

THIRD QUARTER 2003 C-8
SURFACE WATER AND GROUNDWATER
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 3rd quarter (3Q03) C-8 surface water and groundwater sampling that was performed during July and August 2003 at 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 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 August 15, 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 WV NPDES permit No. WV0001279. The locations of these outfalls are shown in Figure 1.1.

Groundwater sampling was attempted at 12 monitoring wells between August 25 and 26, 2003. Monitoring wells N13-MW01 and PO8-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 11, 2003. Sampling of 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 collected on August 11, 2003 and analyzed for C-8. Sampling of this well field on a monthly basis began in December 2001 and continued 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 location of the DuPont-Lubeck Well Field that was sampled.

A groundwater elevation map for 3Q03 was not generated because of the limited data set. However, the groundwater elevation map for February 2002, the most recent groundwater sampling event where almost all site wells were included, is shown in Figure 1.2.

Table 1.0 summarizes the well construction and groundwater elevation data for the monitoring wells. Table 1.1A and Table 1.1B provide the C-8 analytical results for surface water and groundwater, respectively. For each sampling point listed in the tables, historical data is summarized with the most recent results listed first. Figure 1.3 presents the C-8 concentration map for the outfalls and groundwater wells sampled in 3Q03. 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 four outfalls is required by the WV NPDES permit No. WV0076538. These four outfalls collect stormwater runoff. Outfalls 004(New), 005(Old)/SS1, and 101 were sampled for C-8 on August 13, 2003. Sampling was attempted at Outfall 005 (New) on August 13, 2003 but no-flow conditions were observed. 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.

On July 21 and 31, 2003, nine monitoring 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. Figures 2.2A and 2.2B present the 3Q03 groundwater elevation maps for the A-Zone aquifer and C-Zone aquifer, respectively.

Tables 2.1A and 2.1B present the C-8 analytical results for the 3Q03 surface water and groundwater samples, respectively. For each sampling point listed in the tables, historical data is summarized with the most recent results listed first. Figure 2.3 presents the C-8 concentration map for the outfalls and monitoring wells sampled in July and August. 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. Sampling was attempted on August 13, 2003 at Outfall 002. Sampling of Outfall 002, which contains stormwater runoff, is required by the WV NPDES permit No. WV0076066. The location of active sampling location Outfall 002, and historic sampling locations Outfall 003, and Cap Runoff are shown in Figure 3.1A. The locations of Rt.33 stream and Brinker's Run (also a historic sampling location) are near the property boundary to the west and are shown in Figure 3.1B.

Sampling was attempted at 18 monitoring wells at Letart Landfill between July 22 and 24, 2003. Figure 3.1A shows the locations of the monitoring wells. Changes to routine sampling protocols were recorded in the field notes and are summarized below. Monitoring wells LMW-10, LMW-12, and LMW-14B were dry and could not be sampled. Monitoring wells LMW-3, -3A, and -5A went dry during purging, and samples were collected after the wells had recharged.

Monitoring well construction and groundwater elevation data for the 18 monitoring wells are presented in Table 3.0. Figures 3.2A and 3.2B present the 3Q03 groundwater elevation maps for the D/E-Zone aquifer and the F-Zone aquifer, respectively.

The C-8 results for the 3Q03 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 the 3Q03 event. Figure 3.3B provides a C-8 concentration contour map for the F-zone aquifer, 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. Monthly sampling of Outfalls 001, 003, and 004 is required by the 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 August 13, 2003, Outfall 001 was sampled. Sampling was also attempted at Outfalls 003 and 004, however no-flow conditions were observed. The locations of the surface water sampling points are shown in Figure 4.1.

On August 20, 21, and 22, 2003, sampling was attempted at 15 monitoring wells. No changes from routine sampling protocols were identified in the field notes. The locations of the monitoring wells can be found in Figure 4.1.

Table 4.0 summarizes the monitoring well construction and groundwater elevation data for the monitoring wells. Figure 4.2A and 4.2B present the 3Q03 groundwater elevation map for the A-zone aquifer, and B-Zone aquifer, respectively.

Tables 4.1A and 4.1B present the C-8 analytical results for the 3Q03 surface water and groundwater samples, respectively. For each sampling point listed in these tables, historical data is summarized with the most recent results listed first. Figure 4.3A presents the C-8 concentration map for surface water for the 3Q03 event. Figure 4.3B provides a C-8 concentration contour map for the bedrock aquifer. 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.
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- 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

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

Monitoring Wells										
New Well ID	AE11-MW01	AJ06-MW02	AM07-PW01	AO08-PW01	AX13-PW01	D08-MW01	E13-MW01	K16-PW01	L04-PW01	
Old Well ID	TW-74		336	331	335	TW-M5	TW-76	L4(354)	GALLERY	
Measuring Point Elevation (ft)	628.94	635.55	634.26	632.91	630.69	600.67	625.47	623.24	589.75	
Total Depth (ft)	69.29	128	96	95	90		76.8			
Well Diameter (inches)	2	2	18	18	18	4	2	18		
Slot Size (inches)	0.010	0.010					10			
Screen Length (ft)	10	15	20	20	13		10		NA	
Elevation of Screen Interval (ft)	569.65 - 559.65	522.55 - 507.55	558.26 - 538.26	557.91 - 537.91	553.69 - 540.69		558.67 - 548.67			
Groundwater Elevation (ft)										
January-02	567.02	—	*	*	—	562.73	561.29	*	*	*
February-02	566.02	—	*	*	*	562.69	561.12	*	*	*
March-02	564.20	—	*	*	*	562.09	562.04	*	*	*
April-02	565.93	—	*	*	*	562.51	560.59	*	*	*
May-02	566.54	—	*	*	*	562.71	560.76	*	*	*
August-02	567.61	—	*	*	*	564.55	562.23	*	*	*
October-02	568.52	569.55	*	*	*	564.24	561.91	*	*	*
February-03	566.19	567.22	*	*	*	563.00	561.29	*	*	*
May-03	565.52	567.89	*	*	*	563.01	561.03	*	*	*
August-03	568.02	570.45	*	*	*	564.69	562.31	*	*	*

*Groundwater elevations not measured in production wells.

**Well was dry

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

Monitoring Wells										
New Well ID	N04-MW03	N13-MW01	P04-MW02	P08-MW01	Q04-MW02	R04-MW02	V05-PW01	Y14-MW01	Y14-MW02	
Old Well ID		Ron's MW-5	TW-83	Ron's MW-4	Ron's MW-1	TW-85	RANNEY	TW-90		
Measuring Point Elevation (ft)	595.44	625.87	592.39	629.29	598.76	594.92	632.00	642.25	643.12	
Total Depth (ft)	88.5	59.95	27.81	68.3	39.84	27.64	92	90	131.59	
Well Diameter (inches)	2	2	2	2	2	2	NA	2	2	
Slot Size (inches)	10	0.010	0.010			0.010		0.010	0.010	
Screen Length (ft)	15	5	10	5	10	10	1	10	15	
Elevation of Screen Interval (ft)	521.94 - 508.94	570.92 - 565.92	574.58 - 564.58	565.99 - 560.99	569.12 - 559.12	577.28 - 567.28	542.00 - 541.00	562.25 - 552.25	526.53 - 511.53	
Groundwater Elevation										
January-02	—	—	572.35	—	560.88	576.61	*	562.76	—	
February-02	—	559.92	571.91	560.10	560.05	576.39	*	562.15	—	
March-02	—	**	573.35	*	559.45	577.36	*	561.39	—	
April-02	—	**	573.13	**	560.40	576.97	*	561.34	—	
May-02	—	**	574.32	**	559.77	577.10	*	561.67	—	
August-02	—	**	572.69	**	563.77	575.28	*	563.05	—	
October-02	567.82	**	572.11	562.09	563.06	574.98	*	562.89	561.75	
February-03	566.85	**	573.21	**	559.54	576.93	*	562.13	560.29	
May-03	590.88	**	573.5	**	560.24	577.03	*	561.39	559.22	
August-03	568.29	**	573.58	**	562.73	576.03	*	563.19	561.01	

*Groundwater elevations not measured in production wells.

**Well was dry

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Table 1_0.xls

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

Active Sampling Location		
Sample	Date	C-8 (ug/l)
OUTLET 001	8/15/03	32.2
	7/28/03	11.7
	6/13/03	7.95
	5/22/03	14.9
	4/30/03	14.9
	3/31/03	51.4
	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
OUTFALL 002	12/20/01	3.720
	8/15/03	3.90
	7/28/03	5.37
	7/28/03 (dup)	5.48
	6/13/03	5.11
	5/22/03	4.09
	4/30/03	4.09
	3/31/03	4.11
	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
	11/28/01*	4.84
	10/25/01	2.8
	9/19/01	0.118
	7/11/01	0.658
	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

10/14/03

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Table 1_1A.doc

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

Active Sampling Locations		
Sample	Date	C-8 (ug/l)
OUTLET 003	8/15/03	0.352
	7/28/03	1.1
	6/13/03	0.529
	5/22/03	0.49
	5/22/03 (dup)	0.498
	4/30/03	1.23
	3/31/03	0.430
	2/27/03	1.08
	1/26/03	0.790
	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
OUTFALL 005	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
	8/15/03	13.7
	8/15/03 (dup)	13.5
	7/28/03	59.1
	6/13/03	247
	6/13/03 (dup)	237
	5/22/03	15.9
	4/30/03	15.9
	4/30/03 (dup)	16.7
	3/31/03	42.1
	3/31/03 (dup)	43.1
	2/27/03	46.4
	2/27/03 (dup)	48.2
	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

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

Active Sampling Locations		
Sample	Date	C-8 (ppb)
OUTFALL 005 (continued)	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	8/15/03	0.496
	7/28/03	0.973
	6/13/03	1.55
	5/22/03	0.206
	4/30/03	0.488
	3/31/03	0.897
	2/27/03	1.1
	1/26/03	6.77
	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
OUTLET 105	8/15/03	3.82
	7/28/03	15.7
	6/13/03	29.3
	5/22/03	44.6
	4/30/03	44.9
	3/31/03	9.25
	2/27/03	17.0
	1/26/03	16.9
	12/9/02	6.07
	11/13/02	10.5
	10/18/02	54.8
	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	14.8
	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).

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	8/26/03	3.85
	5/21/03	2.96
	2/25/03	1.37
	10/16/02	1.74
	9/04/02	1.92
	5/23/02	1.25
	4/29/02	1.22
	3/28/02	2.82
	2/22/02	1.45
	1/28/02	1.2
	2/2/99	0.69 L
	11/10/98	0.41
AJ06-MW02	8/26/03	0.0821
	5/22/03	0.377
	2/25/03	0.099
	10/16/02	0.133
AM07-PW01	8/11/03	1.16
	5/22/03	0.377
	3/8/03	NQ (< 0.05)
	10/22/02	0.269
	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	8/11/03	0.802
	5/22/03	0.736
	3/8/03	0.308
	10/22/02	0.415
	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	8/11/03	1.51
	5/22/03	1.97
	3/3/03	1.07
	10/22/02	0.721
	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

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Table 1_1B.doc

ASH026497
EID779779

EID779779

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

Sample	Date	C-8 (ug/l)
D08-MW01	8/26/03	0.0764
	5/21/03	0.846
	5/21/03 (dup)	0.841
	2/25/03	3.72
	10/16/02	0.128
	9/04/02	0.117
	5/23/02	0.551
	4/29/02	0.424
	3/28/02	0.262
	2/22/02	1.27
	1/28/02	0.582
	8/26/03	2.88
	5/21/03	3.67
E13-MW01	2/25/03	3.15
	10/16/02	3.43
	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
	8/11/03	11.9
	5/22/03	16.0
K16-PW01	3/8/03	8.93
	10/22/02	16.2
	8/28/02	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
	8/11/03	10.1
	5/22/03	24.8
L04-PW01	3/10/03	19.8
	10/25/02	14.3
	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
ND4-MW03	8/26/03	208
	5/21/03	268
	2/26/03	244
	10/16/02	21.2

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Table 1_1B.doc

ASH026498

EID779780

EID779780

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

Sample ID	Date	C-8 (ppb)
N13-MW01	8/26/03	Dry-no sample
	5/22/03	Dry-no sample
	2/25/03	Dry-no sample
	10/16/02	Dry-no sample
	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
	11/1/98	<0.1
P04-MW02	8/26/03	35100
	5/21/03	45600
	2/26/03	36900
	10/18/02	46600
	10/16/02 (dup)	48300
	9/04/02	34400
	5/23/02	42400
	4/29/02	36500
	3/28/02	32300
	2/25/02	26800
	1/28/02	23600
	1/25/01	12600
	2/8/99	13600
	11/12/98	8300
P08-MW01	8/26/03	Dry-no sample
	5/22/03	Dry-no sample
	2/25/03	Dry-no sample
	10/16/02	120
	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	8/26/03	781
	5/21/03	831
	2/26/03	586
	10/16/02	7720
	9/04/02	32.2
	5/23/02	1480
	4/29/02	1210
	3/28/02	2070
	2/25/02	1590
	1/28/02	1480
	2/4/99	994
	11/13/98	680

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Table 1_1B.doc

ASH026499

EID779781

EID779781

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	8/26/03	66700
	8/26/03 (dup)	70000
	5/21/03	67500
	2/26/03	322000
	2/26/03 (dup)	289000
	10/18/02	84100
	9/04/02	66500
	5/23/02	68100
	4/29/02	56900
	3/26/02	54400
	2/26/02	43600
	1/28/02	47500
	1/25/01	13800
	2/6/99	9420
V05-PW01	11/12/98	1300
	8/11/03	36.3
	5/22/03	51.1
	3/10/03	42.5
	10/26/02	51.2
	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
Y14-MW01	2/7/99	12.4
	2/7/99 (dup)	3.95
	11/18/98	0.66 L
	8/26/03	16.7
	5/22/03	21.6
	2/26/03	15.7
	10/18/02	18.2
	9/04/02	18.4
	5/23/02	15.3
	4/29/02	13.9
	3/28/02	15.6
	2/22/02	10.9
	1/28/02	12.7
	2/2/99	4.95 L
Y14-MW02	11/10/98	12
	8/25/03	NQ (< 0.05)
	5/22/03	0.0506
	2/26/03	NQ (< 0.05)
West Well Field (1)	10/16/02	NQ (< 0.05)
	8/11/03	7.14
	5/23/03	8.37
	3/10/03	7.12
	10/25/02	10.3
	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										
	A-Zone			B-Zone			C-Zone			D-Zone
Parameters	LLMW-4	LLMW-6	LLMW-9	LLMW-10	LLMW-12B	LLMW-11A	LLMW-13B	LLMW-14B	LLMW-11B	
Measuring Point Elevation (feet)	847.55	796.27	786.54	805.94	764.28	663.83	750.80	672.04	665.12	
Total Depth (feet)	157.10	93.09	81.39	87.75	94.94	42.37	139.87	57.28	115.95	
Well Diameter (Inches)	4	4	4	4	2	2	2	2	2	
Slot Size (Inches)	0.020	0.020	0.020	0.020	0.010	0.010	0.010	0.010	0.010	
Screen Length (feet)	20	20	20	20	20	20	15	15	20	
Screen Interval (feet)	710.45 - 690.45	723.18 - 703.18	727.15 - 707.15	738.19 - 718.19	689.34 - 669.34	641.46 - 621.46	625.93 - 610.93	629.76 - 614.76	569.17 - 549.17	
Groundwater Elevation (feet)										
December-01	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	720.90	-	-	-	-	-	
May-02	714.93	721.52	728.48	721.84	-	-	-	-	-	
August-02	715.52	719.77	728.24	722.97	-	-	-	-	-	
October-02	715.53	719.56	728.10	723.01	681.93	640.42	648.29	627.74	563.60	
March-03	715.52	721.95	728.30	724.81	692.72	645.69	648.88	628.61	570.61	
May-03	715.28	721.02	728.44	725.12	694.38	648.36	648.95	629.99	573.91	
August-03	715.35	719.88	728.95	725.39	694.96	649.32	648.90	629.38	568.71	

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

Active Sampling Locations		
Sample	Date	C-8 (ug/l)
OUTFALL 004 (New)	8/13/03	10.9
	7/24/03	9.75
	6/13/03	13.4
	5/21/03	19.3
	4/30/03	18.1
	3/29/03	15.9
	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	8.29
	5/21/02	No-flow conditions
	4/29/02	14.5
	3/26/02	14.6
OUTFALL 005 (New)	8/13/03	No-flow conditions
	7/24/03	7.93
	6/13/03	20.9
	5/21/03	21.0
	4/30/03	12.5
	3/31/02	No-flow conditions
	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
OUTFALL 005 (Old)/SS1)	8/13/03	35.0
	7/24/03	29.5
	6/13/03	39.2
	5/21/03	47.9
	4/30/03	50.1
	3/29/03	44.9
	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	38.0
	2/20/02	46.0

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Table 2_1A.doc

ASH026502

EID779784

EID779784

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

Active Sampling Locations		
Sample	Date	C-8 (ug/l)
OUTFALL 005 (Old/SS1) (cont.)	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
	4/2/1998	39
	2/16/1994	35
OUTLET 101	8/13/03	63.3
	7/24/03	60.4
	6/13/03	69.7
	5/21/03	48.4
	4/30/03	74.1
	3/28/03	45.4
	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
OUTLET LM1 (LEACHATE) / INLET 002*	9/14/2000	12
	6/3/1999	15
	6/2/1998	54
	6/13/03	87.9
	5/21/03	83.2
OUTFALL 004 (Old)	4/30/03	98.0
	12/16/02	81.7
	11/21/02	120.0
	6/13/03	14.4
	5/21/03	20.2
	4/30/03	16.8
	3/29/03	14.7
	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

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Table 2_1A.doc

ASH026503

EID779785

EID779785

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

Historic Sampling Location		
Sample	Date	C-8 (ug/l)
OUTFALL 004 (Old) (cont.)	3/28/02	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

* = Active Semi-Annual Sampling Location

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	7/21/03	72.9
	7/21/03 (dup)	71.6
	5/13/03	65.9
	3/4/03	52.4
	10/15/02	79.8
	9/03/02	63.5
	5/20/02	57.7
	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-8	7/21/03	17.2
	5/13/03	19.4
	3/4/03	16.1
	10/15/02	19.9
	10/15/02 (dup)	17.0
	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	11.60
	5/16/2001	3
	5/10/2000	1.42
	5/19/1999	1.32
	5/27/1998	9
	4/11/1996	15
LLMW-9	7/21/03	0.063
	5/13/03	0.0657
	3/4/03	NQ (<0.05)
	10/15/02	0.0569
	9/03/02	NQ (<0.05)
	5/20/02	NQ (<0.05)
	3/28/02	NQ (<0.05)
	2/25/02	NQ (<0.05)
	1/27/02	NQ (<0.05)
	12/13/01	ND (<0.01)
	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

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Table 2_1B.doc

ASH026505

EID779787

EID779787

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

Sample	Date	C-8 (ug/l)
A-2 Zone		
LLMW-10	7/21/03	0.253
	5/13/03	0.302
	5/13/03 (dup)	0.304
	3/4/03	0.300
	3/4/03 (dup)	0.318
	10/15/02	0.385
	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	0.16
	5/28/1998	0.22
B-2 Zone		
LLMW-12B	7/31/03	NQ (<0.05)
	5/14/03	0.0639
	3/3/03	NQ (<0.05)
	10/8/02	0.0658
C-2 Zone		
LLMW-11A	7/31/03	1.67
	5/14/03	2.09
	3/4/03	2.05
	10/8/02	2.22
LLMW-13B	7/31/03	5.11
	5/14/03	6.43
	3/3/03	6.38
	10/8/02	6.61
LLMW-14B	7/31/03	0.322
	5/14/03	0.646
	3/3/03	0.317
	10/8/02	0.488
D-2 Zone		
LLMW-11B	7/31/03	NQ (<0.05)
	5/21/03	NQ (<0.05)
	3/4/03	NQ (<0.05)
	10/8/02	NQ (<0.05)

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									
Zone	A Zone			C Zone			D/E Zone		
Parameters	LMW-1	LMW-7	LMW-8	LMW-3	LMW-5A	LMW-3A	LMW-4	LMW-5B	LMW-12
Measuring Point Elevation (feet)	768.93	770.24	777.06	676.47	647.22	674.79	651.58	646.22	742.62
Total Depth (feet)	31.50	36.73	40.60	30.61	30.67	59.59	28.66	71.56	107.52
Well Diameter (Inches)	2	4	4	2	4	4	2	4	4
Slot Size (Inches)					0.010	0.010		0.010	0.010
Screen Length (feet)	5	10	9	5	10	5	5	20	20
Elevation of Screen Interval (feet)	742.43 - 737.43	743.51 - 733.51	745.46 - 736.46	650.86 - 645.86	626.55 - 616.55	620.20 - 615.20	627.92 - 622.92	594.66 - 574.66	655.10 - 635.10
Groundwater Elevation (feet)									
December-01	752.62	749.73	745.04	646.82	619.22	617.40	628.08	596.31	-
January-02	752.82	752.25	746.76	648.19	618.76	616.76	642.79	596.64	-
February-02	752.65	751.87	745.05	648.07	618.10	615.37	639.99	596.34	-
March-02	752.10	751.56	746.24	648.47	617.61	614.80	643.30	596.86	-
May-02	750.27	751.16	745.41	646.74	617.50	615.27	643.08	596.66	-
August-02	751.98	751.49	744.95	646.53	617.36	615.54	636.02	596.25	-
October-02	751.02	751.75	745.43	646.77	617.23	615.84	632.47	596.86	635.47
March-03	750.10	751.72	745.60	*	617.51	616.31	643.06	597.08	*
May-03	749.03	750.99	746.62	646.99	617.34	615.49	643.10	597.04	*
August-03	748.89	751.09	745.11	648.05	617.87	616.59	641.11	596.77	*

NA = Instrument limitations
 * Well was dry

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

Monitoring Wells											
Zone	Inside Zone					Outside Zone					Outside Zone
	LMW-13A	LMW-14A	LMW-2A	LMW-6	LMW-10	LMW-11	LMW-13B	LMW-14B	LMW-9		
Parameters											
Measuring Point Elevation (feet)	766.25	766.91	780.87	755.99	734.37	776.21	765.86	767.10	777.85		
Total Depth (feet)	152.35	158.72	182.17	176.43	191.55	166.54	192.27	202.00	230.87		
Well Diameter (Inches)	4	4	4	4	4	4	4	4	4		
Slot Size (Inches)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010		
Screen Length (feet)	20	20	30	30	20	25	20	20	20		
Elevation of Screen Interval (feet)	655.10 - 635.10	628.19 - 608.19	628.70 - 598.70	609.56 - 579.56	562.82 - 542.82	634.67 - 609.67	593.59 - 573.59	585.10 - 565.10	566.98 - 546.98		
Groundwater Elevation (feet)											
December-01	-	-	NA	NA	NA	NA	-	-	NA		
January-02	-	-	622.19	582.26	543.37	619.58	-	-	552.12		
February-02	-	-	622.23	581.97	543.36	620.70	-	-	551.96		
March-02	-	-	622.44	581.82	543.39	620.99	-	-	551.79		
May-02	-	-	622.28	581.97	543.39	621.28	-	-	551.24		
August-02	-	-	622.44	582.34	543.26	621.52	-	-	552.51		
October-02	621.07	627.04	622.38	582.05	543.35	621.10	582.86	569.31	551.73		
March-03	629.81	628.41	622.27	582.73	*	621.53	580.41	569.96	553.08		
May-03	630.36	628.37	622.21	582.27	543.77	621.43	579.12	568.36	552.06		
August-03	630.22	626.70	622.49	582.41	*	621.79	578.58	*	551.91		

NA = Instrument limitations
 * Well was dry

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

Active Sampling Location		
Sample	Date	C-8 (ug/l)
002(LEACHATE BASIN)	8/13/03	867
	7/30/03	No-Flow Conditions
	6/13/03	Not Sampled†
	5/23/03	Not Sampled†
	4/30/03	Not Sampled†
	3/28/03	Not Sampled†
	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
	7/23/2000	1350
	4/3/2000	1900
	1/14/2000	920
	10/21/1999	3240
Historic Sampling Locations		
003	4/30/03	No-Flow Conditions
	3/31/03	No-Flow Conditions
	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	0.262
	4/30/02	0.0853
	3/28/02	0.198
	2/19/02	No-Flow Conditions
	1/25/02	0.148
	12/14/01	0.390

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

Historic Sampling Locations		
Sample	Date	C-8 (ug/l)
RT 33 STREAM	3/28/03	2.27
	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	0.873
	7/20/1998	2.23
	7/23/1997	2
	4/17/1996	1.8
BRINKER'S RUN	5/21/03	0.442
	3/13/03	0.247
	10/14/02	0.0612
CAP RUNOFF	4/30/03	Not Sampled [†]
	3/28/03	Not Sampled [†]
	2/28/03	Not Sampled ^{**}
	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.

† This sampling point could not be accessed due to a rock slide that had covered the sampling locations.

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

Sample	Date	C-8 (ug/l)
LMW-1	7/23/03	57200
	5/21/03	27300
	3/12/03	25000
	10/14/02	25900
	8/29/02	23000
	5/24/02	30500
	3/29/02	20600
	2/24/02	18400
	1/26/02	29400
	12/10/01	24600
	7/19/01	6100
	1/31/01	9190
	10/4/00	10600
	7/24/00	8990
	4/3/00	13600
	1/13/00	17400
	10/21/99	12800
	7/20/99	6920
	5/28/98	24000
	7/23/97	5100
	4/17/96	1700
	11/22/91	88
	3/22/91	60
LMW-7	7/23/03	273
	5/21/03	385
	3/12/03	218
	10/14/02	300
	8/27/02	197
	5/24/02	567
	3/29/02	324
	2/24/02	180
	1/26/02	496
	12/10/01	334
	7/20/01	242
	1/31/01	249
	10/4/00	231
	7/25/00	158
	4/3/00	211
	1/13/00	219
	10/20/99	339
	7/20/99	78.3
	5/28/98	260
	7/23/97	53
	4/17/96	15
	11/22/91	0.1

10/14/03

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Table 3_1B.doc

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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-8	7/23/03	2780
	5/20/03	3100
	3/12/03	1720
	10/14/02	3480
	8/29/02	3100
	5/24/02	4020
	3/29/02	3520
	2/23/02	2230
	1/28/02	3930
	12/10/01	3240
	7/19/01	1120
	1/30/01	2650
	10/4/00	2300
	7/24/00	2160
	4/3/00	2180
	1/13/00	2100
	10/20/99	3260
	7/20/99	1790
	5/28/98	2700
	7/23/97	2000
	4/17/96	2200
	11/22/91	280
C-Zone Wells		
Sample	Date	C-8 (ug/l)
LMW-3	7/24/03	2060
	5/21/03	2030
	3/11/03	Dry-no sample
	10/11/02	NQ (<0.05)
	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
	11/22/91	1000
	3/22/91	390
LMW-5A	7/24/03	473
	5/21/03	243
	3/11/03	134
	10/11/02	112
	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
	11/22/91	0.8
	3/22/91	1.6

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Table 3_1B.doc

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EID779794

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

Sample	Date	C-8 (ug/l)
LMW-3A	7/22/03	146
	5/19/03	200
	3/11/03	144
	10/11/02	204
	8/28/02	Dry-no sample
	5/24/02	134
	3/27/02	132
	2/23/02	101
	1/26/02	98.6
	12/11/01	100
	7/19/99	60.3
	11/22/91	350
	3/22/91	380
LMW-4	7/22/03	992
	5/19/03	1280
	3/11/03	1520
	10/11/02	2840
	8/27/02	1410
	5/21/02	1690
	3/27/02	2620
	2/23/02	2250
	1/26/02	3060
	12/13/01	1580
	4/3/00	272
	1/14/00	172
	11/22/91	830
	3/28/91	690
LMW-5B	7/22/03	1800
	7/22/03 (dup)	1940
	5/19/03	2010
	5/19/03 (dup)	1660
	3/11/03	1470
	10/11/02	2230
	10/11/02 (dup)	2280
	8/27/02	1480
	8/27/02 (dup) *	1340
	5/21/02	1720
	5/21/02 (dup) *	1630
	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
	7/20/01	483

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

D/E Zone Wells		
Sample	Date	C-8 (ug/l)
LMW-5B continued	7/20/01(dup)	592
	1/31/01	615
	10/5/00	1190. J
	10/5/00 (dup)	780
	7/25/00	900. J
	4/3/00	1100
	4/3/00 (dup)	1020
	1/14/00	1030
	10/21/99	1750
	10/21/99 (dup)	1700
	7/20/99	445
	7/23/97	480
	9/20/94	530
	3/15/94	1200
	11/22/91	380
	3/22/91	340
LMW-12	7/24/03	Dry-no sample
	5/20/03	Dry-no sample
	3/11/03	Dry-no sample
	10/10/02	Dry-no sample
LMW-13A	7/24/03	177
	5/19/03	185
	3/11/03	144
	10/10/02	510
LMW-14A	7/24/03	766
	5/19/03	998
	3/11/03	498
	10/10/02	974
Zone Wells		
Sample	Date	C-8 (ug/l)
LMW-2A	7/22/03	1020
	5/20/03	998
	3/12/03	676
	10/14/02	931
	8/27/02	676
	5/24/02	922
	3/29/02	717
	2/24/02	714
	1/26/02	740
	12/11/01	830
	7/19/01	242
	1/30/01	423
	10/5/00	248
	7/25/00	275
	4/3/00	306
	1/14/00	453
	10/21/99	370
	7/20/99	350
	5/28/98	990

10/14/03

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Table 3_1B.doc

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EID779796

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

Sample	Date	C-8 (ug/l)
LMW-2A (continued)	7/23/97	460
	4/17/96	480
	9/20/94	270
	3/15/94	260
	11/22/91	63
	3/22/91	50
LMW-6	7/23/03	9.73
	5/21/03	9.53
	3/13/03	11.6
	10/14/02	15.1
	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
	1/13/00	9.4
	5/28/98	30
	11/22/91	24
	3/22/91	25
LMW-10	7/24/03	Dry-no sample
	5/20/03	Dry-no sample
	3/11/03	Dry-no sample
	10/17/02	Instrumentation problems-Not sampled
	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	7/22/03	0.128
	5/20/03	0.124
	3/12/03	0.12
	10/14/02	0.121
	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
LMW-13B	7/24/03	4.97
	5/19/03	0.603
	3/11/03	0.149
	10/10/02	0.0956
LMW-14B	7/24/03	Dry-no sample
	5/19/03	101
	3/12/03	70.4
	10/10/02	105

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Table_3_1B.doc

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EID779797

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

Underflow Well		
Sample	Date	C8 (ug/l)
LMW-9	7/23/03	0.803
	5/20/03	0.856
	3/12/03	0.625
	10/17/02	0.907
	8/29/02	0.479
	5/24/02	0.715
	3/27/02	0.831
	2/23/02	0.617
	1/26/02	0.875
	12/10/01	0.845
	10/7/02	0.2

I = estimated value (below laboratory quantitation limit).

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

* Analytical duplicates' values were previously inadvertently omitted from the tables.

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

Monitoring Wells								
Zone	Overburden					A-Zone		
Parameters	DRMW-6A	DRMW-12A	DRMW-12B	DRMW-13A	DRMW-21A	DRMW-16B	DRMW-17B	DRMW-18B
Measuring Point Elevation (feet)	744.46	732.41	732.85	722.57	707.62	792.98	853.56	925.87
Total Depth (feet)	11.89	17.17	20.24	13.33	19.79	61.61	127.09	202.05
Well Diameter (inches)	2	4	4	4	2	4	4	4
Slot Size (inches)	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Screen Length (feet)		5	10	5	10	20	20	20
Elevation of Screen Interval (feet)		720.24 - 715.24	722.61 - 712.61	714.24 - 709.24	697.83 - 687.83	751.37 - 731.57	746.47 - 726.47	743.82 - 723.82
Groundwater Elevation (feet)								
December-01	737.91	727.30	728.11	714.35	-	-	-	-
January-02	738.29	728.50	729.14	716.97	-	-	-	-
February-02	738.26	727.99	728.70	714.16	-	-	-	-
March-02	738.75	728.89	729.58	716.68	-	-	-	-
May-02	738.25	728.97	729.67	716.70	-	-	-	-
August-02	735.61	725.51	726.24	713.62	-	-	-	-
October-02	736.92	725.91	726.64	713.97	703.00	736.49	737.19	757.47
Feb/March-03	739.49	728.99	729.71	717.67	704.97	746.31	751.88	755.11
May-03	739.02	729.21	729.94	716.69	704.43	747.09	754.37	755.22
August-03	738.11	727.55	728.32	713.68	702.95	747.48	755.64	754.97

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

Monitoring Wells							
Zone	A-Zone (cont.)		B-Zone			C-Zone	Above-A-Zone
	DRMW-19B	DRMW-20B	DRMW-12	DRMW-13	DRMW-15	DRMW-21B	DRMW-14
Parameters							
Measuring Point Elevation (feet)	881.99	868.79	733.1	722.68	734.28	707.87	938.08
Total Depth (feet)	151.76	136.41	37.82	37.54	48.60	177.20	239.91
Well Diameter (Inches)	4	4	4	4	2	4	10
Slot Size (inches)	0.010	0.010	0.010	0.010	0.010	0.010	NA
Screen Length (feet)	20	20	15	15	20	20	NA
Elevation of Screen Interval (feet)	750.23 - 730.23	752.38 - 732.38	710.28 - 695.28	700.14 - 685.14	705.68 - 685.68	550.47 - 530.47	NA
Groundwater Elevation (feet)							
December-01	-	-	724.40	711.81	716.10	-	754.09
January-02	-	-	725.25	712.17	716.50	-	757.99
February-02	-	-	725.40	711.46	716.33	-	754.87
March-02	-	-	725.74	712.21	717.02	-	755.45
May-02	-	-	725.99	712.54	716.88	-	755.12
August-02	-	-	723.65	710.65	715.82	-	755.31
October-02	750.94	752.95	723.54	711.65	716.02	613.01	755.13
Feb/March-03	759.93	757.53	725.87	712.81	716.68	613.19	755.33
May-03	757.84	757.75	725.66	712.53	716.64	614.06	755.4
August-03	757.74	757.84	725.18	711.45	715.81	614.18	755.61

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

Active Sampling Locations		
Sample	Date	C-8 (ug/l)
OUTLET 001	8/13/03	38.8
	7/24/03	39.7
	6/13/03	30.5
	5/19/03	88.8
	4/30/03	131.0
	3/28/03	88.5
	2/28/03	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	68
	5/19/1998	17
	4/9/1996	88
OUTLET 003	8/13/03	No-flow conditions
	7/24/03	27.6
	6/13/03	10.3
	5/19/03	No-flow conditions
	4/30/03	No-flow conditions
	3/31/03	No-flow conditions
	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
	3/25/02	6.77
	2/25/02	No-flow conditions
	1/28/02	No-flow conditions
	12/12/01	No-flow conditions
	8/13/03	No-flow conditions
OUTLET 004	7/24/03	0.243
	6/13/03	0.461
	5/19/03	0.543
	4/30/03	No-flow conditions
	3/31/03	No-flow conditions
	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

10/14/03

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Table 4_1A.doc

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EID779801

EID779801

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

Active Sampling Locations		
Sample	Date	C-8 (ug/l)
OUTLET 004 (cont.)	6/28/02	No-flow conditions
	5/28/02	No-flow conditions
	4/27/02	No-flow conditions
	3/28/02	158
	2/25/02	No-flow conditions
	1/28/02	No-flow conditions
	12/12/01	No-flow conditions
Historic Sampling Locations		
PROPERTY BOUNDARY	5/19/03	2.97
	3/28/03	11.3
	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	5/19/03	1.13
	3/28/03	1.24
	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	5/19/03	17.4
	3/28/03	61.1
	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	5/20/03	135
	3/28/03	99.7
	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
	7/22/1997	62

10/14/03

2 of 3

Table 4_1A.doc

ASH026520

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

Historic Sampling Locations		
Sample	Date	C-8 (ug/l)
POND UNDERDRAIN	5/19/03	48.7
	3/28/03	53.3
	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).

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

Sample	Date	C-8 (ug/l)
Overburden		
DRMW-6A	8/20/03	1.63
	5/14/03	1.59
	2/27/03	0.727
	10/9/02	1.13
	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
	7/20/00	0.212
	7/21/99	0.096
	5/26/98	0.27
	7/22/97	0.36
	4/10/96	0.19
DRMW-12A	8/20/03	0.0612
	5/13/03	0.0547
	2/27/03	0.059
	10/9/02	0.181
	8/28/02	0.089
	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
	7/19/00	0.128
	7/21/99	0.081 J
	5/26/98	<0.10
	7/22/97	<0.1
	4/10/96	<0.1
DRMW-12B	8/20/03	0.0699
	8/20/03 (dup)	0.0686
	5/13/03	0.0649
	2/27/03	0.050
	2/27/03 (dup)	0.052
	10/9/02	0.258
	10/9/02 (dup)	0.242
	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
	7/20/00	ND (0.029)
	7/21/99	5.4
	6/16/98	<0.1

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

Sample ID	Date	C-8 (ug/l)
Overburden		
DRMW-13A	8/20/03	4.38
	5/13/03	3.23
	2/27/03	1.5
	10/9/02	6.66
	8/28/02	5.14
	5/22/02	2.31
	3/30/02	4
	2/20/02	3.73
	1/25/02	5.97
	12/12/01	6.4
	7/20/00	9.9
	7/21/99	0.070 J
	5/26/98	8.7
	7/22/97	15
	4/10/96	8.2
	4/10/1996 (dup)	11
DRMW-21A	8/21/03	0.157
	5/16/03	0.370
	2/28/03	0.136
	10/9/02	0.27
A-Zone Wells		
DRMW-16B	8/22/03	NQ (<0.05)
	5/16/03	NQ (<0.05)
	2/28/03	ND (<0.01)
	10/8/02	NQ (<0.05)
DRMW-17B	8/21/03	NQ (<0.05)
	5/15/03	Not Sampled***
	3/3/03	Not Sampled**
	10/8/02	0.155
DRMW-18B	8/21/03	NQ (<0.05)
	5/15/03	NQ (<0.05)
	3/3/03	Not Sampled**
	10/7/02	ND (<0.01)
DRMW-19B	8/21/03	NQ (<0.05)
	5/15/03	NQ (<0.05)
	2/28/03	NQ (<0.05)
	10/7/02	NQ (<0.05)
DRMW-20B	8/22/03	NQ (<0.05)
	5/15/03	ND (<0.01)
	2/28/03	NQ (<0.05)
	10/8/02	NQ (<0.05)
B-Zone Wells		
DRMW-12	8/20/03	0.0588
	5/13/03	0.0714
	5/13/03 (dup)	0.0787
	2/27/03	0.101
	10/9/02	0.109
	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
	7/19/00	0.16
	7/21/99	0.134
	5/26/98	<0.10
	7/22/97	<0.1
	4/10/96	<0.1

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

Sample	Date	C-8 (ug/l)
B-Zone Wells		
DRMW-13	8/20/03	17.8
	5/13/03	22.8
	2/27/03	15.0
	10/9/02	20.9
	8/28/02	13.1
	8/28/02 (dup) *	14.6
	5/22/02	18.9
	3/30/02	12.6
	2/20/02	11.5
	1/25/02	16.5
	12/12/01	9.86
	7/20/00	9.8
	7/21/99	3.6
	5/28/98	9.2
	7/22/97	7
DRMW-15	8/20/03	4.77
	5/14/03	4.55
	3/3/03	4.64
	10/15/02	4.92
	8/28/02	3.99
	5/22/02	5
	6/22/02 (dup) *	4.66
	3/30/02	4.91
	2/20/02	3.65
	1/27/02	4.35
	12/12/01	4.94
	7/20/00	0.763
	7/21/99	0.263
Above A-Zone Wells		
DRMW-21B	8/21/03	NQ (<0.05)
	5/16/03	NQ (<0.05)
	2/28/03	NQ (<0.05)
	10/9/02	NQ (<0.05)
DRMW-14	8/20/03	NQ (<0.05)
	5/14/03	NQ (<0.05)
	3/3/03	NQ (<0.05)
	10/15/02	NQ (<0.05)
	8/28/02	NQ
	5/22/02	NQ
	3/30/02	NQ
	2/20/02	NQ
	1/27/02	NQ
	12/12/01	NQ
	7/20/00	0.115
	7/21/99	2.5
	6/16/98	<0.1
	7/21/97	<0.1
	4/10/96	<0.1

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).

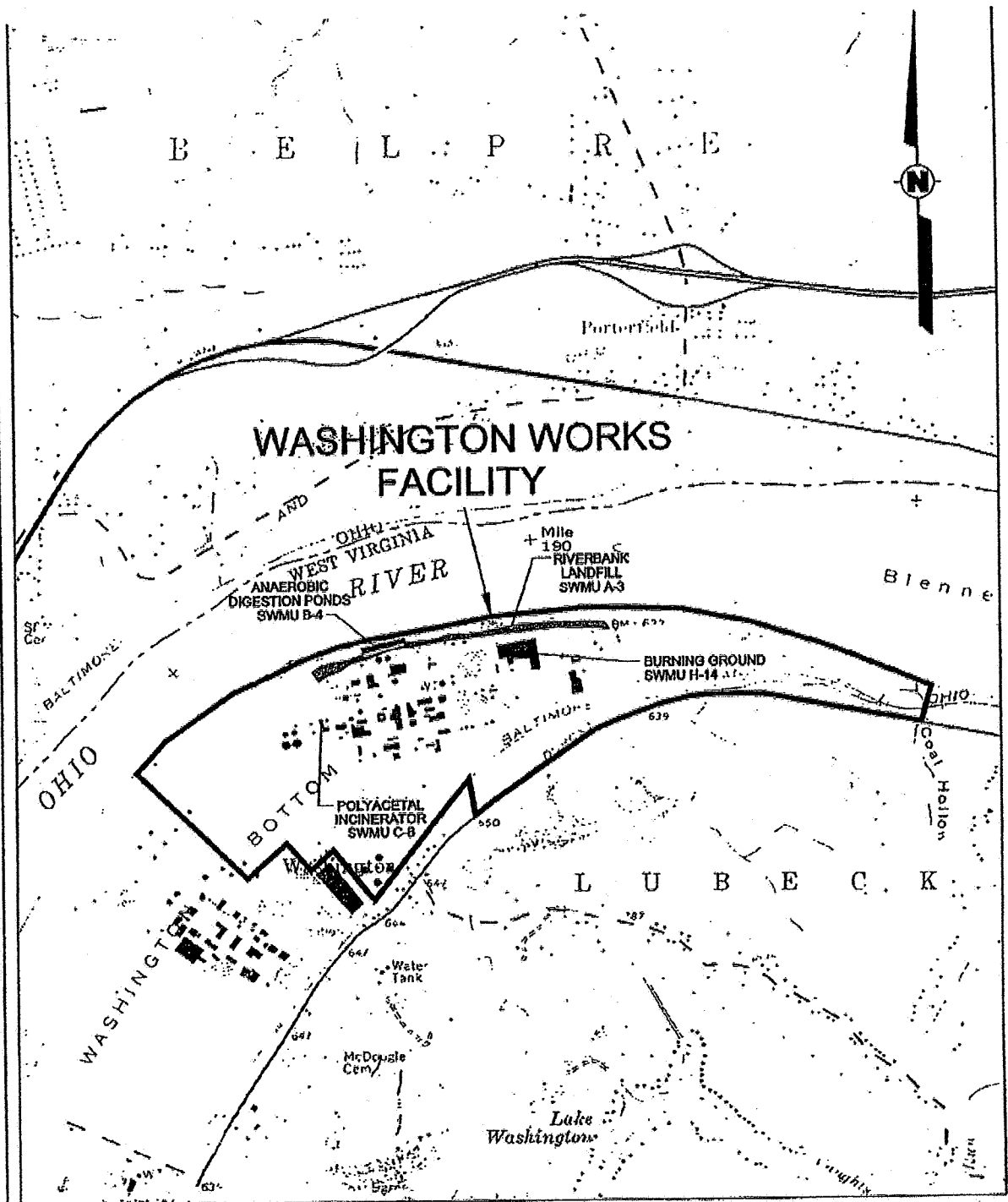
* Analytical duplicates' values were previously inadvertently omitted from the tables.

** No samples were collected for these wells because snow and ice blocked the way for the truck with sampling equipment to gain access. Only water levels were taken for these wells.

*** Samples were not collected at DRMW-17B due to inaccessability of the well

FIGURES

ASH026525
EID779807
EID779807



Source: MAP TAKEN FROM THE LUBECK, WV
USGS QUADRANGLE



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Wilmington, Delaware 19805



SITE LOCATION MAP

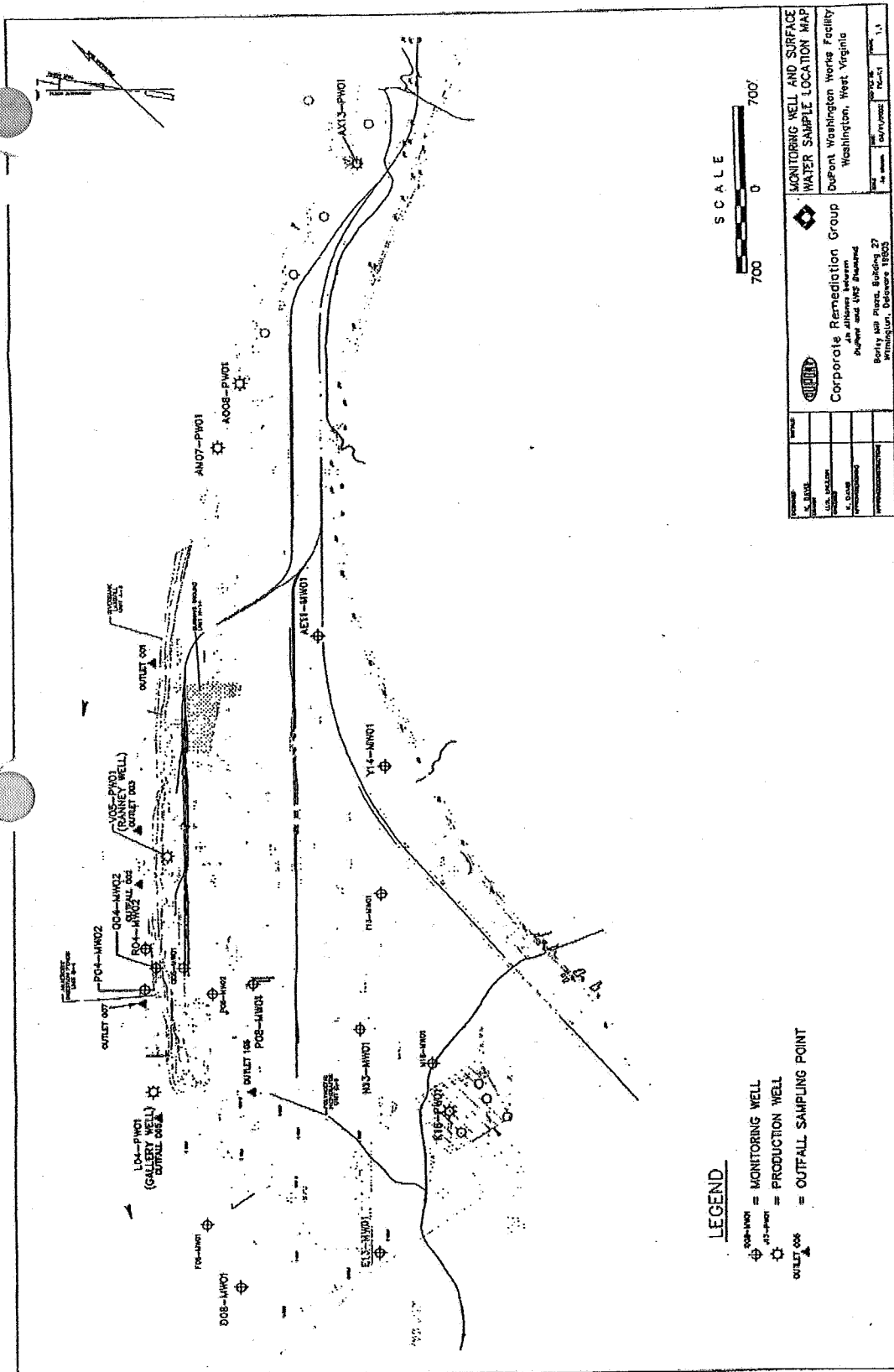
DuPont Washington Works Facility
Washington, West Virginia

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9/27/01	12, 10/15/01		1:0

ASH026526

EID779808

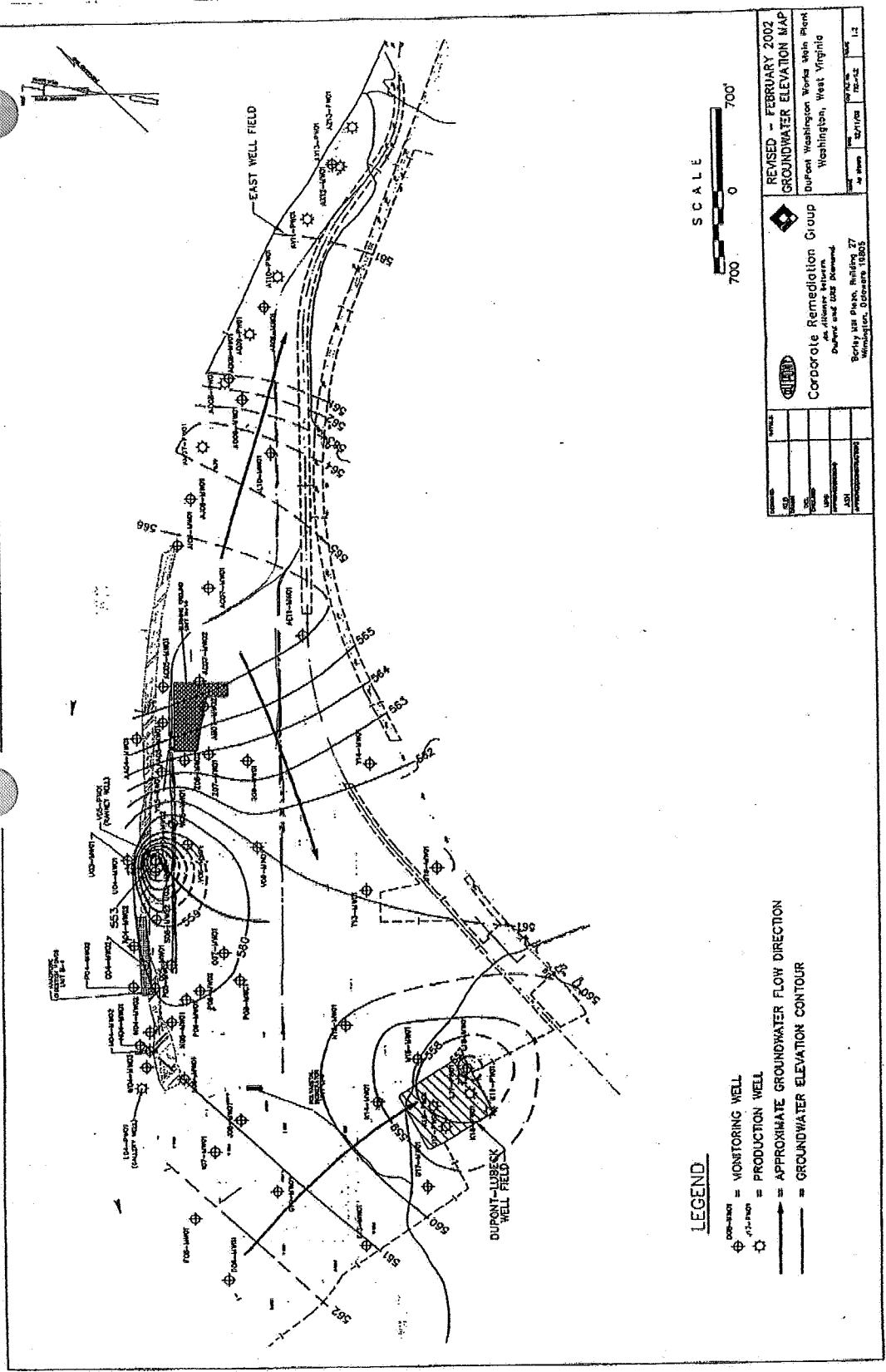
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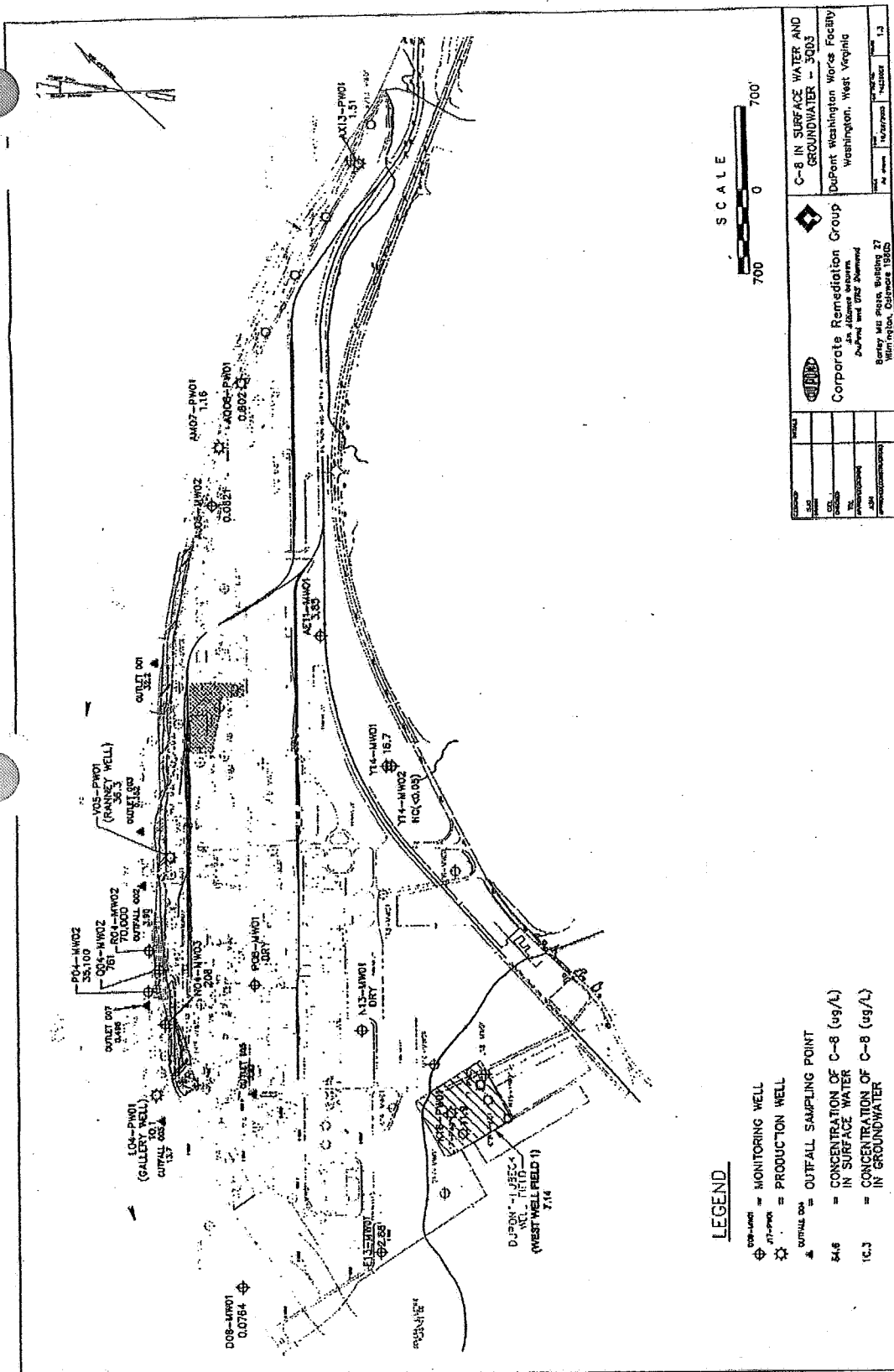
ASH026527

EID779809

EID779809



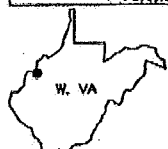
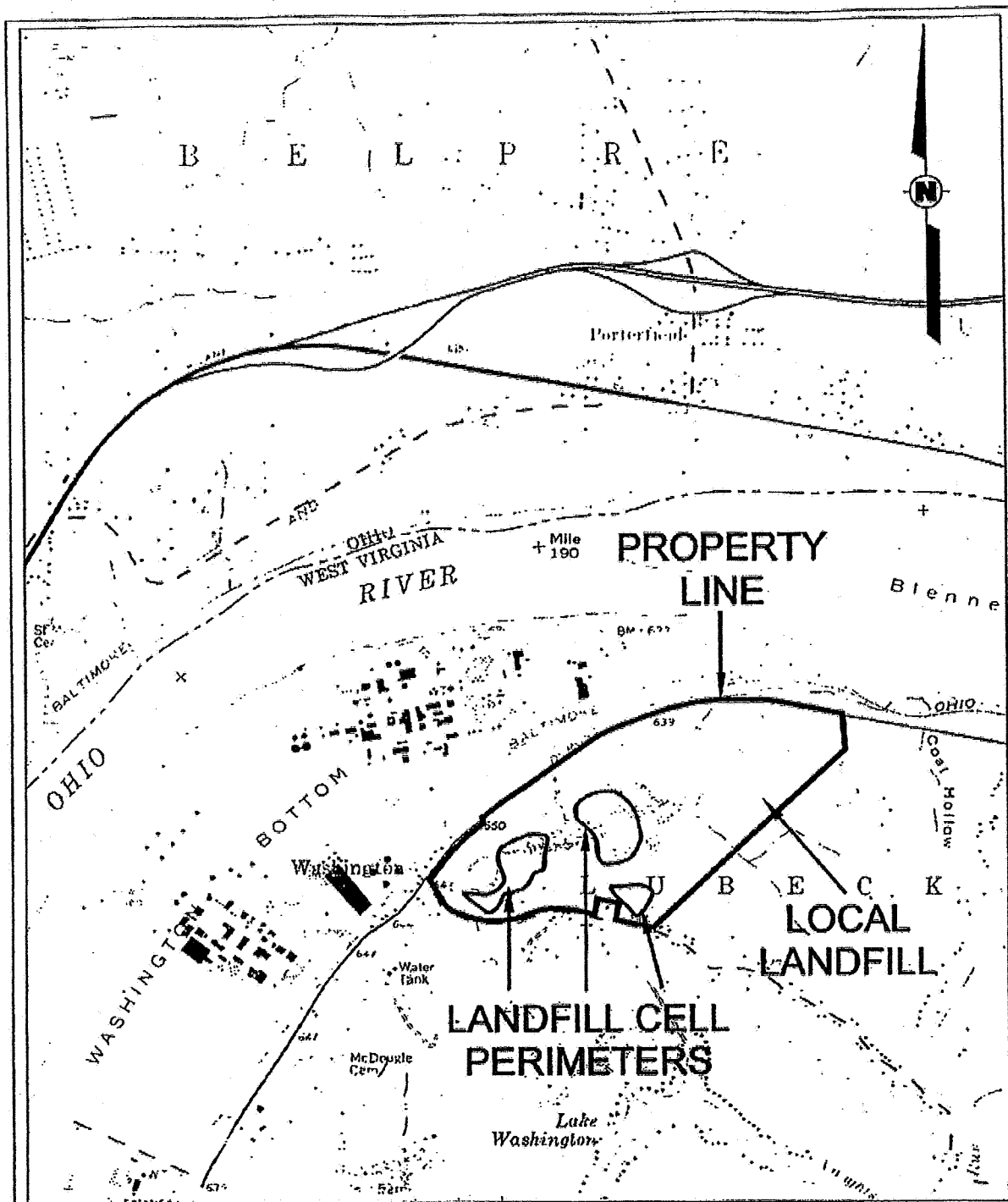
ASH026528
EID779810
EID779810



ASH026529

EID779811

EID779811



Source: USGS Little Hocking, Ohio - West Virginia
Quadrangle



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SITE LOCATION MAP

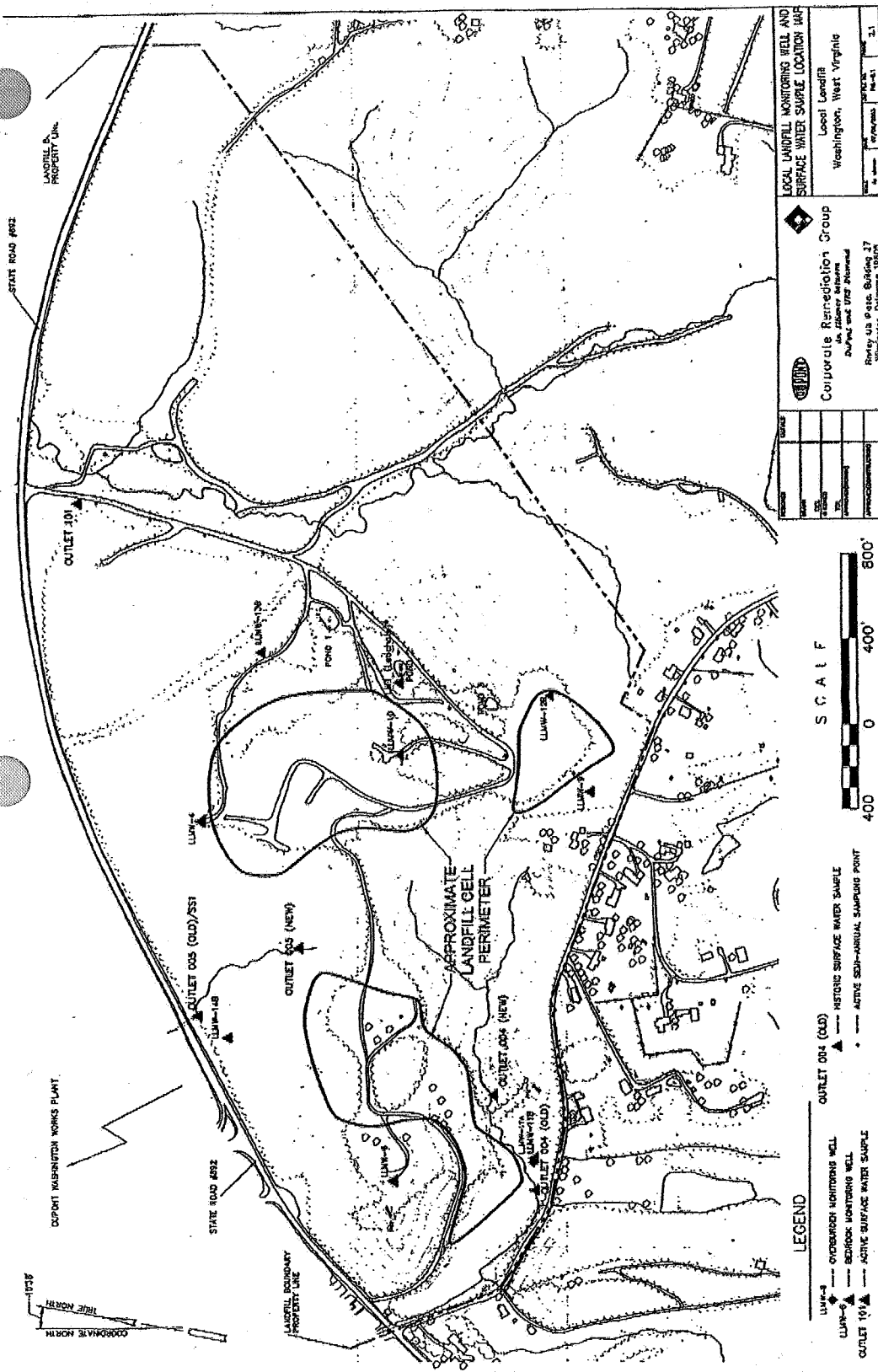
Local Landfill
Washington, West Virginia

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DATE	DESIGNED	APPROVED	FILED	
6/27/01	M. HOULDAY			2.0

ASH026530

EID779812

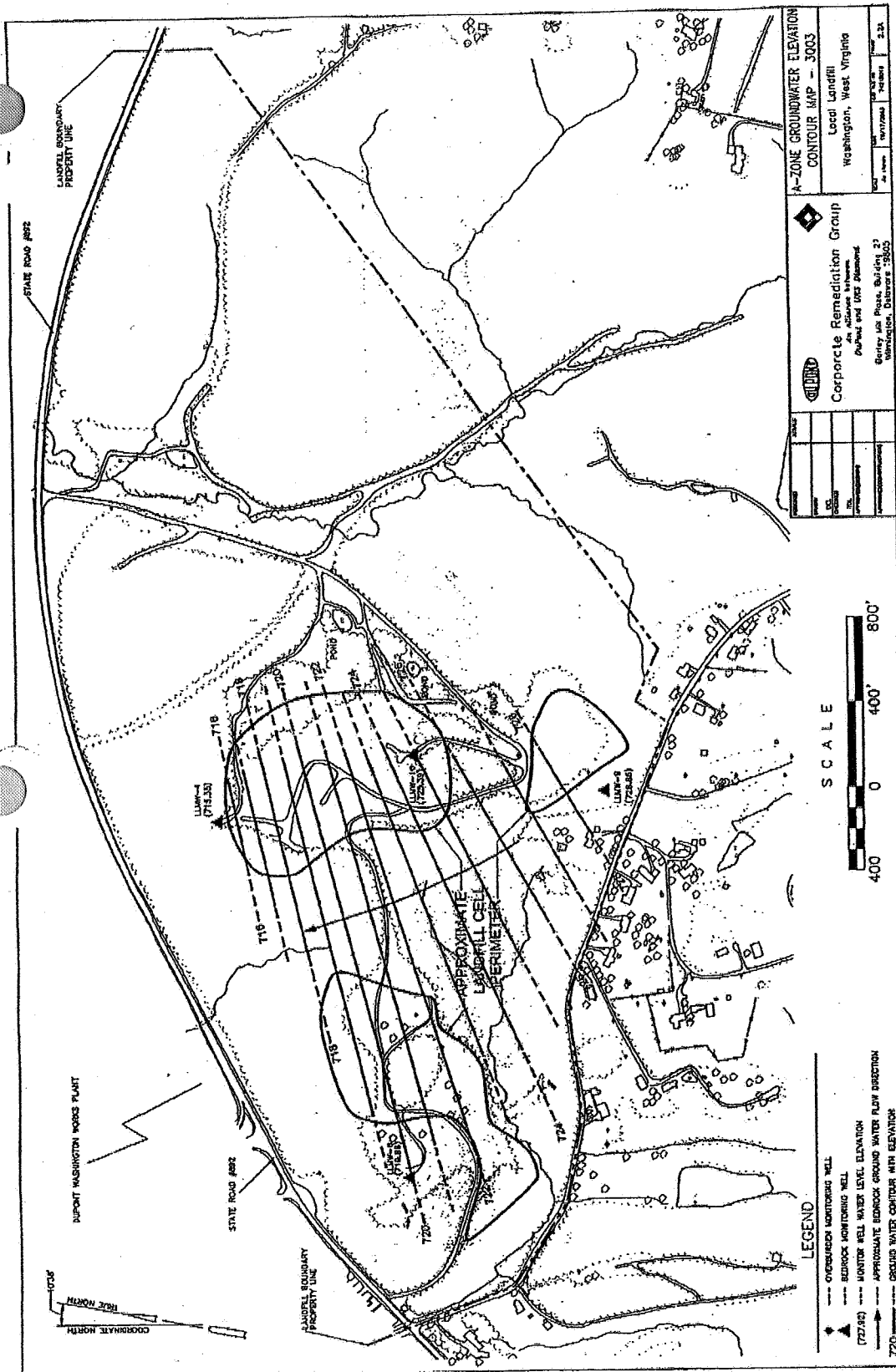
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ASH026531

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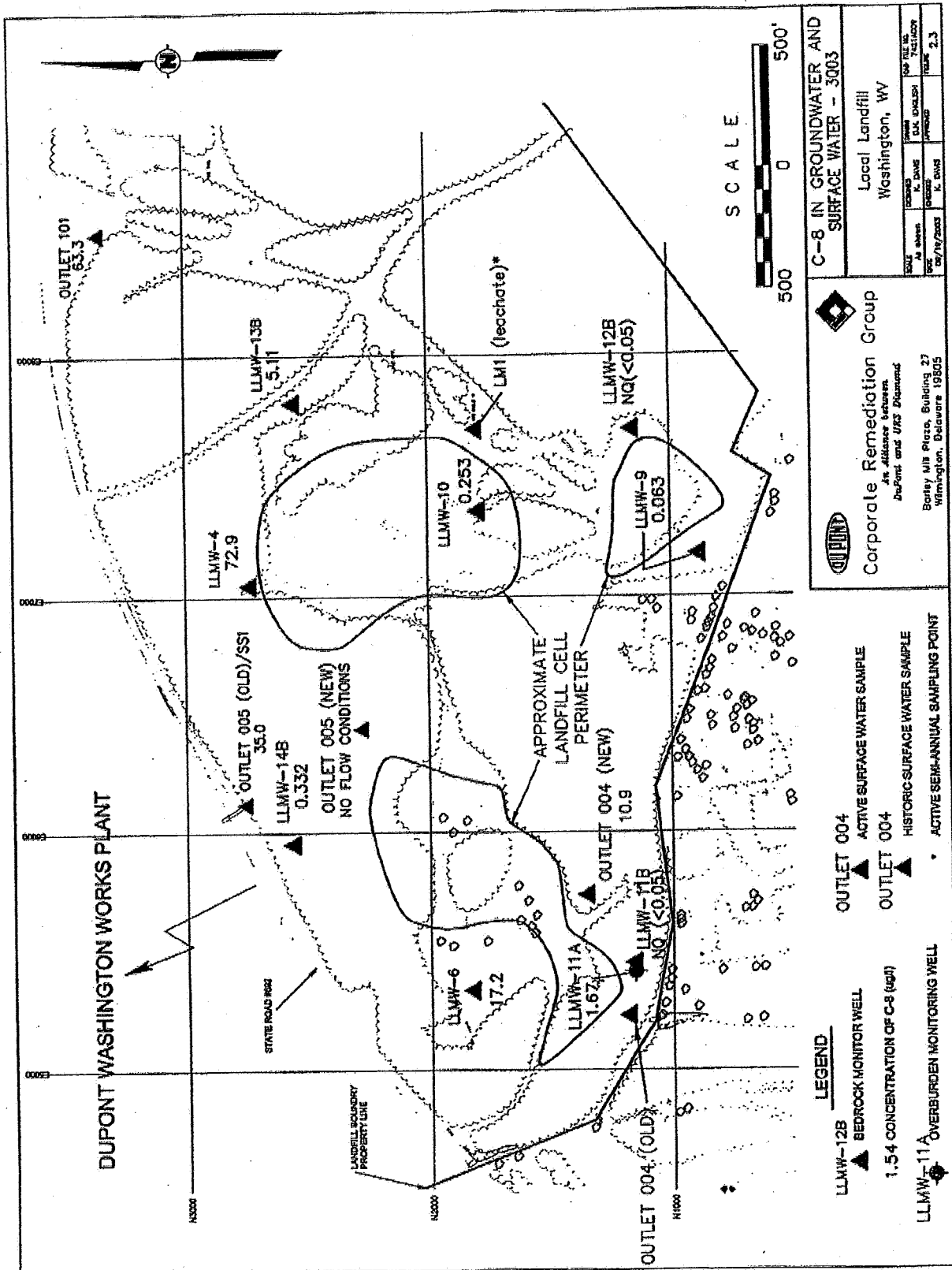
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ASH026532

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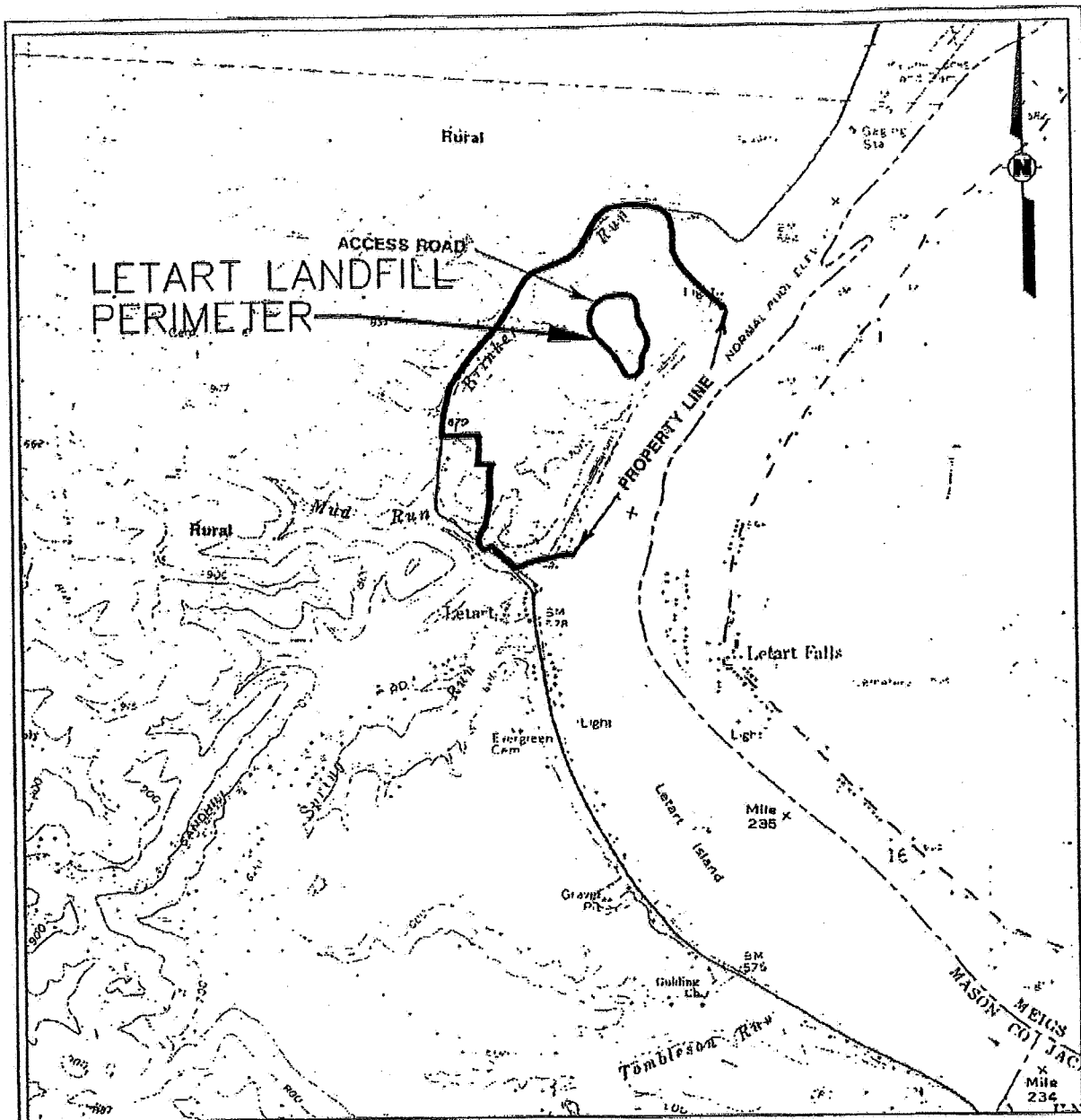
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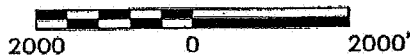
ASH026534

EID779816

EID779816



SCALE



SOURCE: NEW HAVEN, VV-DHD QUADRANGLE 7.5' SERIES



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Wilmington, Delaware 19880-0027



SITE LOCATION MAP

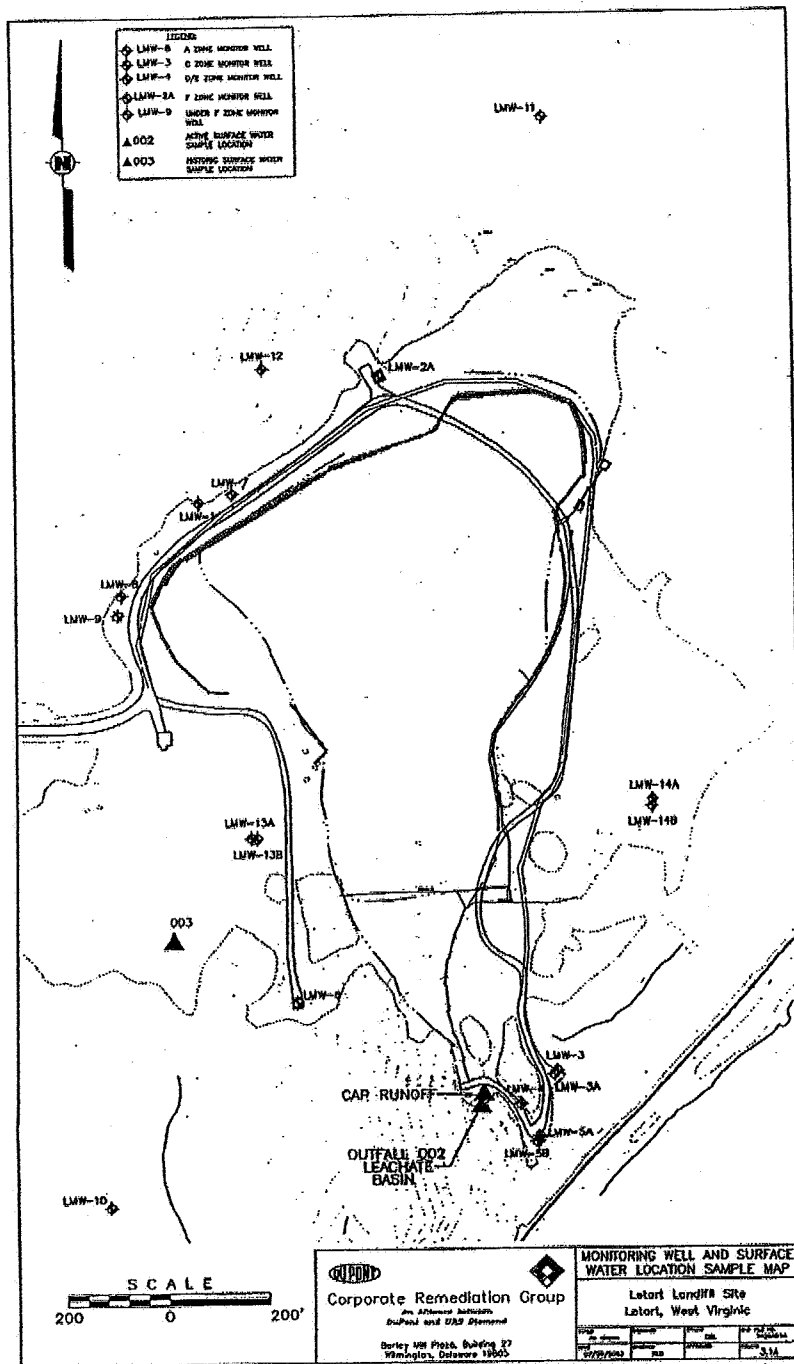
Letart Landfill Site
Letart, WV

SCALE	REVISION	DATE	BY	APP'D	DO NOT RE-USE
As shown	TPL	01/31/2003	CHC	APPROVED	7280A003
	CHECKED				3.0

ASH026535

EID779817

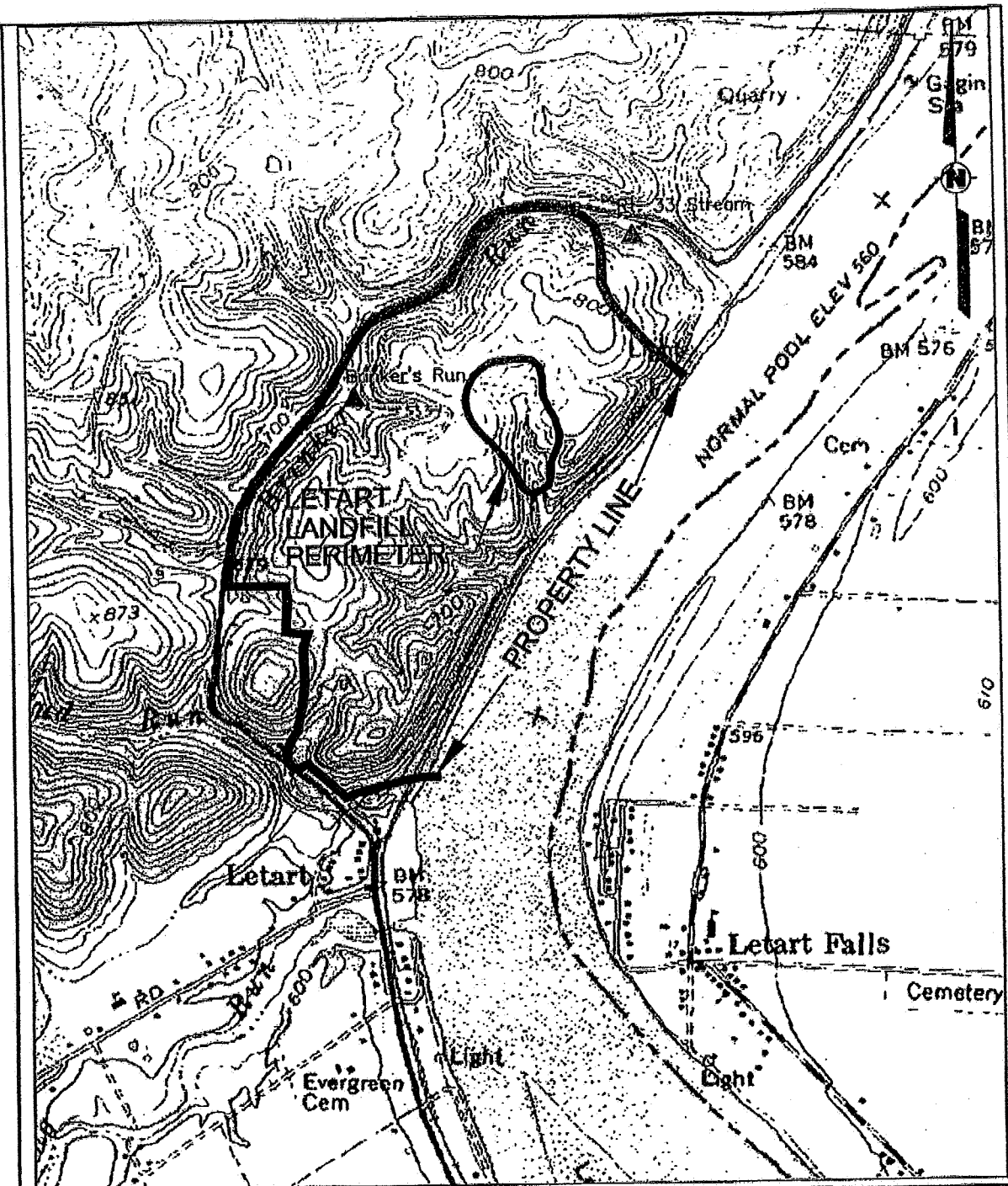
EID779817



ASH026536

EID779818

EID779818



LEGEND:

▲ SURFACE WATER SAMPLE LOCATION

SCALE

650 0 650'

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



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Wilmington, Delaware 19805



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

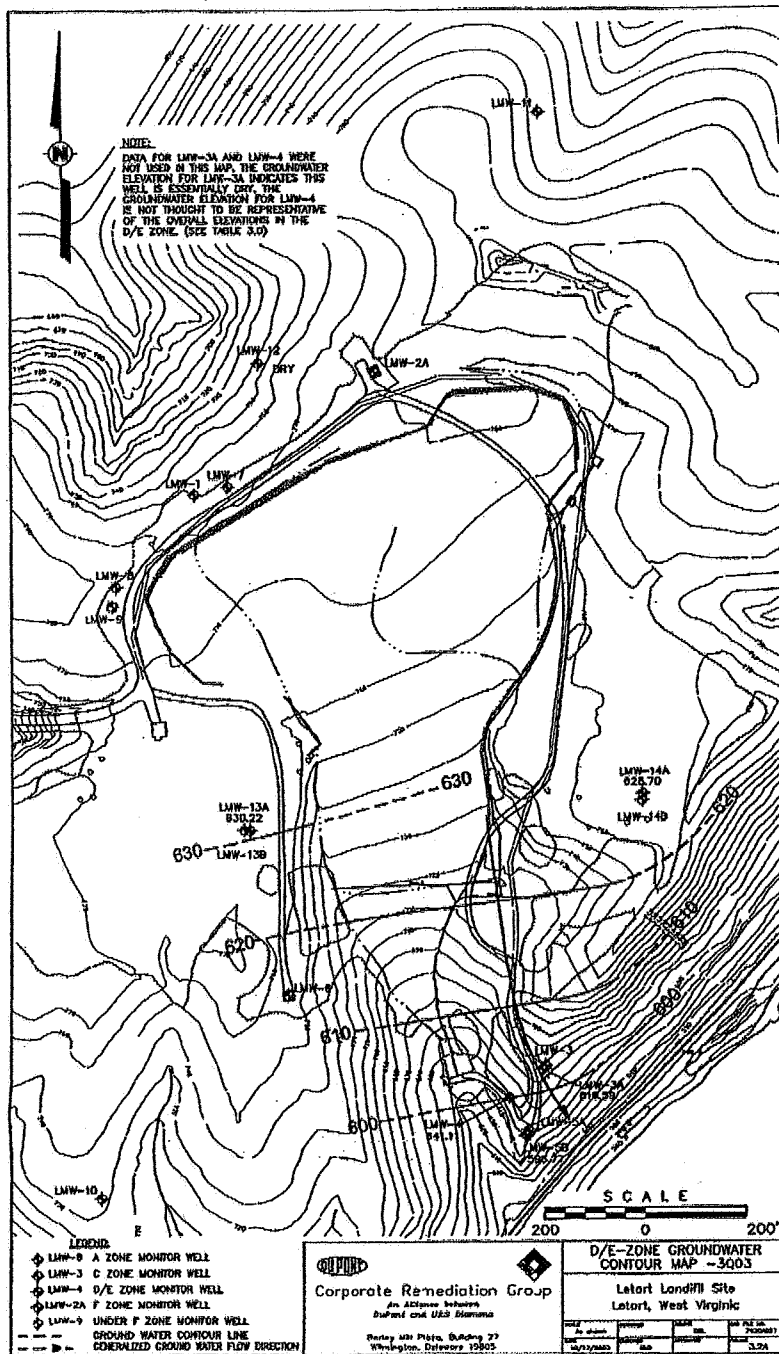
**Letart Landfill Site
Letart, West Virginia**

SCALE As Shown	DESIGNED N. PONDERSO	DRAWN D.H. ENGLISH	CAD FILE NO. 7429019
DATE 04/05/2003	CHECKED N. DAVIS	APPROVED	FRAME 3.1B

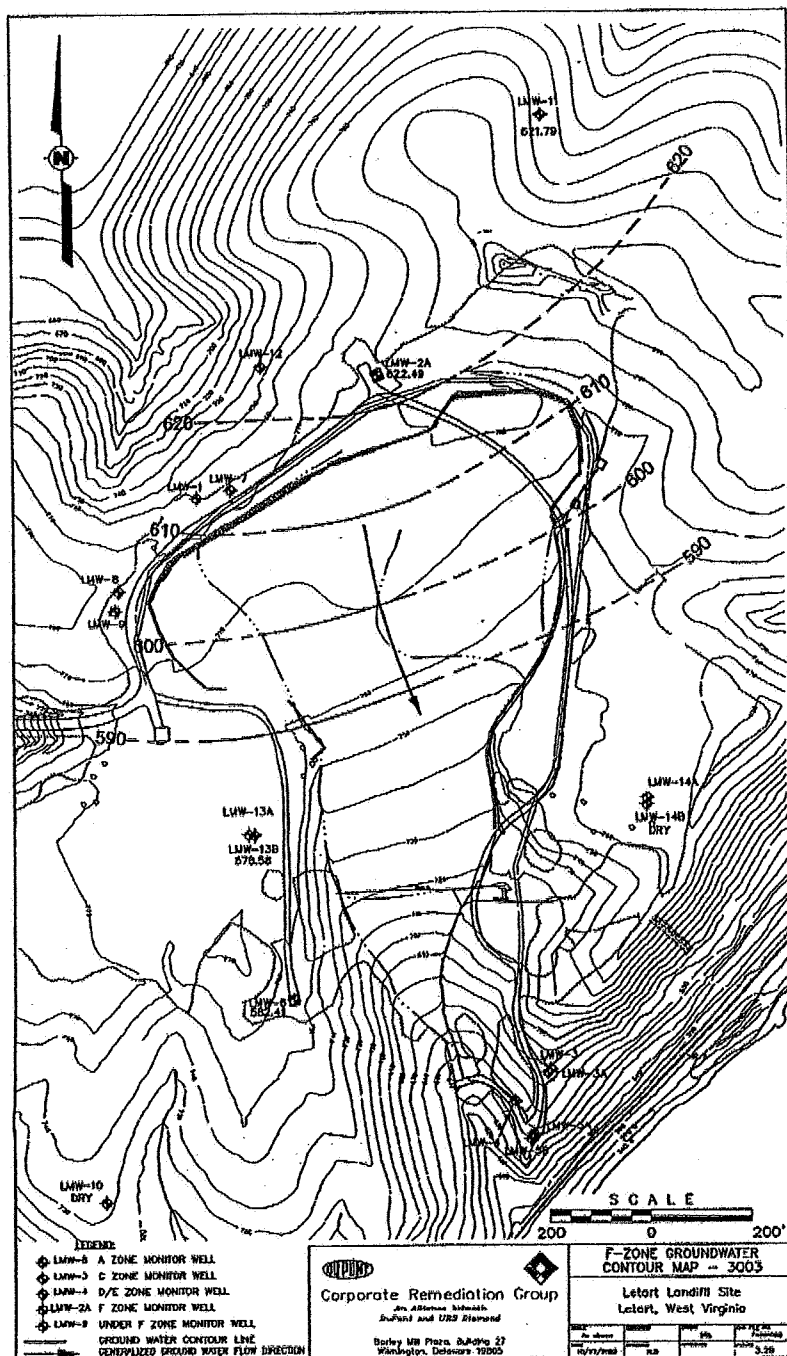
ASH026537

EID779819

EID779819

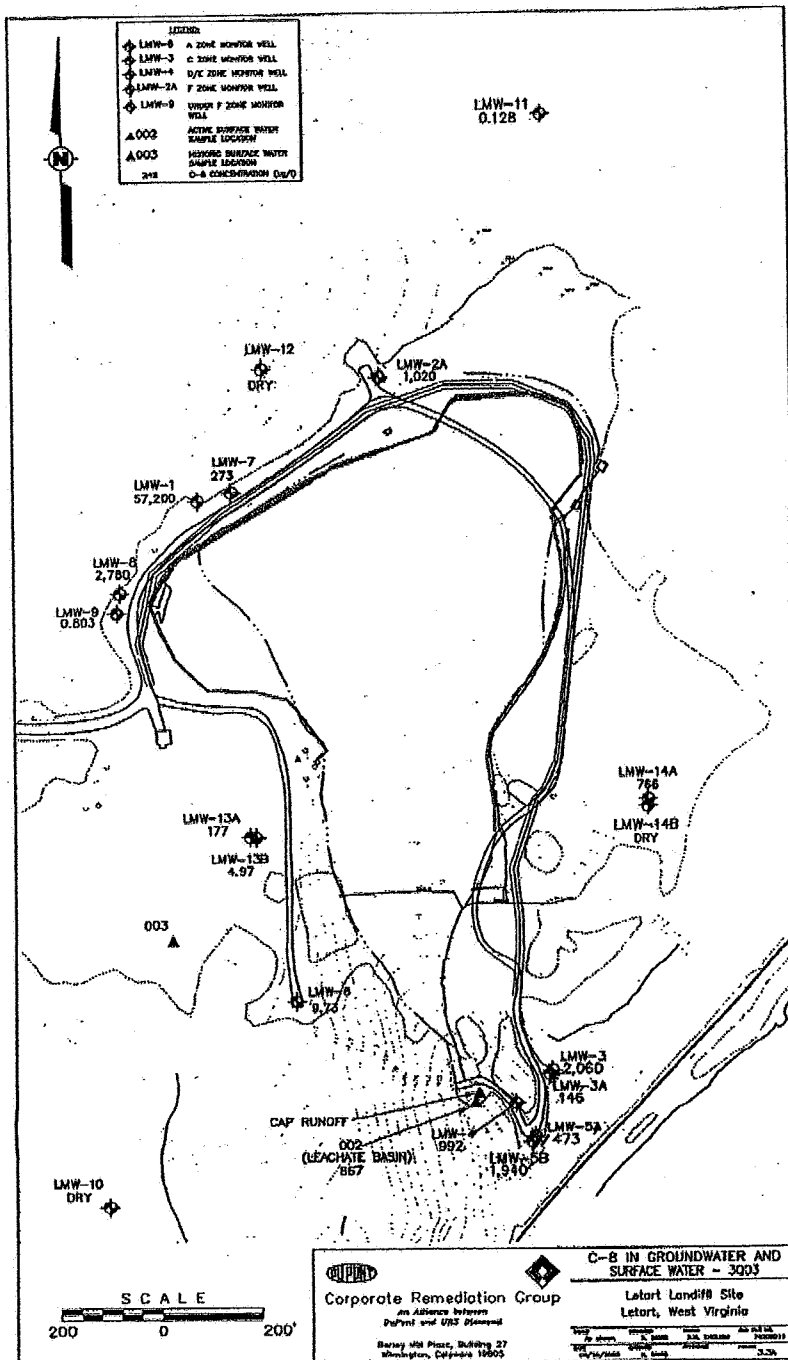


ASH026538
 EID779820
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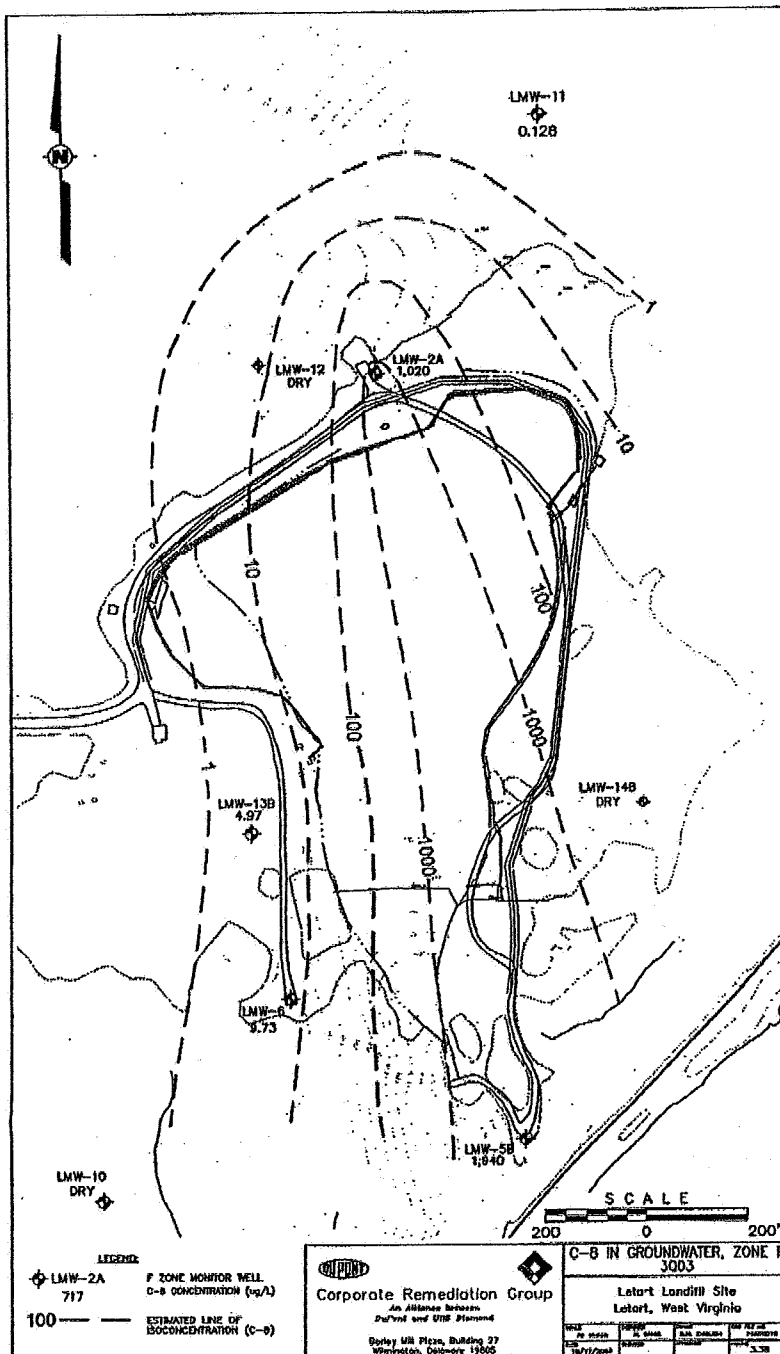


ASH026539
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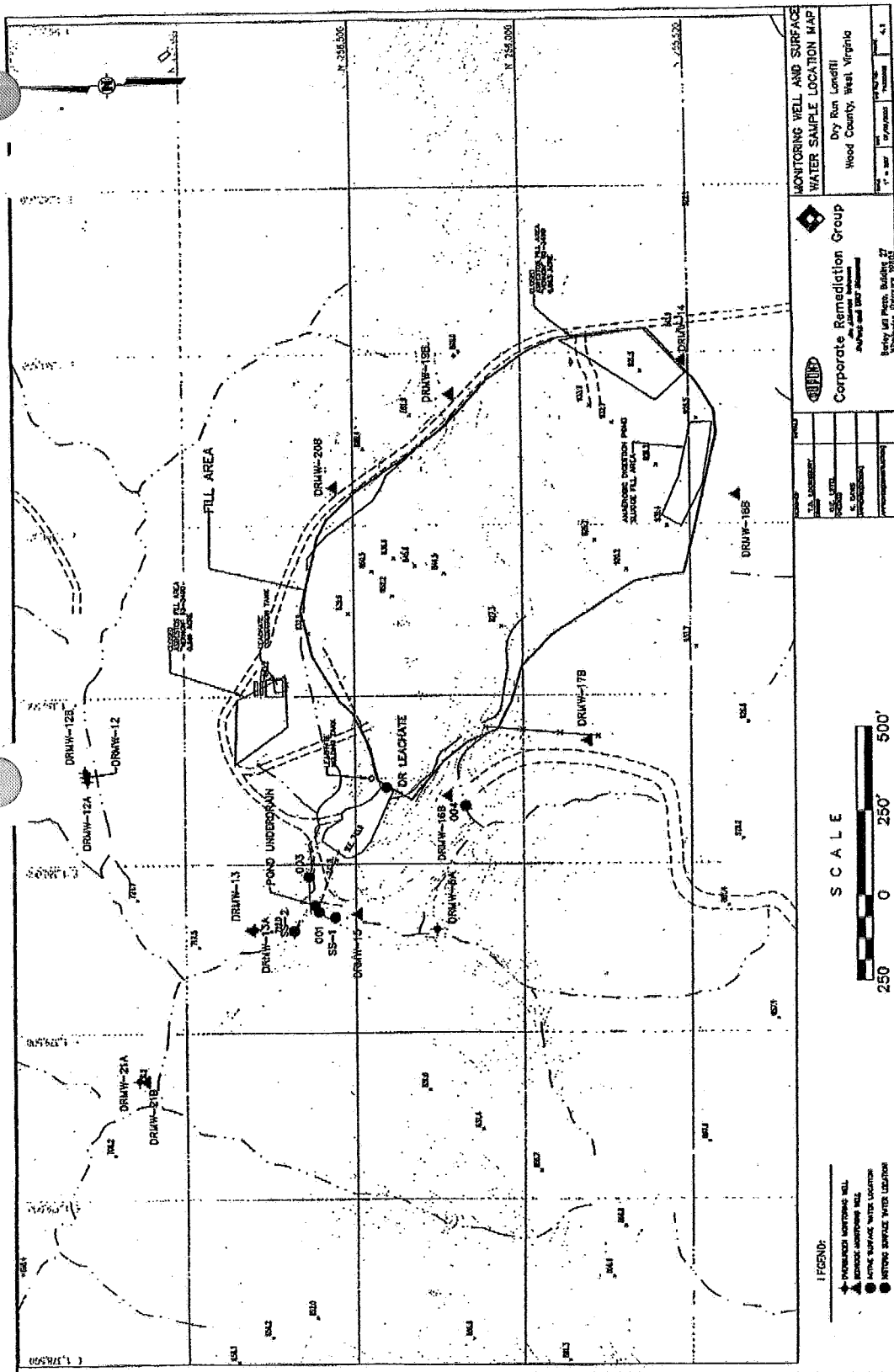


ASH026540
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ASH026541
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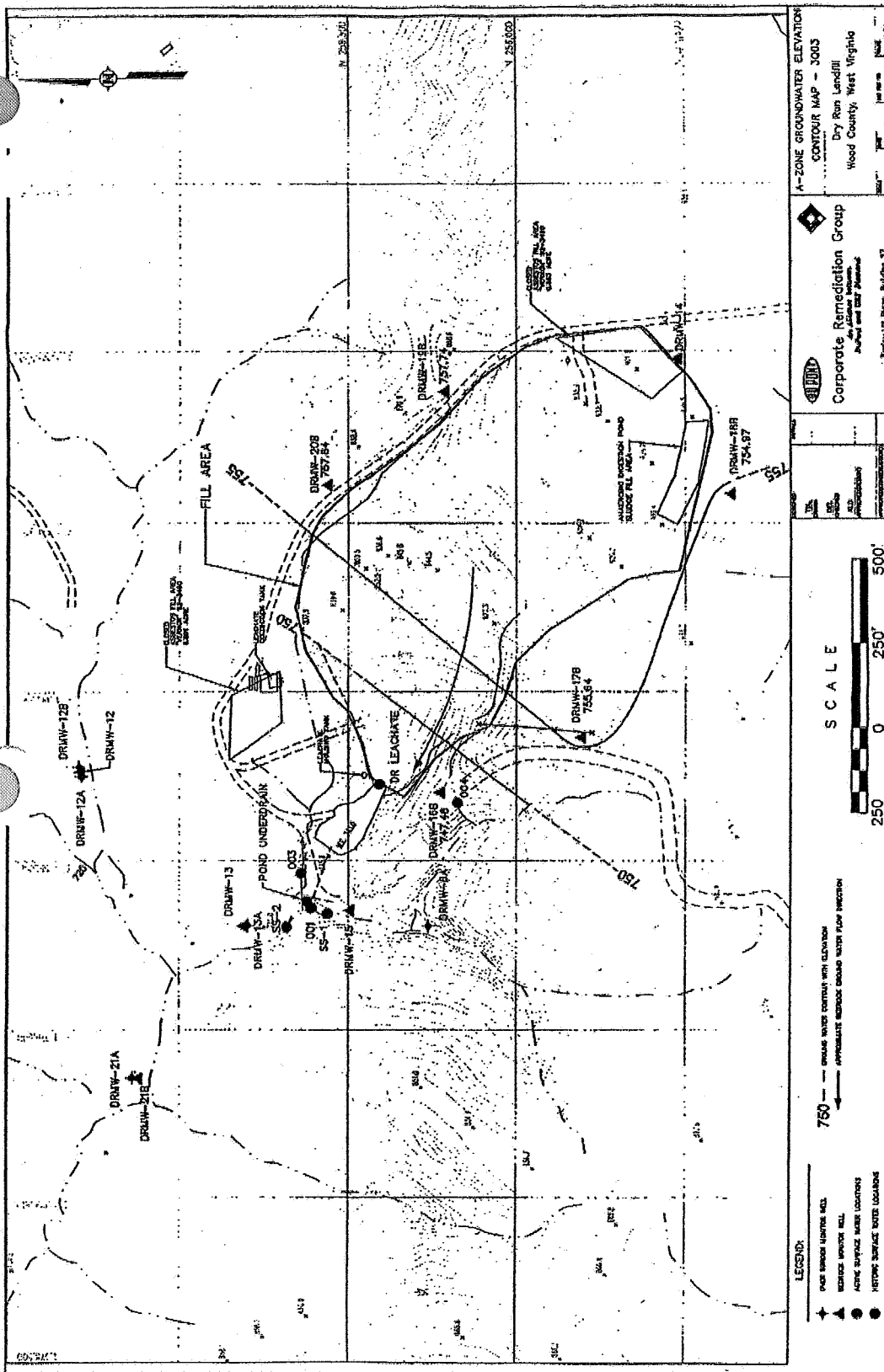
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ASH026543

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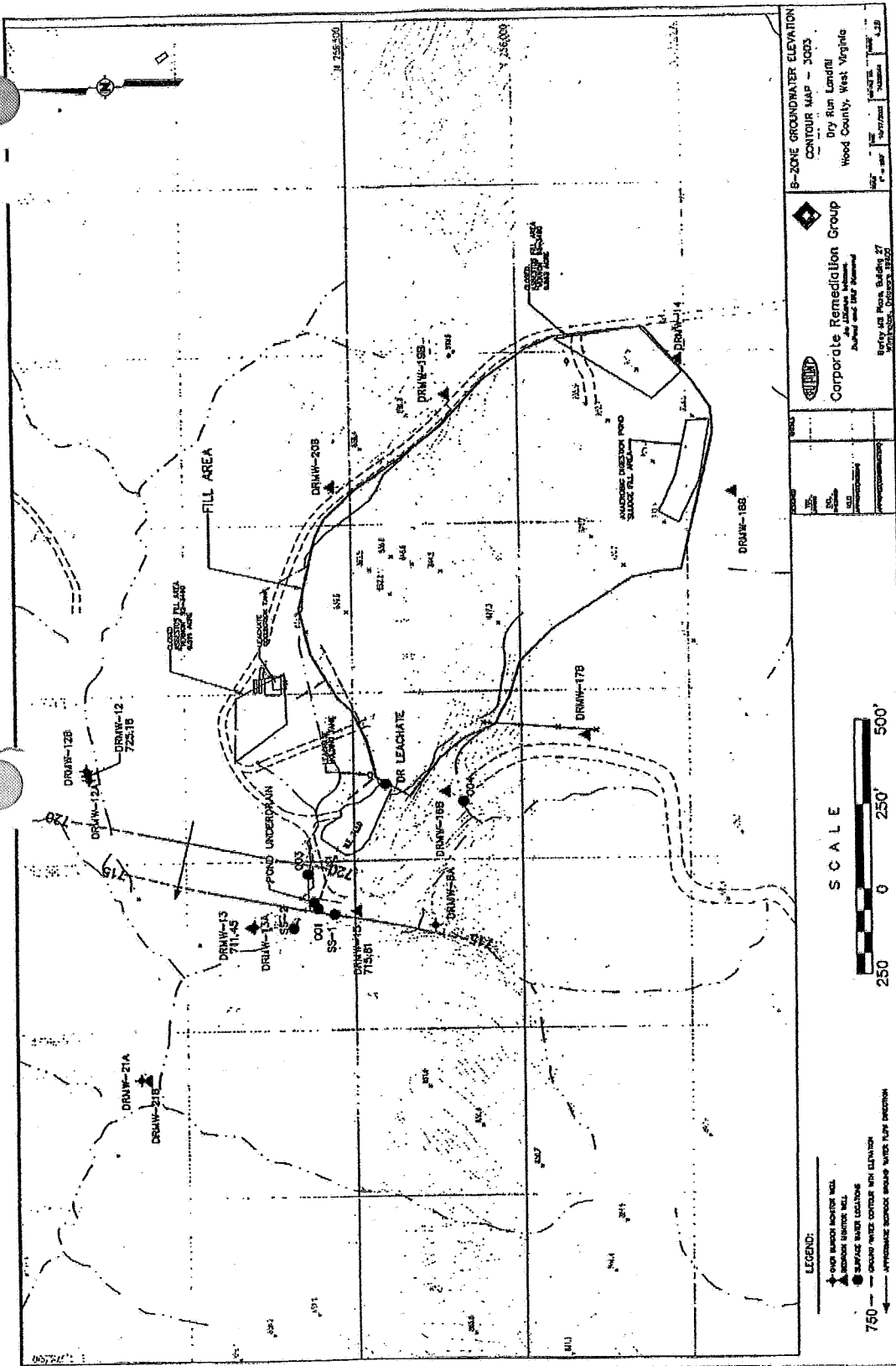
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ASH026544

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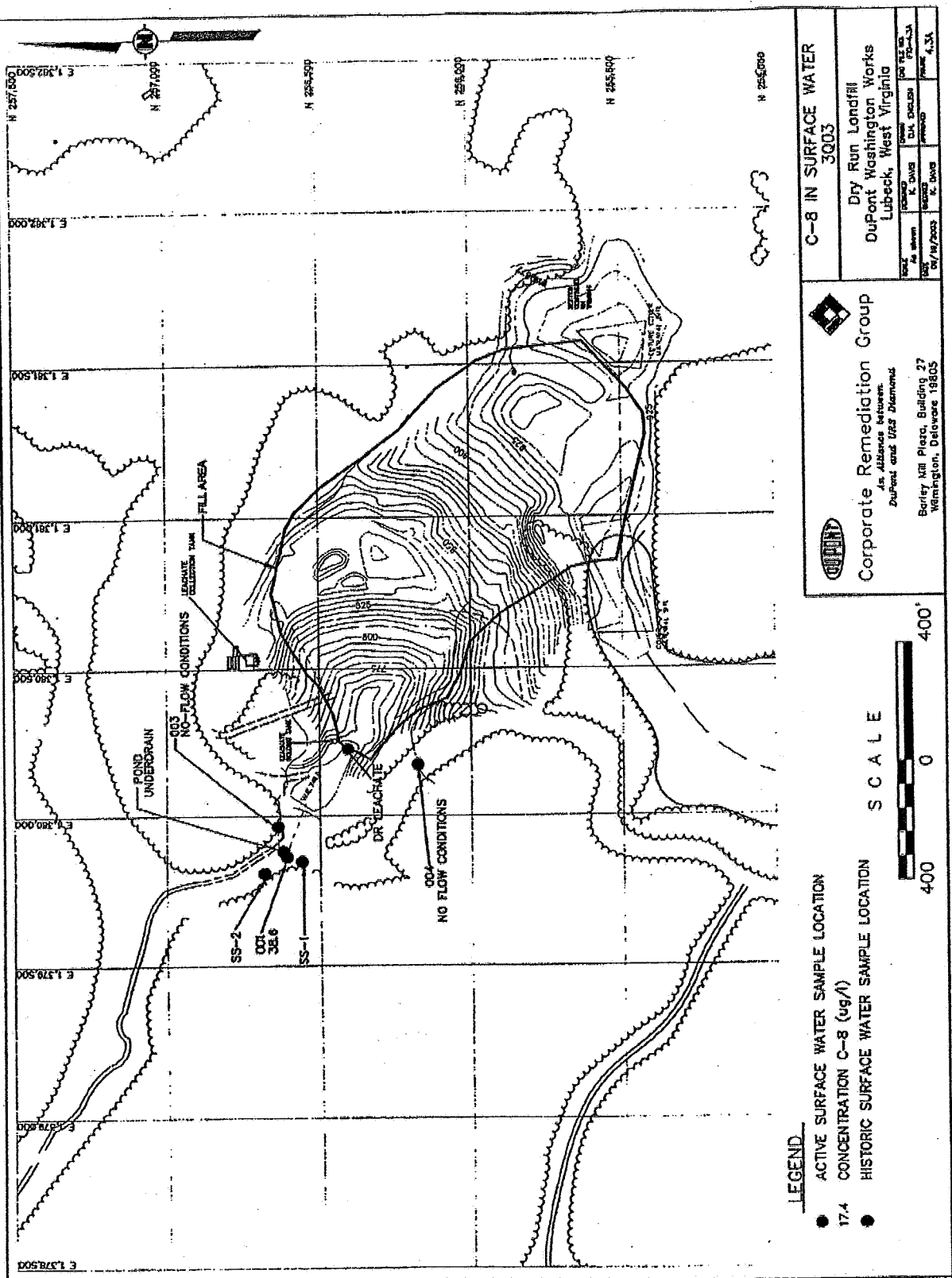
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ASH026545

EID779827

EID779827



C-8 IN SURFACE WATER
3003

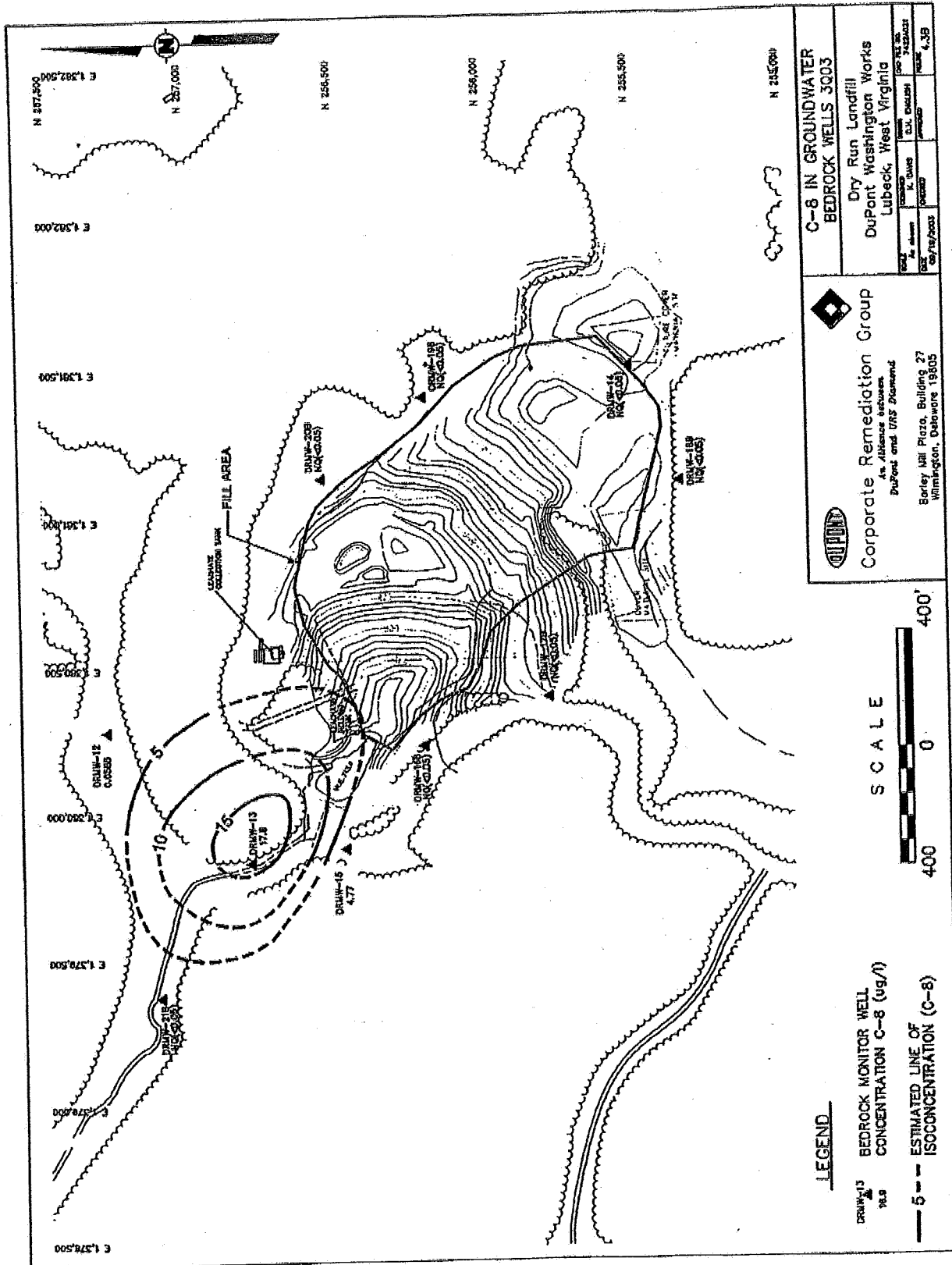
Dry Run Landfill
DuPont Washington Works
Lubeck, West Virginia

DATE	10/17/2003	BY	K. DAVIS	FOR FILE NO.	PD-43A
TIME	10:00 AM	APPROVED	K. DAVIS	DATE	4/31

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ASH026546
EID779828
EID779828



ASH026547

EID779829

EID779829