d). Groundwater sampling at the Washington Works facility began in January 2002, and was conducted monthly for four months and quarterly thereafter. Task C: Plume Identification/Groundwater Assessment was also completed (DuPont 2003).

This report presents the results of the monthly C-8 surface water sampling that was performed in February 2003 at the Washington Works facility, and the Local, and Dry Run Landfills. Monthly C-8 surface water sampling at the Letart Landfill was not conducted in February 2003 because an ice storm downed trees, blocking the access road to the landfill.

2.0 C-8 ANALYTICAL REPORTING

The analytical method, method detection limit, and laboratory utilized for C-8 analysis have 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 CH₂MHill 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.

CH₂MHill conducted C-8 analysis for DuPont into the fall of 1998 when the laboratory ceased operation. The C-8 analytical work was transferred to Lancaster Laboratories, Lancaster, PA, 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.
- ☐ 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.

An aliquot of each field sample is also analyzed as a matrix spike (MS). Results of the MS analysis are used to assess accuracy. The MS recovery value must fall between 70 to

130%, unless the sample concentration is at least four times the amount spiked. The maximum amount used to spike field samples is 500 ug/L.

All data packages generated by Exygen are reviewed in-house for compliance with the laboratory Standard Operating Procedures (SOP) and data usability, using the checklist provided in the QAPP. Results of the in-house review indicate that data reported by Exygen have been generated in compliance with the laboratory SOP, with few exceptions as noted in the individual review summaries. All data reported by Exygen have been judged usable for the purposes of the project.

3.0 WASHINGTON WORKS FACILITY

Figure 1.0 shows the location of the Washington Works facility. On February 27, 2003, six outfalls were sampled for C-8 (001, 002, 003, 005, 007, and 105). All of these outfalls collect process water and stormwater runoff. No changes to routine sampling protocols or other observations were recorded in the field notes during this sampling event. Monthly 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 the 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 February. 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. Monthly sampling of five outfalls is required by the Consent Order and the WV NPDES permit No. WV0076538. These five outfalls collect stormwater runoff. Outfall 101 was sampled for C-8 on February 26, 2003. During the month of February, outfalls 004(Old), 004(New), 005(Old)/SS1, and 005(New) were not sampled due to no-flow conditions. No changes to routine sampling protocols or other observations were recorded in the field notes during this sampling event. The locations of these five outfalls are shown in Figure 2.1.

Table 2.0 presents the C-8 analytical results for the February surface water sample. The table includes the historic data available for each location sampled. The data are presented with the most recent data first. Figure 2.2 presents the C-8 concentration map for the outfalls sampled in February. Laboratory analytical data reports and Chain-of-Custody records are provided in Appendices C and D, respectively.

5.0 LETART LANDFILL

Figure 3.0 presents the Letart Landfill location map. Monthly sampling of Outfalls 002 and 003 (both containing stormwater runoff) and Cap Runoff (which collects leachate and stormwater runoff) is required by the Consent Order. On February 28, 2003 an attempt to sample was made. However an ice storm downed trees that blocked the access road to the landfill. Therefore samples were not collected at any locations at the Letart Landfill. The location of Outfall 002, Outfall 003, and the Cap Runoff samples are shown in Figure 3.1A. In Table 3.0 historical data is summarized with the most recent results listed first for each sampling point listed in the table. The location of the Brinker's Run and the Rt. 33 Stream surface water sampling points are shown in Figure 3.1B for reference.

6.0 DRY RUN LANDFILL

Figure 4.0 shows the location of the Dry Run Landfill. Monthly sampling of Outfalls 001, 003, and 004 is required by the Consent Order and WV NPDES permit No. WV0076244. (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. On February 26, 2003, Outfall 001 was sampled. During the month of February, Outfalls 003 and 004 were not sampled due to no-flow conditions. No changes to routine sampling protocols or other observations were recorded in the field notes during this sampling event. The locations of the surface water sampling points are shown in Figure 4.1.

Table 4.0 presents the C-8 analytical results for the February surface water samples. For each sampling point listed in the table, historical data are summarized with the most recent results presented first. Figure 4.2 presents the C-8 concentration map for the outfall sampled in February. Laboratory analytical data reports and Chain-of-Custody records are provided in Appendices E and F, 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.
- DuPont. 2003. *C-8 Data Summary Report, Consent Order GWR-2001-019, DuPont Washington Works Facility, and Local, Letart, and Dry Run Landfills* January 2003. DuPont Corporate Remediation Group and URS Diamond.

TABLES

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	2/27/03	18.9
	1/26/03	3.58
	12/9/02	9.76
	11/13/02	17.0
	10/18/02	10.5
	9/24/02	2.15
	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	2/27/03	4.15
	1/26/03	5.46
	12/9/02	2.37
	11/13/02	4.75
	11/13/02 (dup)	5.28
	10/18/02	3.49
	9/24/02	2.14
	8/27/02	2.56
	8/27/02 (dup)	2.51
	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	2/27/03	1.06
	1/26/03	0.750
	1/26/03 (dup)	0.842
	12/9/02	0.680
	11/13/02	1.24
	10/18/02	0.870
	9/24/02	0.317
	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

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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)
OUTFALL 005	2/27/03	46.4
	2/27/03 (dup)	46.2
	1/26/03	33.4
	12/9/02	6.39
	12/9/02 (dup)	6.62
	11/13/02	18.1
	10/18/02	12.1
	9/24/02	4.64
	9/24/02 (dup)	5.02
	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	2/27/03	1.1
	1/26/03	5.77
	12/9/02	0.263
	11/13/02	8.56
	10/18/02	0.251
	10/18/02 (dup)	0.209
	9/24/02	NQ (<0.05)
	8/27/02	0.207
	7/23/02	0.597
	7/23/02 (dup)	0.544
	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

000397

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 105	2/27/03	17.0
	1/26/03	16.9
	12/9/02	6.07
	11/13/02	10.5
	10/18/02	54.6
	9/24/02	3.69
	8/27/02	6.73
	7/23/02	34.7
	6/25/02	3.86
	5/20/02	6.27
	5/20/02 (dup)	5.16
	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).
 NQ = Not Quantifiable. Detected at a concentration above the LOD and below the limit of quantification (LOQ).

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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)	2/28/03	No-flow conditions
	1/31/03	No-flow conditions
	12/13/02	10.7
	11/30/02	No-flow conditions
	10/31/02	No-flow conditions
	9/30/02	No-flow conditions
	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)	2/28/03	No-flow conditions
	1/31/03	No-flow conditions
	12/13/02	12.5
	11/30/02	No-flow conditions
	10/31/02	No-flow conditions
	9/30/02	No-flow conditions
	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)	2/28/03	No-flow conditions
	1/31/03	No-flow conditions
	12/13/02	9.51
	11/30/02	No-flow conditions
	10/31/02	No-flow conditions
	9/30/02	No-flow conditions
	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

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

Sample	Date	C-8 (ug/l)
OUTFALL 005 (Old)/SS1	2/28/03	No-flow conditions
	1/31/03	No-flow conditions
	12/13/02	38.1
	11/30/02	No-flow conditions
	10/31/02	No-flow conditions
	9/30/02	No-flow conditions
	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	2/26/03	43.9
	1/29/03	72.3
	12/16/02	49.5
	11/19/02	76.7
	10/31/02	78.6
	9/30/02	115.0
	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
OUTLET LM1 (LEACHATE) / INLET 002	12/16/02	81.7
	11/21/02	120.0

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

000400

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

Sample	Date	C-8 (ug/l)
002(LEACHATE BASIN)	2/28/03	Not Sampled**
	1/24/03	Frozen
	12/30/02	1170
	11/25/02	939
	10/31/02	645
	9/27/02	4.52
	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	2/28/03	Not Sampled**
	1/31/03	No-Flow Conditions
	12/30/02	No-Flow Conditions
	11/30/02	No-Flow Conditions
	10/31/02	No-Flow Conditions
	9/27/02	0.170
	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
RT 33 STREAM	1/25/02	0.148
	12/14/01	0.390
	10/31/02	2.83
	9/27/02	2.24
	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
BRINKER RUN	7/20/1999	2.23
	7/23/1997	2
	4/17/1996	1.8
	10/14/02	0.0612

000401

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

Sample	Date	C-8 (ug/l)
CAP RUNOFF	1/24/03	Frozen
	12/30/02	415
	11/25/02	65.1
	10/31/02	102
	9/27/02	50.9
	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.

** These surface water locations were not sampled due to downed trees from an ice storm that prohibited access to the landfill.

000402

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	2/26/03	69.0
	1/29/03	88.4
	12/30/02	56.9
	11/21/02	64.6
	10/30/02	81.7
	9/30/02	No-flow conditions
	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	2/28/03	No-flow conditions
	1/31/03	No-flow conditions
	12/30/02	No-flow conditions
	11/30/02	No-flow conditions
	10/30/02	No-flow conditions
	9/30/02	No-flow conditions
	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	2/28/03	No-flow conditions
	1/31/03	No-flow conditions
	12/30/02	No-flow conditions
	11/30/02	No-flow conditions
	10/30/02	No-flow conditions
	9/30/02	No-flow conditions
	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

000403

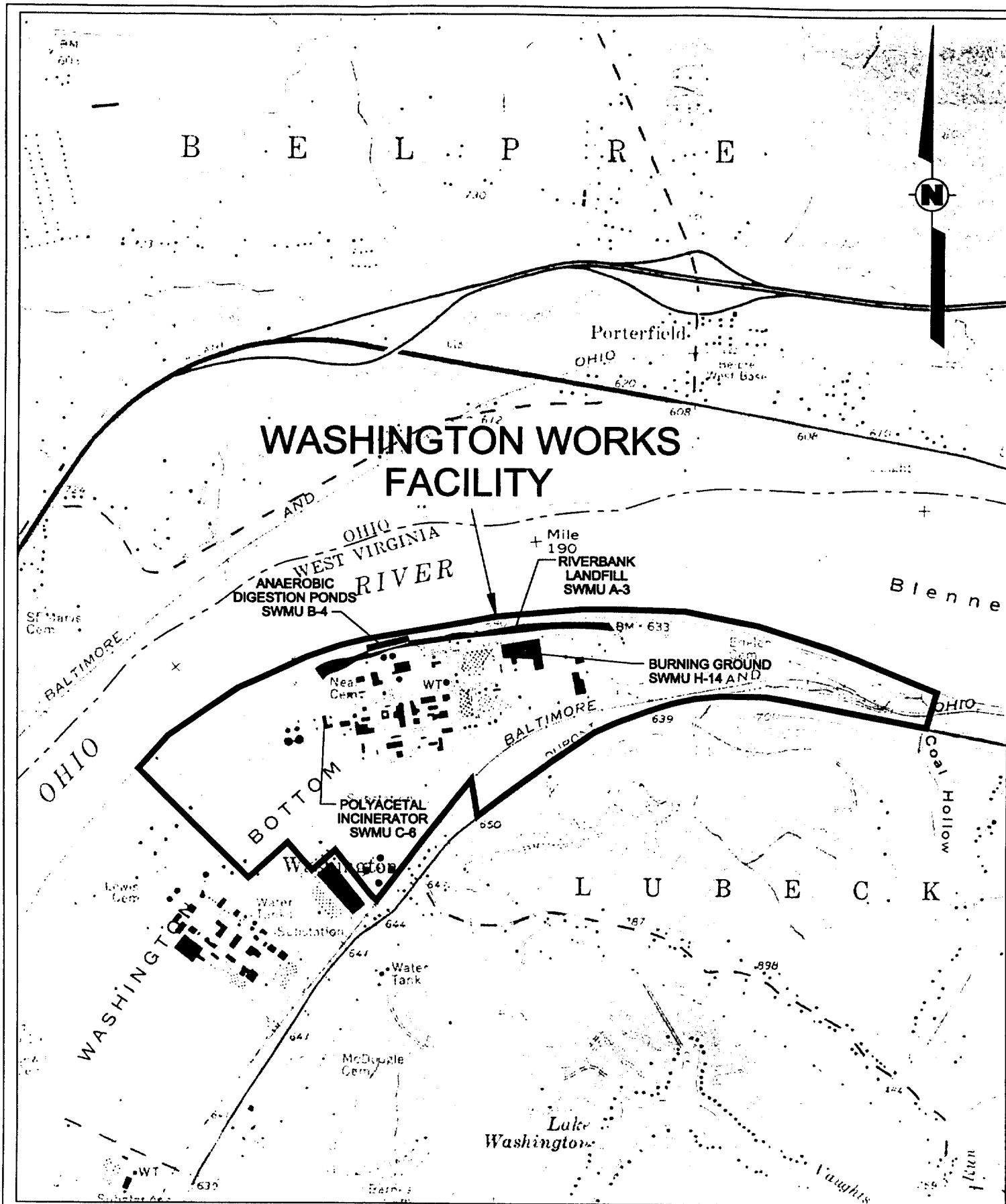
Table 4.0
Summary of Analytical Results:
C-8 in Surface Water
Dry Run Landfill
Lubeck, WV

Sample	Date	C-8 (ug/l)
PROPERTY BOUNDARY	10/30/02	3.80
	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	10/30/02	1.63
	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
STREAM SAMPLING POINT#2	10/30/02	29.2
	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	10/30/02	704
	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
POND UNDERDRAIN	7/22/1997	62
	10/30/02	38.8
	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).

000404

FIGURES



000407

Source: MAP TAKEN FROM THE LUBECK, WV
USGS QUADRANGLE



Corporate Remediation Group

*An Alliance between
DuPont and URS Diamond*

Barley Mill Plaza, Building 27
Wilmington, Delaware 19805

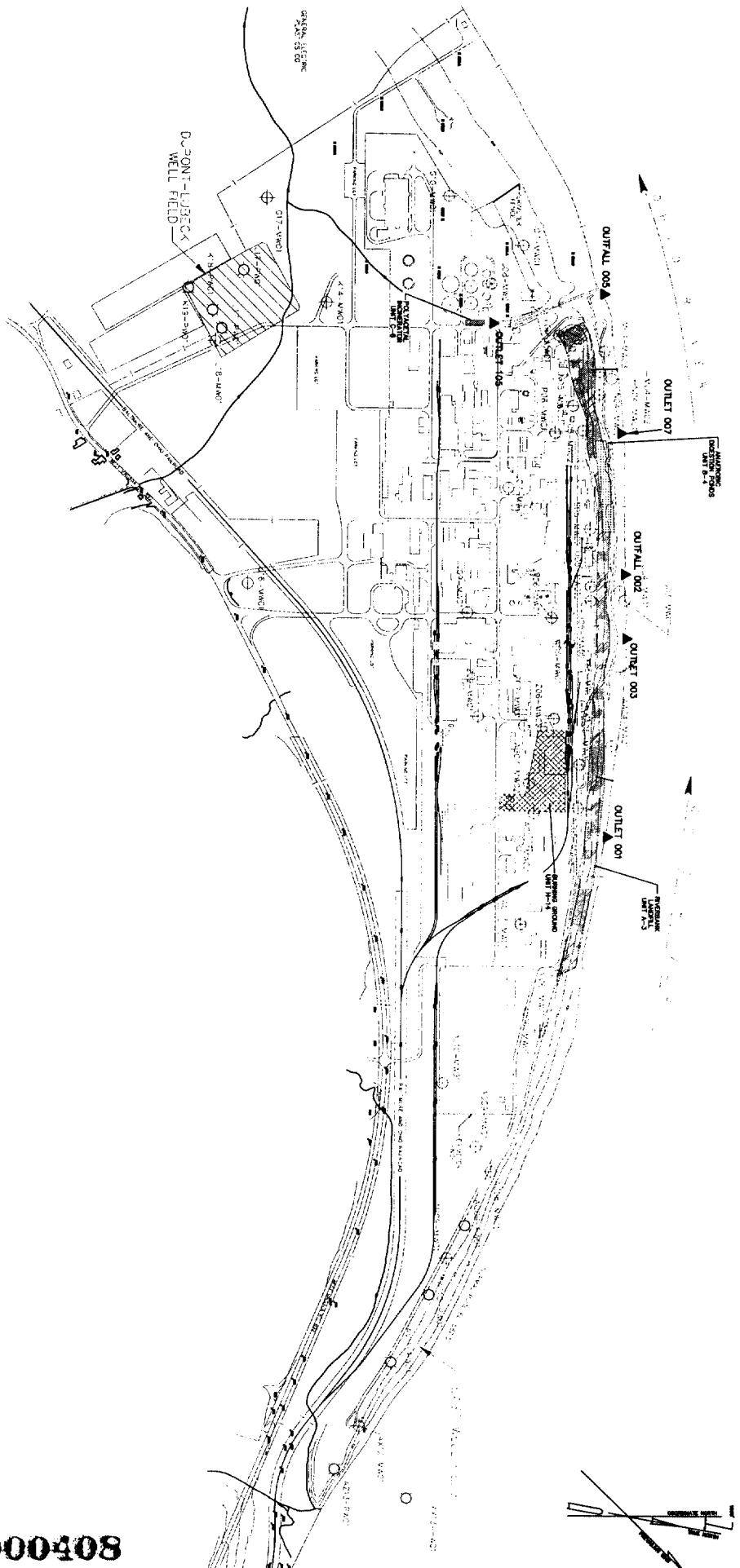


SITE LOCATION MAP

DuPont Washington Works Facility
Washington, West Virginia

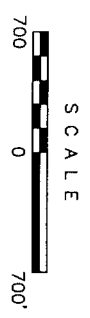
SCALE	DESIGNED	DRAWN	GAD FILE NO.
Not to scale	DEL	DEL	7422A001
DATE	CHECKED	APPROVED	FIGURE
9/27/01	M. HOULDAY		1.0

805000

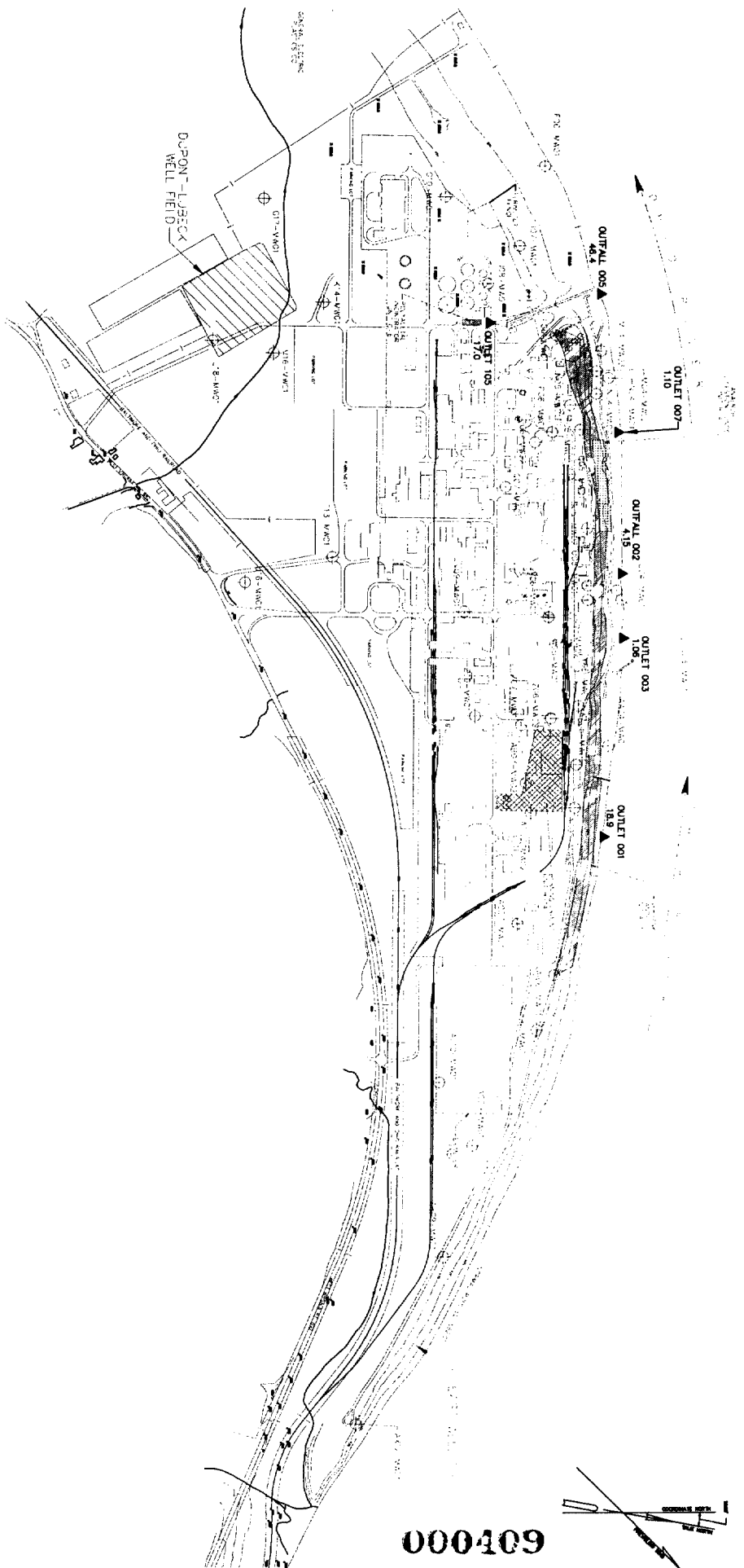


LEGEND

OUTLET 005 = OUTFALL SAMPLING POINT



DESIGNED	K. DAVIS	DATE	1/1/00
DRAWN	D.H. DUNN	DATE	1/1/00
CHECKED	K. DAVIS	DATE	1/1/00
APPROVED (CONSTRUCTION)		DATE	
Corporate Remediation Group An Alliance Between DuPont and OGS Diamond Barley Mill Plaza Building 27 Wilmington, Delaware 19805			
SURFACE WATER		SAMPLE LOCATION MAP	
DuPont Washington Works Facility		Washington, West Virginia	
SCALE	As Shown	DATE	06/02/2002
REV	1.1	DATE	06/02/2002



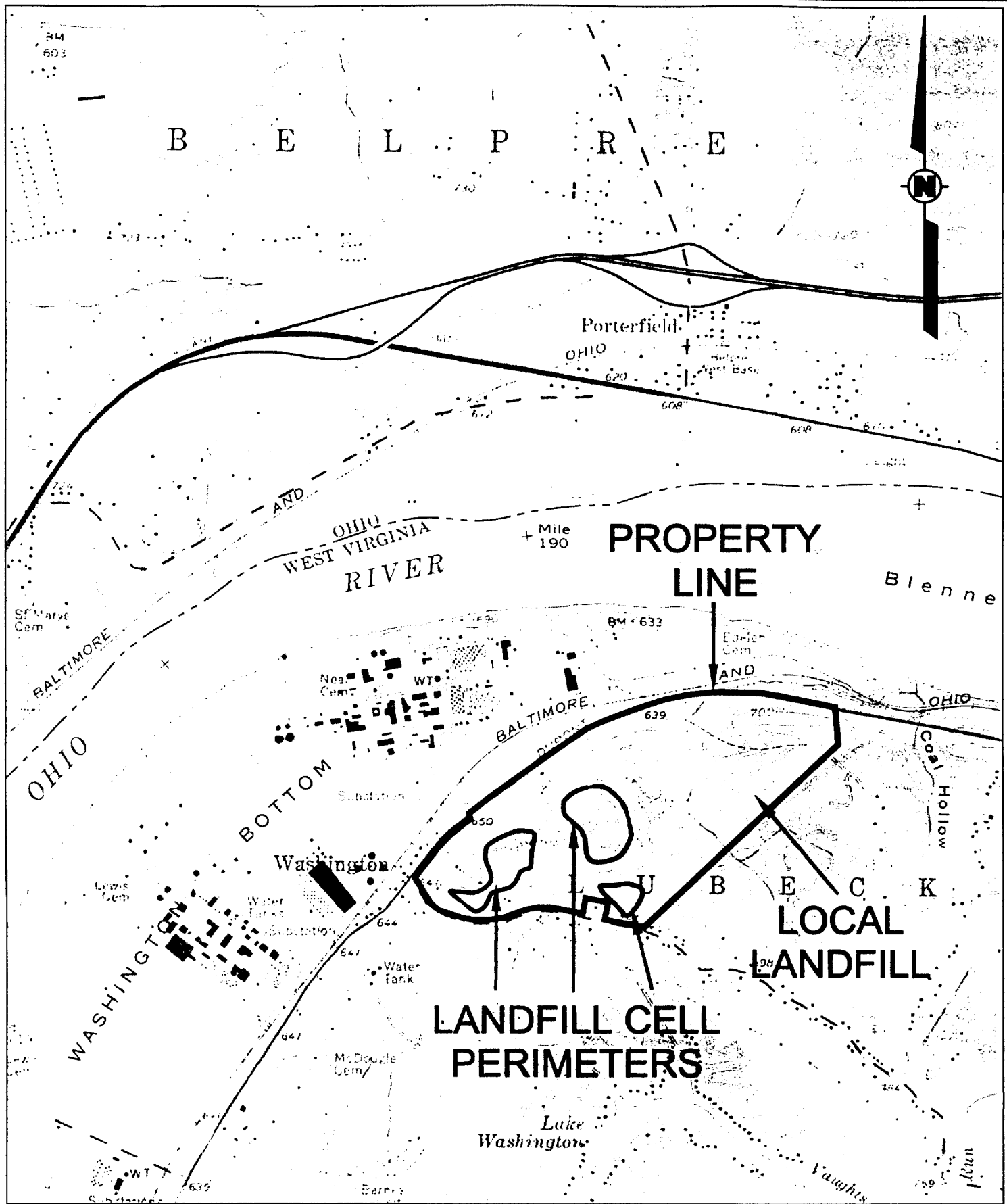
LEGEND

OUTLET 005 = OUTFALL SAMPLING POINT



CONTACTED	STATUS	 Corporate Remediation Group <i>An Alliance between</i> <i>DuPont and URS Diamond</i> 
S.D. GREEN		
D.L.		
GREEN		
GREEN/CONSTRUCTION		
ASB		
GREEN/CONSTRUCTION		

C-8 IN SURFACE WATER FEBRUARY 2003			
DuPont Washington Works Facility Washington, West Virginia			
Goal As shown	Met 100%	Not Met 0%	Result 1,2



Source: USGS Little Hocking, Ohio - West Virginia Quadrangle

000410



Corporate Remediation Group
An Alliance between
DuPont and URS Diamond

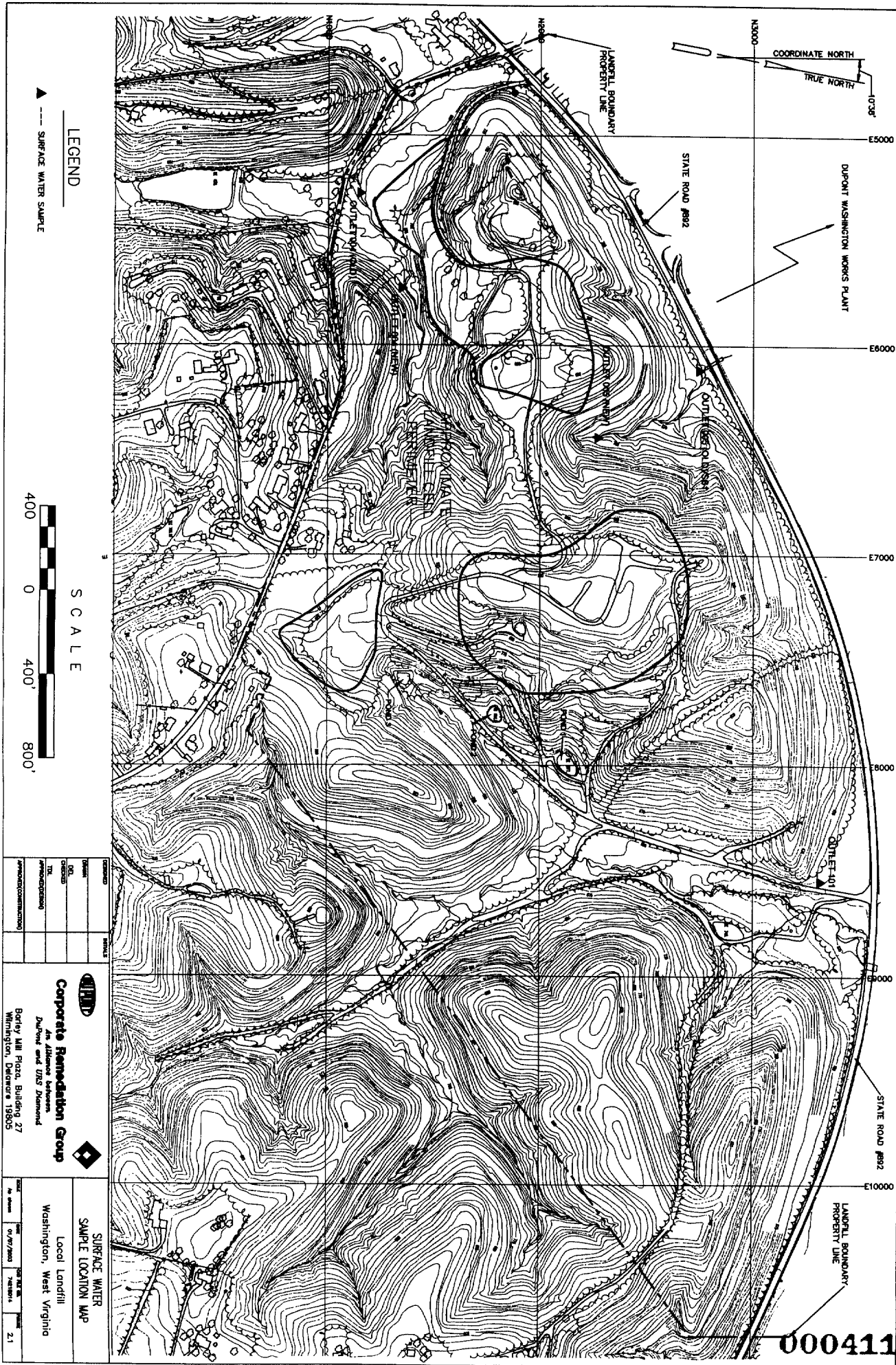
Barley Mill Plaza, Building 27
Wilmington, Delaware 19805



SITE LOCATION MAP

Local Landfill
Washington, West Virginia

SCALE Not to scale	DESIGNED DEL	DRAWN DEL	DWG FILE NO. 7421A001
DATE 9/27/01	CHECKED M. HOULDAY	APPROVED	FIGURE 2.0

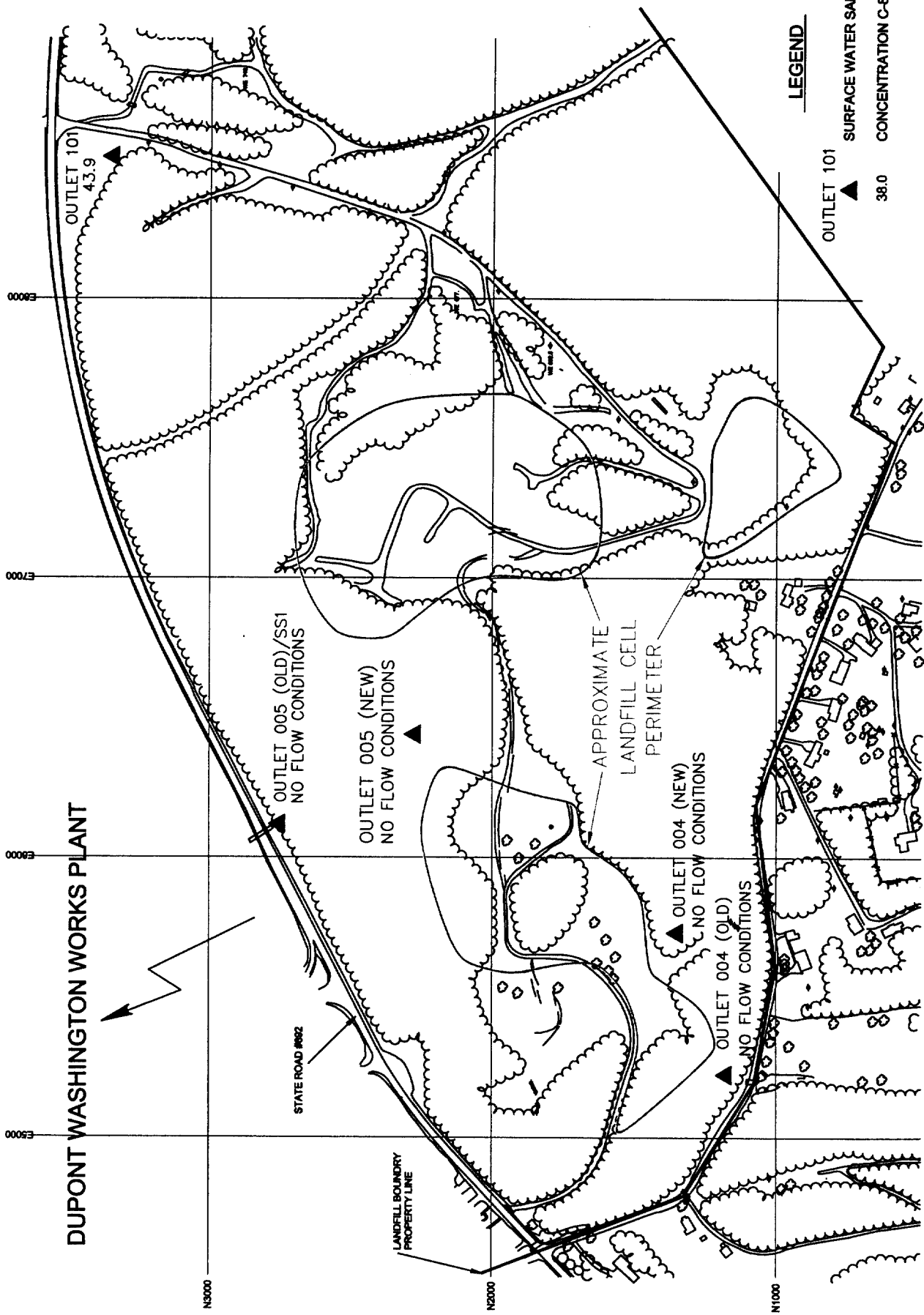


DATE	BY	REVISION
01/07/2003	JAN/03	1

Corporate Remediation Group
An Alliance between
DuPont and URS | Diamond
 Balfour Beatty, Building 27
 Wilmington, Delaware 19805

SURFACE WATER	LOCAL LANDFILL
SAMPLE LOCATION MAP	WASHINGTON, WEST VIRGINIA
DATE: 01/07/2003	SCALE: 2.1

000411



**Corporate Remediation Group**
An Alliance between
DuPont and URS | Diamond

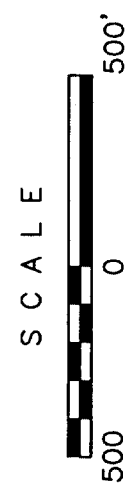
**Corporate Remediation Group**
An Alliance between
DuPont and URS | Diamond

Barley Mill Plaza, Building 27
Wilmington, Delaware 19805

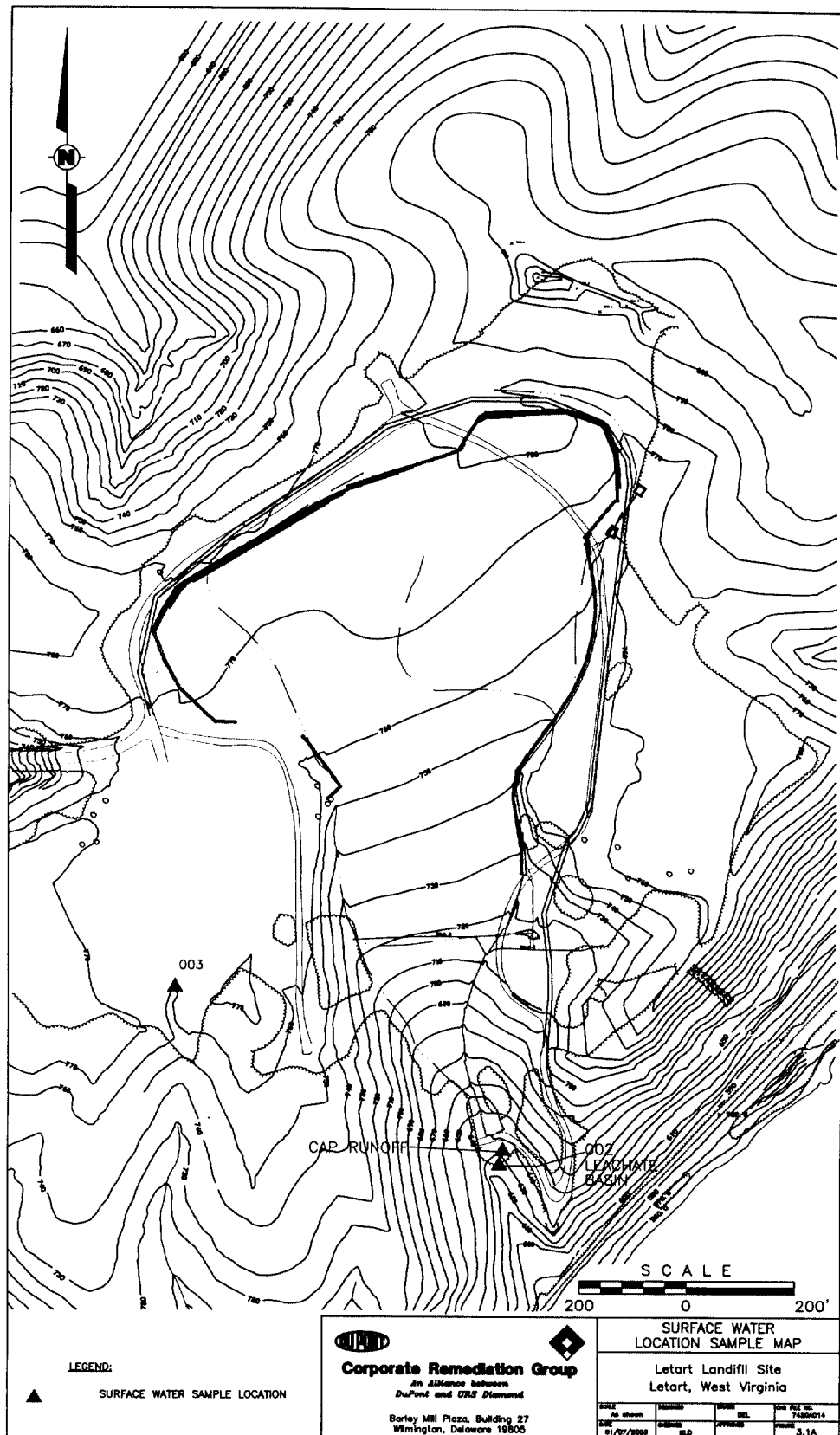
SCALE	As shown	DESIGNED	K. DAVIS	DRAWN	D.J. ENGLISH	DATE	7/25/07	FILE NO.	7451A007
		APPROVED		APPROVED					

C-8 IN SURFACE WATER
FEBRUARY 2003

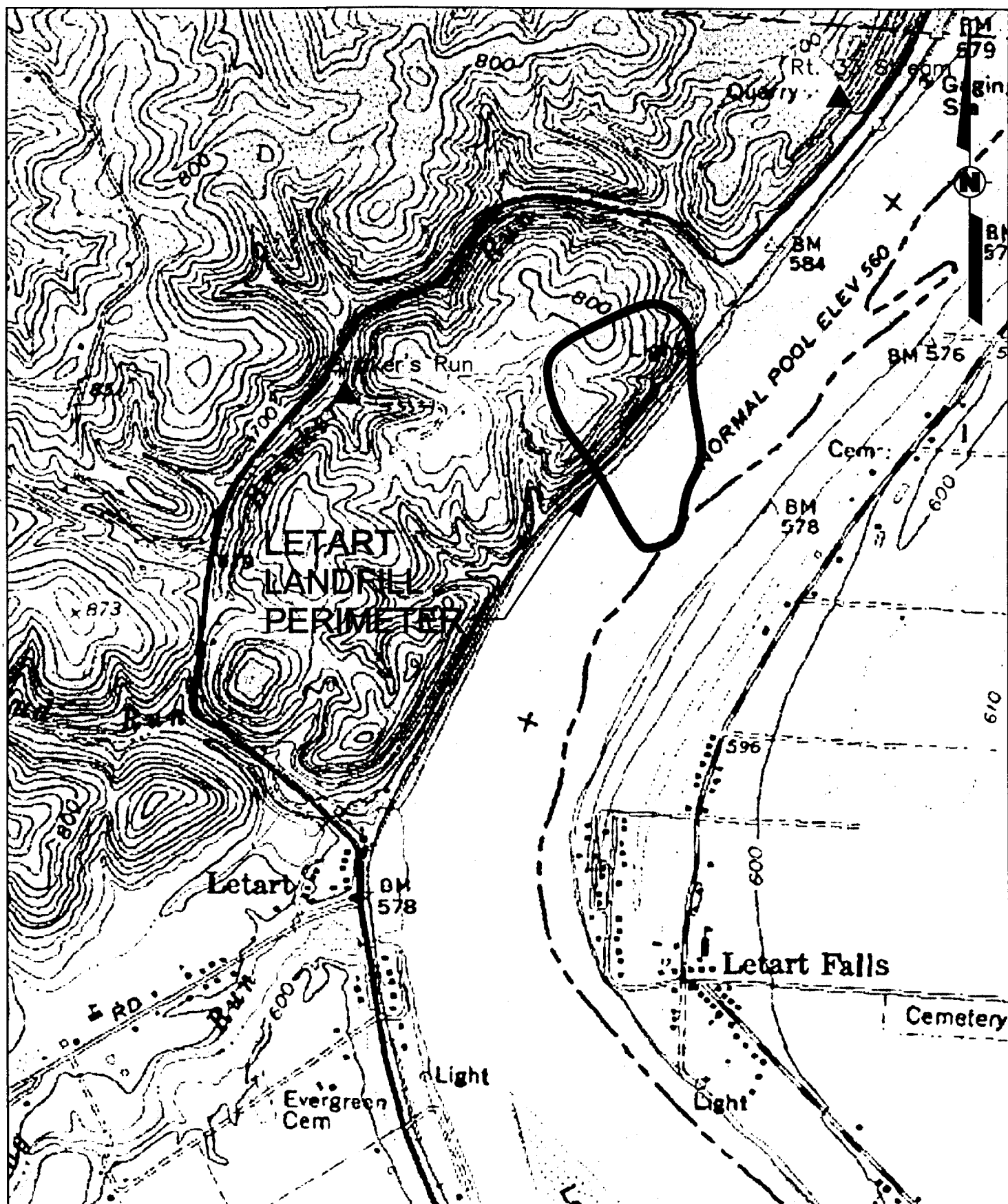
Local Landfill
Washington, WV



000412



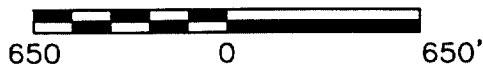
000414



LEGEND:

▲ SURFACE WATER SAMPLE LOCATION

SCALE



SOURCE: MAP TAKEN FROM THE USGS NEW HAVEN, WV 7.5' SERIES QUADRANGLE



000415



Corporate Remediation Group

*An Alliance between
DuPont and URS Diamond*

Barley Mill Plaza, Building 27
Wilmington, Delaware 19805

**RT. 33 STREAM AND BRINKER'S RUN
SURFACE WATER SAMPLING LOCATIONS**

**Letart Landfill Site
Letart, West Virginia**

SCALE As shown	DRAWN DEL	DATE 11/25/02	APPROVED TDL	OLD FILE NO. 74204019	FIGURE 3.1B
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SOURCE: MAP TAKEN FROM THE LUBECK, WA
USGS QUADRANGLE



SCALE

APPROVED	DATE
K. JAMES	
ADMIN	
DATE	
DESIGNED	
PROJECT(S)	
PROJECT(S)	
PROJECT(S)	



Corporate Remediation Group
An Alliance between
DuPont and WYS Diamond



Barley Mill Plaza, Building 27
Minnetonka, Delaware 15055

DATE

12/1/2001

1/2/2002

4.0

NO FILE NO.

NO.

NO.

NO.

DATE

12/1/2001

1/2/2002

4.0

NO FILE NO.

NO.

NO.

NO.

DATE

12/1/2001

1/2/2002

4.0

NO FILE NO.

NO.

NO.

NO.

DATE

12/1/2001

1/2/2002

4.0

NO FILE NO.

NO.

NO.

NO.

DATE

12/1/2001

1/2/2002

4.0

NO FILE NO.

NO.

NO.

NO.

DATE

12/1/2001

1/2/2002

4.0

NO FILE NO.

NO.

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NO.

DATE

12/1/2001

1/2/2002

4.0

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1/2/2002

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1/2/2002

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DATE

12/1/2001

1/2/2002

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1/2/2002

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12/1/2001

1/2/2002

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NO.

DATE

12/1/2001

1/2/2002

4.0

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NO.

NO.

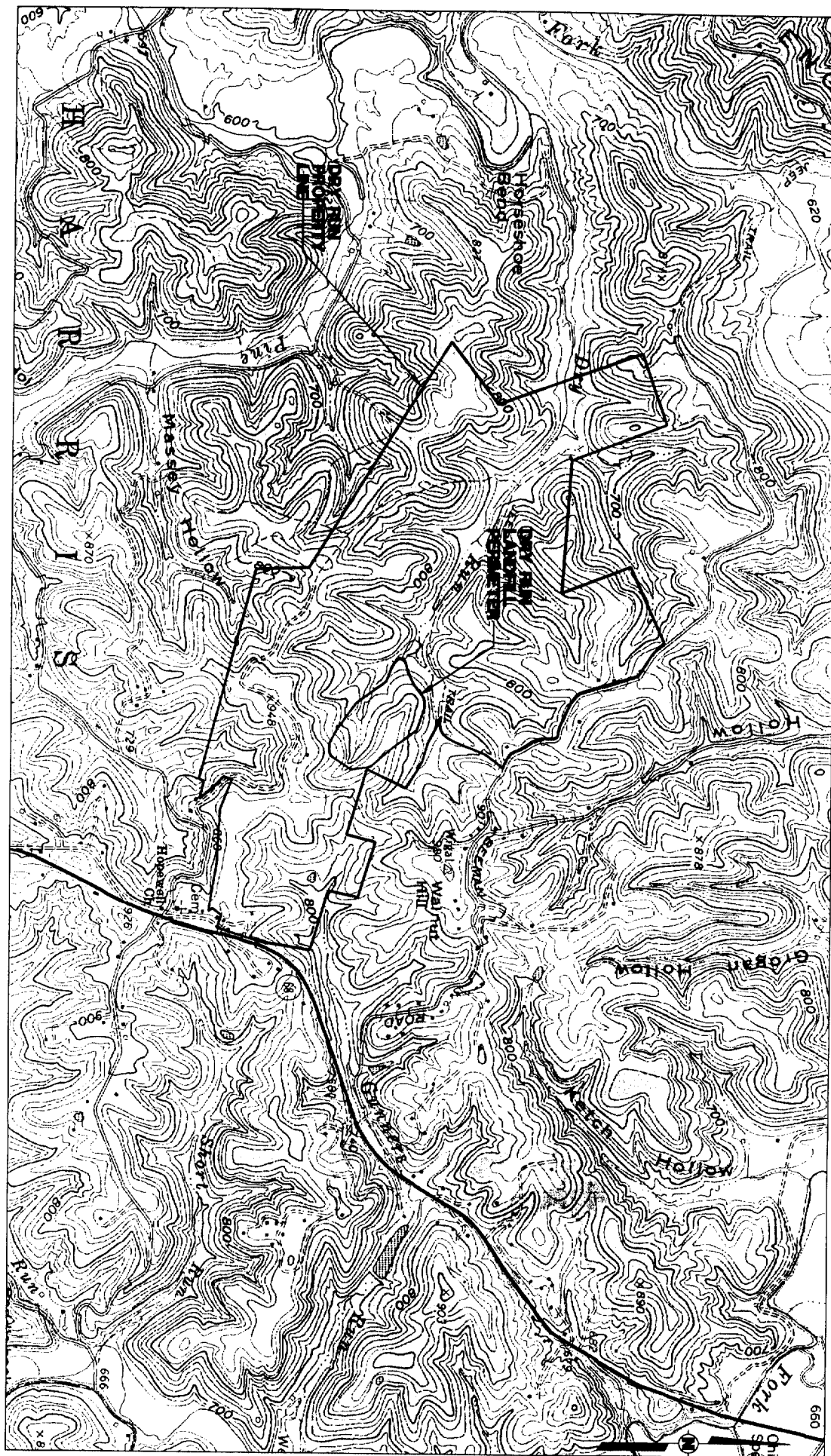
DATE

12/1/2001

1/2/2002

4.0

NO FILE NO.</



000416

APPENDICES

APPENDIX A
LABORATORY ANALYTICAL DATA REPORTS
WASHINGTON WORKS FACILITY

000421

Analytical Results Washington Works C8 Sampling 2/03

DuPont Sample Identification	APFO (ng/L)
WWK-Z-Outfall-001	18900
WWK-Z-Outfall-002	4150
WWK-Z-Outfall-003	1060
WWK-Z-Outfall-005	46400
WWK-Z-Outfall-007	1100
WWK-Z-Outfall-105	17000
WWK-Z-Outfall-005-2	46200
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.

000422

0007

APPENDIX B
CHAIN-OF-CUSTODY RECORDS
WASHINGTON WORKS FACILITY

000424

PROJECT INFORMATION

Client (name & address):

Adom AP Services - Dupont

BMP Bldg 27 LANC, PK RT 141

Williamston, DE 19805

Phone: 302-892-1698

Fax: 801-123-4567

Project Manager (Name & E-mail Address):

Mike Avcid

MICHAEL D. AUCCOIN@USA.DUPONT.COM

Project Name: _____

C-8 Sampling 2/03

P.O. #: _____
Contract #: _____

Quotation #: _____

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

SAMPLE ANALYSIS

SAMPLE ANALYSIS				
ExyLIMS#	Client Sample Identification	Collection Date	Collection Time	Grab
34247-1	WWK-Z-OUTfall-001	2-27-03	1420	X
34247-2	WWK-Z-OUTfall-002	2-27-03	1345	X
34247-3	WWK-Z-OUTfall-003	2-27-03	1400	X
34247-4	WWK-Z-OUTfall-005	2-27-03	1314	X
34247-5	WWK-Z-OUTfall-007	2-27-03	1335	X
34247-6	WWK-Z-OUTfall-105	2-27-03	1440	X
34247-7	WWK-Z-OUTfall-005-2	2-27-03	1314	X
34247-8	WWK-Z-EQBAK-1	2-27-03	1345	X

Composite	Number of Containers	Specify Matrix	Comments
	2		648895-648904-648907
	2		6492810-6492887-6492904
	2		649282-649285
	2		6492710-649281
	2		6488910-648903
	2		649284-648900
	2		648898-649277
	2		648280-649283

CHAIN OF CUSTODY

Relinquished by	Date	Time
G. Salazar J. Nono	2-28-03	1000

OTHER INFORMATION

Cooler ID # 12000 Cooler Temp. (°C) 0.9

Received by	Date	Time
Bailinag 100ms	2-26-08	0900
	5/6/08	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

APPENDIX C
LABORATORY ANALYTICAL DATA REPORTS
LOCAL LANDFILL

000427

Analytical Results Local Landfill C8 Sampling 2/03

DuPont Sample Identification

APFO (ng/L)

LCL-Z-Outlet 101

43900

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.

000428

0007

APPENDIX D
CHAIN-OF-CUSTODY RECORDS
LOCAL LANDFILL

PROJECT INFORMATION

Client (name & address):

Adrian Alvarado, Project
Director
Bldg 27 Lane PK #1141
Culverton, CA 92005
Phone: 760-292-1698
Fax:
Sampler: Barbara Moore

Project Manager (Name & E-mail Address):

Project Name: Mike Lee
Michael D Lee & Associates
P.O. #: 18 S. Campbell St
Quotation #: _____

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

Grab	Composite	Number of Containers
------	-----------	----------------------

[illegible][illegible][illegible]

C

Relinquished by	Date	Time
<i>[Signature]</i>	2-26-03	11:00

Cooler ID # SL0000128 Cooler Temp. (°C) 11.1

Received by	Date	Time
B. G. Brown	2-23-03	0900
	2/27/03	1100

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

APPENDIX E

000432

APPENDIX E
LABORATORY ANALYTICAL DATA REPORTS
DRY RUN LANDFILL

Analytical Results Dry Run Landfill C8 Sampling 2/03

DuPont Sample Identification

APFO (ng/L)

DRL-Z-Outlet 001

69000

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.

000434

0009

APPENDIX F
CHAIN-OF-CUSTODY RECORDS
DRY RUN LANDFILL

PROJECT INFORMATION

Client (name & address):

Adam AP Services - Dyant

BMP Bldg 27 Lac. PK Rt 141

Wilmington, DE 19805

Phone: 302-892-1698

Fax: _____

Sampler: B. J. Taylor

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

Project Manager (Name & E-mail Address):

Mike Accoin

Michael D. Averis mdaveris@usf.dupont.com

Project Name:

8- Sampling 2/03

P.O. #:

Quotation #:

ANALYSES REQUESTED

[illegible][illegible]

PROJECT REQUIREMENTS

Results Deadline:

Laboratory Report Options:

☐ Sample results only☐ Add case narrative☐ Add quality control summary☐ Add quantity control summary
☐ Add calibration summary☐ Add raw data☐ OtherCooler ID # 000 Cooler Temp. (°C) 0.9

Cooler Temp. (°C) 0.9

Received by

Date _____

Time

Relinquished by	Date	Time
-----------------	------	------

Date _____

Time

000437

THE UNIVERSITY OF CHICAGO