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First Semi-annual Assessment Monitoring Event

Sampling Date: July 10-13, 1995

Watauga County Landfill
NCDEHNR Permit No. 95-02

Prepared for:

Watauga County, North Carolina

Volume II of II Book 6 of 9

DAA JN: 6520-21

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GC-Volatile Organic Data Validation

Data validation was completed on laboratory analytical results generated from SW-846 Methods 8011, 8021, 8081, 8151, and 8310 for the July 10-13, 1995 first Semi-Annual Assessment Monitoring event at the Watauga County Landfill. The monitoring wells at the Watauga County Landfill are designated as either core or boundary monitoring wells. The core monitoring wells at the landfill are MW-1, MW-2, MW-3, MW-4, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, and MW-17. The boundary monitoring wells are MW-5, MW-13, MW-14, MW-15, MW-16, and MW-18. Sample MW-1A (method 8021 only) was also submitted as a double blind Performance Evaluation Sample (PE) and treated as a core monitoring well. SW-846 Method 8011 was prescribed to analyze for ethylene dibromide (EDB) and 1,2-dibromo-3-chloropropane (DBCP) in the 12 core monitoring wells only. SW-846 Method 8021 was prescribed to analyze for the following 12 target parameters for the core and boundary wells: benzene, chloroethane, 1,1-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,3-dichloropropene, dichlorodifluoromethane, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, trichloroethene, and vinyl chloride. Five additional target parameters were analyzed for in the core well samples: bromoform, carbon tetrachloride, chloroform, 1,2-dichloroethane, and 1,2-dichloropropane, for a total of 17 parameters. SW-846 Method 8081 was prescribed to analyze for 20 pesticides and PCBs (7 Aroclors) for the core monitoring wells only. SW-846 Method 8151 was prescribed to analyze for 5 herbicides for the core monitoring wells only. SW-846 Method 8310 was prescribed to analyze for benzo[a]pyrene for the core monitoring wells only.

Samples collected from MW-1, MW-3, MW-6, MW-7, MW-8, MW-10, MW-11, MW-13, MW-15, MW-17 and PE sample MW-1A were representative of the first Sample Delivery Group (SDG-1) and samples from MW-2, MW-4, MW-5, MW-9, MW-12, MW-14, MW-16 and MW-18 were representative of the second Sample Delivery Group (SDG-2). Samples were divided into separate SDGs to meet contractual requirements.

GC analyses were performed by CT&E Environmental Services Inc. of Charleston, WV. CT&E analyzed for the aforementioned parameters following the prescribed methods. The certificate of analysis prepared by CT&E laboratory included: extraction notes, instrument calibration data, raw chromatographic data printouts, Quality Assurance/Quality Control documentation, and tabulated results.

Validation for the laboratory's compliance with GC Methods 8011, 8021, 8081, 8151 and 8310 encompassed review of the following items: sample holding times, sample preservation requirements, sample extraction and purge procedures, laboratory QA/QC performance checks, instrument calibrations, blank analyses, surrogate spike analyses, and matrix spike analyses. Review of transcriptions from raw data to summary sheets and specific calculations were performed on random data points.

Method 8011 Review. Overall, the data set for Method 8011 was complete in its presentation and data was of acceptable quality. A single revision was required to obtain documentation to finalize the quality control deliverables package. The data set exhibited the analyst's ability to achieve the reported LOQ of 0.03 μg/L for both target parameters as outlined by the precision and accuracy data presented by the laboratory. The first nonzero calibration standard was run at a concentration of 0.01 μg/L. Criteria for sample preservation and holding times were met. Method retention time criteria were met. Reagent / System / Trip Blank criteria were met. No matrix interference due to coelution with DBCM was found to exist. The laboratory employed a dual column (denoted Channel A and B) GC system to achieve method confirmational requirements. Channel A was used as the primary quantification column and channel B was used for confirmational purposes only. No DBCP was detected in the samples analyzed via channel A; therefore, review of channel B chromatographic information was not warranted. Channel A detected the presence of EDB in the sample from MW-2; however, the detection was unconfirmed by Channel B. The results from MW-2 were validated as undetected, "U". The matrix spike and duplicate analyses exhibited acceptable recoveries of 80-120%. No target parameters were detected above the LOQ in any of the 12 core monitoring wells, (MW-1, MW-2, MW-3, MW-4, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, and MW-17). Results for target parameters not detected above the LOQs in the samples were validated as "U".

Method 8021 Review. Overall, the data set for Method 8021 was generally complete in its presentation and data was of acceptable quality. Draper Aden Associates requested two revisions (Nov. 9, 1995 and Dec. 1, 1995) to have CT&E address the matrix interference in the MW-9 MS and MW-9 MSD analyses, which caused several parameters to fail recovery criteria, and to address CT&E's failure to follow various technical requirements, which resulted in qualification of some of the data. Also requested, in Revision 2, a discussion of the non-detection of chloroethane, dichlorodifluoromethane, and 1,1-dichloroethane in several samples. Specific concerns discovered during data review, which were addressed in the revision requests, are discussed below. The data set exhibited the analyst's ability to achieve the reported LOQ

of 2.0 ug/L for all target parameters as outlined by the precision and accuracy data presented by the laboratory and was further supported by the first non-zero calibration standard at a concentration of 2.0 ug/L. Analysis for benzene was conducted via a photoionization detector (PID) and all other parameters were analyzed for via the Hall Electrolytic Conductivity Detector (HECD).

Criteria for sample preservation, temperature, and holding times were met, with the exception of exceeded holding times for the analysis of several parameters which required sample dilution. Results for these parameters were estimated in samples MW-6, MW-8, MW-10, and MW-17. Method retention time criteria were met. Surrogate recoveries for all samples were within laboratory control limits of 100 $\pm$ 20%. Blank analysis criteria were met and no target parameters were detected above the LOQ in any laboratory method blanks, Trip Blank-1, or Trip Blank-2.

All initial calibration criteria met SW-846 Method requirements. All continuing calibration criteria met SW-846 requirements with the exception of CCAL-2 on 7/22/95 in which the %Difference (%D) exceeded requirements for 1,2-dichloroethane and trichloroethene. Qualification of the results for these two compounds was required in the associated samples MW-15 and MW-17. Additionally, the CCAL on 7/26/95 failed %D criteria for dichlorodifluoromethane, resulting in qualification of the results for the compound in the associated samples listed in the table in Section E of the Method 8021 GC Volatile Data Review.

Matrix interference was evident in the matrix spike and matrix spike duplicate analyses of MW-9 as noted in CT&E's response to Revision 2. CT&E replied the matrix interference caused several parameters to fail recovery criteria and was also the cause of chloroethane being undetected. CT&E stated the chloroethane response were "buried" by later coeluting peaks at high concentrations, rendering quantification of chloroethane impossible. As a result of the coelution, CT&E raised the LOQ for chloroethane based on the matrix interference level, from 2.0 ug/L to 5.0-20.0 ug/L depending on the sample, in the associated samples in SDG-2. Due to the raised LOQ, sample results less than these values were validated as ("U"). CT&E conducted confirmational GC/MS analysis by method 8260 for chloroethane, dichlorodifluoromethane and 1,1-dichloroethane, and reported preliminary results, which are consistent with 8260 results provided by ETS Analytical Services, Inc. of Roanoke, VA, for this event, and with past historical event GC/MS data. These values were reviewed strictly for confirmation purposes only, and were not validated.

Samples collected from MW-2, MW-3, MW-4, MW-6, MW-8, MW-9, MW-10, MW-12 and MW-17 were diluted as necessary for specific parameters due to elevated parameter concentrations which exceeded the linear calibration range of 2-40 ug/L. Analysis of the diluted samples was conducted, however, holding times were exceeded for the diluted samples MW-6, MW-8, MW-10, and MW-17. LOQs for all detected parameters of interest, in these samples, were raised accordingly based on the dilutions and estimated due to exceedance of holding times.

A double blind Performance Evaluation Sample (PE), sample identification MW-1A, was prepared by third party laboratory, Environmental Resource Associates (ERA) of Arvada, CO, for Method 8021. CT&E analyzed for the extended target parameter list of 17 parameters. Validation of the PE results was not conducted by DAA, however, it should be noted that the MW-1A sample was associated with the failed CCAL on 7/22/95 along with the MW-15 and MW-17 samples and results for 1,2-dichloroethane and dichloroethene should be considered estimated. CT&E's analytical results and ERA's certified values and performance acceptance limits are included after the Analytical Data Set Notes tables for review.

Vinyl chloride was detected above the U.S. EPA MCL of 2 ug/L in the MW-3, MW-6, and MW-8 samples, however, further examination of the chromatograms and mass spectra revealed vinyl chloride coeluted with an unknown halogenated freon of mass 68. The coelution of these two compounds presented difficulty in estimating the true concentration of vinyl chloride when in the presence of the other compound. Supporting mass spectra obtained through a library search illustrated the detection of the mass 68 compound, having a significant ion abundance in relation to vinyl chloride's mass 62. Because of the presence of the coeluting compound the ability to accurately quantify the concentration of vinyl chloride may have been inhibited, and is a direct relationship to Method 8021 limitations. As a result of the method limitations and the coelution, the results for vinyl chloride in these samples were estimated as "J".

No Method 8021 target parameters were detected above the LOQ in core monitoring wells MW-1 and MW-4 or in boundary wells MW-5, MW-13, MW-14, MW-16, and MW-18. However, several target parameters were detected above and below the LOQ in core wells MW-2, MW-3, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, and MW-17 and one parameter was detected above the LOQ in boundary well MW-15. All validated results are tabulated in the Analytical Data Set Notes after the Method 8021 GC Volatile Data Review.

The table lists all validated and qualified results for all parameters for all samples. Results for all target parameters not detected above the LOQs were validated as "U".

Method 8081 Review. Overall, the data set was complete in its presentation and data was of acceptable quality. The data set exhibited the analyst's ability to achieve the reported LOQs for the target parameters as outlined by the precision and accuracy data presented by the laboratory. The first nonzero calibration standard was at a concentration equal to or less than the reported LOQs. Criteria for sample preservation, storage temperature, and holding times were met. Five point calibration and continuing calibration criteria were achieved. Endrin breakdown was not observed by the laboratory. The laboratory employed a dual column (denoted Channel A and B) GC system to achieve method requirements. Channel B was used as the primary quantitation column and Channel A was for confirmation purposes. Channel A data was reviewed to disconfirm the presence of target parameters in samples MW-6 and MW-11, as presented in the addendum submitted by the laboratory. Extraction criteria was met by the laboratory and samples were concentrated by an approximate factor of 800 during preparation. Surrogate recoveries between 40-130% were achieved for all samples. No target parameters were identified above the LOQs in any of the wells. Results for target parameters not detected above the LOQs in the samples were validated as "U".

Method 8151 Review. Overall, the data set for Method 8151 was complete in its presentation and data was of acceptable quality. The data set exhibited the analyst's ability to achieve the reported LOQs for the target parameters as outlined by the laboratory precision and accuracy statement. Criteria for sample preservation, holding times, and temperature requirements were met. Samples were extracted and concentrated by a factor of 100 as specified in Method 8151.

The laboratory employed a dual column (denoted Channel A and B) GC system to achieve confirmational requirements. Channel B was used as the primary quantitation column and channel A was used for confirmational purposes only. The five point method calibration criteria were met with the exception of 2,4,5-T, Dinoseb and pentachlorophenol. These parameters were not detected by the laboratory, therefore no corrective action or qualification was warranted. Method retention time criteria were met. Continuing calibration criteria was met.

Surrogate recovery limits of 40-120% were met for all samples. Method, extraction, and trip blank criteria were met. Matrix spikes recovery limits of 40-120% were achieved for all spiking parameters. No target parameters were reported by the laboratory as being detected

in any sample. Channel A data was reviewed to disconfirm the presence of target parameters in samples MW-3, MW-4, MW-8, and MW-17, and an addendum was submitted by the laboratory. Results for target parameters not detected above the LOQ in the samples were validated as "U".

Method 8310 Review. Overall, the data set for Method 8310 was complete in its presentation and data was of acceptable quality. The data set exhibited the analyst's ability to achieve the reported LOQ of 1.0 μg/L for benzo[a]pyrene as outlined by the laboratory's precision and accuracy statement. A matrix spike and spike duplicate was performed at a concentration of 0.05 ug/L indicating that the data would support an LOQ equal to 0.05 ug/L, therefore, an LOQ of 0.05 ug/L was established for the data set. The first non-zero calibration standard was at a concentration equivalent to a 0.03 μg/L extracted sample concentration.

Criteria for samples preservation, holding times, and storage temperatures were met. Sampies were extracted and concentrated following Method 8310 sample preparation protocol. Method retention time criteria were met. Surrogate recoveries for all samples were within laboratory control limits of 40% to 120%. Extraction blank analysis criteria were met and no benzo[a]pyrene was identified above the LOQ in the trip or laboratory control blank. Matrix spikes were performed and no indication of matrix interference was observed. The matrix spike and spike duplicate analyses exhibited acceptable recoveries between 40-140%. No benzo[a]pyrene was reported by the laboratory as being detected in any of the samples. Benzo[a]pyrene results not detected above the LOQ were validated as "U".

Method 8011 (EDB and DBCP) G.C. Volatile Data Review

Wells: SDG-1 Core wells: MW-1, MW-3, MW-6, MW-7, MW-8, MW-10, MW-11, MW-17

SDG-2 Core wells: MW-2, MW-4, MW-9, MW-12

QC Samples: MW-1 MS, MW-1 MSD, MW-9 MS, MW-9 MSD, Trip Blank-1, Trip Blank-2, Method Blanks

Laboratory: CT&E Environmental Services, Inc., Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

ethylene dibromide (EDB) and 1,2-dibromo-3-chloropropane (DBCP)

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 14 days maximum holding time? _X_ YES __NO
2. Cool 4°C (+-2°C)? _X_ YES __NO
3. pH adjusted <2 with H_2SO_4, HCl, or $NaSo_4$? _X_ YES __NO

Comments:

1. All samples were analyzed within 14 days of collection. Criteria met.
2. Sample temperatures were recorded below 4°C. Criteria met.
3. All pHs were recorded <2. Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. NaCl added prior to extraction? _X_ YES __NO
2. Document Sample extraction follows 8011, Section 7.4? _X_ YES __NO

3.	Instrument Specific LOD for target analytes?	X YES __NO
4.	Instrument Specific LOQ for target analytes?	X YES __NO
5.	Instrument specific Check Sample Data?	X YES __NO
6.	Instrument Working Range for target analytes?	X YES __NO
7.	Sample analysis log sheet?	X YES __NO
8.	Chromatogram and integration report for each sample?	X YES __NO
9.	Any Coelution problem identified between EDB and DBCM (dibromochloromethane)?	__YES X NO

Comments: All instrument QC history documentation was provided and was acceptable.

C. QC REFERENCE CHECK SAMPLES CRITERIA:

1.	QC check sample data is for G.C. used for analyses?	X YES __NO
2.	QC reference sample contains all target analytes outlined in Method.	X YES __NO
3.	QC reference check sample run once per week?	X YES __NO
4.	Reported percent recovery range is 60% to 140%?	X YES __NO

Comments: All QC reference check sample criteria was met.

D. QC CHECK STANDARD CRITERIA:

1.	QC check standard run once per analytical batch or 5% sample load?	X YES __NO
2.	Check standard identified by laboratory?	X YES __NO
3.	Recovery of EDB and DBCP analytes range is 60-140%?	X YES __NO

Comments: All QC check standards met criteria.

E. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper limit)? _X_YES __NO

   7 point calibration was run:

   (0.01, 0.02, 0.04, 0.05, 0.08, 0.10, and 0.20 μg/L stds.)

2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes? __N/A _X_YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

   b. Determined Internal Calibration Factor (CF) for target analytes? _X_ N/A__YES __NO

   $$CF = (A_s * C_{is})/(C_s * A_{is})$$

   A_s = Analyte Response
   A_{is} = Internal Standard Response
   C_s = Analyte Concentration
   C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes . CF is <10% over the established working range? __N/A _X_YES __NO

   $$\%RSD = SD/(CF)_a \times 100$$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD≥10% over established working range.

   None

Comments: All initial GC calibration criteria were met.

F. RETENTION TIME CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? _X_ YES __NO

   Daily RT Window = midpoint +- 3 times standard deviation.

Comments: All target parameters were within the specified retention time windows.

G. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO

2. Matrix spikes contain target analytes? _X_ YES __NO

3. Spike and Spike duplicate run on specific batch matrix? _X_ YES __NO

4. List laboratory's acceptable %recovery matrix spike ranges:

   EDB (80-120%)
   DBCP (80-120%)

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   None

6. Was a check standard run to address problem of failed Matrix Spike? _X_ N/A __YES __NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? _X_ N/A __YES __NO

8. Any analytes flagged as "Estimated Concentration"? __YES _X_ NO

9. List Analytes labeled as "Estimated Concentrations":

   None

Comments: All matrix spike criteria was met.

H. TRIP/REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run? X YES __NO
2. Reagent Blank run after 20 batch samples? X YES __NO
3. List target analytes identified in the Reagent/system blanks:

   None

4. Trip blank run per analytical batch? X YES __NO

Comments: No target parameters were detected in any laboratory method blanks or Trip Blank-1 and Trip Blank-2. All blank criteria met.

I. DAA CORRECTIVE ACTION STEPS TAKEN

Revision 1 was requested to provide a Precision and Accuracy Statement for instrument GC#9 Channel A and to revise the sample receipt temperatures in the case narrative.

J. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines (USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, February, 1994). Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: Date:

1/11/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8011	EDB	MW-1 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-2 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-3 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-4 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-6 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-7 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-8 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-9 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-10 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-11 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-12 (core)	U	U	LOQ = 0.03 μg/L.

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See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8011	EDB	MW-17 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-1 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-2 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-3 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-4 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-6 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-7 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-8 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-9 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-10 (core)	U	U	LOQ = 0.03 μg/L.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

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Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8011	DBCP	MW-11 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-12 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-17 (core)	U	U	LOQ = 0.03 μg/L.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

gsl 1/96

Method 8021 G.C. Volatile Data Review

Wells:	SDG-1 Core wells:	MW-1, MW-3, MW-6, MW-7, MW-8, MW-10, MW-11, MW-17
	SDG-2 Core Wells:	MW-2, MW-4, MW-9, MW-12
	SDG-1 Boundary wells:	MW-13, MW-15,
	SDG-2 Boundary wells:	MW-5, MW-14, MW-16, MW-18

QC Samples: MW-1 MS, MW-1 MSD, MW-9 MS, MW-9 MSD, Trip Blank-1, Trip Blank-2, Method Blanks, Performance Evaluation Sample MW-1A.

Laboratory: CT&E Environmental Services, Inc., Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

Core wells: (extended Method 8021 parameter list of 17 compounds);
Boundary wells (short Method 8021 parameter list of 12 compounds)

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 14 days maximum holding time? **(See Note 1)** __YES _X_NO
2. Cool 4°C (+-2°C)? _X_YES __NO
3. pH adjusted <2 with H_2SO_4, HCl, or $NaSo_4$? _X_YES __NO

Comments:

1. Samples collected from MW's - 2,3,6,8,9,10,12, and 17 were diluted 1:10 or 1:100 due to specific target parameters exceeding the linear calibration range of 2-40 μg/L. Holding times for diluted analyses were exceeded for the following:

A. MW-6: 1:10 dilution for trichloroethene and 1,1-dichloroethane
1:100 dilution for cis-1,2-dichloroethene

B. MW-8: 1:10 dilution for 1,1-dichloroethane, cis-1,2-dichloroethene, and tetrachloroethene

C. MW-10: 1:10 dilution for 1,1-dichloroethane and 1,1-dichloroethene

D. MW-17: 1:10 dilution for 1,1-dichloroethane and cis-1,2-dichloroethene

As a result of the exceeded holding times, results for these parameters/samples were validated as estimated ("J"). All technical holding times for all other diluted analyses and initial analyses were completed within 14 days of sample collection, and met criteria.

2. Sample temperatures were recorded below 4°C. Criteria met.

3. The pH of all samples was recorded $\leq$ 2.0. Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1.	Documentation of Purge and Trap operation within SW846 guidelines?	X YES	__NO
2.	Instrument specific LOD for target analytes?	X YES	__NO
3.	Instrument specific LOQ for target analytes?	X YES	__NO
4.	Instrument specific Check Sample Data?	X YES	__NO
5.	Instrument Working Range for target analytes?	X YES	__NO
6.	Lab acceptable surrogates %recovery ranges?	X YES	__NO
7.	Lab acceptable matrix spike recovery ranges for target analytes?	__YES	X NO
8.	Sample analysis log sheet?	X YES	__NO
9.	Chromatogram and integration report for each sample?	X YES	__NO

Comments: All instrument QC history documentation was provided and met criteria with exception (7.) noted below regarding matrix spike recovery ranges.

Analysis for benzene was conducted separate from all other target parameters via the PID detector. All other parameters were analyzed via the Hall Electrolytic Conductivity Detector (HECD).

7. Matrix spike recoveries of dichlorofluoromethane were exceeded for the MW-1 MS/MSD and MW-9 MS/MSD 1:10 diluted analyses. See Section I for detailed discussion.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for the G.C. used for analyses? _X_ YES __NO
2. QC check sample contains all target analytes outlined in RFP? _X_ YES __NO
3. QC check samples analyzed in quadruplicate? _X_ YES __NO
4. Reported average recovery (X) of target analytes from check samples? _X_ YES __NO
5. Reported Standard deviation(s) for the recovery of target analytes quadruplicated? _X_ YES __NO
6. Reported acceptable laboratory ranges for X and S values? _X_ YES __NO
7. QC check samples are within established laboratory acceptable range for target analytes? _X_ YES __NO

Comments: All check sample criteria was met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) _X_ YES __NO
   (2.0, 5.0, 10.0, 20.0, and 40.0 μg/L standards)

2. Calibration Type: Internal

   a. Determined External Calibration Factor (CF) for target analytes? __YES _X_ NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

   b. Determined Internal Calibration Factor (CF) for target analytes? _X_ YES __NO

   $$CF = (A_s * C_{is})/(C_s * A_{is})$$

   A_s = Analyte Response
   A_{is} = Internal Standard Response
   C_s = Analyte Concentration
   C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? __N/A _X_ YES __NO

   $$\%RSD = SD/(CF)_a \times 100$$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD≥20% over established working range.

   None

Comments: Two initial calibrations using the ELCD detector were associated with this sample batch excluding benzene. ICAL #1 on 7/22/95 was associated with the first Sample Delivery Group (SDG-1) and ICAL #2 on 7/24/95 was associated with the second Sample Delivery Group (SDG-2) and all diluted sample analyses. A separate ICAL on 7/22/95, associated with all samples, was conducted using the PID detector to analyze for benzene only. All initial calibration criteria was met for both analyses.

E. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? _X_ YES __NO

2. Target analytes responses have a % Difference (%Diff) of ±15% from previously run standards? __YES _X_NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

Comments: Nine continuing calibrations were associated with these sample batches and are tabulated below:

CCAL	Associated Samples	SW-846 Method Criteria
CCAL-1 7/22/95 1327 File: 11g2211-01R.d All parameters except benzene	Trip Blank-1, MW-1, MW-1MS, MW-1MSD, MW-6, MW-3, MW-7, MW-8, MW-11, MW-10, MW-13	All criteria met.
CCAL-2 7/22/95 2357 File: 11g2228.01R.d All parameters except benzene	MW-17, MW-15, MW-1A (MW-1A Performance Evaluation Sample)	Criteria for % Difference (%D) exceeded requirements for 1,2-dichloroethane and trichloroethene. Qualification of results for these parameters for MW-17 and MW-15 was required. Sample for MW-17 was diluted (1:10) for 1,1-dichloroethane and cis-1,2-dichloroethene, and reanalyzed on 7/26/95; however, holding times were missed, resulting in estimation of results for both parameters.
CCAL 7/25/95 0802 File: 11g2503.01R.d All parameters except benzene	Trip Blank-2, MW-9, MW-9MS, MW-9MSD, MW-12, MW-2, MW-4, MW-16, MW-14.	All criteria met.
CCAL 7/25/95 1842 File: 11g2520-01R.d All parameters except benzene	MW-18, MW-5, MW-6 (1:100 dil), MW-6 (1:10 dil), MW-10 (1:100 dil), MW-10 (1:10 dil), MW-17 (1:10 dil)	All criteria met.
CCAL 7/26/95 0935 File: 11g2605-01R.d All parameters except benzene	MW-9MS (1:10 dil), MW-9MSD (1:10 dil), MW-9 (1:10 dil), MW-18, MW-5, MW-12 (1:10 dil), MW-2 (1:100 dil), MW-2 (1:10 dil)	Criteria for %D exceeded requirements for dichlorodifluoromethane (%D-22.8%). Qualification of results for the associated samples was required for this target parameter.

CCAL 7/22/95 1327 File: 11g2211.01R.d Benzene only	Trip Blank-1, MW-1, MW-1MS, MW-1MSD, MW-6, MW-3, MW-7, MW-8, MW-11, MW-10, MW-13	All criteria met.
CCAL 7/22/95 2357 File: 11g2228.01R.d Benzene only	MW-17, MW-15, MW-1A (MW-1A: Performance Evaluation Sample)	All criteria met.
CCAL 7/25/95 0725 File: 11g2502.01R.d Benzene only	Trip Blank-2, MW-9, MW-9MS, MW-9MSD, MW-12, MW-2, MW-4, MW-16, MW-14	All criteria met.
CCAL 7/26/95 1110 File: 11g2606.01R.d Benzene only	MW9MS, MW9MSD, MW-9, MW-18, MW-5	All criteria met.

F. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 2 surrogate compounds? _X_YES __NO

2. List surrogate compounds used and laboratory's acceptable surrogate % Recovery Limits:

   ELCD surrogate: 2-bromo-1-chloropropane (80-120%)
   ELCD internal std: 1,4-bromochlorobenzene (80-120%)

   PID surrogate: a,a,a,trifluorotoluene (80-120%)
   PID internal std: fluorobenzene (80-120%)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

   None

Comments: All surrogate criteria was met. All surrogate % recoveries were within established limits.

G. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? _X_ YES __NO

Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Retention time data/windows were provided for all target parameters.

H. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? _X_ YES __NO
2. Reagent Blank run after 20 batch samples? _X_ YES __NO
3. List target analytes identified in the Reagent/system blanks:

None

4. Trip blank run per analytical batch _X_ YES __NO
5. List target analytes identified in trip blanks.

None

Comments: No target parameters were detected in trip/reagent/system blanks for these sample batches. All blank criteria met.

I. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO

2. Matrix spikes contain target analytes? _X_ YES __NO

3. Spike and Spike duplicate run on specific batch matrix? _X_YES __NO

4. List laboratory's acceptable %recovery matrix spike ranges:

benzene	(80-120%)	PID detector
dichlorodifluoromethane	(75-125%)	HECD detector
methylene chloride	(75-125%)	HECD detector
chloroethane	(75-125%)	HECD detector
1,1-dichloroethene	(75-125%)	HECD detector
vinyl chloride	(75-125%)	HECD detector
1,1-dichloroethane	(75-125%)	HECD detector
cis-1,2-dichloroethene	(75-125%)	HECD detector
chloroform	(75-125%)	HECD detector
1,2-dichloroethane	(75-125%)	HECD detector
1,1,1-trichloroethane	(75-125%)	HECD detector
carbon tetrachloride	(75-125%)	HECD detector
1,2-dichloropropane	(75-125%)	HECD detector
trichloroethene	(75-125%)	HECD detector
trans-1,3-dichloropropene	(75-125%)	HECD detector
tetrachloroethene	(75-125%)	HECD detector
bromoform	(75-125%)	HECD detector

5. List matrix spike target analytes not within acceptable laboratory recoveries:

MW-1 MS: dichlorodifluoromethane (7/22/95 at time 1518)
MW-1 MSD: dichlorodifluoromethane (7/22/95 at time 1555)

MW-9 MS: 1:10 diluted analysis for dichlorodifluoromethane (7/26/95 at time 1224)
MW-9 MSD: 1:10 diluted analysis for dichlorodifluoromethane (7/26/95 at time 1301)

Matrix interference was present in the initial analysis on 7/25/95. A 1:10 diluted MW-9MS and MSD analysis was conducted on 7/26/95 resulting in poor recovery of dichlorodifluoromethane only.

6. Was a check standard run to address problem of failed Matrix Spike? _X_ YES __NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? __N/A _X_ YES __NO

8. Any analytes flagged as "Estimated Concentration"? _X_ YES __NO

9. List Analytes labeled as "Estimated Concentrations":

Dichlorodifluoromethane was estimated as "UJ" in the MW-1, MW-6, MW-7, MW-10, MW-11 and MW-13 samples due to exceedance of acceptable laboratory recoveries in the MW-1 MS and MW-1MSD analyses. Dichlorodifluoromethane was estimated as "UJ" in the MW-5, MW-9, and MW-18 samples due to exceedance of acceptable laboratory recoveries in the MW-9 MS and MSD analyses.

Comments: Dichlorodifluoromethane was the only target parameter that failed the matrix spike recoveries for MW-1MS/MSD. As a result, dichlorodifluoromethane results were estimated for all samples analyzed on 7/22/95. The MW-9 MS and MSD samples were diluted 1:10 due to matrix interference and dichlorodifluoromethane was the only target parameter that failed MS and MSD spike recoveries. As a result, dichlorodifluoromethane results for all samples analyzed on 7/26/95 were validated as estimated ("J"). A separate MS/MSD analyses via the PID detector was conducted for benzene for all samples and met all criteria.

J. DAA CORRECTIVE ACTION STEPS TAKEN AND NOTES

Revision 1 was requested on November 9, 1995 and Revision 2 was requested December 1, 1995.

K. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements (Test methods for evaluating solid waste - Physical/Chemical Method, USEPA SW-846, 3rd Edition - Final Update I and II/IIA) and CLP data validation guidelines, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, February, 1994. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: Date:

1/11/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8021	dichlorofluoromethane	MW's-1, 2, 5, 6, 7, 9, 10, 11, 13, 18 (core and boundary)	U	UJ	Results were estimated for these samples due to low % recoveries on the MW-1MS and MSD, MW-9 MS and MW-9 MSD analyses, indicating a problem with this parameter.
8021	All remaining parameters	MW-1 (core)	U	U	Not detected above the LOQ.
8021	1,1-dichloroethane	MW-2 (core)	81.2	81	No action taken. Result taken from the 7/26/95 (1758) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	1,1-dichloroethene	MW-2 (core)	167	170	No action taken. Result taken from the 7/26/95 (1758) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	tetrachloroethene	MW-2 (core)	12.4	12	No action taken. Result taken from the initial undiluted sample.
8021	1,1,1-trichloroethane	MW-2 (core)	1580	1600	No action taken. Result taken from the 7/26/95 (1721) 1:100 diluted sample. Sample LOQ was raised to 200 ug/L.
8021	trichloroethene	MW-2 (core)	1.18J	1.2J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-2 (core)	U	U	Not detected above the LOQ.
8021	benzene	MW-3 (core)	2.34	2.3	No action taken. LOQ = 2.0 ug/L.

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8021	chloroethane	MW-3 (core)	U	U	Sample LOQ was raised to 10.0 ug/L due to level of matrix interference. Parameter validated as undetected above the LOQ.
8021	1,1-dichloroethane	MW-3 (core)	131	130	No action taken. Result taken from the 7/24/95 (2353) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	1,1-dichloroethene	MW-3 (core)	3.96	4.0	No action taken. LOQ = 2.0 ug/L.
8021	cis-1,2-dichloroethene	MW-3 (core)	65.2	65	No action taken. Result taken from the 7/24/95 (2353) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	dichlorodifluoromethane	MW-3 (core)	6.92	6.9J	Sample result estimated due to low % recoveries of the parameter on the MW-1MS and MW-1MSD analyses.
8021	methylene chloride	MW-3 (core)	2.43	2.4	No action taken. LOQ = 2.0 ug/L.
8021	tetrachloroethene	MW-3 (core)	30.9	31	No action taken. LOQ = 2.0 ug/L.
8021	1,1,1-trichloroethane	MW-3 (core)	25.7	26	No action taken. LOQ = 2.0 ug/L.
8021	trichloroethene	MW-3 (core)	20.5	20	No action taken. LOQ = 2.0 ug/L.
8021	vinyl chloride	MW-3 (core)	2.88	2.9J	Sample result was estimated due to coelution with an unknown halogenated freon at mass 68, which presented difficulty in quantifying the concentration of vinyl chloride.
8021	1,2-dichloroethane	MW-3 (core)	1.23J	1.23J	Sample result below LOQ of 2.0 ug/L.

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8021	All remaining parameters	MW-3 (core)	U	U	Not detected above the LOQ.
8021	All parameters	MW-4 (core)	U	U	Not detected above the LOQ.
8021	All remaining parameters	MW-5 (boundary)	U	U	Not detected above the LOQ.
8021	benzene	MW-6 (core)	14.2	14	No action taken. LOQ = 2.0 ug/L.
8021	chloroethane	MW-6 (core)	U	U	Sample LOQ was raised to 15.0 ug/L due to level of matrix interference. Parameter validated as undetected above the LOQ.
8021	1,1-dichloroethane	MW-6 (core)	102	100J	No action taken. Result taken from the 7/25/95 (2224) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.
8021	cis-1,2-dichloroethene	MW-6 (core)	443	440J	No action taken. Result taken from the 7/25/95 (2147) 1:100 diluted sample. Sample LOQ was raised to 200 ug/L. Result estimated due to missed holding time on diluted analyses.
8021	tetrachloroethene	MW-6 (core)	13.2	13	No action taken. LOQ = 2.0 ug/L.
8021	trichloroethene	MW-6 (core)	66.6	67J	No action taken. Result taken from the 7/25/95 (2224) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.

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8021	vinyl chloride	MW-6 (core)	11.5	12J	No action taken. LOQ = 2.0 ug/L. Result estimated due to coelution
8021	methylene chloride	MW-6 (core)	1.18J	1.2J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-6 (core)	U	U	Not detected above the LOQ.
8021	benzene	MW-7 (core)	2.19	2.2	No action taken. LOQ = 2.0 ug/L.
8021	chloroethane	MW-7 (core)	9.20	9.2	No action taken. LOQ = 2.0 ug/L.
8021	1,1-dichloroethane	MW-7 (core)	4.78	4.8	No action taken. LOQ = 2.0 ug/L.
8021	cis-1,2-dichloroethene	MW-7 (core)	4.37	4.4	No action taken. LOQ = 2.0 ug/L.
8021	1,2-dichloropropane	MW-7 (core)	1.38J	1.4J	Sample result below LOQ of 2.0 ug/L.
8021	trichloroethene	MW-7 (core)	1.63J	1.6J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-7 (core)	U	U	Not detected above the LOQ.
8021	benzene	MW-8 (core)	6.20	6.2	No action taken. LOQ = 2.0 ug/L.
8021	chloroethane	MW-8 (core)	U	U	Sample LOQ was raised to 10.0 ug/L due to level of matrix interference. Parameter validated as undetected above the LOQ.

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8021	1,1-dichloroethane	MW-8 (core)	60.1	60J	No action taken. Result taken from the 7/25/95 (0030) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.
8021	1,1-dichloroethene	MW-8 (core)	5.69	5.7	No action taken. LOQ = 2.0 ug/L.
8021	cis-1,2-dichloroethene	MW-8 (core)	107	110J	No action taken. Result taken from the 7/25/95 (0030) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.
8021	dichlorodifluoromethane	MW-8 (core)	15.6	16J	Sample result estimated due to low % recoveries of the parameter on the MW-1MS and MW-1MSD analyses.
8021	methylene chloride	MW-8 (core)	4.67	4.7	No action taken. LOQ = 2.0 ug/L.
8021	tetrachloroethene	MW-8 (core)	41.9	42J	No action taken. Result taken from the 7/25/95 (0030) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.
8021	1,1,1-trichloroethane	MW-8 (core)	6.03	6.0	No action taken. LOQ = 2.0 ug/L.
8021	trichloroethene	MW-8 (core)	27.6	28	No action taken. LOQ = 2.0 ug/L.
8021	vinyl chloride	MW-8 (core)	10.8	11J	No action taken. LOQ = 2.0 ug/L. Result estimated due to coelution.
8021	1,2-dichloroethane	MW-8 (core)	0.893J	0.89J	Sample result below LOQ of 2.0 ug/L.

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8021	1,2-dichloropropane	MW-8 (core)	0.870J	0.87J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-8 (core)	U	U	Not detected above the LOQ.
8021	benzene	MW-9 (core)	4.03	4.0	No action taken. LOQ = 2.0 ug/L.
8021	chloroethane	MW-9 (core)	U	U	Sample LOQ was raised to 20.0 ug/L due to level of matrix interference. Parameter validated as undetected above the LOQ.
8021	1,1-dichloroethane	MW-9 (core)	35.8	36	No action taken. LOQ = 2.0 ug/L.
8021	cis-1,2-dichloroethene	MW-9 (core)	7.36	7.4	No action taken. LOQ = 2.0 ug/L.
8021	methylene chloride	MW-9 (core)	88.9	89	No action taken. Result taken from the 7/26/95 (1415) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	tetrachloroethene	MW-9 (core)	4.96	5.0	No action taken. LOQ = 2.0 ug/L.
8021	1,1,1-trichloroethane	MW-9 (core)	12.0	12	No action taken. LOQ = 2.0 ug/L.
8021	trichloroethene	MW-9 (core)	8.63	8.6	No action taken. LOQ = 2.0 ug/L.
8021	All remaining parameters	MW-9 (core)	U	U	Not detected above the LOQ.
8021	1,1-dichloroethane	MW-10 (core)	58.4	58J	No action taken. Result taken from the 7/26/95 (0014) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.

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8021	1,1-dichloroethene	MW-10 (core)	158	160J	No action taken. Result taken from the 7/26/95 (0014) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.
8021	tetrachloroethene	MW-10 (core)	13.0	13	No action taken. LOQ = 2.0 ug/L.
8021	1,1,1-trichloroethane	MW-10 (core)	990	990	No action taken. Result taken from the 7/25/95 (2357) 1:100 diluted sample. Sample LOQ was raised to 200 ug/L.
8021	All remaining parameters	MW-10 (core)	U	U	Not detected above the LOQ.
8021	1,1-dichloroethane	MW-11 (core)	22.5	22	No action taken. LOQ = 2.0 ug/L.
8021	cis-1,2-dichloroethene	MW-11 (core)	11.4	11	No action taken. LOQ = 2.0 ug/L.
8021	methylene chloride	MW-11 (core)	2.88	2.9	No action taken. LOQ = 2.0 ug/L.
8021	tetrachloroethene	MW-11 (core)	10.4	10	No action taken. LOQ = 2.0 ug/L.
8021	1,1,1-trichloroethane	MW-11 (core)	5.88	5.9	No action taken. LOQ = 2.0 ug/L.
8021	trichloroethene	MW-11 (core)	5.80	5.8	No action taken. LOQ = 2.0 ug/L.
8021	1,1-dichloroethene	MW-11 (core)	0.859J	0.86J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-11 (core)	U	U	Not detected above the LOQ.

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8021	chloroethane	MW-12 (core)	U	U	Sample LOQ was raised to 5.0 ug/L due to level of matrix interference. Parameter was validated as undetected above the LOQ.
8021	1,1-dichloroethane	MW-12 (core)	101	100	No action taken. Result taken from the 7/26/95 (1644) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	1,1-dichloroethene	MW-12 (core)	3.93	3.9	No action taken. LOQ = 2.0 ug/L.
8021	cis-1,2-dichloroethene	MW-12 (core)	37.3	37	No action taken. Result taken from the 7/26/95 (1644) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	dichlorodifluoromethane	MW-12 (core)	5.74	5.7J	No action taken. LOQ = 2.0 ug/L. Result estimated due to low % recovery of parameter on the 1:10 diluted analysis of MW-9 MS and MSD samples.
8021	methylene chloride	MW-12 (core)	3.32	3.3	No action taken. LOQ = 2.0 ug/L.
8021	tetrachloroethene	MW-12 (core)	26.8	27	No action taken. LOQ = 2.0 ug/L.
8021	1,1,1-trichloroethane	MW-12 (core)	16.7	17	No action taken. LOQ = 2.0 ug/L.
8021	trichloroethene	MW-12 (core)	16.1	16	No action taken. LOQ = 2.0 ug/L.
8021	vinyl chloride	MW-12 (core)	2.26	2.3	No action taken. LOQ = 2.0 ug/L.
8021	All remaining parameters	MW-12 (core)	U	U	Not detected above the LOQ.
8021	methylene chloride	MW-13 (boundary)	0.834J	0.84J	Sample result below LOQ of 2.0 ug/L.

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8021	All remaining parameters	MW-13 (boundary)	U	U	Not detected above the LOQ.
8021	All parameters	MW-14 (boundary)	U	U	Not detected above the LOQ.
8021	1,1,1-trichloroethane	MW-15 (boundary)	2.71	2.7	No action taken. LOQ = 2.0 ug/L.
8260	1,2-dichloroethane	MW-15 (boundary)	U	UJ	Result was validated as estimated and not detected (UJ) due to effects from changes in the instrument response factor in the failed CCAL as noted by the lab in the case narrative. The parameter was analyzed by method 8260 for quantitation but was not detected.
8260	trichloroethene	MW-15 (boundary)	U	UJ	Result was validated as estimated and not detected (UJ) due to effects from changes in the instrument response factor in the failed CCAL as noted by the lab in the case narrative. The parameter was analyzed by method 8260 for quantitation but was not detected.
8021	All remaining parameters	MW-15 (boundary)	U	U	Not detected above the LOQ.
8021	All parameters	MW-16 (boundary)	U	U	Not detected above the LOQ.
8021	chloroethane	MW-17 (core)	U	U	Sample LOQ was raised to 5.0 ug/L due to level of matrix interference. Result was validated as undetected above the LOQ.

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8021	1,1-dichloroethane	MW-17 (core)	102	102J	No action taken. Result taken from 7/26/95 (0128) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result was estimated due to missed holding time on diluted analyses.
8021	cis-1,2-dichloroethene	MW-17 (core)	71.7	72J	No action taken. Result taken from 7/26/95 (0128) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result was estimated due to missed holding time on diluted analyses.
8021	dichlorodifluoromethane	MW-17 (core)	5.27	5.3J	Sample result estimated due to low % recoveries on the MW-1MS and MW-1MSD analyses.
8021	methylene chloride	MW-17 (core)	2.25	2.2	No action taken. LOQ = 2.0 ug/L.
8021	tetrachloroethene	MW-17 (core)	40.1	40	No action taken. LOQ = 2.0 ug/L.
8021	1,1,1-trichloroethane	MW-17 (core)	7.84	7.8	No action taken. LOQ = 2.0 ug/L.
8260	trichloroethene	MW-17 (core)	20.9	21J	No action taken. Result was validated as estimated due to effects from changes in the instrument response factor in the failed CCAL as noted by the lab in the case narrative. The parameter was analyzed by method 8260 for quantitation.

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8260	1,2-dichloroethane	MW-17 (core)	1.68J	1.7J	Result from 8260 analyses on 7/25/95 (0124) reported 1.68J, which was below LOQ of 2.0 ug/L. Results from 7/23/95 (0112) were rejected due to poor response factor in the failed CCAL as noted by the lab in the case narrative.
8021	1,1-dichloroethene	MW-17 (core)	1.76J	1.8J	Sample result below LOQ of 2.0 ug/L.
8021	vinyl chloride	MW-17 (core)	0.935J	0.94J	Sample result below LOQ of 2.0 ug/L.
8021	1,2-dichloropropane	MW-17 (core)	0.804J	0.80J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-17 (core)	U	U	Not detected above the LOQ.
8021	methylene chloride	MW-18 (boundary)	0.585J	0.58J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-18 (boundary)	U	U	Not detected above the LOQ.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

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Method 8081 (Organochlorine Pesticides and PCBs) G.C. Volatile Data Review

Wells: SDG-2 Core Wells: MW-2, MW-4, MW-9, and MW-12

QC Samples: MW-9 MS, MW-9 MSD, Trip Blank, Method Blanks

Laboratory: CT&E Environmental Services, Inc., Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 7 days maximum holding time before extraction? _X_ YES __NO
2. 40 days maximum holding time after sample extraction? _X_ YES __NO
3. Cool 4°C (+-2°C)? _X_ YES __NO

Comments: Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Specific extraction method specified _X_ YES __NO
2. Documentation of DDT/Endrin breakdown study? _X_ YES __NO
3. Instrument specific LOD for target analytes? _X_ YES __NO
4. Instrument specific LOQ for target analytes? _X_ YES __NO
5. Instrument specific Check Sample Data? _X_ YES __NO
6. Instrument Working Range for target analytes? _X_ YES __NO
7. Lab acceptable surrogates %recovery ranges? _X_ YES __NO
8. Lab acceptable matrix spike %recovery ranges for target analytes? _X_ YES __NO
9. Sample analysis log sheet? _X_ YES __NO
10. Chromatogram and integration report for each sample? _X_ YES __NO
11. Dual columns follow 8081 method? _X_ YES __NO

Comments: Criteria met.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for the G.C. that was used for analyses? _X_ YES __NO

2. QC check sample contains all target analytes outlined in RFP? _X_ YES __NO

3. QC check samples analyzed in quadruplicate? _X_ YES __NO

4. Reported average recovery (X) of target analytes from check samples? _X_ YES __NO

5. Reported Standard deviation(s) for the recovery of target analytes quadruplicated? _X_ YES __NO

Comments: Criteria met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) _X_ YES __NO

   all five point calibrations except PCBs.

2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes?_N/A _X_ YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

   b. Determined Internal Calibration Factor (CF) for target analytes?_X_ N/A __YES __NO

   $$CF = (A_s * C_{is})/(C_s * A_{is})$$

   A_s = Analyte Response
   A_{is} = Internal Standard Response
   C_s = Analyte Concentration
   C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? __N/A _X_ YES __NO

   $$\%RSD = SD/(CF)_a \times 100$$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD≥20% over established working range.

   None

Comments: PCBs calibrated using Arochlor 1016/1260 standards, criteria met.

E. DDT/ENDRIN BREAKDOWN CHECK CRITERIA:

1. A 4,4'-DDT and Endrin standard was run and % breakdown of each compound calculated? _X_YES __NO

2. The calculated % Breakdown is less than 20%? _X_YES __NO

Comments: Criteria met.

F. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? _X_ YES __NO

2. Target analytes responses have a % Difference (%Diff) of ±15% from previously run standards? __YES _X_ NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

3. A Mid-concentration standard run after each group of 10 samples in the analysis sequence. _X_ YES __NO

Comments: % Difference criteria not achieved due to inflated response. Since no parameters were quantified by the laboratory, no additional information was required.

G. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 1 surrogate compound? _X_ YES __NO

2. List surrogate compounds used and laboratory's acceptable surrogate % Recovery Limits:

   TCMX (40-130)
   DCBP (40-130)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

   None

Comments: Criteria met.

H. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? _X_ YES __NO

Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Criteria met.

I. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? _X_ YES __NO
2. Reagent Blank run after 20 batch samples? _X_ YES __NO
3. List target analytes identified in the Reagent/system blanks:

   None

4. Trip blank run for sample batch? _X_ YES __NO
5. List target analytes identified in the trip blank:

   None

Comments: All blank criteria were met.

J. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO

2. Matrix spikes contain target analytes? _X_ YES __NO

3. Spike and Spike duplicate run on specific batch matrix? _X_ YES __NO

4. List laboratory's acceptable %recovery matrix spike ranges:

   All parameters: 40-130%

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   Several spiked compounds exceeded the recovery range.

6. Was a check standard run to address problem of failed Matrix Spike? __N/A __YES _X_ NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? _X_N/A __YES __NO

8. Any analytes flagged as "Estimated Concentration"? __YES _X_NO

9. List Analytes labeled as "Estimated Concentrations":

None

Comments: Several of the matrix spike compounds exceeded the QC limits indicating an inflated signal. No corrective action was performed by laboratory. No additional information was requested from the laboratory.

K. DAA CORRECTIVE ACTION STEPS TAKEN AND NOTES

Channel A data was requested for MW-9 to review chromatographic activity. Addendum from laboratory disconfirmed the presence of target parameters. No additional information was requested.

L. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: Date:

1/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8081	aldrin	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	alpha - BHC	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	beta - BHC	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	delta - BHC	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	gamma - BHC	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	chlordane	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	4,4' - DDD	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	4,4' - DDE	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	4,4' - DDT	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Dieldrin	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Endosulfan I	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Endosulfan II	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Endosulfan Sulfate	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Endrin Aldehyde	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Heptachlor	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.

8081	Heptachlor Epoxide	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Hexachlorobenzene	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	PCBs	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	toxaphene	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

Method 8081 (Organochlorine Pesticides and PCBs) G.C. Volatile Data Review

Wells: SDG-1 Core wells: MW-1, MW-3, MW-6, MW-8, MW-10, MW-11, and MW-17 (No sample submitted for MW-7 due to insufficient water)

QC Samples: MW-1 MS, MW-1 MSD, Trip Blank, Method Blanks

Laboratory: CT&E Environmental Services, Inc., Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 7 days maximum holding time before extraction? _X_ YES __NO
2. 40 days maximum holding time after sample extraction? _X_ YES __NO
3. Cool 4°C (+-2°C)? _X_ YES __NO

Comments: Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Specific extraction method specified _X_ YES __NO
2. Documentation of DDT/Endrin breakdown study? _X_ YES __NO
3. Instrument specific LOD for target analytes? _X_ YES __NO
4. Instrument specific LOQ for target analytes? _X_ YES __NO
5. Instrument specific Check Sample Data? _X_ YES __NO
6. Instrument Working Range for target analytes? _X_ YES __NO
7. Lab acceptable surrogates %recovery ranges? _X_ YES __NO
8. Lab acceptable matrix spike %recovery ranges for target analytes? _X_ YES __NO
9. Sample analysis log sheet? _X_ YES __NO
10. Chromatogram and integration report for each sample? _X_ YES __NO
11. Dual columns follow 8081 method? _X_ YES __NO

Comments: Criteria met.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for the G.C. that was used for analyses? _X_ YES __NO
2. QC check sample contains all target analytes outlined in RFP? _X_ YES __NO
3. QC check samples analyzed in quadruplicate? _X_ YES __NO
4. Reported average recovery (X) of target analytes from check samples? _X_ YES __NO
5. Reported Standard deviation(s) for the recovery of target analytes quadruplicated? _X_ YES __NO

Comments: Criteria met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) _X_ YES __NO

   All pesticides were calibrated with a five point calibration. PCBs were calibrated using Aroclor 1016/1260 mix.

2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes?_N/A _X_ YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

   b. Determined Internal Calibration Factor (CF) for target analytes?_X_ N/A __YES __NO

   $$CF = (A_s * C_{is})/(C_s * A_{is})$$

   A_s = Analyte Response
   A_{is} = Internal Standard Response
   C_s = Analyte Concentration
   C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? __N/A _X_YES __NO

$$\%RSD = SD/(CF)_a \times 100$$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD≥20% over established working range.

   None

Comments: PCBs were calibrated using Aroclor 1016/1260 standards. Criteria met.

E. DDT/ENDRIN BREAKDOWN CHECK CRITERIA:

1. A 4,4'-DDT and Endrin standard was run and % breakdown of each compound calculated? _X_YES __NO

2. The calculated % Breakdown is less than 20%? _X_ YES __NO

Comments: Criteria met.

F. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? _X_ YES __NO

2. Target analytes responses have a % Difference (%Diff) of ±15% from previously run standards? __YES _X_ NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

3. A Mid-concentration standard run after each group of 10 samples in the analysis sequence. _X_ YES __NO

Comments: %Difference criteria not achieved due to inflated response. No parameters were detected, therefore, no additional information was requested.

G. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 1 surrogate compound? _X_ YES __NO

2. List surrogate compounds used and laboratory's acceptable surrogate % Recovery Limits:

   TCMX (40-130%)
   DCBP (40-130%)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

   None

Comments: Criteria met.

H. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? _X_ YES __NO

   Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Criteria met.

I. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? _X_ YES __NO
2. Reagent Blank run after 20 batch samples? _X_ YES __NO
3. List target analytes identified in the Reagent/system blanks:

   None

4. Trip blank run for sample batch? _X_ YES __NO
5. List target analytes identified in the trip blank:

   None

Comments: All blank criteria were met.

J. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO
2. Matrix spikes contain target analytes? _X_ YES __NO
3. Spike and Spike duplicate run on specific batch matrix? _X_ YES __NO
4. List laboratory's acceptable %recovery matrix spike ranges:

   All parameters: 40-130%

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   Several spiked compounds exceeded the recovery range.

6. Was a check standard run to address problem of failed Matrix Spike? __N/A __YES _X_NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? _X_N/A __YES __NO

8. Any analytes flagged as "Estimated Concentration"? __YES _X_NO

9. List Analytes labeled as "Estimated Concentrations":

   None

Comments: The matrix spike compounds exceeded QC limits indicating an inflated signal. No corrective action was taken by the laboratory. No additional information required since no parameters were quantified by the laboratory.

K. DAA CORRECTIVE ACTION STEPS TAKEN AND NOTES

1. Channel A data was requested for MW-6 & MW-11 to review chromatographic activity. Addendum provided by the laboratory met criteria.

L. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: _____

Date: 1/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8081	aldrin	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	alpha - BHC	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	beta - BHC	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	delta - BHC	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	gamma - BHC	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	chlordane	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	4,4' - DDD	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	4,4' - DDE	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	4,4' - DDT	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Dieldrin	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Endosulfan I	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Endosulfan II	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Endosulfan Sulfate	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Endrin Aldehyde	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Heptachlor	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Heptachlor Epoxide	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.

8081	Hexachlorobenzene	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	PCBs	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	toxaphene	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

Method 8151 (Chlorinated herbicides) G.C. Data Review

Wells: SDG-1 Core Wells: MW-1, MW-3, MW-6, MW-8, MW-10, MW-11, and MW-17 (No sample submitted for MW-7 due to insufficent water)

QC Samples: MW-1 MS, MW-1 MSD, Trip Blank, Method Blanks

Laboratory: CT&E Environmental Services, Inc., Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 7 days maximum holding time before extraction? _X_ YES __NO
2. 40 days maximum holding times after sample extraction? _X_ YES __NO
3. Cool 4°C (+-2°C)? _X_ YES __NO

Comments: Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Specific extraction method specified? _X_ YES __NO
2. Instrument specific LOD for target analytes? _X_ YES __NO
3. Instrument specific LOQ for target analytes? _X_ YES __NO
4. Instrument specific Check Sample Data? _X_ YES __NO
5. Instrument Working Range for target analytes? _X_ YES __NO
6. Lab acceptable surrogates %recovery ranges? _X_ YES __NO
7. Lab acceptable matrix spike recovery ranges for target analytes? _X_ YES __NO
8. Sample analysis log sheet? _X_ YES __NO
9. Chromatogram and integration report for each sample? _X_ YES __NO

Comments: Criteria met.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for the G.C. that was used for analyses? _X_ YES __NO

2. QC check sample contains all target analytes outlined in RFP? _X_ YES __NO

3. QC check samples analyzed in quadruplicate? _X_ YES __NO

4. Reported average recovery (X) of target analytes from check samples? _X_ YES __NO

5. Reported Standard deviation(s) for the recovery of target analytes? _X_ YES __NO

6. Reported acceptable laboratory ranges for X and S values? _X_ YES __NO

7. QC check samples are within established laboratory acceptable range for target analytes? _X_ YES __NO

Comments: Criteria met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) _X_ YES __NO

2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes? __N/A _X_ YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

   b. Determined Internal Calibration Factor (CF) for target analytes? _X_ N/A __YES __NO

   $$CF = (A_s * C_{is})/(C_s * A_{is})$$

   A_s = Analyte Response
   A_{is} = Internal Standard Response
   C_s = Analyte Concentration
   C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? X YES __NO

$$\%RSD = SD/(CF)_a \times 100$$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD≥20% over established working range.

   None

Comments: Criteria met.

E. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? X YES __NO

2. Target analytes responses have a % Difference (%Diff) of ±15% from previously run standards? X YES __NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

Comments: Criteria met.

F. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 1 surrogate compound? X YES __NO

2. List surrogate compound used and laboratory's acceptable surrogate % Recovery Limit:

   2,4-DAA (40-120%)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

   None

Comments: Criteria met.

G. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? X YES __NO

   Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Criteria met.

H. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? _X_ YES __NO
2. Reagent Blank run after 20 batch samples? _X_ YES __NO
3. List target analytes identified in the Reagent/system blanks:

   None

Comments: Criteria met.

I. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO
2. Matrix spikes contain target analytes? _X_ YES __NO
3. Spike and Spike duplicate run on specific batch matrix? _X_ YES __NO
4. List laboratory's acceptable %recovery matrix spike ranges:

   40-120% for 2,4-D; 2,4,5-TP; and 2,4,5-T.

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   2,4-D 29% for MW-1 MSD

6. Was a check standard run to address problem of failed Matrix Spike? __YES _X_ NO
7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? _X_ N/A __YES __NO
8. Any analytes flagged as "Estimated Concentration"? __YES _X_ NO
9. List Analytes labeled as "Estimated Concentrations":

   None

Comments: The MW-1 MS was in laboratory control limits and no target parameteres were detected, therefore, no additional information was required, criteria met.

J. DAA CORRECTIVE ACTION STEPS TAKEN

DAA requested Channel A data for MW-3, MW-8, and MW-17 to disconfirm the presence of pentachlorophenol chromatographic activity. Addendum provided by laboratory disconfirmed the presence of pentachlorophenol in these samples.

K. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: Matthew Storte

Date: 1/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8151	2,4-D	MW-1, 3, 6, 8, 10, 11 & 17	ND	U	LOQ equal to 0.08 μg/L.
8151	pentachlorophenol	MW-1, 3, 6, 8, 10, 11 & 17	ND	U	LOQ equal to 0.08 μg/L.
8151	2,4,5-TP	MW-1, 3, 6, 8, 10, 11 & 17	ND	U	LOQ equal to 0.08 μg/L.
8151	2,4,5-T	MW-1, 3, 6, 8, 10, 11 & 17	ND	U	LOQ equal to 0.08 μg/L.
8151	Dinoseb	MW-1, 3, 6, 8, 10, 11 & 17	ND	U	LOQ equal to 0.08 μg/L.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

Method 8151 (Chlorinated herbicides) G.C. Data Review

Wells: SDG-2 Core Wells: MW-2, MW-4, MW-9, and MW-12

QC Samples: MS MW-9, MSD MW-9, Trip Blank, Method Blanks

Laboratory: CT&E Environmental Services, Inc., Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 7 days maximum holding time before extraction? _X_ YES __NO
2. 40 days maximum holding times after sample extraction? _X_ YES __NO
3. Cool 4°C (+-2°C)? _X_ YES __NO

Comments: Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Specific extraction method specified? _X_ YES __NO
2. Instrument specific LOD for target analytes? _X_ YES __NO
3. Instrument specific LOQ for target analytes? _X_ YES __NO
4. Instrument specific Check Sample Data? _X_ YES __NO
5. Instrument Working Range for target analytes? _X_ YES __NO
6. Lab acceptable surrogates %recovery ranges? _X_ YES __NO
7. Lab acceptable matrix spike recovery ranges for target analytes? _X_ YES __NO
8. Sample analysis log sheet? _X_ YES __NO
9. Chromatogram and integration report for each sample? _X_ YES __NO

Comments: Criteria met.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for the G.C. that was used for analyses? _X_ YES __NO

2. QC check sample contains all target analytes outlined in RFP? _X_ YES __NO

3. QC check samples analyzed in quadruplicate? _X_ YES __NO

4. Reported average recovery (X) of target analytes from check samples? _X_ YES __NO

5. Reported Standard deviation(s) for the recovery of target analytes? _X_ YES __NO

6. Reported acceptable laboratory ranges for X and S values? _X_ YES __NO

7. QC check samples are within established laboratory acceptable range for target analytes? _X_ YES __NO

Comments: Criteria met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) _X_ YES __NO

2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes? __N/A _X_ YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

b. Determined Internal Calibration Factor (CF) for target analytes? _X_ N/A __YES __NO

$CF = (A_s * C_{is})/(C_s * A_{is})$

A_s = Analyte Response
A_{is} = Internal Standard Response
C_s = Analyte Concentration
C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? _X_ YES __NO

$\%RSD = SD/(CF)_a \times 100$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

Calibration Factor

5. List target analytes with %RSD≥20% over established working range.

None

Comments: Criteria met.

E. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? _X_ YES __NO

2. Target analytes responses have a % Difference (%Diff) of ±15% from previously run standards? _X_ YES __NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

Comments: Criteria met.

F. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 1 surrogate compound? _X_ YES __NO

2. List surrogate compound used and laboratory's acceptable surrogate % Recovery Limit:

2,4-DAA (40-120%)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

None

Comments: Criteria met.

G. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? _X_ YES __NO

   Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Criteria met.

H. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? _X_ YES __NO
2. Reagent Blank run after 20 batch samples? _X_ YES __NO
3. List target analytes identified in the Reagent/system blanks:

   None

Comments: Criteria met.

I. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO
2. Matrix spikes contain target analytes? _X_ YES __NO
3. Spike and Spike duplicate run on specific batch matrix? _X_ YES __NO
4. List laboratory's acceptable %recovery matrix spike ranges:

   40-120% for 2,4-D; 2,4,5-TP; and 2,4,5-T.

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   2,4-D in the MW-1 MSD @ 29%.

6. Was a check standard run to address problem of failed Matrix Spike? __YES _X_ NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? _X_ N/A __YES __NO

8. Any analytes flagged as "Estimated Concentration"? __YES _X_ NO

9. List Analytes labeled as "Estimated Concentrations":

None

Comments: Matrix spike for 2,4-D was in control limits and samples contained no detected parameters, therefore, no additional information was requested.

J. DAA CORRECTIVE ACTION STEPS TAKEN

Requested channel A data for MW-4 to disconfirm the presence of pentachlorophenol associated with chromatographic activity. Laboratory provided an addendum and pentachlorophenol was disconfirmed in channel A data.

K. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: _____

Date: 1/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8081	2,4-D	MW-2, 4, 9 & 12	ND	U	No action required.
8081	pentachlorophenol	MW-2, 4, 9 & 12	ND	U	No action required.
8081	2,4,5-TP	MW-2, 4, 9 & 12	ND	U	No action required.
8081	2,4,5-T	MW-2, 4, 9 & 12	ND	U	No action required.
8081	Dinoseb	MW-2, 4, 9 & 12	ND	U	No action required.

Method 8310 HPLC (P.A.H.S) Data Review

Wells: SDG-1 Core Wells: MW-1, MW-3, MW-6, MW-8, MW-10, MW-11, and MW-17 (No sample was submitted for MW-7 due to insufficient water)

QC Samples: MW-1 MS, MW-1 MSD, Trip Blank, Method Blanks

Laboratory: CT&E Environmental Services, Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

Note: Benzo[a]pyrene only.

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 7 days maximum holding time from sample collection? _X_ YES __NO
2. 40 days maximum holding time from sample extraction date? _X_ YES __NO
3. Cool 4°C (+-2°C)? _X_ YES __NO

Comments: Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Extraction procedure follows 8310 guidelines? _X_ YES __NO
2. Instrument specific LOD for target analytes? _X_ YES __NO
3. Instrument specific LOQ for target analytes? _X_ YES __NO
4. Instrument specific Check Sample Data? _X_ YES __NO
5. Instrument Working Range for target analytes? _X_ YES __NO
6. Lab acceptable surrogates %recovery ranges? _X_ YES __NO
7. Lab acceptable matrix spike recovery ranges for target analytes? _X_ YES __NO
8. Sample analysis log sheet? _X_ YES __NO
9. Chromatogram and integration report for each sample? _X_ YES __NO

Comments: Criteria met.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for HPLC used for analyses? _X_ YES __NO
2. QC check sample contains all target analytes outlined in RFP? _X_ YES __NO
3. QC check samples analyzed in quadruplicate? _X_ YES __NO
4. Reported average recovery (X) of target analytes from check samples? _X_ YES __NO
5. Reported Standard deviation(s) for the recovery of target analytes quadruplicated? _X_ YES __NO
6. Reported acceptable laboratory ranges for X and S values? _X_ YES __NO
7. QC check samples are within established laboratory acceptable range for target analytes? _X_ YES __NO

Comments: Criteria met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) _X_ YES __NO
2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes? __N/A_X_ YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

b. Determined Internal Calibration Factor (CF) for target analytes? _X_N/A__YES __NO

$CF = (A_s*C_{is})/(C_s*A_{is})$

A_s = Analyte Response
A_{is} = Internal Standard Response
C_s = Analyte Concentration
C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? __N/A _X_YES __NO

$\%RSD = SD/(CF)_a \times 100$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD≥20% over established working range.

   None

Comments: Criteria met.

E. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? _X_ YES __NO

2. Target analytes responses have a % Difference (%Diff) of ±15% from previously run standards? _X_ YES __NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

Comments: Criteria met.

F. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 1 surrogate compound? _X_ YES __NO

2. List surrogate compounds used and laboratory's acceptable surrogate % Recovery Limits:

   OTP (40-120%)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

None

Comments: Criteria met.

G. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? _X_ YES __NO

Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Criteria met.

H. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? _X_ YES __NO
2. Reagent Blank run after 20 batch samples? _X_ YES __NO
3. List target analytes identified in the Reagent/system blanks:

Comments: Criteria met.

I. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO

2. Matrix spikes contain target analytes? _X_ YES __NO

3. Spike and Spike duplicate run on specific batch matrix? _X_ YES __NO

4. List laboratory's acceptable %recovery matrix spike ranges:

   All parameters: 40-140%

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   None

6. Was a check standard run to address problem of failed Matrix Spike? _X_N/A __YES __NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? _X_N/A __YES __NO

8. Any analytes flagged as "Estimated Concentration"? __YES _X_NO

9. List Analytes labeled as "Estimated Concentrations":

   None

Comments: Criteria met.

J. DAA CORRECTIVE ACTION STEPS TAKEN

Initial data package acceptable with no additional information requested from the laboratory. LOQ reported as 1.0 μg/L on the accuracy and precision statement provided by the laboratory, however, matrix spiking concentration of 0.05 μg/L indicates sufficient accuracy and precision associated with a concentration of 0.05 μg/L. An LOQ of 0.05 ug/L was established for these analyses.

K. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: Date:

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8310	Benzo[a]pyrene	MW-1	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-3	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-6	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-8	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-10	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-11	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-17	ND	U	LOQ equal to 0.05 μg/L.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

Method 8310 HPLC (P.A.H.S) Data Review

Wells: SDG-2 Core Wells: MW-2, MW-4, MW-9, and MW-12

QC Samples: MW-9 MS, MW-9 MSD, Trip Blank, Method Blanks

Laboratory: CT&E Environmental Services, Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

Note: Benzo[a]pyrene only.

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 7 days maximum holding time from sample collection? _X_ YES __NO
2. 40 days maximum holding time from sample extraction date? _X_ YES __NO
3. Cool 4°C (+-2°C)? _X_ YES __NO

Comments: Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Extraction procedure follows Method 8310 guidelines? _X_ YES __NO
2. Instrument specific LOD for target analytes? _X_ YES __NO
3. Instrument specific LOQ for target analytes? _X_ YES __NO
4. Instrument specific Check Sample Data? _X_ YES __NO
5. Instrument Working Range for target analytes? _X_ YES __NO
6. Lab acceptable surrogates %recovery ranges? _X_ YES __NO
7. Lab acceptable matrix spike recovery ranges for target analytes? _X_ YES __NO
8. Sample analysis log sheet? _X_ YES __NO
9. Chromatogram and integration report for each sample? _X_ YES __NO

Comments: Criteria met.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for HPLC used for analyses? _X_ YES __NO
2. QC check sample contains all target analytes outlined in RFP? _X_ YES __NO
3. QC check samples analyzed in quadruplicate? _X_ YES __NO
4. Reported average recovery (X) of target analytes from check samples? _X_ YES __NO
5. Reported Standard deviation(s) for the recovery of target analytes quadruplicated? _X_ YES __NO
6. Reported acceptable laboratory ranges for X and S values? _X_ YES __NO
7. QC check samples are within established laboratory acceptable range for target analytes? _X_ YES __NO

Comments: Criteria met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) _X_ YES __NO
2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes? _X_ YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

b. Determined Internal Calibration Factor (CF) for target analytes? _X_ N/A __YES __NO

$CF = (A_s*C_{is})/(C_s*A_{is})$

A_s = Analyte Response
A_{is} = Internal Standard Response
C_s = Analyte Concentration
C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? __N/A _X_ YES __NO

$\%RSD = SD/(CF)_a \times 100$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD≥20% over established working range.

   None

Comments: Criteria met.

E. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? _X_ YES __NO

2. Target analytes responses have a % Difference (%Diff) of ±15% from previously run standards? _X_ YES __NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

Comments: Criteria met.

F. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 1 surrogate compound? _X_ YES __NO

2. List surrogate compound used and laboratory's acceptable surrogate % Recovery Limits:

   OTP (40-120%)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

None

Comments: Criteria met.

G. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? _X_ YES __NO

Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Criteria met.

H. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? _X_ YES __NO
2. Reagent Blank run after 20 batch samples? _X_ YES __NO
3. List target analytes identified in the Reagent/system blanks:

None

Comments: Criteria met.

I. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO

2. Matrix spikes contain target analytes? _X_ YES __NO

3. Spike and Spike duplicate run on specific batch matrix? _X_ YES __NO

4. List laboratory's acceptable %recovery matrix spike ranges:

   40-140%

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   None

6. Was a check standard run to address problem of failed Matrix Spike? _X_ N/A __YES __NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? _X_ N/A __YES __NO

8. Any analytes flagged as "Estimated Concentration"? __YES _X_ NO

9. List Analytes labeled as "Estimated Concentrations":

   None

Comments: Criteria met.

J. DAA CORRECTIVE ACTION STEPS TAKEN

Initial data package acceptable in original form. No additional information requested from the laboratory. The LOQ reported as 1.0 μg/L on the accuracy and precision statement provided by the laboratory, however, matrix spiking concentration of 0.05 μg/L indicates sufficient accuracy and precision associated with a concentration of 0.05 μg/L. An LOQ of 0.05 ug/L was established for these analyses.

K. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: Marlen Stott

Date: 1/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8310	Benzo[a]pyrene	MW-2	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-4	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-9	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-12	ND	U	LOQ equal to 0.05 μg/L.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

SECTION 5.3

REVISIONS TO ORIGINAL DATA SET

Draper Aden Associates
CONSULTING ENGINEERS
2206 South Main Street
Blacksburg, Virginia 24060
Phone: (703) 552-0444
Fax: (703) 552-0291

November 9, 1995

Ms. Lydia Work
Project Manager
CT&E Environmental Services
1258 Greenbrier Street
Charleston, WV 25311

RE: Watauga County Landfill, CT&E No. 295-07-0230-1/15
Sampling Analyses Report, 1st Semi-Annual Assessment Monitoring Event;
July 10-13, 1995, Required Revisions to the Report,
DAA Job No. 6520-21

Dear Lydia:

Draper Aden Associates has completed a review of the method 8011 and 8021 GC data for the above referenced project. Overall, the data sets exhibited an acceptable level of quality, however, the following requires revision and/or discussion.

Method 8011:

1. Please provide a Precision and Accuracy Statement for instrument GC#9 Channel A.

2. Revise sample receipt temperatures in table in case narrative to reflect $\approx 1°C$, in lieu of -1°C, Samples were received as noted by the initial sample receipt form as $\approx 1°C$, but were incorrectly transferred.

Method 8021:

1. Revise the case narrative to remove any reference to matrix interference in the MW-9 sample, as none was exhibited. The narrative states that a number of analytes failed recovery criteria for the sample; however, upon recalculation of the MS and MSD recoveries, the concentration of the target analytes of concern were within the QC limit specifications. As an example; page 1271 shows a spike added concentration of 10.0 ug/L, a sample concentration of 35.8 ug/L and an MS concentration of 40.8 ug/L for 1,1-dichloroethane. Dividing the MS concentration by the total of the sample concentration and the added spike concentration (45.8 ug/L) gives a %recovery of 89.1% and thus, is within the limits. The same is true for the other analytes of concern. No matrix interference was found to exist.

2. Explain why the analyst failed to notice and address the holding times for the diluted analyses for samples from MW-6, MW-8, MW-10, and MW-17. Holding times for these diluted analyses were exceeded by one day.

November 15, 1995

Mr. Jeff Pack
Draper Aden Associates
2206 South Main Street
Blacksburg, VA 24060

Re: Watauga Couny Landfill, 1st Semi-Annual, CT&E No. 295-07-0230
Required Revisions to Report - 8021, 8011
DAA JN: 6520-21

Dear Mr. Pack,

Enclosed are the revisions and responses requested in your letter dated November 9, 1995. The revisions will be labelled as R1 with the associated page number(s). In the future, please fax your letter to me prior to mailing. It was agreed upon that 7 days would be adequate for response. You requested a response by Friday, unfortunately, I did not receive your letter until Tuesday.

Method 8011

1. Precision and Accuracy Statement enclosed as p. R1pg.0010.

2. Sample receipt temperatures cannot be revised. The temperature on the initial sample receipt was -1°C (minus one degree celcius) with an accuracy of ±2°C.

Method 8021

1. The case narrative cannot be revised to remove any reference to matrix interference in sample MW9. The MS/MSD recoveries were calculated correctly and the analytes mentioned did fail criteria. Please refer to SW846 Method 8000, section 8.7.2.1, on how to calculate spike recoveries. The formula for Matrix Spike recovery is as follows:

$$\%\text{recovery} = \frac{\text{MS conc. - Sample conc.}}{\text{Spike conc.}} \times 100$$

exp. from MW9: $\frac{40.8 - 35.8}{10.0} \times 100 = 50.0\%$

2. The initial analysis of samples MW6, MW8, MW10 and MW17 was performed on 7/22/95, a Saturday. A number of analytes in these samples were above calibration range needing dilutions as well as causing carry-over into later samples. This was not anticipated at the time the samples were loaded. The next day, Sunday July 23rd, the analyst was not present to review the previous day's results. Monday and Tuesday, July 24th and 25th, were the last days of holding time for the samples. Because of the concentration of the sample matrixes in the original analysis, it was difficult determining which dilutions and re-analyses were needed. Instrument clean-out and re-calibration was also needed. This left insufficient run-time to analyze all dilutions and re-analyses before hold-time.

3. The CCAL on 7/22/95 was not addressed by the analyst prior to continuing sample analyses because it was injected at the 2357 hour, 3 minutes till midnight; the analyst was not present at this time.

4. Revised LAR for Blank noting LOQ's at 2.0µg/L submitted as R1pg.0983.

5. Sample receipt temperatures cannot be revised. The temperature on the initial sample receipt was -1°C (minus one degree celcius) with an accuracy of ±2°C.

Please contact me should additional information be required.

Respectfully submitted,

Lydia M. Work

Lydia M. Work
CT&E-ELS
Project Coordinator

R1 p8. 0010

Organic Method by SW8011 Precision and Accuracy Statement
For Analytes of Interest
Effective: 6-11-95

Instrument#: GC9
Channel: B

Analyst: ATL

Analyte	Number of Replicates	Spike Level (ug/L)	LOD (ug/L)	LOQ (ug/L)	Accuracy % Mean Recovery	Precision (% RSD)
Ethylene Dibromide	7	0.02	0.0056	0.028	94	10.6
Dibromochloropropane	7	0.02	0.0053	0.027	99	9.9

Instrument#: GC9
Channel: A

Analyst: ATL

Analyte	Number of Replicates	Spike Level (ug/L)	LOD (ug/L)	LOQ (ug/L)	Accuracy % Mean Recovery	Precision (% RSD)
Ethylene Dibromide	7	0.05	0.0148	0.030	99	10.6
Dibromochloropropane	7	0.05	0.0201	0.020	81	9.9

SECTION 5.4

SW-846 VOLATILES ANALYTICAL DATA

CT&E Environmental Services Inc.

ANALYTICAL RESULTS

Book 1 of 4
Watauga County Landfill
1st Semi-Annual Assessment Monitoring
JN: 6520-21
CT&E No. 295-07-0230-1/15

Client:
Watauga County
P.O. Box 143
Boone, NC

prepared by
CT&E Environmental Services Inc.
1258 Greenbrier Street
Charleston, West Virginia 25311
Telephone: 304-346-0725
Facsimile: 304-346-0761

0000A

CASE NARRATIVE

Laboratory Number 295-07-0230-001/014, 295-07-0276-001/011

DATE: September 8, 1995

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in the hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Submitted by,

Martha A McElfresh

Martha A McElfresh
QA/QC Officer

The total number of pages in the data package 921.

CASE NARRATIVE

Laboratory Number 295-07-0230-001/014, 295-07-0276-001/011

DATE: September 8, 1995

OBJECTIVE: Analysis of twenty five water samples which include nineteen monitoring well samples, two matrix spikes, two matrix spike duplicates, and two trip blanks for selected compounds by Methods 8021, 8011, 8081, 8151 and 8310.

SAMPLE RECEIPT OBSERVATIONS:
All water samples were received in coolers by CT & E Environmental Services.

Sample Description	CT& E Number	Date Received	Cooler Temperature
MW1	295-07-0230-001	7-12-95	-1°C
MW1MS	295-07-0230-002	7-12-95	-1°C
MW1MSD	295-07-0230-003	7-12-95	-1°C
MW6	295-07-0230-004	7-12-95	-1°C
MW3	295-07-0230-005	7-12-95	-1°C
MW7	295-07-0230-006	7-12-95	-1°C
MW8	295-07-0230-007	7-12-95	-1°C
MW11	295-07-0230-008	7-12-95	-1°C
MW10	295-07-0230-009	7-12-95	-1°C
MW13	295-07-0230-010	7-12-95	-1°C
MW17	295-07-0230-011	7-12-95	-1°C
MW15	295-07-0230-012	7-12-95	-1°C
MW1A	295-07-0230-013	7-12-95	-1°C
Trip Blank	295-07-0230-014	7-12-95	-1°C

Sample Description	CT& E Number	Date Received	Cooler Temperature
MW9	295-07-0276-001	7-13-95	1°C
MW9MS	295-07-0276-002	7-13-95	1°C
MW9MSD	295-07-0276-003	7-13-95	1°C
MW12	295-07-0276-004	7-13-95	1°C
MW2	295-07-0276-005	7-13-95	1°C
MW4	295-07-0276-006	7-13-95	1°C
MW16	295-07-0276-007	7-13-95	1°C
MW14	295-07-0276-008	7-13-95	1°C
MW18	295-07-0276-009	7-13-95	1°C
MW5	295-07-0276-010	7-13-95	1°C
Trip Blank	295-07-0276-011	7-13-95	1°C

CHAIN OF CUSTODY RECORD 7-230-1/5

SDG-1

Laboratory: CT&E Environmental Services 1258 Greenbrier Street Charleston, WV 25311 (304) 346-0725 FAX (304) 346-0781 Attn: Bobby Parsons

Client: Watauga County
Attn: Mr. Jim Ratchford
Address: P.O. Box 143
Boone, NC
Phone: (704) 265-8003 Fax: (704) 265-8018

Consultant: Draper Aden Assoc.
Attn: Janet M. Cleary
2206 South Main Street
Blacksburg, Virginia 24060
Phone: (703) 552-0444 Fax: (703) 552-0291

Sample Site: Watauga County Landfill
Location: Watauga County, NC
Event: 1st Semi-annual Assessment Monitoring
JN: 6520-21 Lab JN:

Project Specific (PS) or Batch (B) QC: PS
Sampling for Project Complete? _X_ Yes ___ No (See Note 1)
Carrier: CT&E pickup in Watauga Co. NC
Tracking No.: ——

Box 1: Matrix
SW. Surface Water
GW. Groundwater
L. Leachate
S. Soil
T. Trip Blank
E. Equipment Blank
P. Product
O. Other

Box 2: Preservative
A. HCl
B. HNO_3
C. H_2SO_4
D. $Na_2S_2O_3$
E. NaOH
F. ZnAc
G. Other (specify)
H. None

Box 3: Filtered/Unfiltered
F. Filtered
U. Unfiltered

Box 4: Sample Type
C. Composite
G. Grab

Copy to Consultant: _X_ Yes ___ No
Bill: _X_ Client ___ Consultant
Preserved and shipped on ice: _X_ Yes ___ No

Analytical Method (Assessment)

Sample I.D.	Date 19 95	Time	Box 1 Matrix	Box 2 Preservative	Box 3 Filtered/Unfiltered	Box 4 Sample Type	pH	Use as Lab QC (MS/MSD/SD)	Total No. of Bottles	8011 VOLATILES	8021 VOLATILES	8081 PCBs/PESTICIDES	8151 HERBICIDES	8310 PNA	8081/8151/8310 SPARE (Note 4)					
MW-1	7/10	1230	GW	A	U	G	<2		6	X	X									
MW-1	7/10	1230	GW	H	U	G	...		4			X	X	X	X					
MW-1 MS	7/10	1230	GW	A	U	G	<2	X	6	X	X									
MW-1 MS	7/10	1230	GW	H	U	G	...	X	3			X	X	X						
MW-1 MSD	7/10	1230	GW	A	U	G	<2	X	6	X	X									
MW-1 MSD	7/10	1230	GW	H	U	G	...	X	3			X	X	X						
MW-6	7/10	1430	GW	A	U	G	<2		6	X	X									
MW-6	7/10	1430	GW	H	U	G	...		4			X	X	X	X					
MW-3	7/10	1530	GW	A	U	G	<2		6	X	X									
MW-3	7/10	1530	GW	H	U	G	...		4			X	X	X	X					

Special Instructions/Comments

SEE ATTACHED PARAMETER LISTS

1. 8011 and 8021 methods collected in 40 ml clear glass bottles.
2. 8081, 8151, and 8310 methods collected in 1 L amber glass bottles and maintained in the dark.
3. Samples are collected from Boundary Well samples. These samples will be analyzed for the 8021 Form 4 parameters. The Core Well samples will be analyzed for the 8021 Table 2 parameters. See attached 8021 lists.
4. Spare to be used in event of breakage only

Client's Special Instructions:

Lab: Received in Good Condition? ✓ Yes ___ No Custody Seal Intact? ✓ Yes ___ No Temp. on arrival -1°C Received on ice Yes Describe problems, if any:

Sampler Name (print): Ken Ditoia Jr	Date: 7-12-95	#1 Relinquished By (Sig.): J M Pack	Date: 7-12-95	#2 Relinquished By (Sig.): Jim Gunner	Date: 7-12-95	Sample Storage Time Requested:
Sampler Signature: Ken Ditoia Jr	Time: 1300	Company Name: DAA	Time: 1305	Company Name: CT&E	Time: 1820	
Sampler Name (print): JEFF S. PACK	Date: 7-12-95	#1 Received By (Sig.): Jim Gunner	Date: 7-12-95	#2 Received By (Sig.): [illegible]	Date: 7-12-95	30 (No. Days)
Sampler Signature: J M Pack	Time: 1300	Company Name CT&E	Time: 1310	Company Name CT&E	Time: 1820	

Note (1): If "No" lab to hold sa[illegible] await remainder of project maximizing batch size and minimizing QC ratio. If "Yes", lab to begin processing.
Note: Always mail invoice and [illegible] consultant.

CHAIN OF CUSTODY RECORD 7-230-6/10

SDG-1

Laboratory: CT&E Environmental Services 1258 Greenbrier Street Charleston, WV 25311 (304) 346-0725 FAX (304) 346-0761 Attn: Bobby Parsons

Client: Watauga County
Attn: Mr. Jim Ratchford
Address: P.O. Box 143
Boone, NC
Phone: (704) 265-8003 Fax: (704) 265-8018

Consultant: Draper Aden Assoc.
Attn: Janet M. Cleary
2206 South Main Street
Blacksburg, Virginia 24060
Phone: (703) 552-0444 Fax: (703) 552-0291

Sample Site: Watauga County Landfill
Location: Watauga County, NC
Event: 1st Semi-annual Assessment Monitoring
JN: 6520-21 Lab JN:

Project Specific (PS) or Batch (B) QC: PS
Sampling for Project Complete? _X_ Yes ___ No (See Note 1)
Carrier: CT&E pickup in Watauga Co. NC
Tracking No.: —

Box 1: Matrix
SW. Surface Water, GW. Groundwater, L. Leachate, S. Soil, T. Trip Blank, E. Equipment Blank, P. Product, O. Other

Box 2: Preservative
A. HCl, B. HNO_3, C. H_2SO_4, D. $Na_2S_2O_3$, E. NaOH, F. ZnAc, G. Other (specify), H. None

Box 3: Filtered/Unfiltered
F. Filtered, U. Unfiltered

Box 4: Sample Type
C. Composite, G. Grab

Copy to Consultant: _X_ Yes ___ No
Bill: _X_ Client ___ Consultant
Preserved and shipped on ice: _X_ Yes ___ No

Sample I.D.	Date 19 95	Time	Box 1 Matrix	Box 2 Preservative	Box 3 Filtered/Unfiltered	Box 4 Sample Type	pH	Use as Lab QC (MS/MSD/SD)	Total No. of Bottles	8011 VOLATILES	8021 VOLATILES	8081 PCBs/PESTICIDES	8151 HERBICIDES	8310 PNA	8081/8151/8310 SPARE (NOTE 4)						Special Instructions/Comments
MW-7	7/10	1620	GW	A	U	G	<2		2	X	X										1 bottle for each method (insufficient H_2O)
~~MW~~				~~H~~	~~U~~	~~G~~						~~X~~	~~X~~	~~X~~	JSP						
~~MW~~				~~A~~	~~U~~	~~G~~	~~<2~~				~~X~~				JR						
MW-8	7/10	1645	GW	A	U	G	<2		6	X	X										
MW-8	7/10	1645	GW	H	U	G	--		4			X	X	X	X						
MW-11	7/11	0930	GW	A	U	G	<2		6	X	X										
MW-11	7/11	0930	GW	H	U	G	--		4			X	X	X	X						
MW-10	7/11	1030	GW	A	U	G	<2		6	X	X										
MW-10	7/11	1030	GW	H	U	G	--		4			X	X	X	X						
MW-13	7/11	0820	GW	A	U	G	<2		3		X										See Note 3 above.

SEE ATTACHED PARAMETER LISTS
4. Spare to be used in event of breakage only.
1. 8011 and 8021 methods collected in 40 ml clear glass bottles.
2. 8081, 8151, and 8310 methods collected in 1 L amber glass bottles and maintained in the dark.
3. Samples are collected from Boundary Well ~~samples~~. These samples will be analyzed for the 8021 Form 4 parameters. The Core Well samples will be analyzed for the 8021 Table 2 parameters. See attached 8021 lists.

Client's Special Instructions:

Lab: Received in Good Condition? ✓ Yes ___ No Custody Seal Intact? ✓ Yes ___ No Temp. on arrival -10C Received on ice yes Describe problems, if any:

Sampler Name (print): Leon DiFoia Jr	Date: 7-12-95	#1 Relinquished By (Sig.): [signature]	Date: 7-12-95	#2 Relinquished By (Sig.): Jim Gunnar	Date: 7-12-95	Sample Storage Time Requested:
Sampler Signature: [signature]	Time: 1300	Company Name: DAA	Time: 1305	Company Name: CT&E	Time: 1820	
Sampler Name (print): JEFF PACK	Date: 7-12-95	#1 Received By (Sig.): Jim Gunnar	Date: 7-12-95	#2 Received By (Sig.): Jeanne Latterno	Date: 7-12-95	30 (No. Days)
Sampler Signature: [signature]	Time: 1300	Company Name CT&E	Time: 1310	Company Name CT&E	Time: 1820	

Note (1): If "No" lab to hold samples to await remainder of project maximizing batch size and minimizing QC ratio. If "Yes", lab to begin processing.
Note: Always mail invoice and [illegible] to consultant.

CHAIN OF CUSTODY RECORD 7-230-11/13 SDG-17

Laboratory: CT&E Environmental Services 1258 Greenbrier Street Charleston, WV 25311 (304) 346-0725 FAX (304) 346-0781 Attn: Bobby Parsons

Client: Watauga County
Attn: Melvin Ratchford
Address: P.O. Box 143
Boone, NC
Phone: (704) 265 8003 Fax: (704) 265 8018

Consultant: Draper Aden Assoc.
Attn: Janet M. Cleary
2206 South Main Street
Blacksburg, Virginia 24060
Phone: (703) 552-0444 Fax: (703) 552-0291

Sample Site: Watauga County Landfill
Location: Watauga County, NC
Event: 1st Semi-annual Assessment Monitoring
JN: 6520-21 Lab JN:

Project Specific (PS) or Batch (B) QC: PS
Sampling for Project Complete? X Yes ___ No (See Note 1)
Carrier: Fedex CT&E pickup in Watauga.
Tracking No.:

Box 1: Matrix
SW. Surface Water
GW. Groundwater
L. Leachate
S. Soil
T. Trip Blank
E. Equipment Blank
P. Product
O. Other

Box 2: Preservative
A. HCl
B. HNO_3
C. H_2SO_4
D. $Na_2S_2O_3$
E. NaOH
F. ZnAc
G. Other (specify)
H. None

Box 3: Filtered/Unfiltered
F. Filtered
U. Unfiltered

Box 4: Sample Type
C. Composite
G. Grab

Copy to Consultant: X Yes ___ No
Bill: X Client ___ Consultant
Preserved and shipped on ice: X Yes ___ No

Sample I.D.	Date 19 95	Time	Box 1 Matrix	Box 2 Preservative	Box 3 Filtered/Unfiltered	Box 4 Sample Type	pH	Use as Lab QC (MS/MSD/SD)	Total No. of Bottles	8011 VOLATILES	8021 VOLATILES	8081 PCBs/PESTICIDES	8151 HERBICIDES	8310 PNA	8081/8151/8310 SPARE (NOTE 4)						Special Instructions/Comments
																					SEE ATTACHED PARAMETER LISTS 4. Spare to be used in event of breakage only. 1. 8011 and 8021 methods collected in 40 ml clear glass bottles. 2. 8081, 8151, and 8310 methods collected in 1 L amber glass bottles and maintained in the dark. 3. Samples are collected from Boundary Well samples: These samples will be analyzed for the 8021 Form 4 parameters. The Core Well samples will be analyzed for the 8021 Table 2 parameters. See attached 8021 lists.
MW-17	7/11	1220	GW	A	U	G	<2		6	X	X										
MW-17	7/11	1220	GW	H	U	G	–		4			X	X	X	X						
MW-15	7/11	1345	GW	A	U	G	<2		3		X										See Note 3 above.
MW-1A	7/12	0730	GW	A	U	G	<2		3		X										
~~MW~~				~~A~~	~~U~~	~~G~~	~~<2~~				~~X~~	DSP									
~~MW~~				~~A~~	~~U~~	~~G~~	~~<2~~				~~X~~	DSP									
~~MW~~				~~A~~	~~U~~	~~G~~	~~<2~~			~~X~~	~~X~~	DSP									
~~MW~~				~~H~~	~~U~~	~~G~~						~~X~~	~~X~~	~~X~~	DSP						
~~MW~~				~~A~~	~~U~~	~~G~~	~~<2~~				~~X~~	DSP									
~~MW~~				~~A~~	~~U~~	~~G~~	~~<2~~				~~X~~	DSP									

Client's Special Instructions:

Lab: Received in Good Condition? ✓ Yes ___ No Custody Seal Intact? ✓ Yes ___ No Temp. on arrival ___ Received on Ice YES Describe problems, if any:

Sampler Name (print): Leon DiFeo Jr	Date: 7-12-95	#1 Relinquished By (Sig.): [signature]	Date: 7-12-95	#2 Relinquished By (Sig.): John Hunnar	Date: 7-12-95	Sample Storage Time Requested:	
Sampler Signature: [signature]	Time: 1300	Company Name: DAA	Time: 1305	Company Name: CT&E	Time: 1820		
Sampler Name (print): JEFF JACK	Date: 7-12-95	#1 Received By (Sig.): John Hunnar	Date: 7-12-95	#2 Received By (Sig.): Jeanne Lattimore	Date: 7-12-95	30 (No. Days)	
Sampler Signature: [signature]	Time: 1300	Company Name: CT&E	Time: 1310	Company Name: CT&E	Time: 1820		

Note (1): If "No" lab to hold samples to await remainder of project maximizing batch size and minimizing QC ratio. If "Yes", lab to begin processing.
Note: Always mail invoice and [illegible] a consultant.

CHAIN OF CUSTODY RECORD

SDG-1 7-230-14

Laboratory: CT&E Environmental Services 1258 Greenbrier Street Charleston, WV 25311 (304) 346-0725 FAX (304) 346-0761 Attn: Bobby Parsons

Client: Watauga County
Attn: Mr. Jim Ratchford
Address: P.O. Box 143
Boone, NC
Phone: (704) 265-8003 Fax: (704) 265-8018

Consultant: Draper Aden Assoc.
Attn: Janet M. Cleary
2206 South Main Street
Blacksburg, Virginia 24060
Phone: (703) 552-0444 Fax: (703) 552-0291

Sample Site: Watauga County Landfill
Location: Watauga County, NC
Event: 1st Semi-annual Assessment Monitoring
JN: 6520-21 Lab JN:

Project Specific (PS) or Batch (B) QC: PS
Sampling for Project Complete? _X_ Yes ___ No (See Note 1)
Carrier: CT&E pickup
Tracking No.: ——

Box 1: Matrix
SW. Surface Water
GW. Groundwater
L. Leachate
S. Soil
T. Trip Blank
E. Equipment Blank
P. Product
O. Other

Box 2: Preservative
A. HCl
B. HNO_3
C. H_2SO_4
D. $Na_2S_2O_3$
E. NaOH
F. ZnAc
G. Other (specify)
H. None

Box 3: Filtered/Unfiltered
F. Filtered
U. Unfiltered

Box 4: Sample Type
C. Composite
G. Grab

Copy to Consultant: _X_ Yes ___ No
Bill: _X_ Client ___ Consultant
Preserved and shipped on ice: _X_ Yes ___ No

Sample I.D.	Date 19 95	Time	Box 1 Matrix	Box 2 Preservative	Box 3 Filtered/Unfiltered	Box 4 Sample Type	pH	Use as Lab QC (MS/MSD/SD)	Total No. of Bottles	8011 VOLATILES	8021 VOLATILES	8081 PCBs/PESTICIDES	8151 HERBICIDES	8310 PNA							Special Instructions/Comments
TRIP BLANK 1	7/6	0800	T	A	U	G	<2		6	X	X										SEE ATTACHED PARAMETER LISTS 1. 8011 and 8021 methods collected in 40 ml clear glass bottles. 2. 8081, 8151, and 8310 methods collected in 1 L amber glass bottles and maintained in the dark. 3. Samples are collected from Boundary Well samples. These samples will be analyzed for the 8021 Form 4 parameters. The Core Well samples will be analyzed for the 8021 Table 2 parameters. See attached 8021 lists.
TRIP BLANK 1	7/6	0800	T	H	U	G	–		3			X	X	X							

Client's Special Instructions:

Lab: Received in Good Condition? ✓ Yes ___ No Custody Seal Intact? ✓ Yes ___ No Temp. on arrival 1°C Received on Ice YES Describe problems, if any:

Sampler Name (print): [signature]	Date: 7-12-95	#1 Relinquished By (Sig.): [signature]	Date: 7-12-95	#2 Relinquished By (Sig.): [signature]	Date: 7-12-95	Sample Storage Time Requested:
Sampler Signature: [signature]	Time: 1300	Company Name: DAA	Time: 1305	Company Name: CT&E	Time: 1820	
Sampler Name (print): JEFF PACK	Date: 7-12-95	#1 Received By (Sig.): [signature]	Date: 7-12-95	#2 Received By (Sig.): [signature]	Date: 7-12-95	30 (No. Days)
Sampler Signature: [signature]	Time: 1300	Company Name CT&E	Time: 1310	Company Name CT&E	Time: 1820	

Note (1): If "No" lab to hold samples to await remainder of project maximizing batch size and minimizing QC ratio. If "Yes", lab to begin processing.
Note: Always mail invoice and [illegible] consultant.

CHAIN OF CUSTODY RECORD

7-216-115 SDG-2

Laboratory: CT&E Environmental Services 1258 Greenbrier Street Charleston, WV 25311 (304) 346-0725 FAX (304) 346-0761 Attn: Bobby Parsons

Client: Watauga County
Attn: Mr. Jim Ratchford
Address: P.O. Box 143
Boone, NC
Phone: (704) 265-8003 Fax:(704) 265-8018

Consultant: Draper Aden Assoc.
Attn: Janet M. Cleary
2206 South Main Street
Blacksburg, Virginia 24060
Phone: (703) 552-0444 Fax: (703) 552-0291

Sample Site: Watauga County Landfill
Location: Watauga County, NC
Event: 1st Semi-annual Assessment Monitoring
JN: 6520-21 Lab JN:

Project Specific (PS) or Batch (B) QC: PS
Sampling for Project Complete? _X_ Yes ___ No (See Note 1)
Carrier: CT&E pickup at DAA
Tracking No.:

Box 1: Matrix
SW. Surface Water, GW. Groundwater, L. Leachate, S. Soil, T. Trip Blank, E. Equipment Blank, P. Product, O. Other

Box 2: Preservative
A. HCl, B. HNO_3, C. H_2SO_4, D. $Na_2S_2O_3$, E. NaOH, F. ZnAc, G. Other (specify), H. None

Box 3: Filtered/Unfiltered
F. Filtered, U. Unfiltered

Box 4: Sample Type
C. Composite, G. Grab

Copy to Consultant: _X_ Yes ___ No
Bill: _X_ Client ___ Consultant
Preserved and shipped on ice: _X_ Yes ___ No

Sample I.D.	Date 1995	Time	Box 1 Matrix	Box 2 Preservative	Box 3 Filtered/Unfiltered	Box 4 Sample Type	pH	Use as Lab QC (MS/MSD/SD)	Total No. of Bottles	8011 VOLATILES	8021 VOLATILES	8081 PCBs/PESTICIDES	8151 HERBICIDES	8310 PNA	8081/8151/8310 Extra Bottle Note 4							Special Instructions/Comments
MW-9	7/12	0845	GW	A	U	G	<2		6	X	X											SEE ATTACHED PARAMETER LISTS 1. 8011 and 8021 methods collected in 40 ml clear glass bottles. 2. 8081, 8151, and 8310 methods collected in 1 L amber glass bottles and maintained in the dark. 3. Samples are collected from Boundary Well samples. These samples will be analyzed for the 8021 Form 4 parameters. The Core Well samples will be analyzed for the 8021 Table 2 parameters. See attached 8021 lists. 4. Extra Bottle to be used in event of breakage only
MW-9	7/12	0845	GW	H	U	G	---		4			X	X	X	X							
MW-9 MS	7/12	0845	GW	A	U	G	<2	X	6	X	X											
MW-9 MS	7/12	0845	GW	H	U	G	--	X	3			X	X	X								
MW-9 MSD	7/12	0845	GW	A	U	G	<2	X	6	X	X											
MW-9 MSD	7/12	0845	GW	H	U	G	---	X	3			X	X	X								
MW-12	7/12	1000	GW	A	U	G	<2		6	X	X											
MW-12	7/12	1000	GW	H	U	G	--		4			X	X	X	X							
MW-2	7/12	1730	GW	A	U	G	<2		6	X	X											
MW-2	7/12	1730	GW	H	U	G	--		4			X	X	X	X							

Client's Special Instructions:

Lab: Received in Good Condition? ✓ Yes ___ No Custody Seal Intact? ✓ Yes ___ No Temp. on arrival 1°C Received on Ice YES Describe problems, if any:

Sampler Name (print): Jeff Pack	Date: 7-13-95	#1 Relinquished By (Sig.): J Pack	Date: 7-13-95	#2 Relinquished By (Sig.): Jim Hunnicutt	Date: 7-13-95	Sample Storage Time Requested:
Sampler Signature: J Pack	Time: 1100	Company Name: DAA	Time: 1515	Company Name: CT&E	Time: 1825	
Sampler Name (print): Ken Dillinger	Date: 7-13-95	#1 Received By (Sig.): Jim Hunnicutt	Date: 7-13-95	#2 Received By (Sig.): Jannie Collins	Date: 7-13-95	30 (No. Days)
Sampler Signature: Ken Dillinger	Time: 1100	Company Name: CT&E	Time: 1520	Company Name: CT&E	Time: 1825	

Note (1): If "No" lab to hold samples to await remainder of project maximizing batch size and minimizing QC ratio. If "Yes", lab to begin processing.
Note: Always mail invoices and results to consultant.

CHAIN OF CUSTODY RECORD

7-216-6110 SDG-2

Laboratory: CT&E Environmental Services 1258 Greenbrier Street Charleston, WV 25311 (304) 346-0725 FAX (304) 346-0761 Attn: Bobby Parsons

Client: Watauga County
Attn: Mr. Jim Ratchford
Address: P.O. Box 143
Boone, NC
Phone: (704) 265-8003 Fax:(704) 265-8018

Consultant: Draper Aden Assoc.
Attn: Janet M. Cleary
2206 South Main Street
Blacksburg, Virginia 24060
Phone: (703) 552-0444 Fax: (703) 552-0291

Sample Site: Watauga County Landfill
Location: Watauga County, NC
Event: 1st Semi-annual Assessment Monitoring
JN: 6520-21 Lab JN:

Project Specific (PS) or Batch (B) QC: PS
Sampling for Project Complete? _X_ Yes ___ No (See Note 1)
Carrier:
Tracking No.:

Box 1: Matrix
SW. Surface Water, GW. Groundwater, L. Leachate, S. Soil, T. Trip Blank, E. Equipment Blank, P. Product, O. Other

Box 2: Preservative
A. HCl, B. HNO_3, C. H_2SO_4, D. $Na_2S_2O_3$, E. NaOH, F. ZnAc, G. Other (specify), H. None

Box 3: Filtered/Unfiltered
F. Filtered, U. Unfiltered

Box 4: Sample Type
C. Composite, G. Grab

Copy to Consultant: _X_ Yes ___ No
Bill: _X_ Client ___ Consultant
Preserved and shipped on ice: _X_ Yes ___ No

Sample I.D.	Date 19 95	Time	Box 1 Matrix	Box 2 Preservative	Box 3 Filtered/Unfiltered	Box 4 Sample Type	pH	Use as Lab QC (MS/MSD/SD)	Total No. of Bottles	8011 VOLATILES	8021 VOLATILES	8081 PCBs/PESTICIDES	8151 HERBICIDES	8310 PNA	8081/8151/8310 EXTRA BOTTLE NOTE 4						Special Instructions/Comments
MW-4	7/12	1815	GW	A	U	G	<2		6	X	X										
MW-4	7/12	1815	GW	H	U	G	---		4			X	X	X	X						
MW-16	7/12	1430	GW	A	U	G	<2		3		X										See Note 3 above.
MW-14	7/12	1600	GW	A	U	G	<2		3		X										See Note 3 above.
MW-18	7/13	0850	GW	A	U	G	<2		3		X										See Note 3 above.
MW-5	7/13	0950	GW	A	U	G	<2		3		X										See Note 3 above.
~~MW-~~				~~A~~	~~U~~	~~G~~	~~<2~~			~~X~~	~~X~~		JSL								
~~MW-~~				~~H~~	~~U~~	~~G~~	~~---~~					~~X~~	~~X~~	~~X~~	JSL						
~~MW-~~				~~A~~	~~U~~	~~G~~	~~<2~~				~~X~~		JSL								
~~MW-~~				~~A~~	~~U~~	~~G~~	~~<2~~				~~X~~		JSL								

Special Instructions/Comments:
SEE ATTACHED PARAMETER LISTS
1. 8011 and 8021 methods collected in 40 ml clear glass bottles.
2. 8081, 8151, and 8310 methods collected in 1 L amber glass bottles and maintained in the dark.
3. Samples are collected from Boundary Well samples. These samples will be analyzed for the 8021 Form 4 parameters. The Core Well samples will be analyzed for the 8021 Table 2 parameters. See attached 8021 lists.
4. EXTRA BOTTLE TO BE USED IN EVENT OF BREAKAGE ONLY

Client's Special Instructions:

Lab: Received in Good Condition? ✓ Yes ___ No Custody Seal Intact? ✓ Yes ___ No Temp. on arrival 1°C Received on Ice PCS Describe problems, if any:

Sampler Name (print): JERF PACK	Date: 7-13-95	#1 Relinquished By (Sig.): [signature]	Date: 7-13-95	#2 Relinquished By (Sig.): [signature]	Date: 7-13-95	Sample Storage Time Requested:
Sampler Signature: [signature]	Time: 1100	Company Name: DAA	Time: 1515	Company Name: CT&E	Time: 1825	
Sampler Name (print): Len Ditora Jr	Date: 7-13-95	#1 Received By (Sig.): [signature]	Date: 7-13-95	#2 Received By (Sig.): [signature]	Date: 7-13-95	30 (No. Days)
Sampler Signature: [signature]	Time: 1100	Company Name CT&E	Time: 1520	Company Name CT&E	Time: 1825	

Note (1): If "No" lab to hold samples to await remainder of project maximizing batch size and minimizing QC ratio. If "Yes", lab to begin processing.
Note: Always mail invoice [illegible]lts to consultant.

Laboratory: CT&E Environmental Services 1258 Greenbrier Street Charleston, WV 25311 (304) 346-0725 FAX (304) 346-0761 Attn: Bobby Parsons

Client: Watauga County
Attn: Mr. Jim Ratchford
Address: P.O. Box 143
Boone, NC
Phone: (704) 265-8003 Fax:(704) 265-8018

Consultant: Draper Aden Assoc.
Attn: Janet M. Cleary
2206 South Main Street
Blacksburg, Virginia 24060
Phone: (703) 552-0444 Fax: (703) 552-0291

Sample Site: Watauga County Landfill
Location: Watauga County, NC
Event: 1st Semi-annual Assessment Monitoring
JN: 6520-21 Lab JN:

Project Specific (PS) or Batch (B) QC: PS
Sampling for Project Complete? _X_ Yes ___ No (See Note 1)
Carrier:
Tracking No.:

Box 1: Matrix
SW. Surface Water
GW. Groundwater
L. Leachate
S. Soil
T. Trip Blank
E. Equipment Blank
P. Product
O. Other

Box 2: Preservative
A. HCl
B. HNO_3
C. H_2SO_4
D. $Na_2S_2O_3$
E. NaOH
F. ZnAc
G. Other (specify)
H. None

Box 3: Filtered/Unfiltered
F. Filtered
U. Unfiltered

Box 4: Sample Type
C. Composite
G. Grab

Copy to Consultant: _X_ Yes ___ No
Bill: _X_ Client ___ Consultant
Preserved and shipped on ice: _X_ Yes ___ No

Sample I.D.	Date 19 95	Time	Box 1 Matrix	Box 2 Preservative	Box 3 Filtered/Unfiltered	Box 4 Sample Type	pH	Use as Lab QC (MS/MSD/SD)	Total No. of Bottles	8011 VOLATILES	8021 VOLATILES	8081 PCBs/PESTICIDES	8151 HERBICIDES	8310 PNA							Special Instructions/Comments
										Analytical Method (Assessment)											
TRIP BLANK 2	7/6	0800	T	A	U	G	<2		6	X	X										SEE ATTACHED PARAMETER LISTS 1. 8011 and 8021 methods collected in 40 ml clear glass bottles. 2. 8081, 8151, and 8310 methods collected in 1 L amber glass bottles and maintained in the dark. 3. Samples are collected from Boundary Well samples. These samples will be analyzed for the 8021 Form 4 parameters. The Core Well samples will be analyzed for the 8021 Table 2 parameters. See attached 8021 lists.
TRIP BLANK 2	7/6	0800	T	H	U	G	--		3			X	X	X							

Client's Special Instructions:

Lab: Received in Good Condition? ✓ Yes ___ No Custody Seal Intact? ✓ Yes ___ No Temp. on arrival 18°C Received on Ice yes Describe problems, if any:

Sampler Name (print): JEFF PACIC	Date: 7-13-95	#1 Relinquished By (Sig.): [signature]	Date: 7-13-95	#2 Relinquished By (Sig.): [signature]	Date: 7-13-95	Sample Storage Time Requested:
Sampler Signature: [signature]	Time: 1100	Company Name: DAA	Time: 1515	Company Name: CT&E	Time: 1825	
Sampler Name (print): LEN DiFRANK	Date: 7-13-95	#1 Received By (Sig.): [signature]	Date: 7-13-95	#2 Received By (Sig.): [signature]	Date: 7-13-95	30 (No. Days)
Sampler Signature: [signature]	Time: 1100	Company Name CT&E	Time: 1520	Company Name CT&E	Time: 1825	

Note (1): If "No" lab to hold samples to await remainder of project maximizing batch size and minimizing QC ratio. If "Yes", lab to begin processing.
Note: Always mail invoices and results to consultant.

CASE NARRATIVE

Laboratory Number 295-07-0230-001/014, 295-07-0276-001/011

DATE: September 8, 1995

METHOD 8011:
Nineteen water samples were analysed according to the guidelines of Method 8011. Summarized below are the pH readings for the sample vials which were with narrow range pH paper.

Laboratory Number	SW8011 pH
295-07-0230-001	1.0
295-07-0230-002	1.0
295-07-0230-003	1.0
295-07-0230-004	1.5
295-07-0230-005	1.0
295-07-0230-006	1.0
295-07-0230-007	1.0
295-07-0230-008	1.5
295-07-0230-009	1.0
295-07-0230-010	1.0
295-07-0230-011	1.0
295-07-0230-014	1.0
295-07-0276-001	1.5
295-07-0276-002	1.5
295-07-0276-003	1.0
295-07-0276-004	1.0
295-07-0276-005	1.0
295-07-0276-006	1.5
295-07-0276-011	1.5

No internal standards or surrogates are used in the analysis. The results reported relate only to those items tested.

The GC analysis conditions were as follows:

Column B: DB608 Column, 30 meter x 0.32mm ID x 0.5 micron film thickness
Column A: XTI-1701 Column, 30 meter x 0.32mm ID x 1.0 micron film thickness
Injector Temperature: 200°C
Detector Temperature: 300°C
Oven Temperature Programming: 40°C, no hold
10°/minute to 210°
Total run time: 17 minutes
Injection Amount: 2 µL
Instrument: GC#9
Model: Varian 3400 with Dual Column

SAMPLE CALCULATIONS:

Response Factor = $\frac{\text{(Concentration of standard)}}{\text{(area of std. peak)}}$

Concentration = (area analyte in sample) x RF x DF in µg/L

where:

RF = Response Factor

DF = Dilution Factor

REPORT:

Enclosed with the case narrative is the SW8011 target compound list, the relevant laboratory LOQ's and LOD's for these compounds and the statistical precision and accuaracy data for the method. The submitted data includes quantitation reports and chromatograms. The quantitation report header lists computer batch filename, Laboratory ID number, injection date and time, analyst's initials, method used, method name, initial calibration date, dilution factor, sample type, and GC number. The detector channel designation appears in the METHOD: filename at the end of the directory.

Ex. /chem/gc9.i/9b08edb-1.b/gc9_EDB_chA.m

The response factors used for all calculations are response factors from the initial calibration listed in the header. These are calculated employing the external standard technique. The concentration reported is in µg/L for the liquid samples. The retention time (RT) will be listed for all analytes which are detected. The quantitation limits for all analytes were established from the Laboratory's current MDL study.

Certain files listed on the instrument run logs have not been included in the data package because they are associated with other projects.

Data from Channel B will be presented in the package only when required as confirmational analyses.

RESULTS:

Sample MW2 needed EDB disconfirmed, therefore channel B data is submitted.

All method and extraction blanks were free of any interferences. The extraction blank, 9g22011-01R.d, was reported as sample, 295-07-0230-015.

The initial and continuing calibration verifications met acceptance criteria with the exception of the continuing calibration verification on channel B for DBCP at 47%D. Because MW2 was non-detect, the CCAL and sample were not reanalysed.

The matrix spike/matrix spike duplicates of MW1 and MW9 met recovery and relative percent difference limits.

All analytical runs were made immediately following the extraction procedure and the sampling date to analysis holding time of fourteen days was met for all samples.

CT&E Environmental Services Inc.

Organic Method by SW8011 Precision and Accuracy Statement For Analytes of Interest

Effective: 6-11-95

Instrument#: GC9
Channel: B

Analyst: ATL

Analyte	Number of Replicates	Spike Level (ug/L)	LOD (ug/L)	LOQ (ug/L)	Accuracy % Mean Recovery	Precision (% RSD)
Ethylene Dibromide	7	0.02	0.0056	0.028	94	10.6
Dibromochloropropane	7	0.02	0.0053	0.027	99	9.9

CT&E Environmental Services Inc.

Volatile Organic Method SW8011 Replicate QC Control for Analytes of Interest

Effective Date: 2/9/95 **Instrument # : GC#9**

Channel B Analyte	Concentration (ug/L)	Number of Replicates	Average Recovery	Standard Deviation	Percent Standard Deviation
Ethylene Dibromide(EDB)	0.050	4	0.048	0.0033	6.88
Dibromochloropropane(DBCP)	0.050	4	0.052	0.0072	13.92

Channel A Analyte	Concentration (ug/L)	Number of Replicates	Average Recovery	Standard Deviation	Percent Standard Deviation
Ethylene Dibromide(EDB)	0.050	4	0.056	0.0056	10.11
Dibromochloropropane(DBCP)	0.050	4	0.050	0.0064	12.89

7-230-1/14

ANALYTICAL METHOD: 8011
TYPE METHOD: GC
CLASS: VOLATILE

LANDFILL: Watauga County NC
SAMPLING EVENT: 1st Semi-annual Assessme
SAMPLING DATE: July 10-14, 1995
DAA JN: 6520-21

NORTH CAROLINA ASSESSMENT MONITORING
SW-846 TABLE 2 PARAMETERS

No.	PARAMETER	CAS RN
1	1,2-dibromo-3-chloropropane (DBCP)	96-12-8
2	1,2-dibromoethane (EDB)	106-93-4

Report Date : 11-Aug-1995 12:19

CT&E Environmental Services Inc. Charleston,WV
RETENTION TIME SUMMARY REPORT

Method File: /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Batch File: /disc/draper_aden/07-0230/8011/9g22-1.b
Inst ID: gc9.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07
FILENAME:	9g22004-01R	9g22005-01R	9g22006-01R	9g22008-01R	9g22017-01R	9g22025-01R	9g22033-01R
INJ.DATE:	22-JUL-1995	22-JUL-1995	22-JUL-1995	22-JUL-1995	22-JUL-1995	22-JUL-1995	23-JUL-1995
INJ.TIME:	14:05	14:28	14:52	15:40	19:18	22:30	01:49

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
1 EDB	5.092	5.103	5.095	5.107	5.103	5.103	5.104	5.105	5.085-5.125	5.101	0.005
2 DBCP	10.063	10.077	10.064	10.078	10.074	10.073	10.075	10.076	10.056-10.096	10.072	0.006

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

CT&E Environmental Services Inc. Charleston,WV
RETENTION TIME SUMMARY REPORT

Method File: /disc/draper_aden/07-0276/8011/9g22-2.b/gc9_EDB_chB.m
Batch File: /disc/draper_aden/07-0276/8011/9g22-2.b
Inst ID: gc9.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07
FILENAME:	9g22003-01R	9g22004-01R	9g22005-01R	9g22006-01R	9g22007-01R	9g22033-01R	9g22041-01R
INJ.DATE:	22-JUL-1995	22-JUL-1995	22-JUL-1995	22-JUL-1995	22-JUL-1995	23-JUL-1995	23-JUL-1995
INJ.TIME:	13:41	14:05	14:28	14:52	15:16	01:49	05:05

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
1 EDB	3.699	3.689	3.698	3.695	3.700	3.700	3.693	3.703	3.683-3.723	3.696	0.004
2 DBCP	8.301	8.286	8.300	8.286	8.301	8.297	8.289	8.298	8.278-8.318	8.294	0.007

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

9F30/RA
Ch A XTI-1701
Ch B DB-608

Det = 300
Inj = 200

0015

psi = 24

210°C
40°C 10°/min

Batch : c:\ezchrom\seq9\9g22.seq
Printed : Aug 3, 1995 16:07:58
Creation Date : Jul 22, 1995 14:24:15
Last Change Date : Jul 22, 1995 14:33:47
Method Path : c:\ezchrom\methods9
Data Path : c:\ezchrom\chrom9\9g22

Run	: 1	Sample ID	: mb	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22001.dat	Mult Fact :	10
Run	: 2	Sample ID	: mb	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22002.dat	Mult Fact :	10
Run	: 3	Sample ID	: ical7	Sample Amt:	2
Level	: 7	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22003.dat	Mult Fact :	10
Run	: 4	Sample ID	: ical6	Sample Amt:	2
Level	: 6	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22004.dat	Mult Fact :	10
Run	: 5	Sample ID	: ical5	Sample Amt:	2
Level	: 5	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22005.dat	Mult Fact :	10
Run	: 6	Sample ID	: ical4	Sample Amt:	2
Level	: 4	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22006.dat	Mult Fact :	10
Run	: 7	Sample ID	: ical3	Sample Amt:	2
Level	: 3	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22007.dat	Mult Fact :	10
Run	: 8	Sample ID	: ical2	Sample Amt:	2
Level	: 2	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22008.dat	Mult Fact :	10
Run	: 9	Sample ID	: ical1	Sample Amt:	2
Level	: 1	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22009.dat	Mult Fact :	10
Run	: 10	Sample ID	: mb	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22010.dat	Mult Fact :	10
Run	: 11	Sample ID	: eb	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22011.dat	Mult Fact :	10
Run	: 12	Sample ID	: 7-230-1mw1	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22012.dat	Mult Fact :	10

All samples, spikes and stds extracted July 22, 1995
35 mls (H_2O / sample)
6 grams NaCl
2 mls Hexane

ccals = 0.05 µg/L

MS/MSD spiked @ 0.05 µg/L

Run	: 13	Sample ID	: 7-230-2MS	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22013.dat	Mult Fact :	10
Run	: 14	Sample ID	: 7-230-3MSD	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22014.dat	Mult Fact :	10
Run	: 15	Sample ID	: 7-230-4mw6	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22015.dat	Mult Fact :	10
Run	: 16	Sample ID	: 7-230-5mw3	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22016.dat	Mult Fact :	10
Run	: 17	Sample ID	: ccal	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22017.dat	Mult Fact :	10
Run	: 18	Sample ID	: mb	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22018.dat	Mult Fact :	10
Run	: 19	Sample ID	: mb	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22019.dat	Mult Fact :	10
	: 20	Sample ID	: 7-230-6mw7	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22020.dat	Mult Fact :	10
Run	: 21	Sample ID	: 7-230-7mw8	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22021.dat	Mult Fact :	10
Run	: 22	Sample ID	: 7-230-8mw11	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22022.dat	Mult Fact :	10
Run	: 23	Sample ID	: 7-230-9mw10	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22023.dat	Mult Fact :	10
Run	: 24	Sample ID	: 7-230-11mw17	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22024.dat	Mult Fact :	10
Run	: 25	Sample ID	: ccal	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22025.dat	Mult Fact :	10
Run	: 26	Sample ID	: mb	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1

		Filename	: 9g22026.dat	Mult Fact :	10
Run	: 27	Sample ID	: mb	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22027.dat	Mult Fact :	10
Run	: 28	Sample ID	: 7-230-14tb	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22028.dat	Mult Fact :	10
Run	: 29	Sample ID	: 7-276-1mw9	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22029.dat	Mult Fact :	10
Run	: 30	Sample ID	: 7-276-2MS	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22030.dat	Mult Fact :	10
Run	: 31	Sample ID	: 7-276-3MSD	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22031.dat	Mult Fact :	10
Run	: 32	Sample ID	: 7-276-4mw12	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22032.dat	Mult Fact :	10
Run	: 33	Sample ID	: ccal	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22033.dat	Mult Fact :	10
Run	: 34	Sample ID	: mb	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22034.dat	Mult Fact :	10
Run	: 35	Sample ID	: mb	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22035.dat	Mult Fact :	10
Run	: 36	Sample ID	: 7-276-5mw2	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22036.dat	Mult Fact :	10
Run	: 37	Sample ID	: 7-276-6mw4	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22037.dat	Mult Fact :	10
Run	: 38	Sample ID	: 7-276-11tb	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22038.dat	Mult Fact :	10
Run	: 39	Sample ID	: 7-308-1mw1	Sample Amt:	2
Level	: 0	Method	: edb.met	ISTD Amt :	1
		Filename	: 9g22039.dat	Mult Fact :	10
	: 40	Sample ID	: 7-308-2MS	Sample Amt:	2

CT&E Environmental Services Inc. Charleston,WV

INITIAL CALIBRATION DATA

Start Cal Date : 15-FEB-95 23:51
End Cal Date : 22-JUL-1995 16:04
Quant Method : ESTD
Target Version : 3.12
Integrator : HP Genie
Method file : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Cal Date : 11-Aug-1995 12:04 jasbury
Curve Type : Average

Calibration File Names:
Level 1: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22009-01R.d
Level 2: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22008-01R.d
Level 3: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22007-01R.d
Level 4: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22006-01R.d
Level 5: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22005-01R.d
Level 6: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22004-01R.d
Level 7: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22003-01R.d

Compound	0.0100 Level 1	0.0200 Level 2	0.0400 Level 3	0.0500 Level 4	0.0800 Level 5	0.1000 Level 6	RRF	% RSD
	0.2000 Level 7							
1 EDB	2554400	3024800	3164775	3309980	3091738	3164180		
	3245605						3079354	8.108
2 DBCP	6914400	7224700	7424500	7012540	7308612	7216960		
	7049110						7164403	2.508

CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22003-01R.d
Lab Smp Id: ical7 Client Smp ID: ical7
Inj Date : 22-JUL-1995 13:41
Operator : ra Inst ID: gc9.i
Smp Info : ical7
Misc Info : Created from: 9g22003.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:44 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 7
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)		
1 EDB					CAS #:		
5.108	5.105	0.003	649121	0.200	0.211		(AM)
2 DBCP					CAS #:		
10.083	10.076	0.007	1409822	0.200	0.197		(M)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

0020

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical7
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22003.01R, 25-Jul-1995 16:03

Client SDG: 9g22-1
Client Smp ID: ical7
Sample Point:
Date Received:
Quant Type: ESTD
Level: MED
Operator: ra

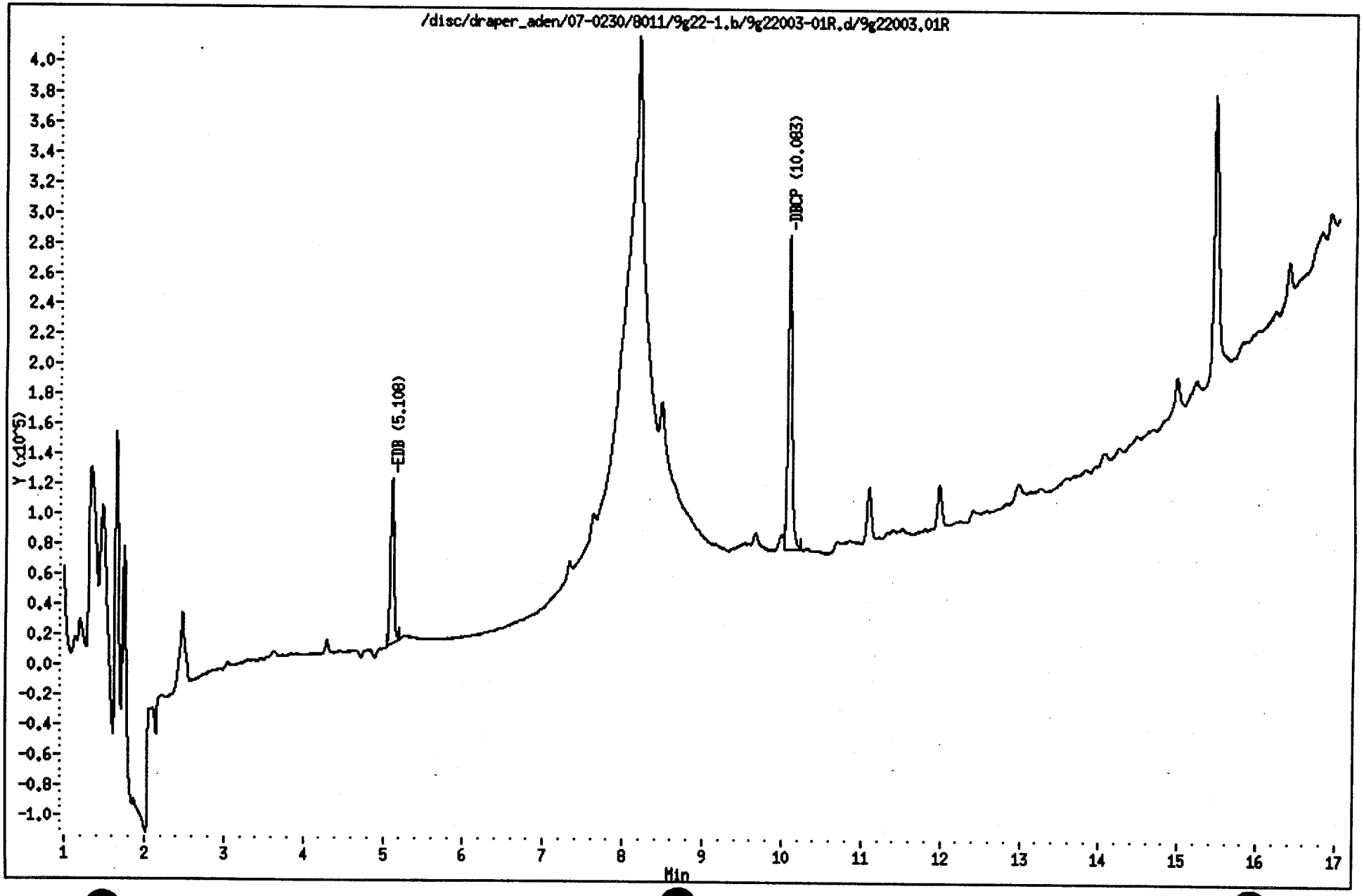
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.211	E
	DBCP	0.197	

0021

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22003-01R.d
Date : 22-JUL-1995 13:41
Client ID: ical7
Sample Info: ical7
Purge Volume: 5.0
Column phase: XTI-1701

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22004-01R.d
Lab Smp Id: ical6 Client Smp ID: ical6
Inj Date : 22-JUL-1995 14:05
Operator : ra Inst ID: gc9.i
Smp Info : ical6
Misc Info : Created from: 9g22004.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
1 EDB					CAS #:	
5.092	5.105	-0.013	316418	0.100	0.103	(M)
2 DBCP					CAS #:	
10.067	10.076	-0.009	721696	0.100	0.101	(M)

QC Flag Legend

M - Compound response manually integrated.

0023

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical6
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22004.01R, 25-Jul-1995 16:03

Client SDG: 9g22-1
Client Smp ID: ical6
Sample Point:
Date Received:
Quant Type: ESTD
Level: MED
Operator: ra

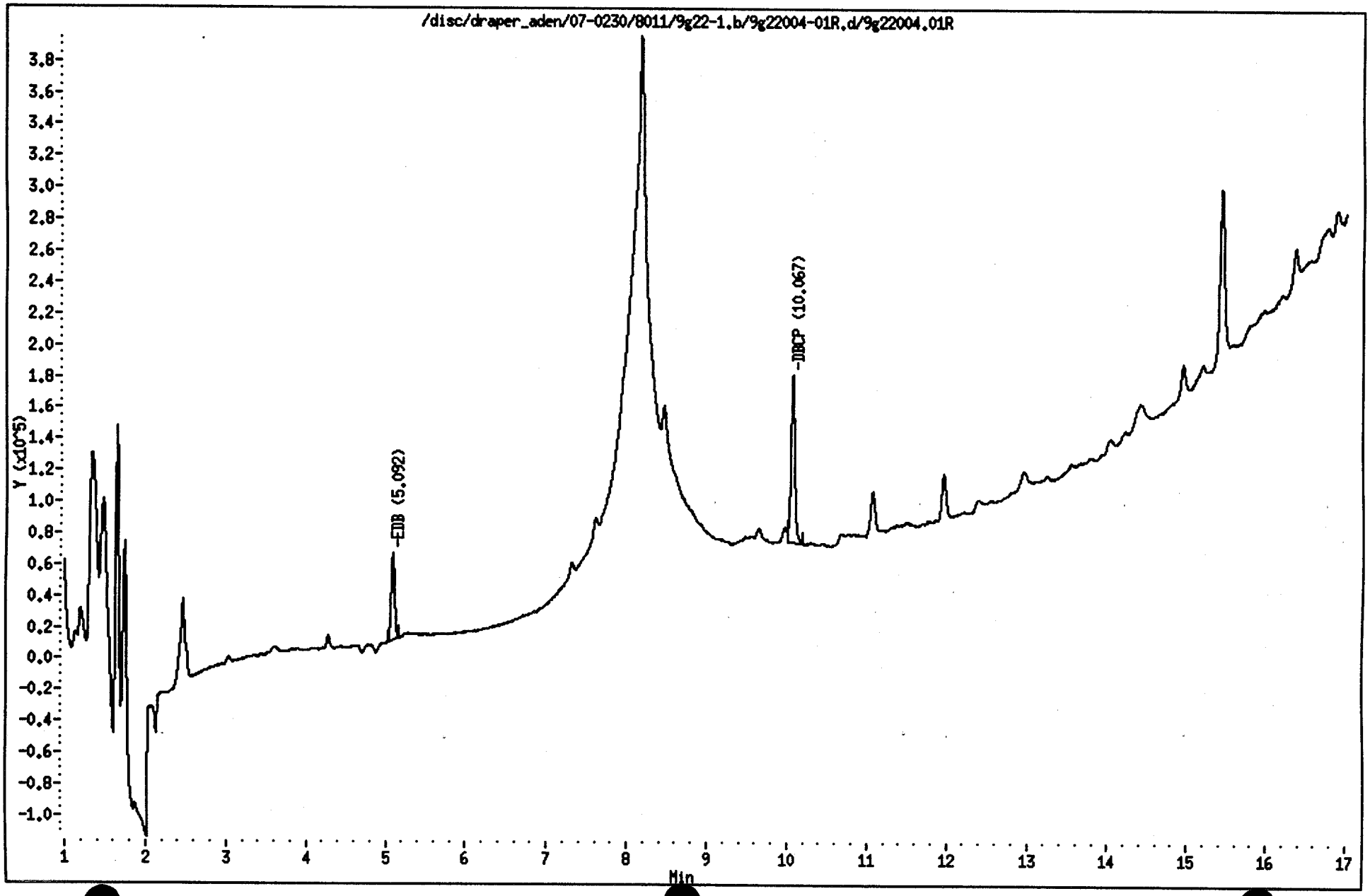
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.103	
	DBCP	0.101	

0024

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22004-01R.d
Date : 22-JUL-1995 14:05
Client ID: ical6
Sample Info: ical6
Purge Volume: 5.0
Column phase: XTI-1701

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22005-01R.d
Lab Smp Id: ical5 Client Smp ID: ical5
Inj Date : 22-JUL-1995 14:28
Operator : ra Inst ID: gc9.i
Smp Info : ical5
Misc Info : Created from: 9g22005.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
1 EDB					CAS #:	
5.100	5.105	-0.005	247339	0.0800	0.0803	(M)
2 DBCP					CAS #:	
10.075	10.076	-0.001	584689	0.0800	0.0816	(M)

QC Flag Legend

M - Compound response manually integrated.

0026

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical5
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22005.01R, 25-Jul-1995 16:03

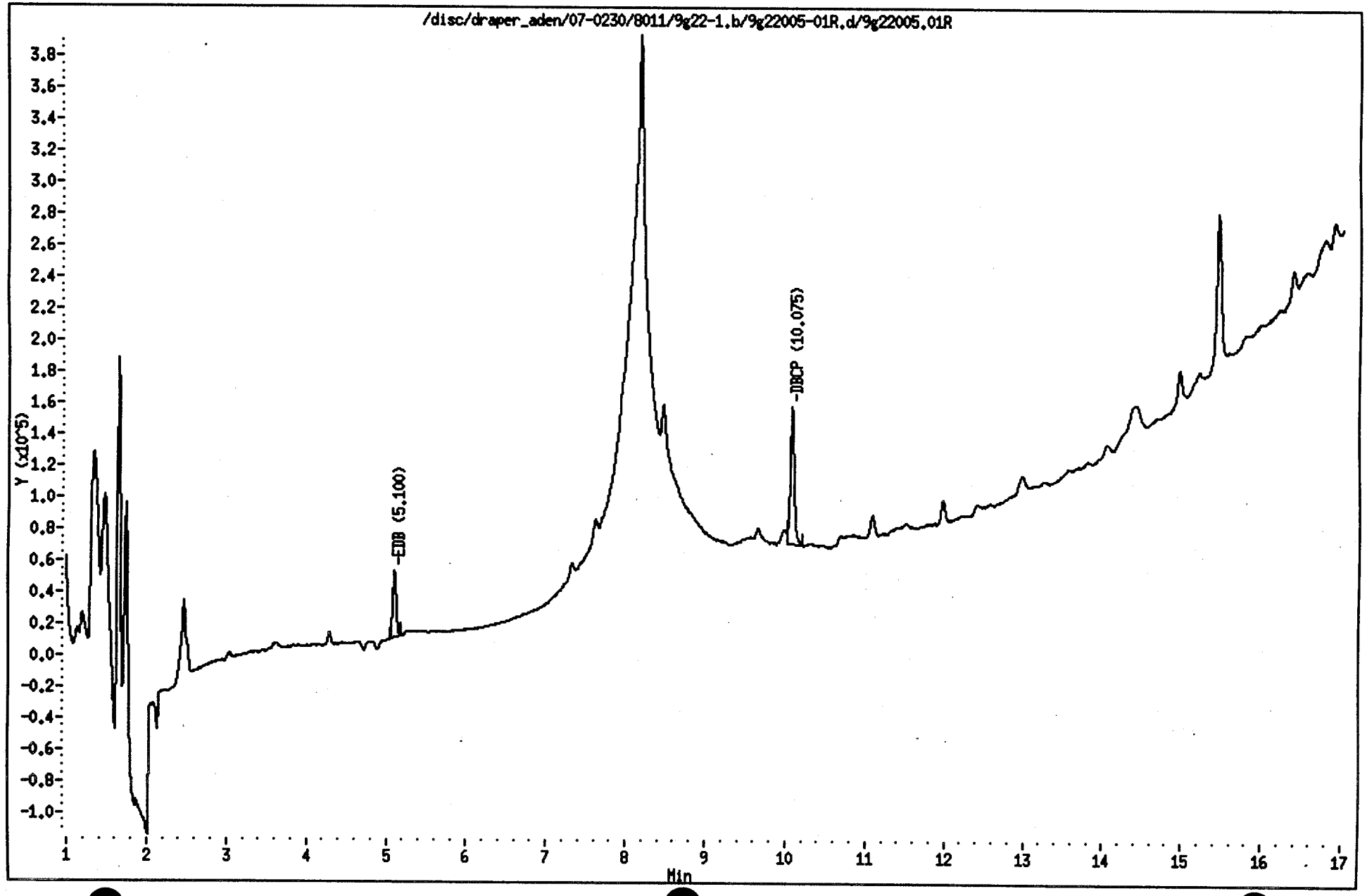
Client SDG: 9g22-1
Client Smp ID: ical5
Sample Point:
Date Received:
Quant Type: ESTD
Level: MED
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.0803	
	DBCP	0.0816	

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22005-01R.d
Date : 22-JUL-1995 14:28
Client ID: ical5
Sample Info: ical5
Purge Volume: 5.0
Column phase: XTI-1701

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22006-01R.d
Lab Smp Id: ical4 Client Smp ID: ical4
Inj Date : 22-JUL-1995 14:52
Operator : ra Inst ID: gc9.i
Smp Info : ical4
Misc Info : Created from: 9g22006.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)		
1 EDB					CAS #:		
5.092	5.105	-0.013	165499	0.0500	0.0537		(M)
2 DBCP					CAS #:		
10.067	10.076	-0.009	350627	0.0500	0.0489		(M)

QC Flag Legend

M - Compound response manually integrated.

0029

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical4
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22006.01R, 25-Jul-1995 16:03

Client SDG: 9g22-1
Client Smp ID: ical4
Sample Point:
Date Received:
Quant Type: ESTD
Level: MED
Operator: ra

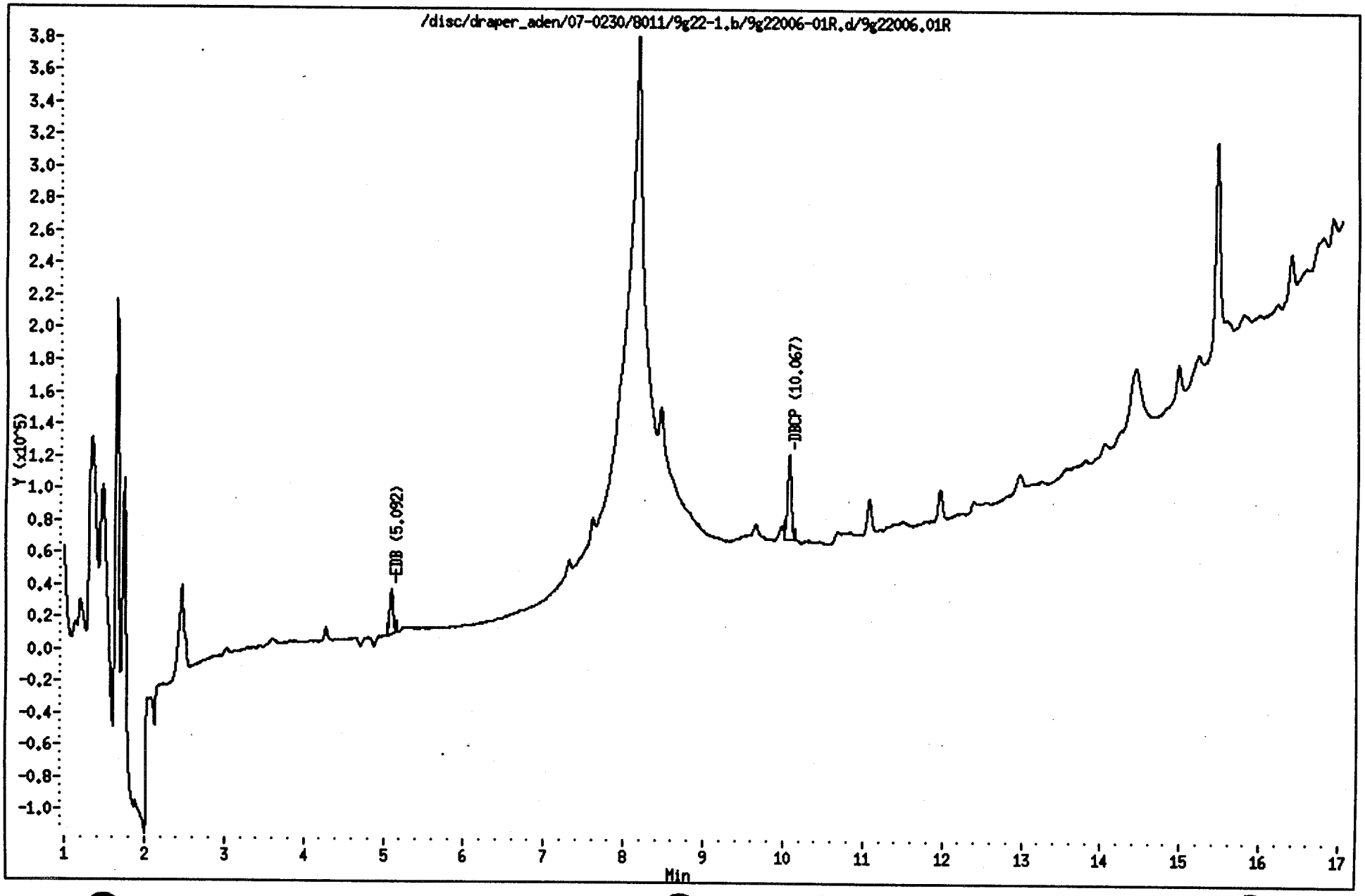
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.0537	
	DBCP	0.0489	

0030

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22006-01R.d
Date : 22-JUL-1995 14:52
Client ID: ical4
Sample Info: ical4
Purge Volume: 5.0
Column phase: XTI-1701

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22007-01R.d
Lab Smp Id: ical3 Client Smp ID: ical3
Inj Date : 22-JUL-1995 15:16
Operator : ra Inst ID: gc9.i
Smp Info : ical3
Misc Info : Created from: 9g22007.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)		
1 EDB					CAS #:		
5.108	5.105	0.003	126591	0.0400	0.0411		(M)
2 DBCP					CAS #:		
10.075	10.076	-0.001	296980	0.0400	0.0414		(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV 0032

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical3
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22007.01R, 25-Jul-1995 16:03

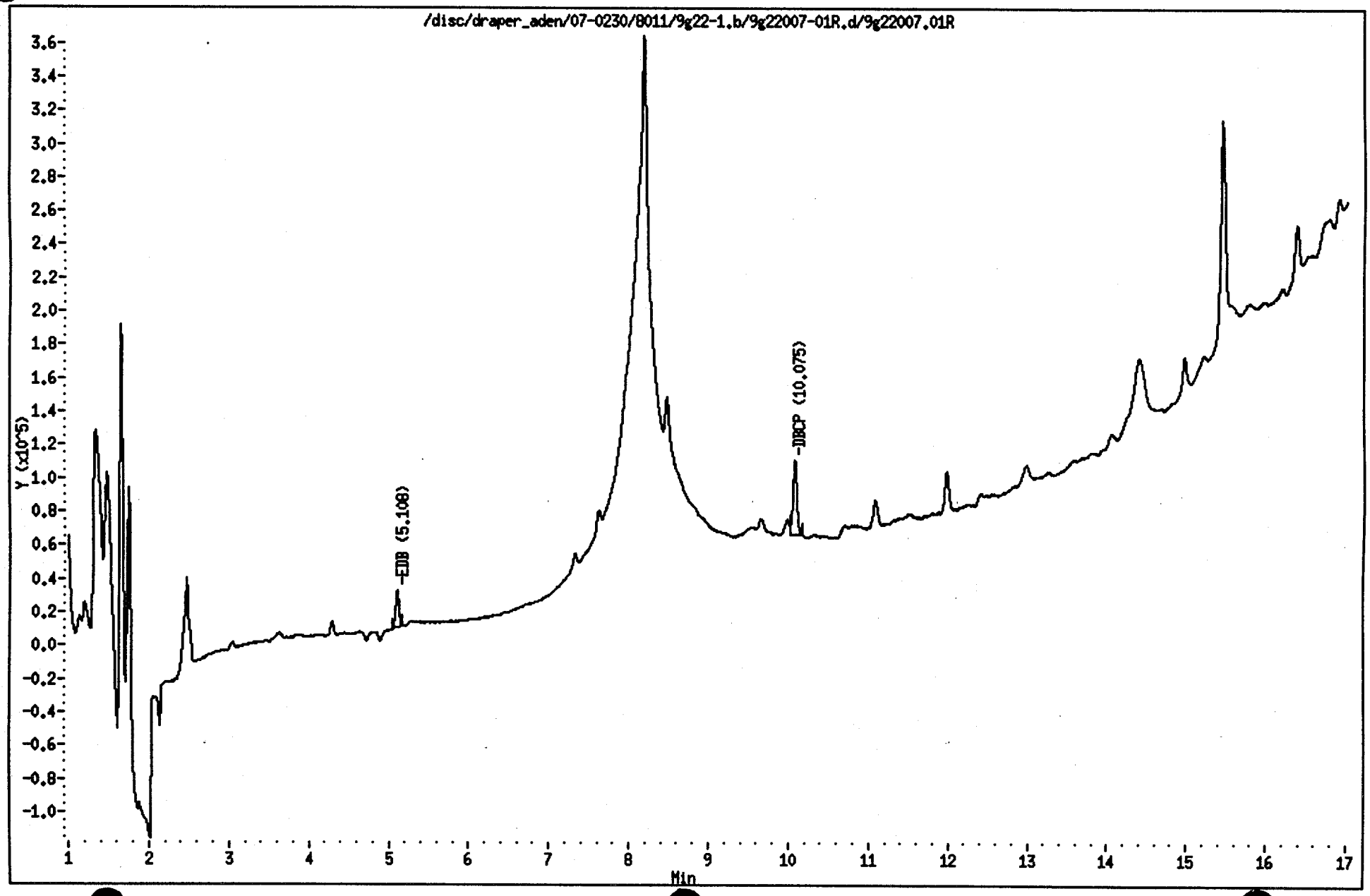
Client SDG: 9g22-1
Client Smp ID: ical3
Sample Point:
Date Received:
Quant Type: ESTD
Level: MED
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.0411	
	DBCP	0.0414	

0033

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22007-01R.d
Date : 22-JUL-1995 15:16
Client ID: ical3
Sample Info: ical3
Purge Volume: 5.0
Column phase: XTI-1701

Instrument: gc9.i
Operator: ra
Column diameter: 0.32



0034

CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22008-01R.d
Lab Smp Id: ical2 Client Smp ID: ical2
Inj Date : 22-JUL-1995 15:40
Operator : ra Inst ID: gc9.i
Smp Info : ical2
Misc Info : Created from: 9g22008.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)		
1 EDB					CAS #:		
5.108	5.105	0.003	60496	0.0200	0.0196		(aM)
2 DBCP					CAS #:		
10.075	10.076	-0.001	144494	0.0200	0.0202		(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical2
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22008.01R, 25-Jul-1995 16:03

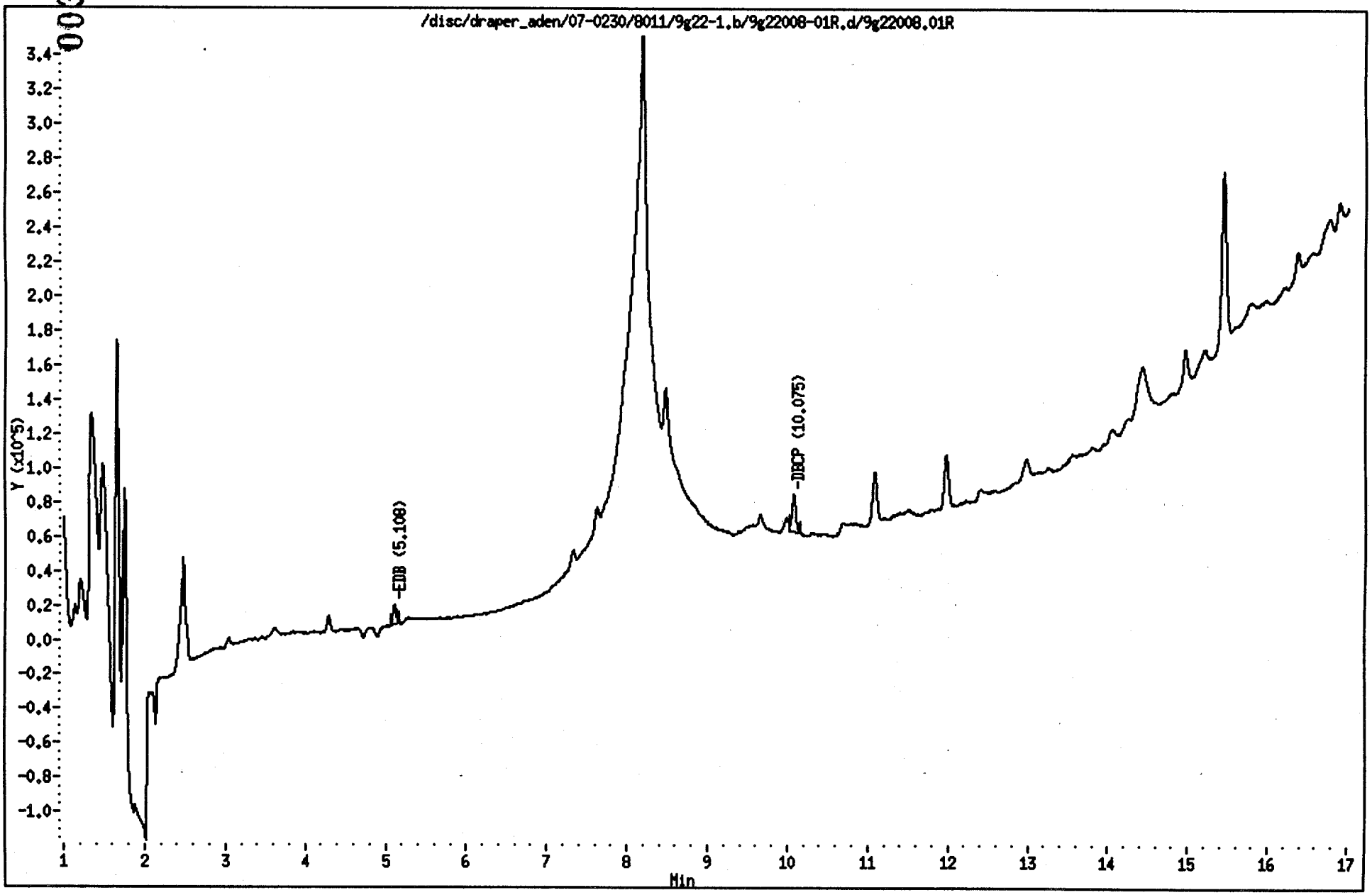
Client SDG: 9g22-1
Client Smp ID: ical2
Sample Point:
Date Received:
Quant Type: ESTD
Level: MED
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.0196	J
	DBCP	0.0202	J

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22008-01R.d
Date : 22-JUL-1995 15:40
Client ID: ical2
Sample Info: ical2
Purge Volume: 5.0
Column phase: XTI-1701

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22009-01R.d
Lab Smp Id: ical1 Client Smp ID: ical1
Inj Date : 22-JUL-1995 16:04
Operator : ra Inst ID: gc9.i
Smp Info : ical1
Misc Info : Created from: 9g22009.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
1 EDB					CAS #:	
5.108	5.105	0.003	25544	0.0100	0.00830	(aM)
2 DBCP					CAS #:	
10.083	10.076	0.007	69144	0.0100	0.00965	(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV 0038

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical1
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22009.01R, 25-Jul-1995 16:03

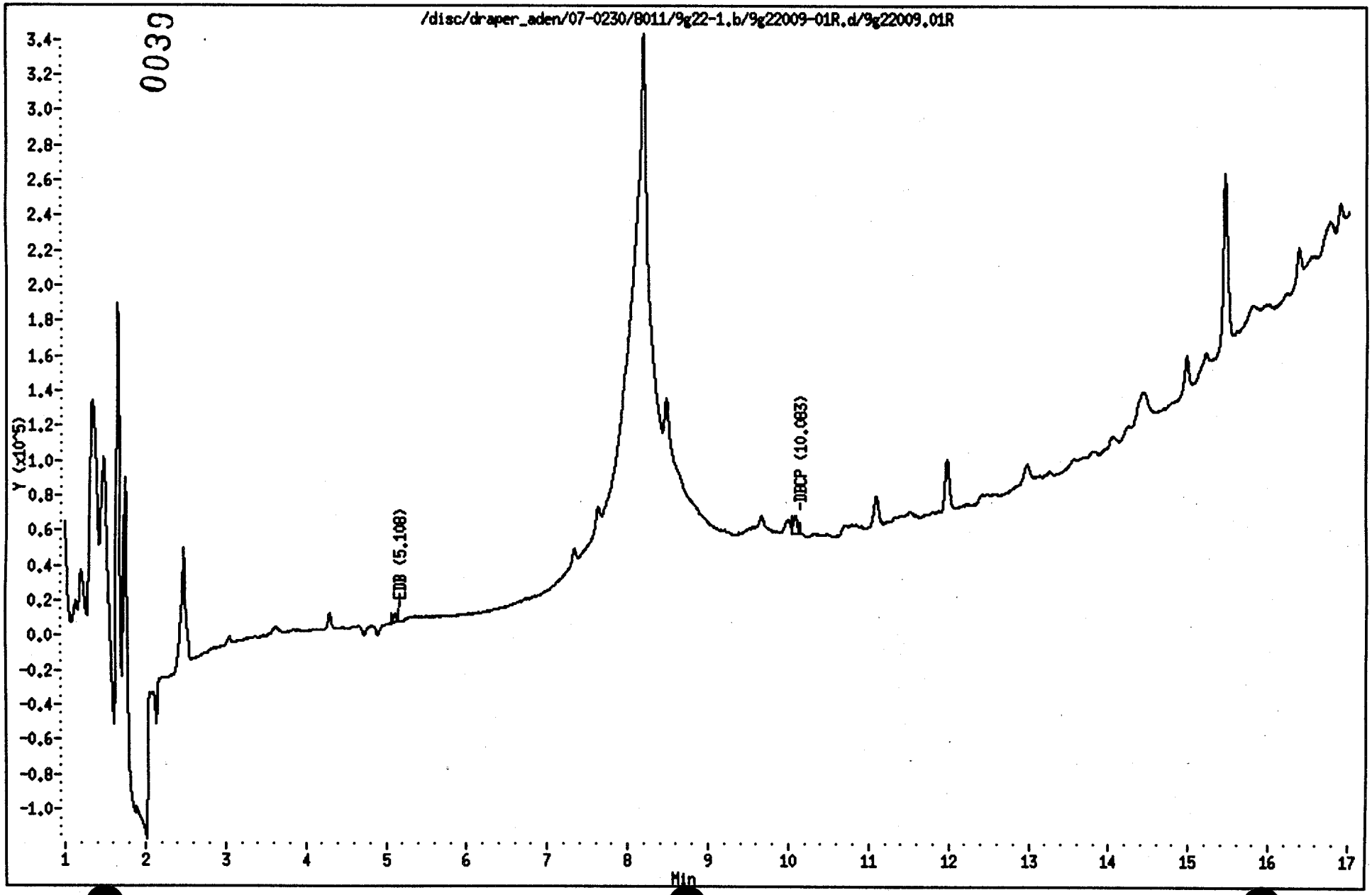
Client SDG: 9g22-1
Client Smp ID: ical1
Sample Point:
Date Received:
Quant Type: ESTD
Level: MED
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.00830	J
	DBCP	0.00965	J

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22009-01R.d
Date : 22-JUL-1995 16:04
Client ID: ical1
Sample Info: ical1
Purge Volume: 5.0
Column phase: XTI-1701

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV

0040

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: gc9.i
Lab File ID: 9g22017-01R.d
Analysis Type: WATER
Lab Sample ID: ccal
Injection Date: 22-JUL-1995 19:18
Init. Calibration Date(s): 02/15/95 07/22/95
Init. Calibration Times: 23:51 16:04
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m

COMPOUND	RRF	RF0	MIN RRF	%D	MAX %D
1 EDB	3079353.929	2777620.000	0.010	9.8	10.0
2 DBCP	7164403.214	6458140.000	0.010	9.9	10.0

CT&E Environmental Services Inc. Charleston,WV 0041

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22017-01R.d
Lab Smp Id: ccal Client Smp ID: ccal
Inj Date : 22-JUL-1995 19:18
Operator : ra Inst ID: gc9.i
Smp Info : ccal
Misc Info : Created from: 9g22017.01R, 10-Aug-1995 15:20
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

				AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
RT	EXP RT	DLT RT	RESPONSE			
1 EDB					CAS #:	
5.100	5.105	-0.005	138881	0.0500	0.0451	(M)
2 DBCP					CAS #:	
10.075	10.076	-0.001	322907	0.0500	0.0451	(M)

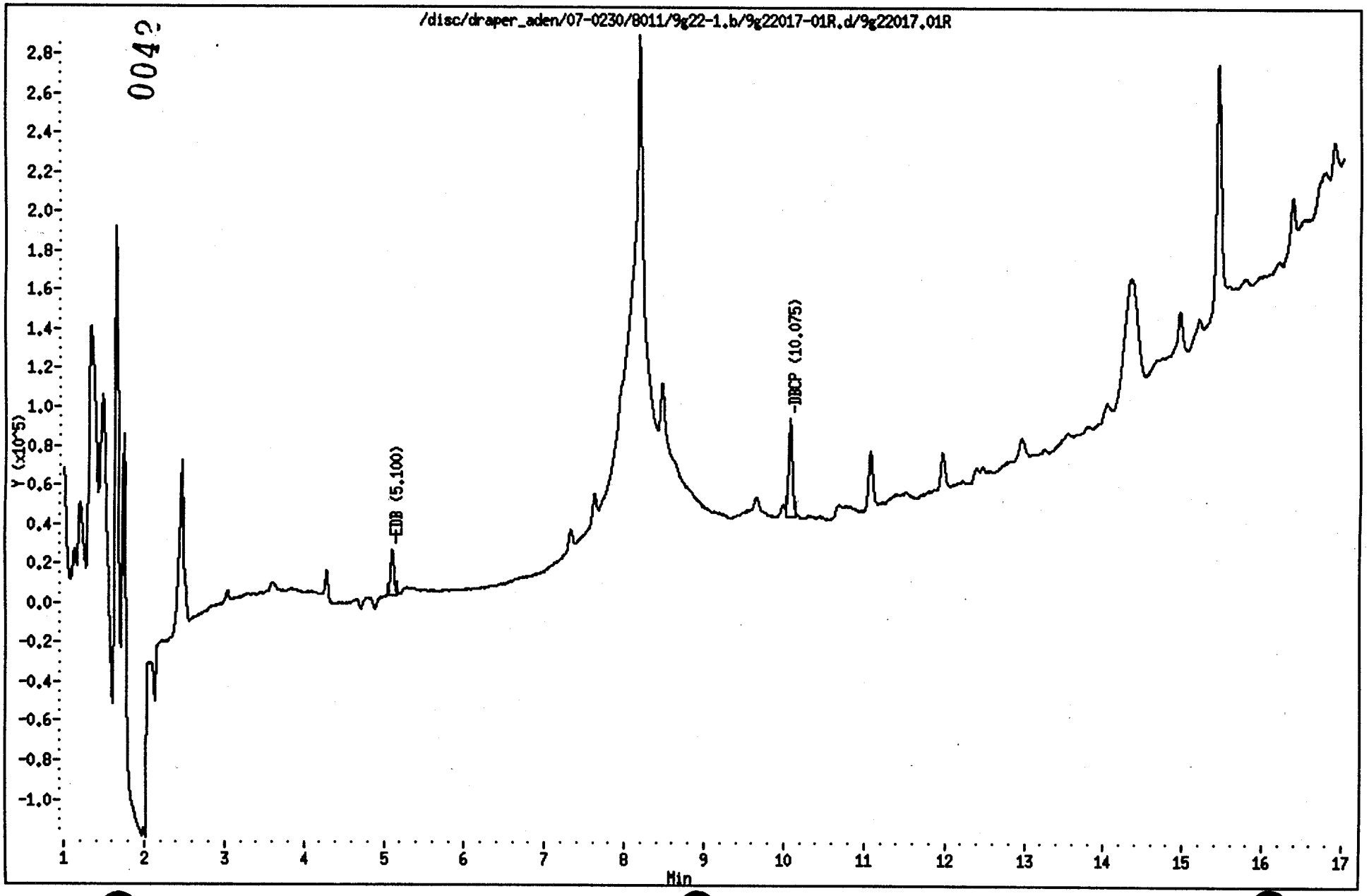
QC Flag Legend

M - Compound response manually integrated.

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22017-01R.d
Date : 22-JUL-1995 19:18
Client ID: ccal
Sample Info: ccal
Purge Volume: 5.0
Column phase: XTI-1701

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV

CONTINUING CALIBRATION COMPOUNDS 0042

Instrument ID: gc9.i Injection Date: 22-JUL-1995 22:30
Lab File ID: 9g22025-01R.d Init. Calibration Date(s): 02/15/95 07/22/95
Analysis Type: WATER Init. Calibration Times: 23:51 16:04
Lab Sample ID: ccal Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m

COMPOUND	RRF	RF0	MIN RRF	%D	MAX %D
1 EDB	3079353.929	2782580.000	0.010	9.6	10.0
2 DBCP	7164403.214	6753740.000	0.010	5.7	10.0

004

CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22025-01R.d
Lab Smp Id: ccal Client Smp ID: ccal
Inj Date : 22-JUL-1995 22:30
Operator : ra Inst ID: gc9.i
Smp Info : ccal
Misc Info : Created from: 9g22025.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

				AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
RT	EXP RT	DLT RT	RESPONSE			
1 EDB					CAS #:	
5.100	5.105	-0.005	139129	0.0500	0.0452	(M)
2 DBCP					CAS #:	
10.075	10.076	-0.001	337687	0.0500	0.0471	(M)

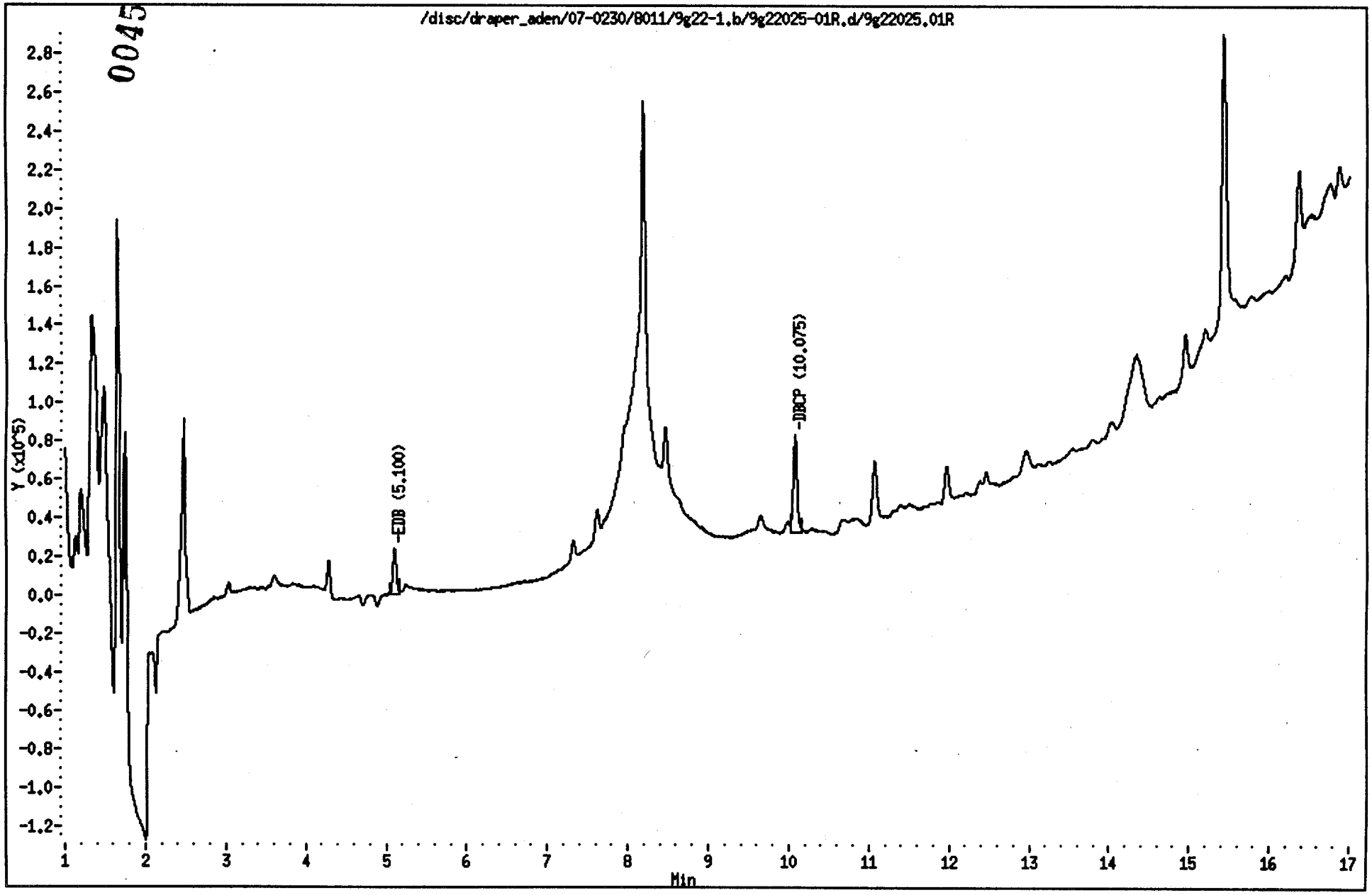
QC Flag Legend

M - Compound response manually integrated.

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22025-01R.d
Date : 22-JUL-1995 22:30
Client ID: ccal
Sample Info: ccal
Purge Volume: 5.0
Column phase: XTI-1701

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV 004

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: gc9.i
Lab File ID: 9g22033-01R.d
Analysis Type: WATER
Lab Sample ID: ccal
Method File: /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m

Injection Date: 23-JUL-1995 01:49
Init. Calibration Date(s): 02/15/95 07/22/95
Init. Calibration Times: 23:51 16:04
Quant Type: ESTD

COMPOUND	$\overline{RRF}$	RF0	MIN RRF	%D	MAX %D
1 EDB	3079353.929	2885240.000	0.010	6.3	10.0
2 DBCP	7164403.214	6680880.000	0.010	6.7	10.0

0047

CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22033-01R.d
Lab Smp Id: ccal Client Smp ID: ccal
Inj Date : 23-JUL-1995 01:49
Operator : ra Inst ID: gc9.i
Smp Info : ccal
Misc Info : Created from: 9g22033.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:47 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
1 EDB					CAS #:	
5.100	5.105	-0.005	144262	0.0500	0.0468	(M)
2 DBCP					CAS #:	
10.075	10.076	-0.001	334044	0.0500	0.0466	(M)

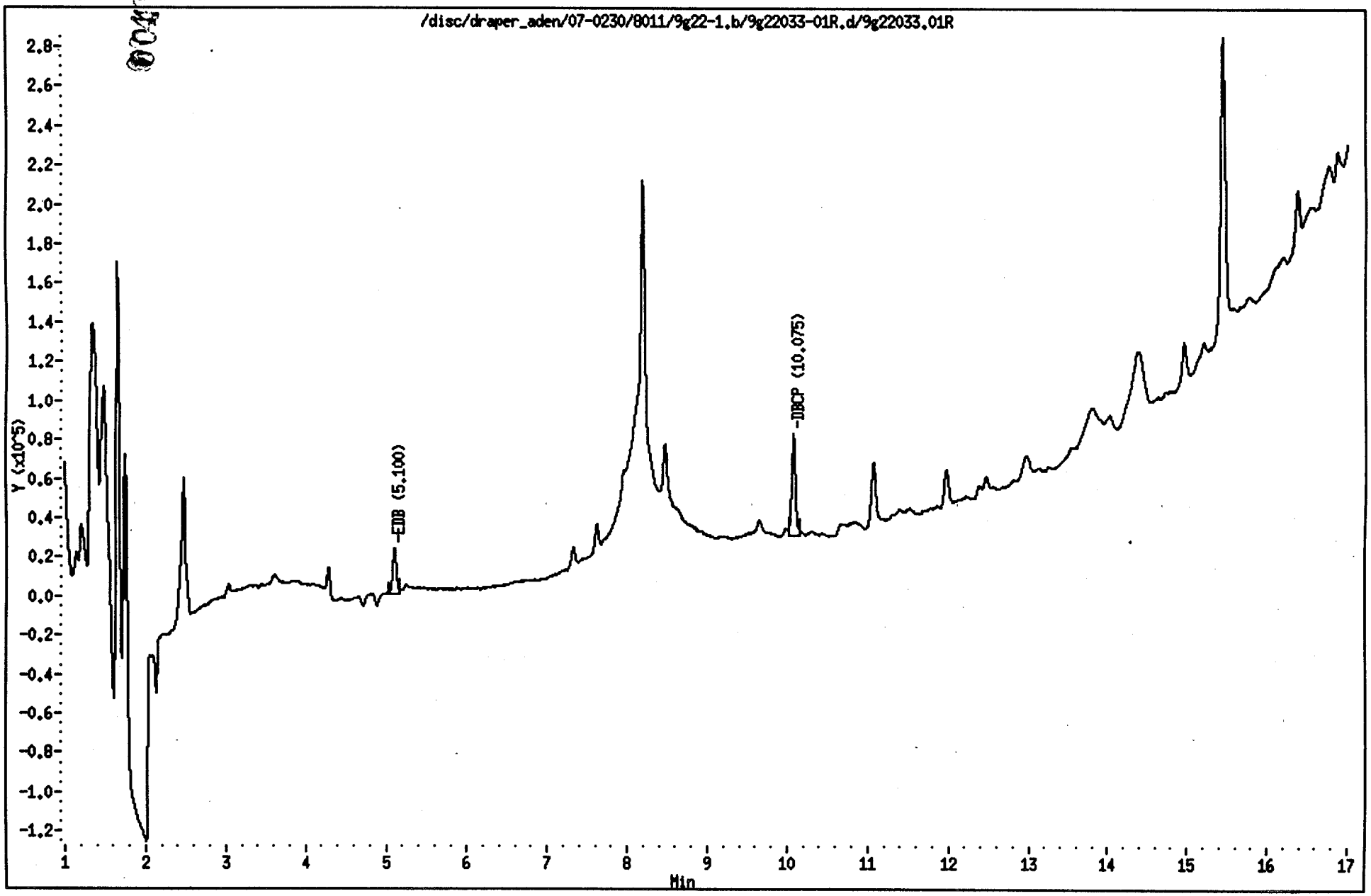
QC Flag Legend

M - Compound response manually integrated.

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22033-01R.d
Date : 23-JUL-1995 01:49
Client ID: ccal
Sample Info: ccal
Purge Volume: 5.0
Column phase: XTI-1701

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc.

Laboratory Division

0049

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0276-012

Respectfully Submitted:

LAB BLANK-2 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/13/95
Date Received 07/13/95

Sampled by CLIENT

090895 1411

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/22/95 16:52 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/22/95 16:52 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

150-510/9F

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

eb

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22-0050

Matrix: (soil/water) WATER Lab Sample ID: eb

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22011-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

CT&E Environmental Services Inc. Charleston,WV 0051

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22011-01R.d
Lab Smp Id: eb Client Smp ID: eb
Inj Date : 22-JUL-1995 16:52
Operator : ra Inst ID: gc9.i
Smp Info : eb
Misc Info : Created from: 9g22011.01R, 10-Aug-1995 15:20
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 QC Sample: EXTBLANK
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				

CT&E Environmental Services Inc. Charleston,WV

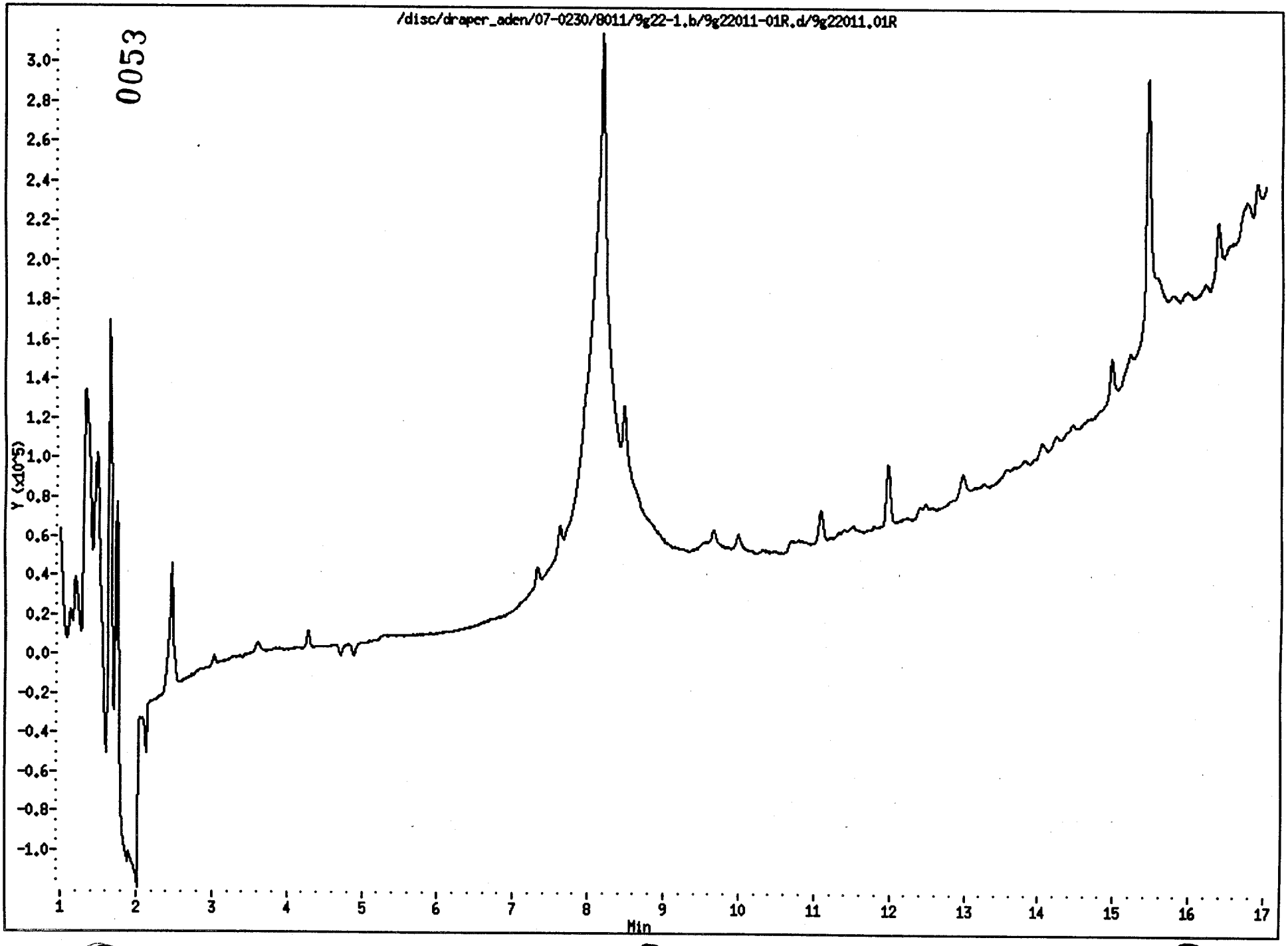
TARGET COMPOUNDS

0052

Client Name:
Lab Smp Id: eb
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22011.01R, 10-Aug-1995 15:20

Client SDG: 9g22-1
Client Smp ID: eb
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
==========	==========	==========	=====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0053
Y (x10^5)
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
1
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14
15
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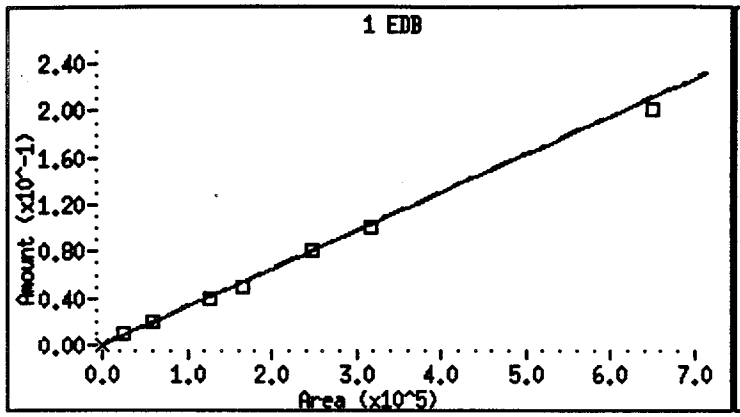
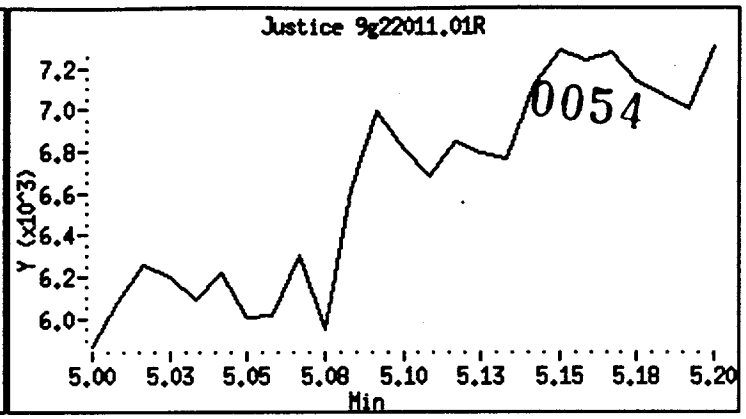
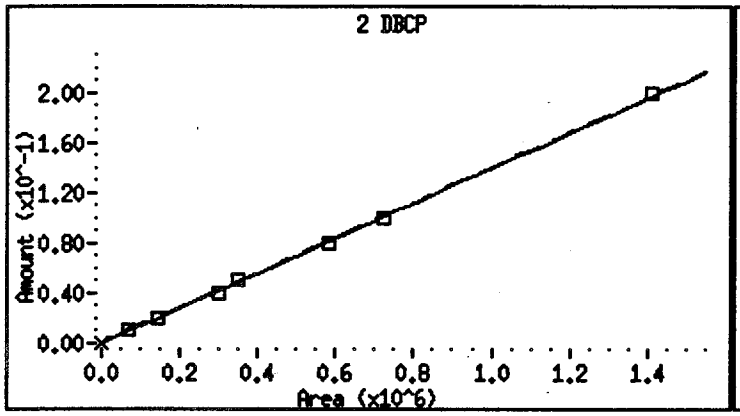
17
Min

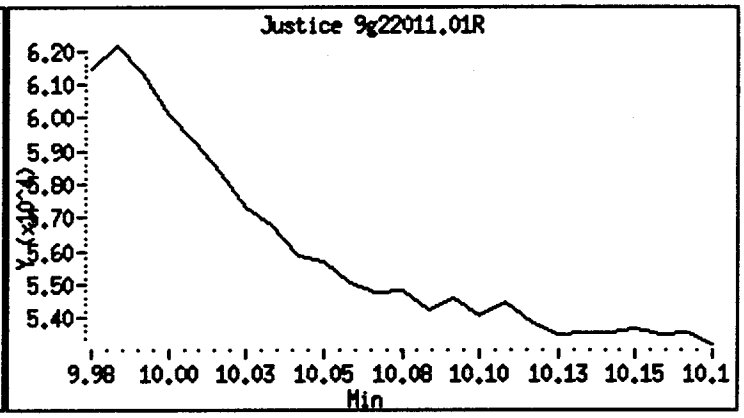
1 EDB (Undetected)





2 DBCP (Undetected)





4A
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

mb

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22 0055

Lab File ID: 9G22010-01R Lab Sample ID: mb

Date Analyzed: 07/22/95 Time Analyzed: 1628

GC Column: XTI-1701 ID: 0.32 (mm) Heated Purge: (Y/N) N

Instrument ID: GC9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	eb	eb	9G22011-01R	1652
02	mw1	mw1	9G22012-01R	1716
03	mw1MS	mw1MS	9G22013-01R	1740
04	mw1MSD	mw1MSD	9G22014-01R	1805
05	7-230-4mw6	7-230-4mw6	9G22015-01R	1829
06	7-230-5mw3	7-230-5mw3	9G22016-01R	1854
07				
08				
09				
10				
11				
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COMMENTS:

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

mb

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-276 Case No.: SAS No.: SDG No.: 9g22-10056

Matrix: (soil/water) WATER Lab Sample ID: mb

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22010-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

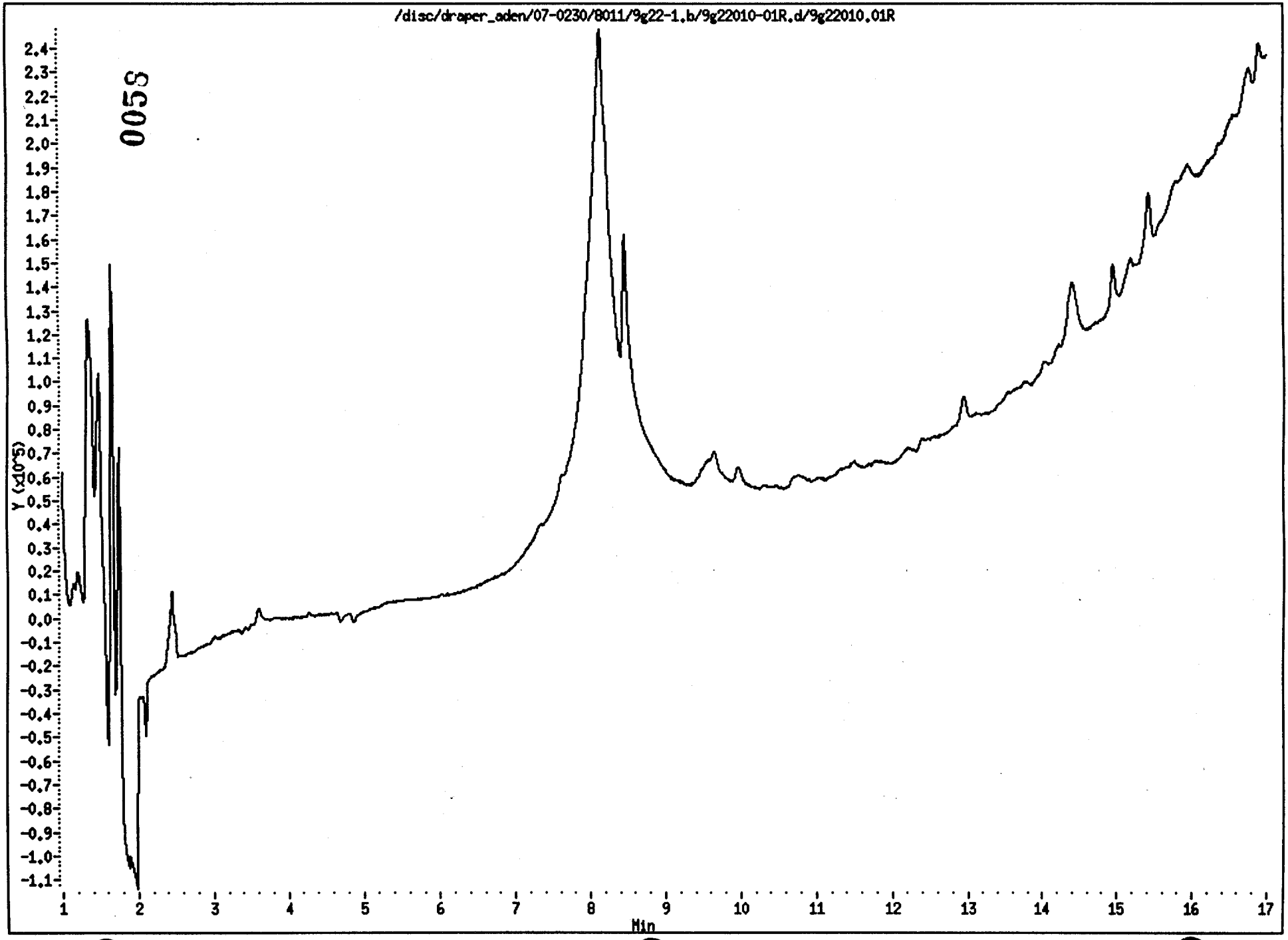
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

CT&E Environmental Services Inc. Charleston,WV 0057

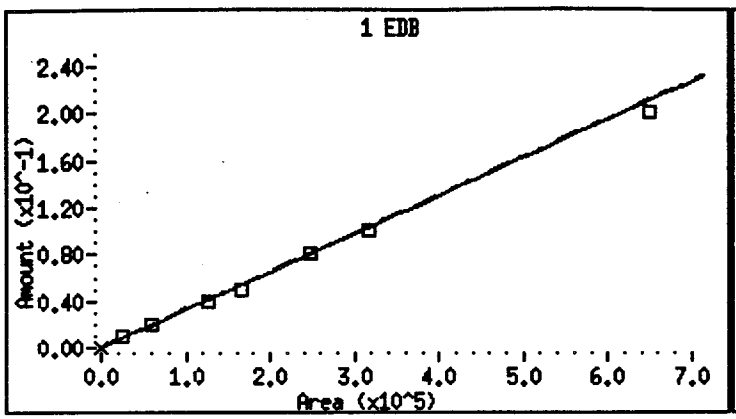
VOLATILE REPORT SW8011 method

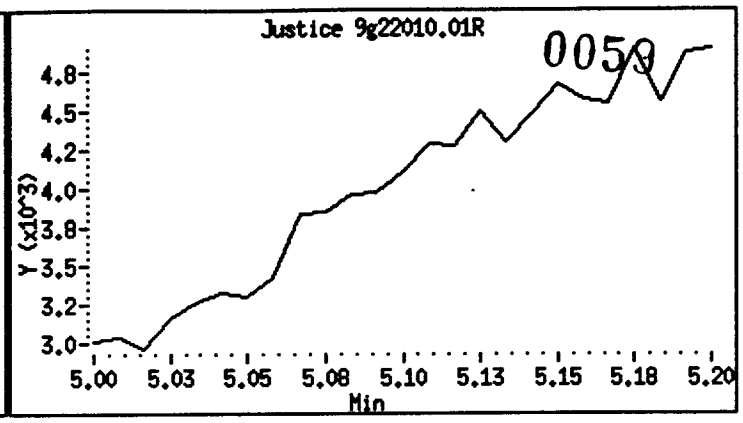
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22010-01R.d
Lab Smp Id: mb Client Smp ID: mb
Inj Date : 22-JUL-1995 16:28
Operator : ra Inst ID: gc9.i
Smp Info : mb
Misc Info : Created from: 9g22010.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				

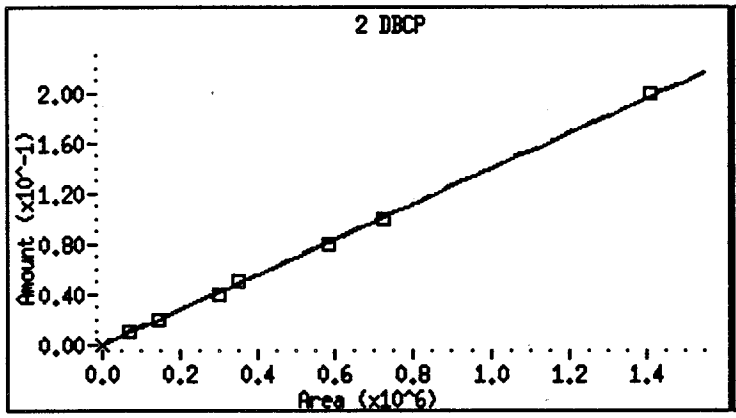

/disc/draper_aden/07-0230/8011/9g22-1.b/9g22010-01R.d/9g22010.01R
005S
Y (x10^5)
Min

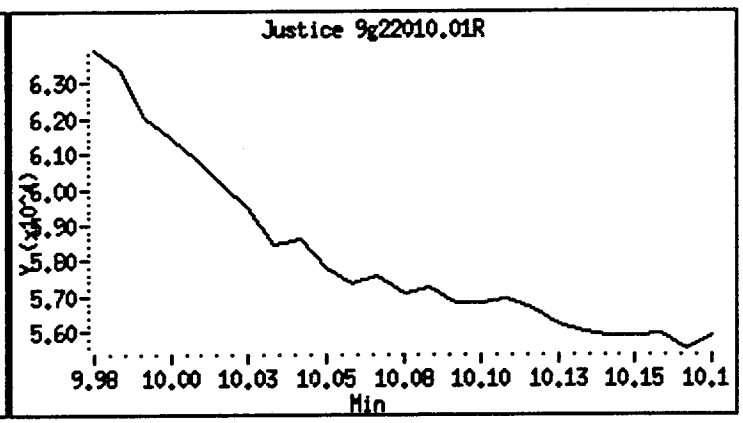
1 EDB (Undetected)





2 DBCP (Undetected)





4A
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

mb 0060

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22-1

Lab File ID: 9G22018-01R Lab Sample ID: mb

Date Analyzed: 07/22/95 Time Analyzed: 1942

GC Column: XTI-1701 ID: 0.32 (mm) Heated Purge: (Y/N) N

Instrument ID: GC9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	7-230-6mw7	7-230-6mw7	9G22020-01R	2029
02	7-230-7mw8	7-230-7mw8	9G22021-01R	2054
03	7-230-8mw11	7-230-8mw11	9G22022-01R	2118
04	7-230-9mw10	7-230-9mw10	9G22023-01R	2142
05	7-230-11mw17	7-230-11mw17	9G22024-01R	2206
06				
07				
08				
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COMMENTS:

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

mb 0061

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22-1

Matrix: (soil/water) WATER Lab Sample ID: mb

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22018-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

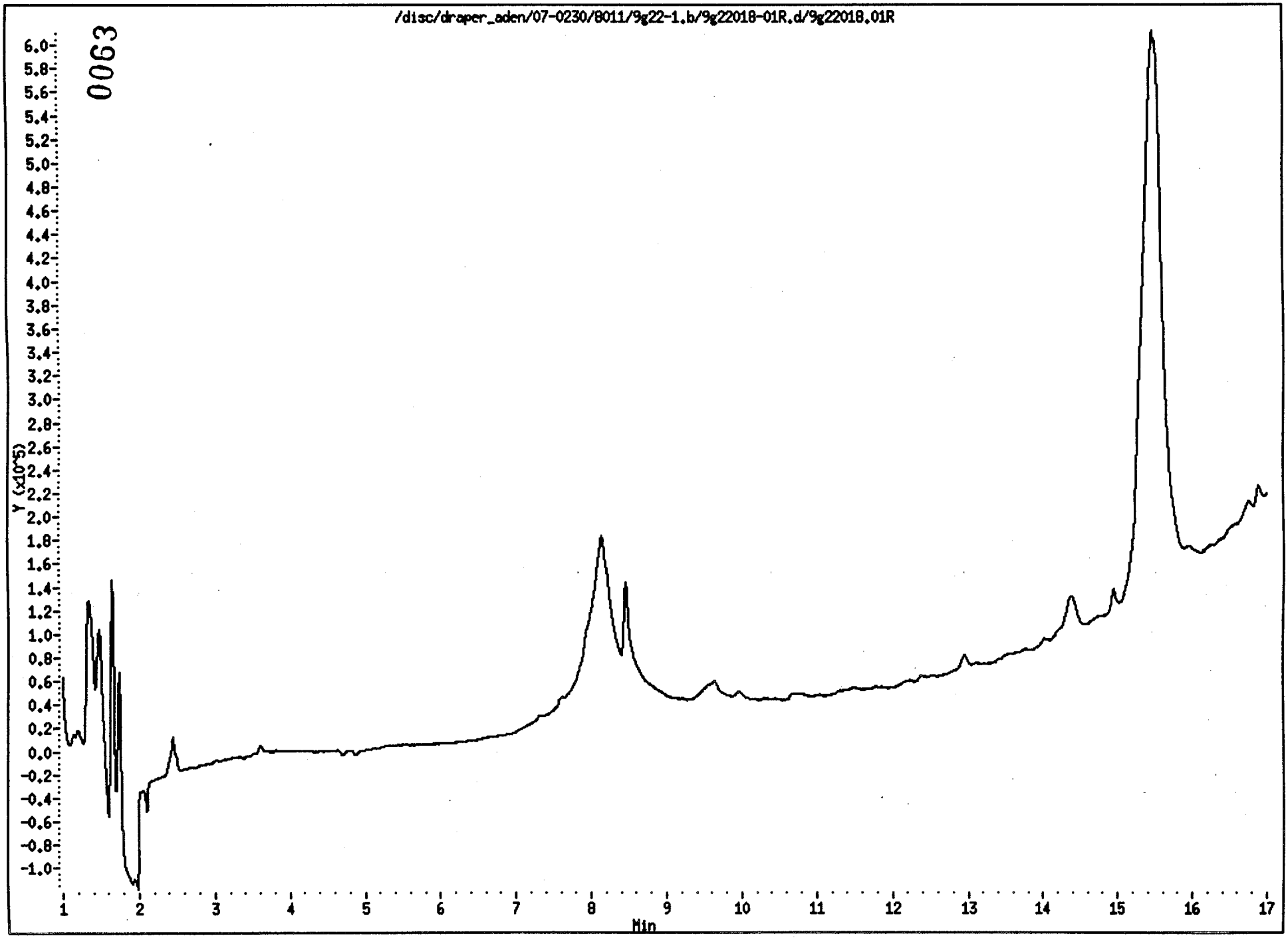
0062

CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22018-01R.d
Lab Smp Id: mb Client Smp ID: mb
Inj Date : 22-JUL-1995 19:42
Operator : ra Inst ID: gc9.i
Smp Info : mb
Misc Info : Created from: 9g22018.01R, 10-Aug-1995 15:20
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				


/disc/draper_aden/07-0230/B011/9g22-1.b/9g22018-01R.d/9g22018.01R
0063
Y (x10^5)
6.0
5.8
5.6
5.4
5.2
5.0
4.8
4.6
4.4
4.2
4.0
3.8
3.6
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
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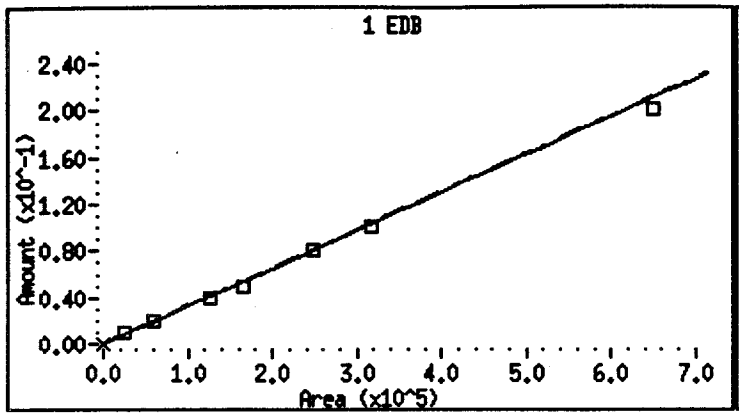
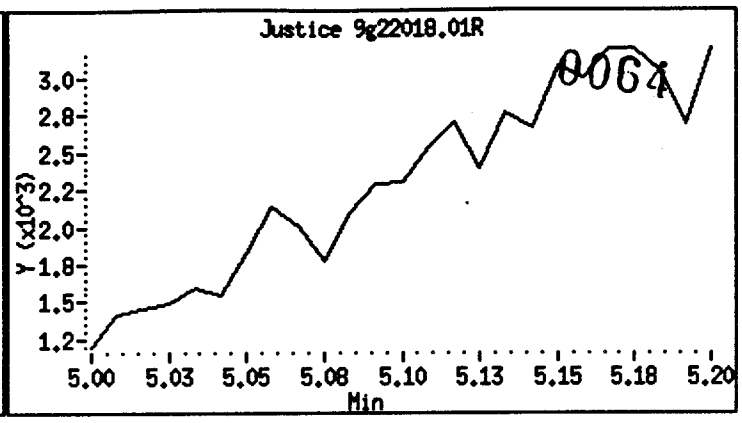
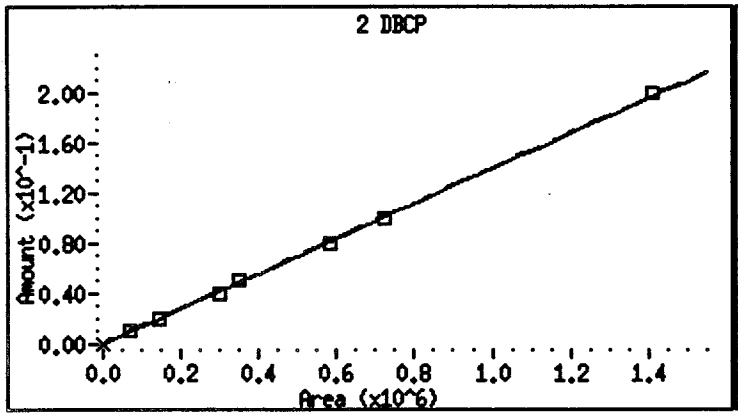
Min

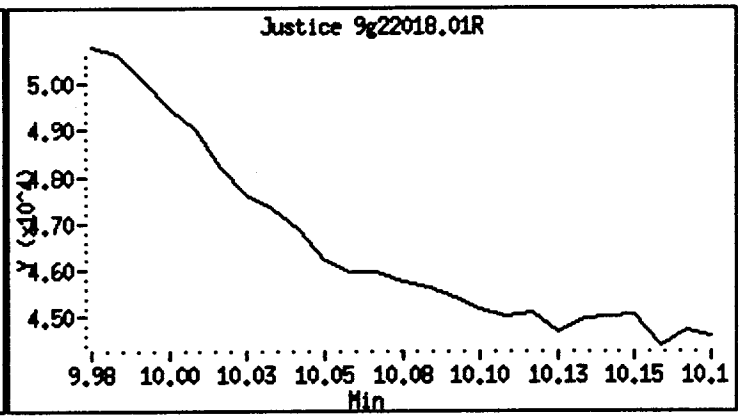
1 EDB (Undetected)





2 DBCP (Undetected)





4A
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

mb

Lab Name: CT&E-ELS Contract: Draper Aden

Lab Code: 07-0230/0276 Case No.: SAS No.: SDG No.: 9g22-1

0065

Lab File ID: 9G22026-01R Lab Sample ID: mb

Date Analyzed: 07/22/95 Time Analyzed: 2256

GC Column: XTI-1701 ID: 0.32 (mm) Heated Purge: (Y/N) N

Instrument ID: GC9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	7-230-14tb	7-230-14tb	9G22028-01R	2345
02	mw9	mw9	9G22029-01R	0010
03	mw9MS	mw9MS	9G22030-01R	0036
04	mw9MSD	mw9MSD	9G22031-01R	0101
05	7-276-4mw12	7-276-4mw12	9G22032-01R	0125
06				
07				
08				
09				
10				
11				
12				
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COMMENTS:

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

mb

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9G22026

Matrix: (soil/water) WATER Lab Sample ID: mb

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22026-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

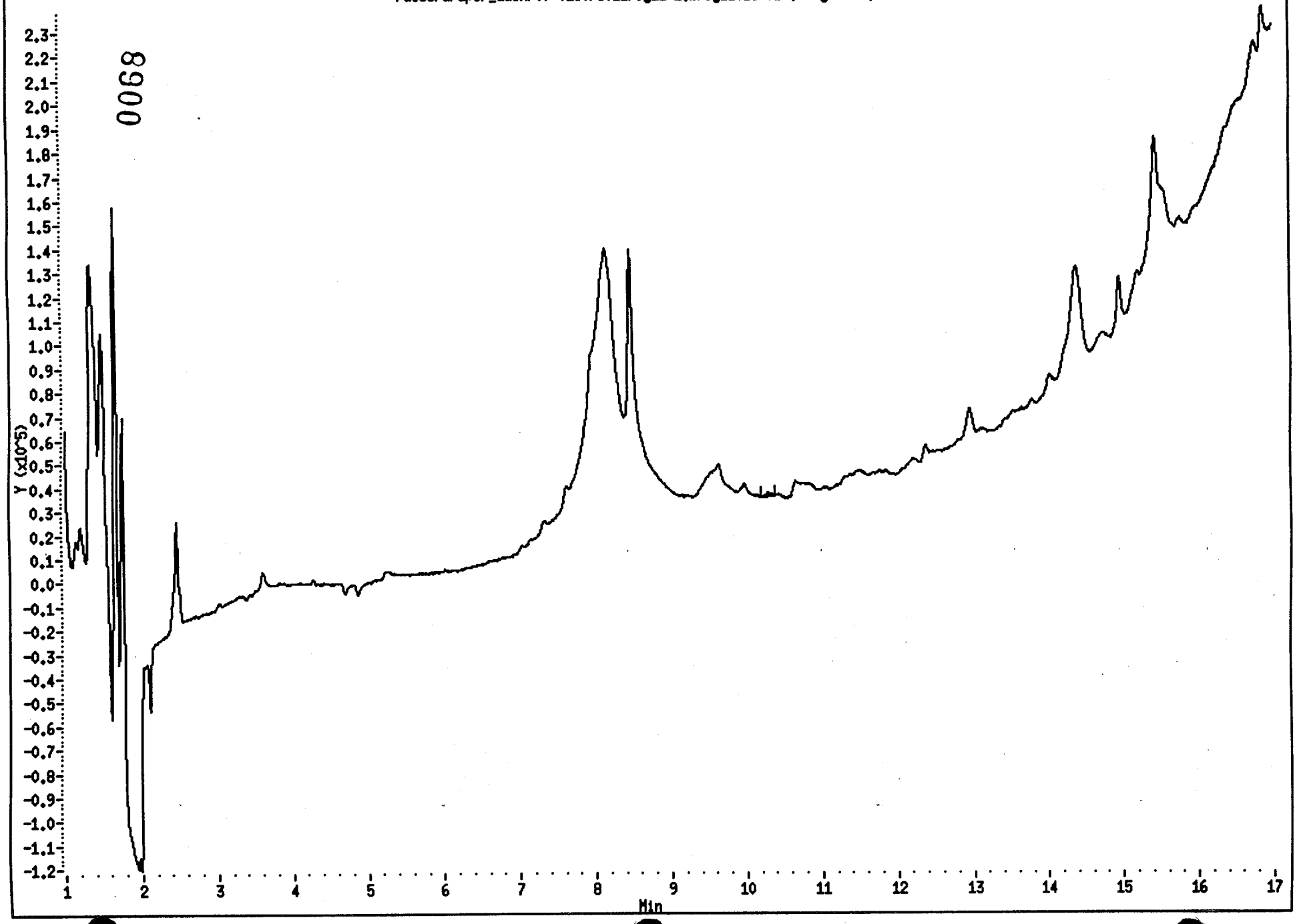
CT&E Environmental Services Inc. Charleston,WV 0067

VOLATILE REPORT SW8011 method

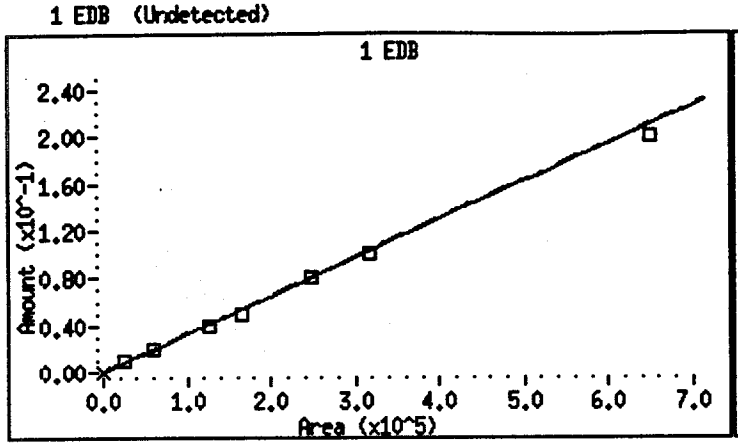
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22026-01R.d
Lab Smp Id: mb Client Smp ID: mb
Inj Date : 22-JUL-1995 22:56
Operator : ra Inst ID: gc9.i
Smp Info : mb
Misc Info : Created from: 9g22026.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

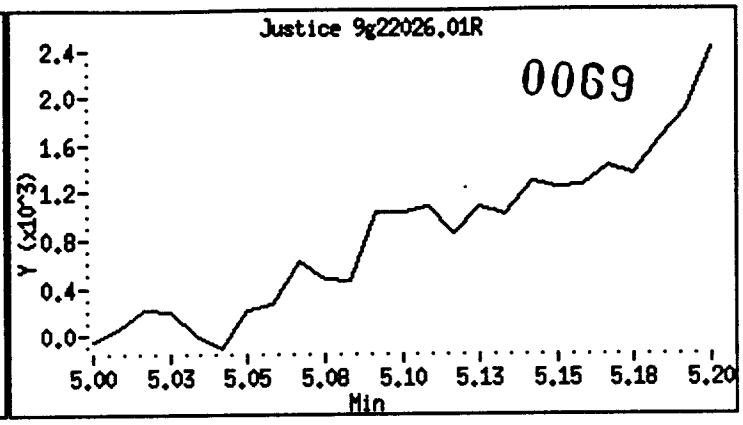
RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				

/disc/draper_aden/07-0230/8011/9g22-1.b/9g22026-01R.d/9g22026.01R

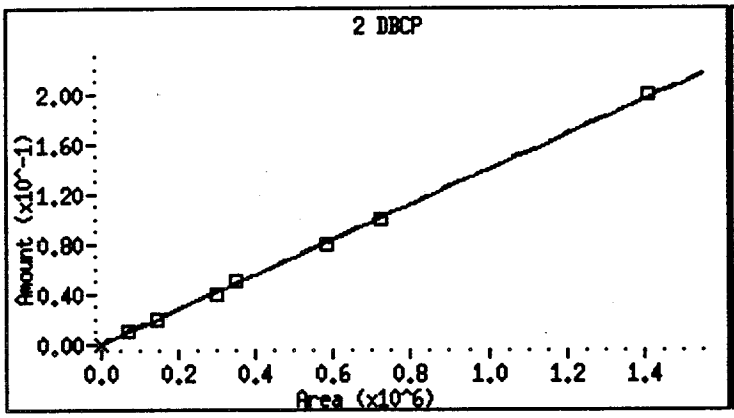


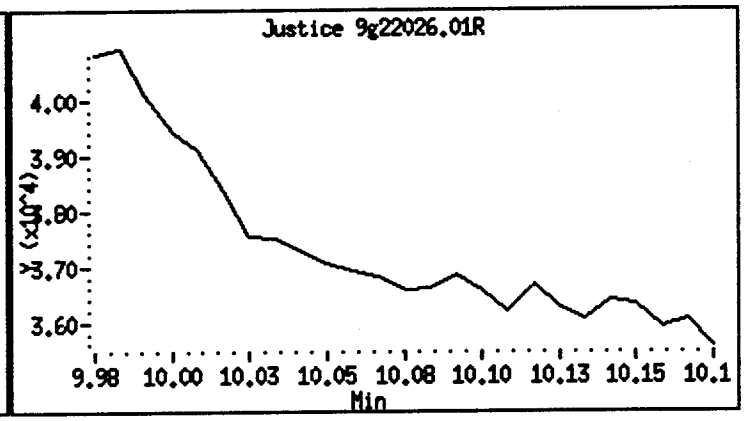
1 EDB (Undetected)





2 DBCP (Undetected)





4A
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

mb

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-276 Case No.: SAS No.: SDG No.: 9g22-1

0070

Lab File ID: 9G22034-01R Lab Sample ID: mb

Date Analyzed: 07/23/95 Time Analyzed: 0214

GC Column: XTI-1701 ID: 0.32 (mm) Heated Purge: (Y/N) N

Instrument ID: GC9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	7-276-5mw2	7-276-5mw2	9G22036-01R	0302
02	7-276-6mw4	7-276-6mw4	9G22037-01R	0327
03	7-276-11tb	7-276-11tb	9G22038-01R	0351
04				
05				
06				
07				
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COMMENTS:

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

mb

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-276 Case No.: SAS No.: SDG No.: 9g22-1

0071

Matrix: (soil/water) WATER Lab Sample ID: mb

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22034-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/23/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	EDB	0.0300	U
----------	DBCP	0.0300	U

0072

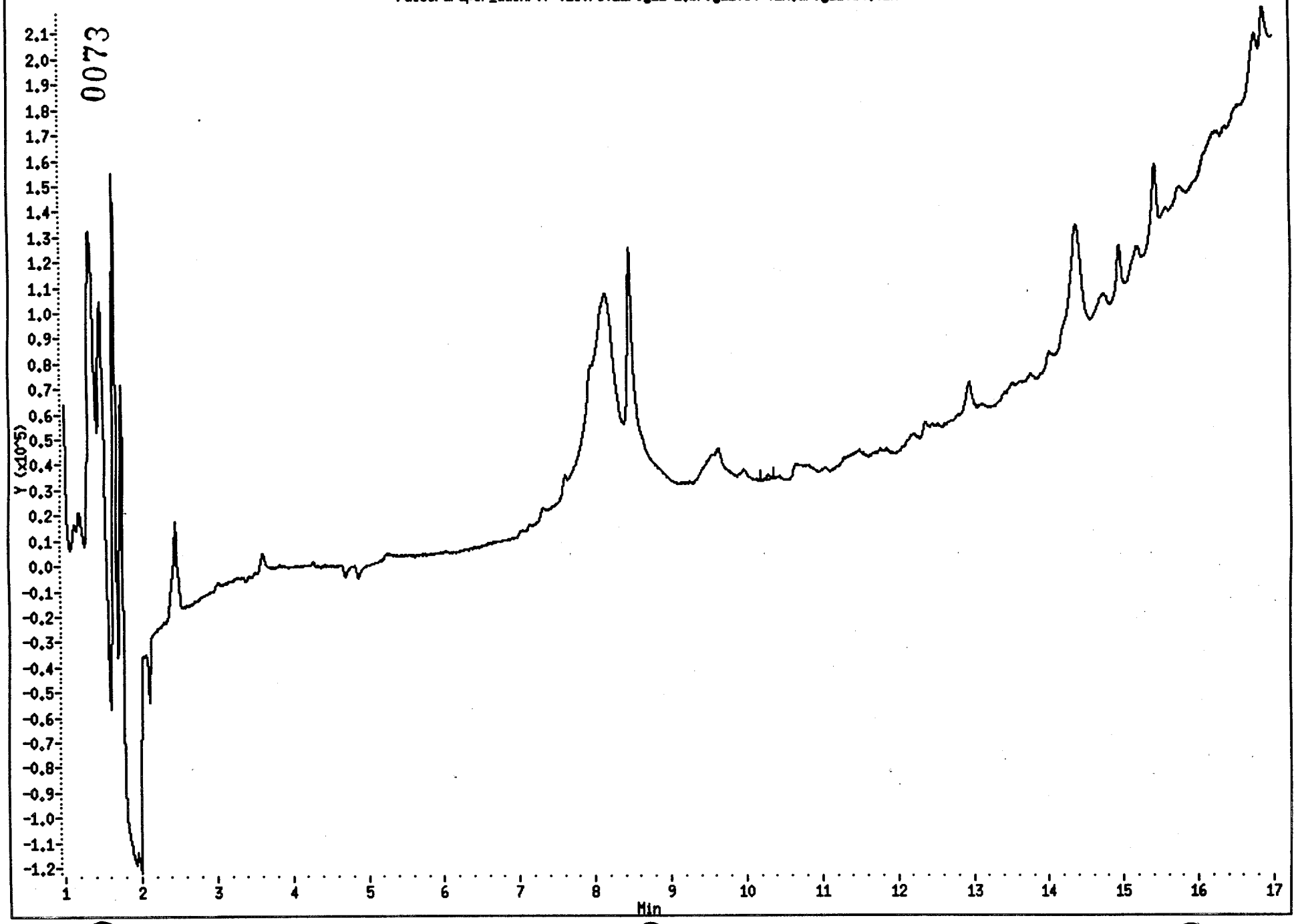
CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

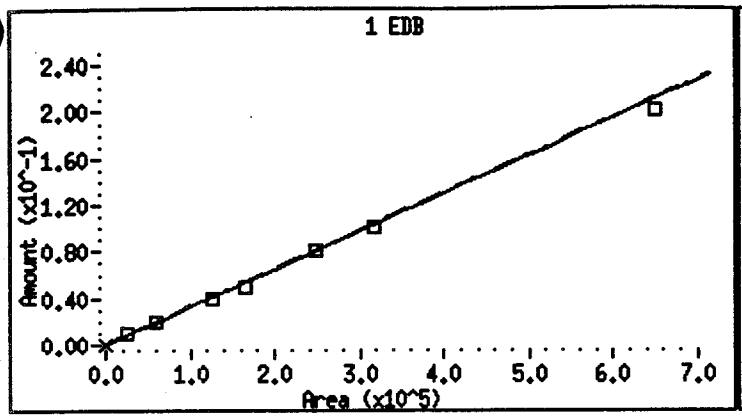
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22034-01R.d
Lab Smp Id: mb Client Smp ID: mb
Inj Date : 23-JUL-1995 02:14
Operator : ra Inst ID: gc9.i
Smp Info : mb
Misc Info : Created from: 9g22034.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:47 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

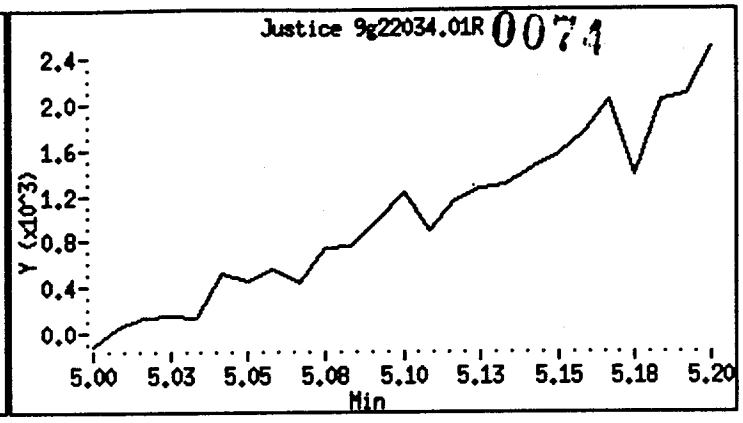
RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				

/disc/draper_aden/07-0230/8011/9g22-1.b/9g22034-01R.d/9g22034.01R

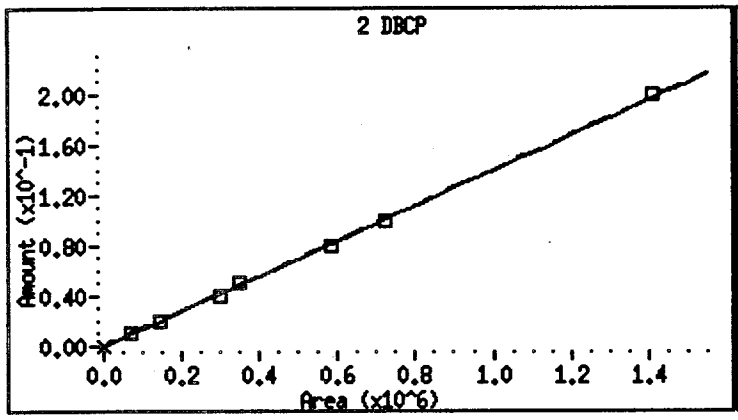


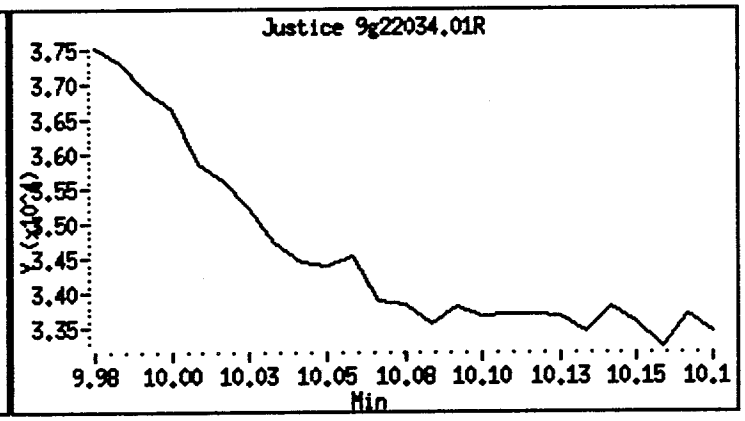
1 EDB (Undetected)





2 DBCP (Undetected)





3A

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22~~0~~075

Matrix Spike - EPA Sample No.: mw1

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
EDB	0.0500	0.000	0.0462	92	80-120
DBCP	0.0500	0.000	0.0449	90	80-120

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
EDB	0.0500	0.0487	97	5	40	80-120
DBCP	0.0500	0.0493	99	10	40	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

COMMENTS:

0076

CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22013-01R.d
Lab Smp Id: mw1MS Client Smp ID: mw1MS
Inj Date : 22-JUL-1995 17:40
Operator : ra Inst ID: gc9.i
Smp Info : 7-230-2MS
Misc Info : Created from: 9g22013.01R, 10-Aug-1995 15:20
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 QC Sample: MS
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
1 EDB					CAS #:	
5.108	5.105	0.003	142285	0.0462	0.0462	(M)
2 DBCP					CAS #:	
10.075	10.076	-0.001	321531	0.0449	0.0449	(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

0077

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: mw1MS
Level: LOW
Data Type: GC DATA
SpikeList File: EDB_DBCP.spk

Client SDG: 9g22-1
Fraction: SV
Client Smp ID: mw1MS
Operator: ra
SampleType: MS
Quant Type: ESTD

Method File: /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Misc Info: Created from: 9g22013.01R, 10-Aug-1995 15:20

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
1 EDB	0.0500	0.0462	92.41	80-120
2 DBCP	0.0500	0.0449	89.76	80-120

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

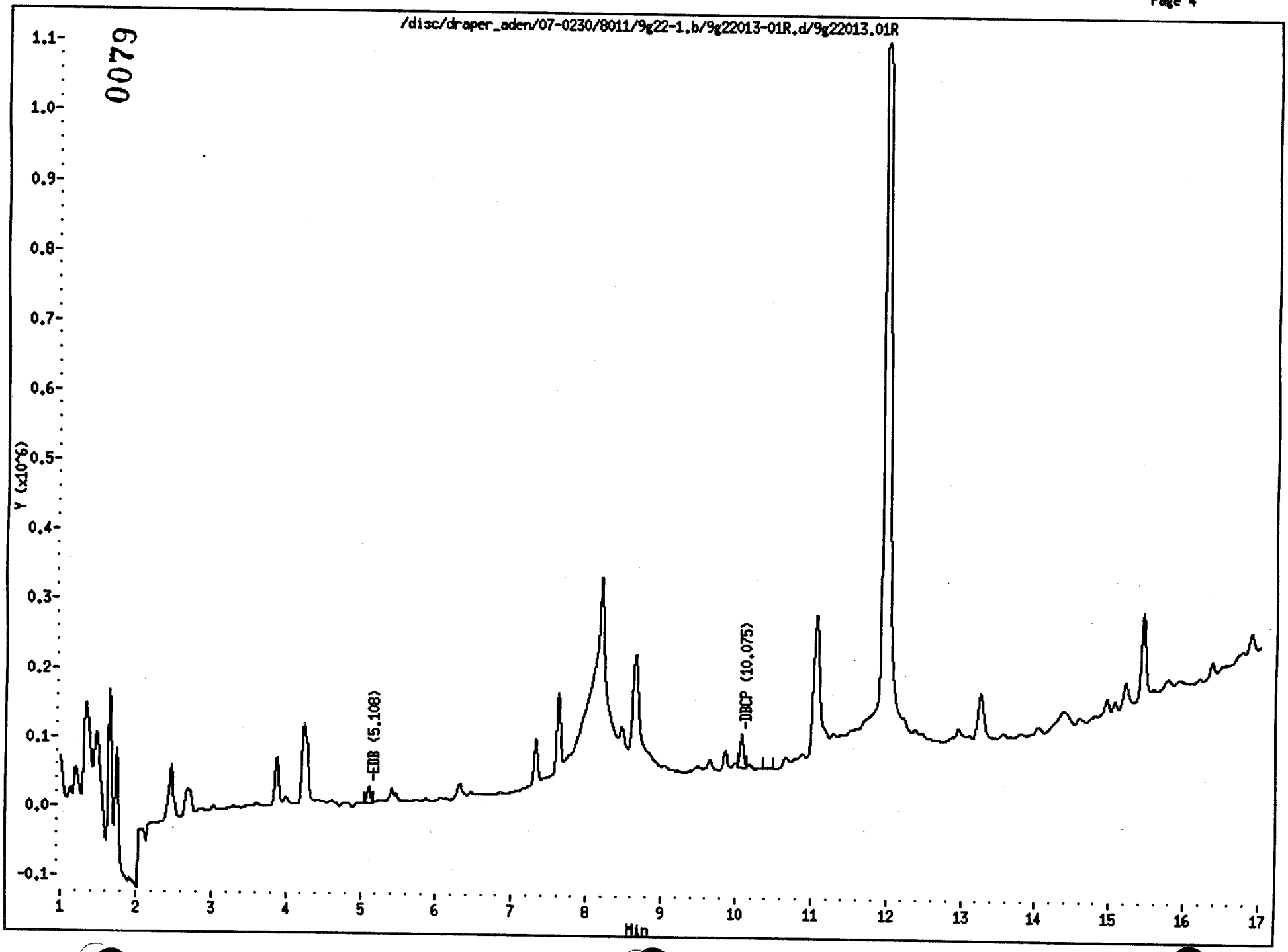
0078

Client Name:
Lab Smp Id: mw1MS
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22013.01R, 10-Aug-1995 15:20

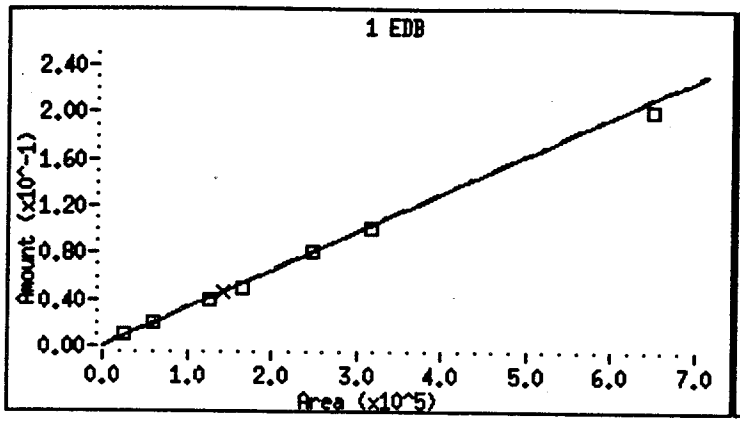
Client SDG: 9g22-1
Client Smp ID: mw1MS
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

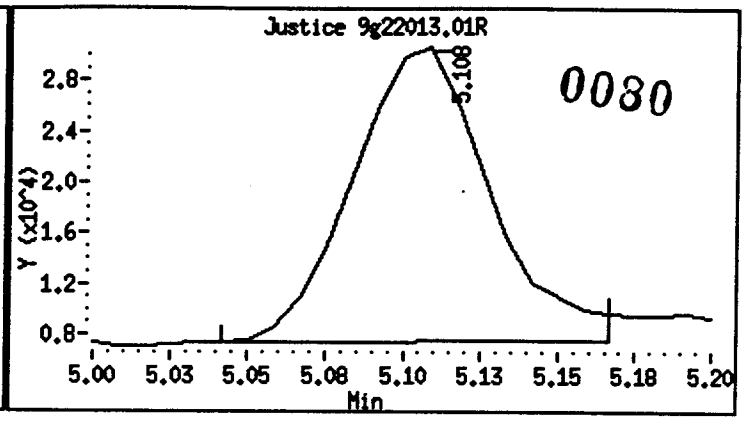
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.0462	
	DBCP	0.0449	

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22013-01R.d



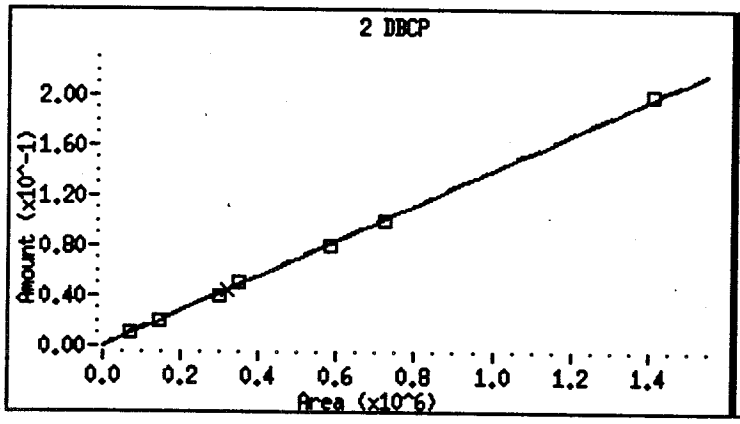
1 EDB

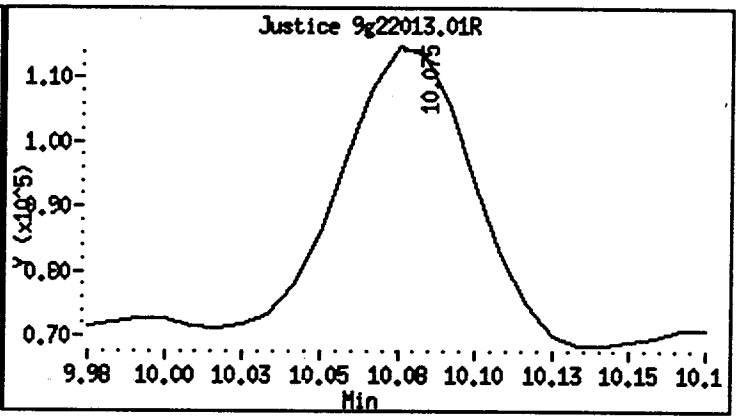




0080

2 DBCP





0081

CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22014-01R.d
Lab Smp Id: mw1MSD Client Smp ID: mw1MSD
Inj Date : 22-JUL-1995 18:05
Operator : ra Inst ID: gc9.i
Smp Info : 7-230-3MSD
Misc Info : Created from: 9g22014.01R, 10-Aug-1995 15:20
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 QC Sample: MSD
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
1 EDB					CAS #:	
5.100	5.105	-0.005	149935	0.0487	0.0487	(M)
2 DBCP					CAS #:	
10.067	10.076	-0.009	353199	0.0493	0.0493	(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

0082

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: mw1MSD
Level: LOW
Data Type: GC DATA
SpikeList File: EDB_DBCP.spk

Client SDG: 9g22-1
Fraction: SV
Client Smp ID: mw1MSD
Operator: ra
SampleType: MSD
Quant Type: ESTD

Method File: /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Misc Info: Created from: 9g22014.01R, 10-Aug-1995 15:20

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
1 EDB	0.0500	0.0487	97.38	80-120
2 DBCP	0.0500	0.0493	98.60	80-120

CT&E Environmental Services Inc. Charleston,WV

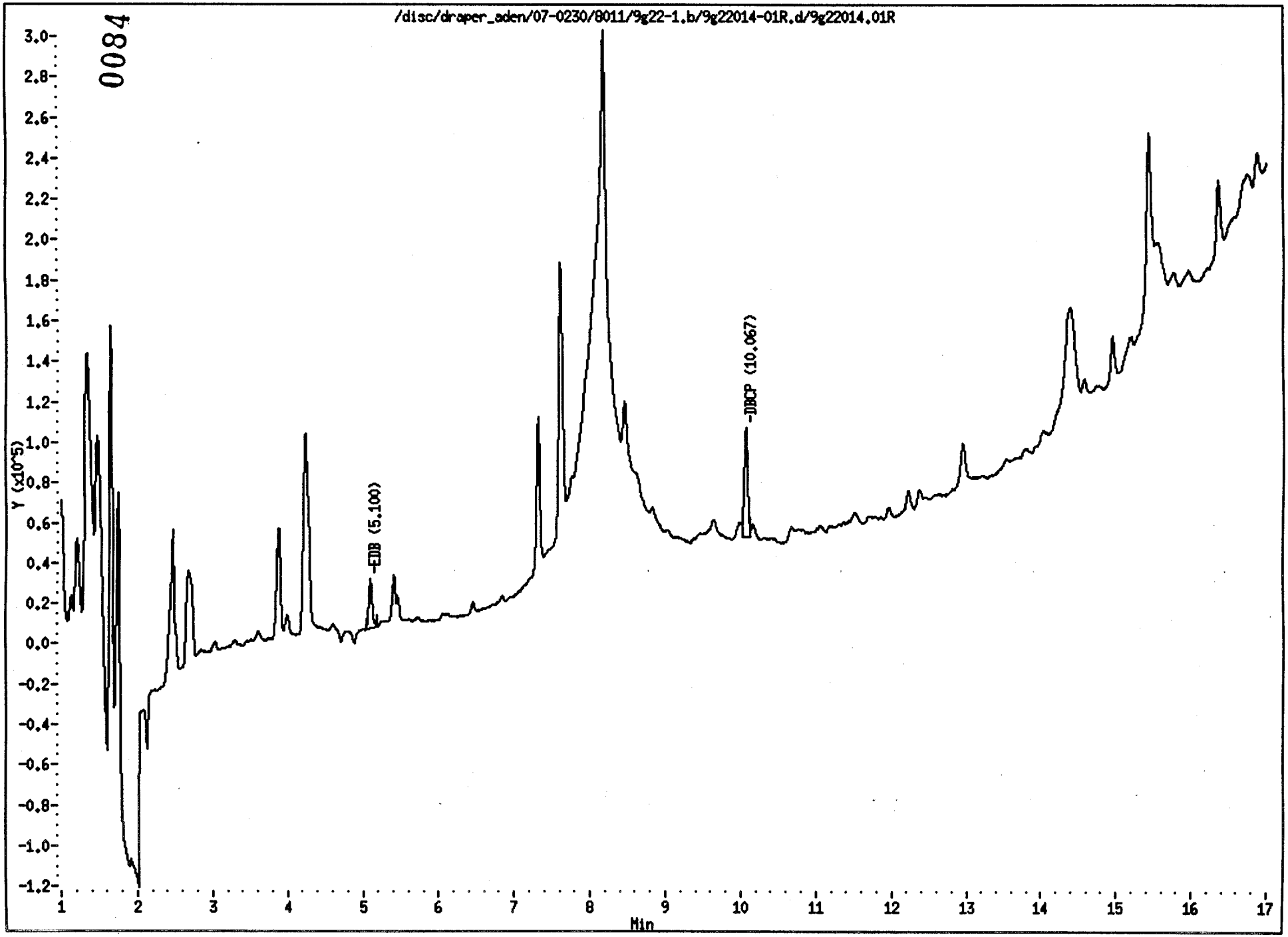
TARGET COMPOUNDS

0083

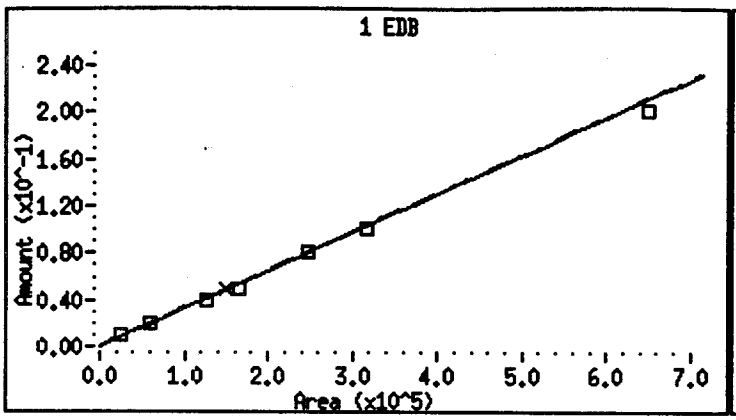
Client Name:
Lab Smp Id: mw1MSD
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22014.01R, 10-Aug-1995 15:20

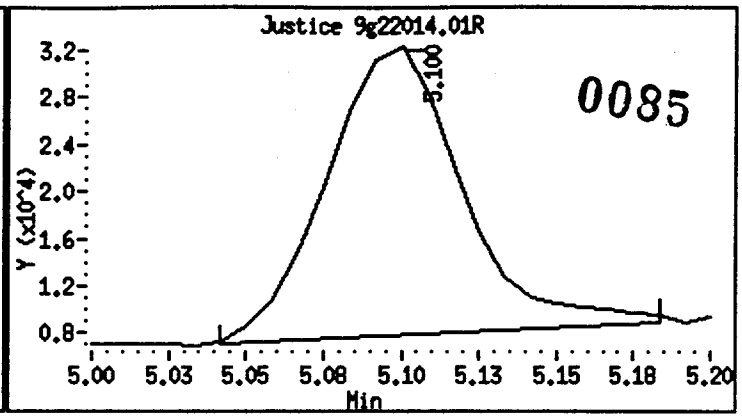
Client SDG: 9g22-1
Client Smp ID: mw1MSD
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.0487	
	DBCP	0.0493	

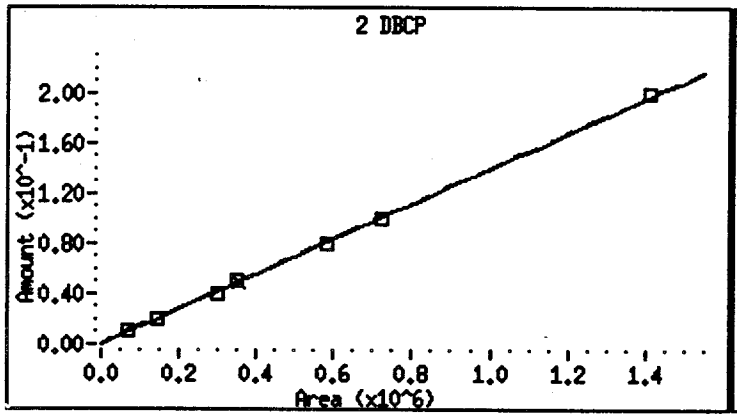

/disc/draper_aden/07-0230/8011/9g22-1.b/9g22014-01R.d/9g22014.01R
0084
Y (x10^5)
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
-1.2
-EDB (5.100)
-DBCP (10.067)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

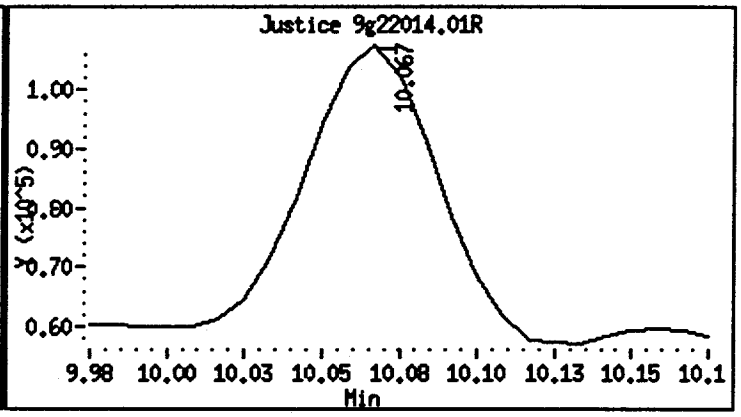
1 EDB


1 EDB
Amount (x10^-1)
2.40
2.00
1.60
1.20
0.80
0.40
0.00
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0
Area (x10^5)


Justice 9g22014.01R
5.100
0085
Y (x10^4)
3.2
2.8
2.4
2.0
1.6
1.2
0.8
5.00 5.03 5.05 5.08 5.10 5.13 5.15 5.18 5.20
Min

2 DBCP


2 DBCP
Amount (x10^-1)
2.00
1.60
1.20
0.80
0.40
0.00
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4
Area (x10^6)


Justice 9g22014.01R
10.067
Y (x10^5)
1.00
0.90
0.80
0.70
0.60
9.98 10.00 10.03 10.05 10.08 10.10 10.13 10.15 10.1
Min

3A

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-276 Case No.: SAS No.: SDG No.: 9g22-1 0086

Matrix Spike - EPA Sample No.: mw9

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
EDB	0.0500	0.000	0.0472	94	80-120
DBCP	0.0500	0.000	0.0477	95	80-120

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
EDB	0.0500	0.0435	87	8	40	80-120
DBCP	0.0500	0.0496	99	4	40	80-120

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 2 outside limits
Spike Recovery: 0 out of 4 outside limits

COMMENTS:

0087

CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22030-01R.d
Lab Smp Id: mw9MS Client Smp ID: mw9MS
Inj Date : 23-JUL-1995 00:36
Operator : ra Inst ID: gc9.i
Smp Info : 7-276-2MS
Misc Info : Created from: 9g22030.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 QC Sample: MS
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
1 EDB					CAS #:	
5.092	5.105	-0.013	145331	0.0472	0.0472	(M)
2 DBCP					CAS #:	
10.067	10.076	-0.009	341952	0.0477	0.0477	(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

0088

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: mw9MS
Level: LOW
Data Type: GC DATA
SpikeList File: EDB_DBCP.spk

Client SDG: 9g22-1
Fraction: SV
Client Smp ID: mw9MS
Operator: ra
SampleType: MS
Quant Type: ESTD

Method File: /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Misc Info: Created from: 9g22030.01R, 26-Jul-1995 14:33

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
1 EDB	0.0500	0.0472	94.39	80-120
2 DBCP	0.0500	0.0477	95.46	80-120

CT&E Environmental Services Inc. Charleston,WV

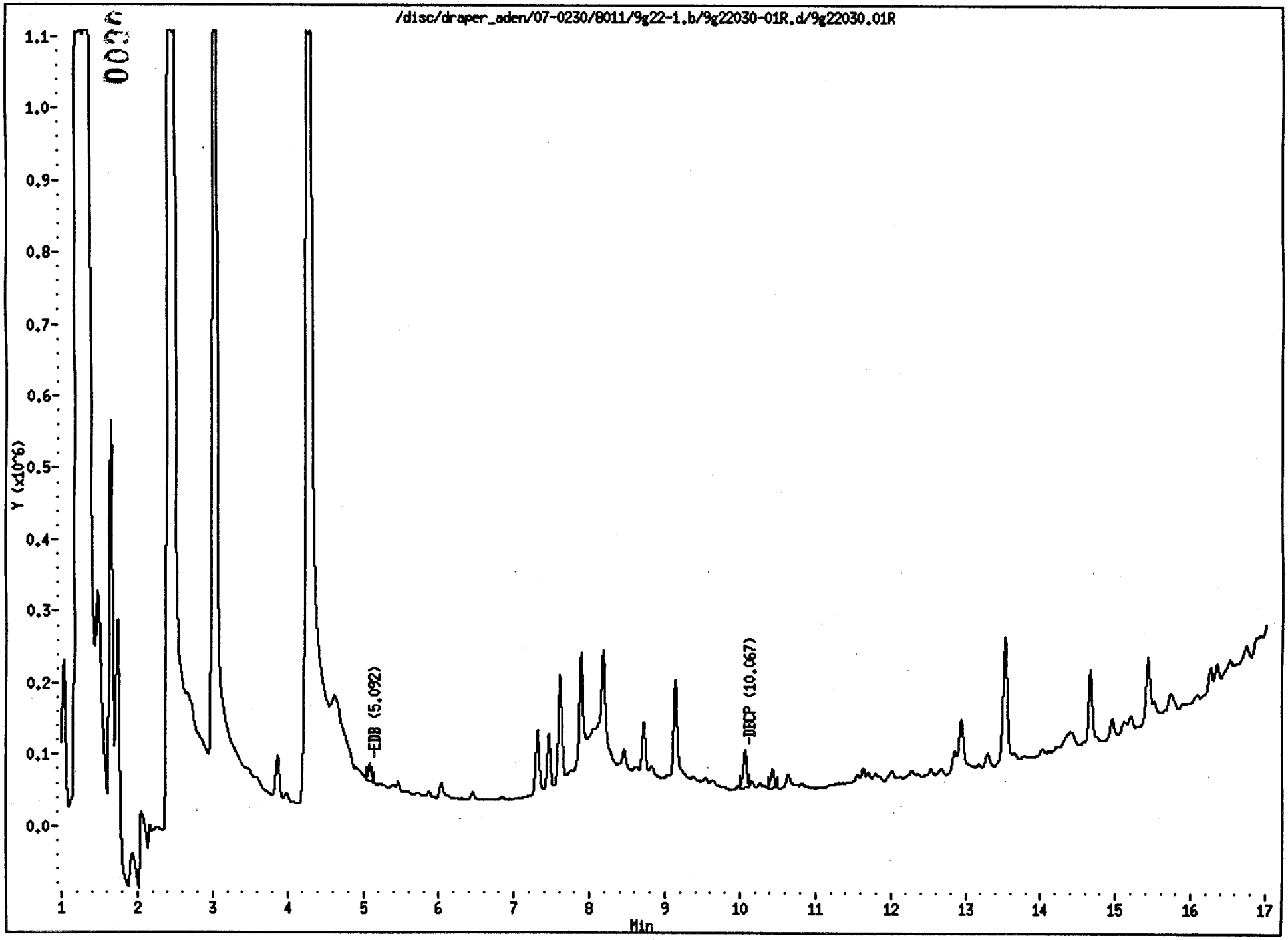
TARGET COMPOUNDS

0033

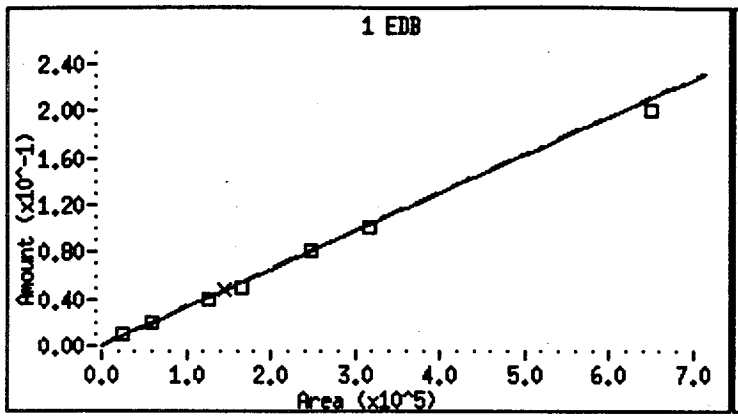
Client Name:
Lab Smp Id: mw9MS
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22030.01R, 26-Jul-1995 14:33

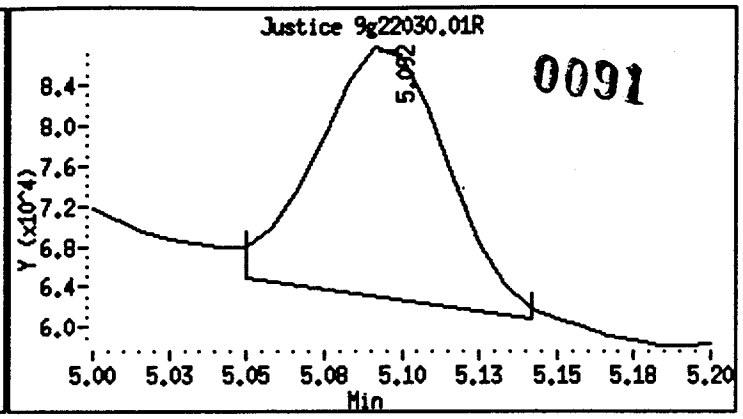
Client SDG: 9g22-1
Client Smp ID: mw9MS
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.0472	
	DBCP	0.0477	

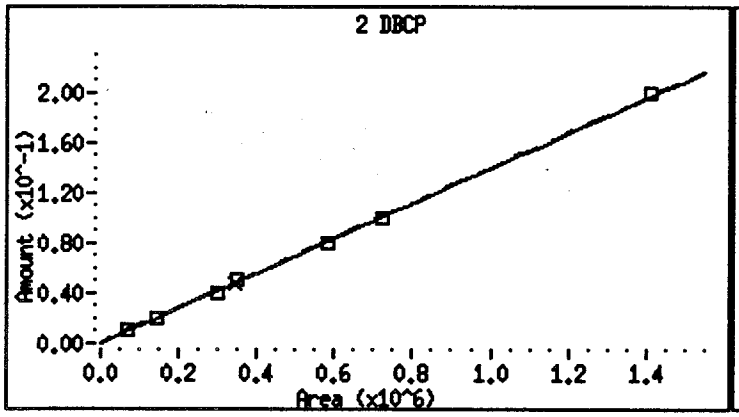

/disc/draper_aden/07-0230/8011/9g22-1.b/9g22030-01R.d/9g22030.01R
Y (x10^6)
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-EDB (5.092)
-DBCP (10.067)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

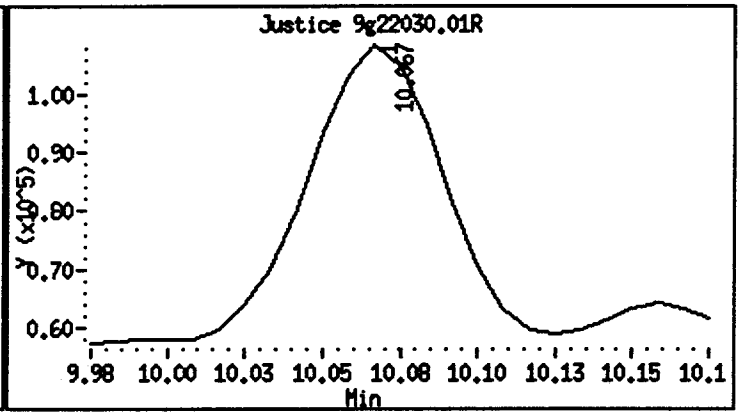
1 EDB


1 EDB
Amount (x10^-1)
2.40
2.00
1.60
1.20
0.80
0.40
0.00
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0
Area (x10^5)


Justice 9g22030.01R
0091
5.092
Y (x10^4)
8.4
8.0
7.6
7.2
6.8
6.4
6.0
5.00 5.03 5.05 5.08 5.10 5.13 5.15 5.18 5.20
Min

2 DBCP


2 DBCP
Amount (x10^-1)
2.00
1.60
1.20
0.80
0.40
0.00
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4
Area (x10^6)


Justice 9g22030.01R
10.097
Y (x10^5)
1.00
0.90
0.80
0.70
0.60
9.98 10.00 10.03 10.05 10.08 10.10 10.13 10.15 10.1
Min

0092

CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22031-01R.d
Lab Smp Id: mw9MSD Client Smp ID: mw9MSD
Inj Date : 23-JUL-1995 01:01
Operator : ra Inst ID: gc9.i
Smp Info : 7-276-3MSD
Misc Info : Created from: 9g22031.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 QC Sample: MSD
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
1 EDB					CAS #:	
5.100	5.105	-0.005	133999	0.0435	0.0435	(M)
2 DBCP					CAS #:	
10.075	10.076	-0.001	355107	0.0496	0.0496	(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV 0093

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: mw9MSD
Level: LOW
Data Type: GC DATA
SpikeList File: EDB_DBCP.spk

Client SDG: 9g22-1
Fraction: SV
Client Smp ID: mw9MSD
Operator: ra
SampleType: MSD
Quant Type: ESTD

Method File: /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Misc Info: Created from: 9g22031.01R, 26-Jul-1995 14:33

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
1 EDB	0.0500	0.0435	87.03	80-120
2 DBCP	0.0500	0.0496	99.13	80-120

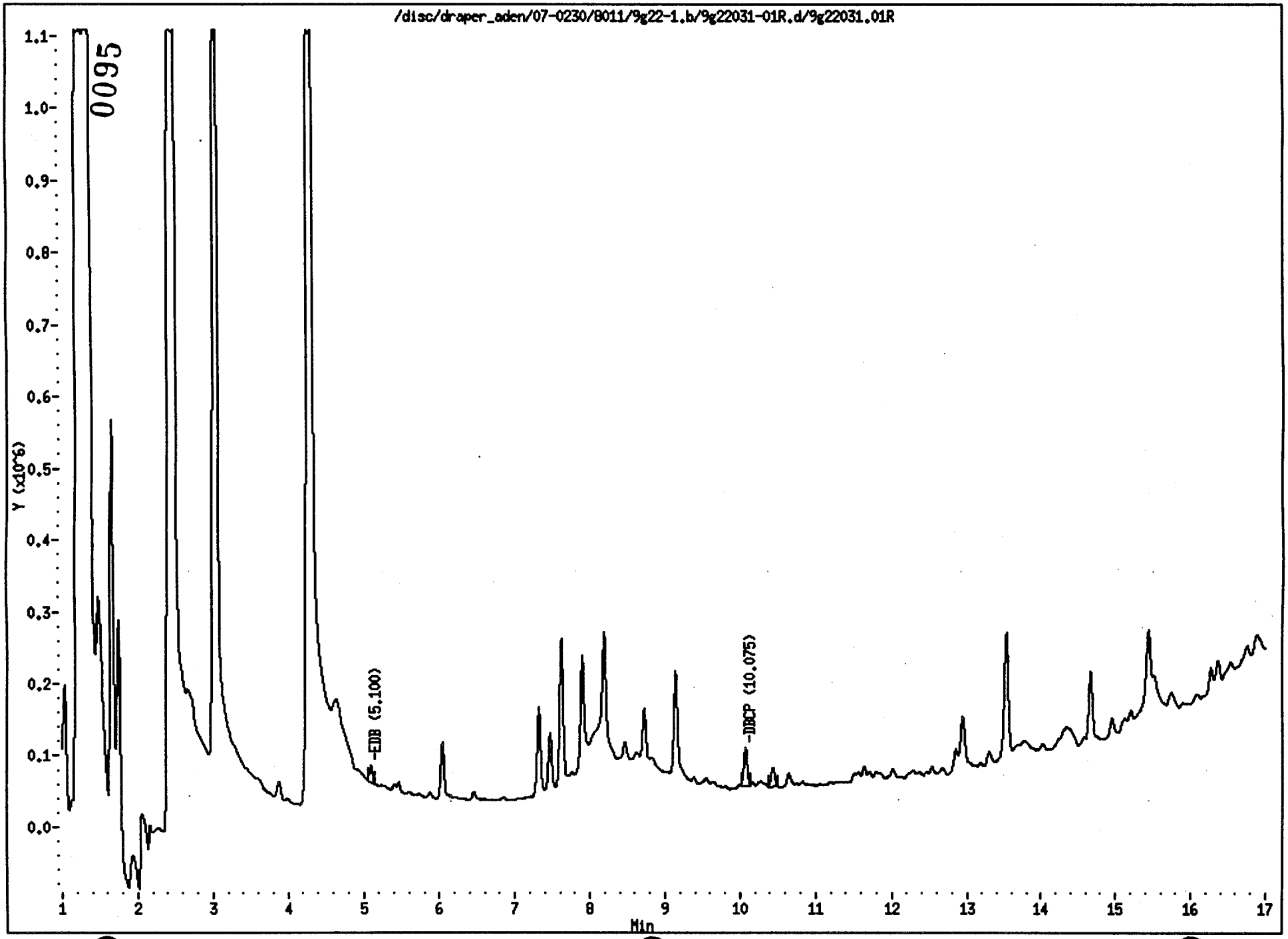
CT&E Environmental Services Inc. Charleston,WV 0094

TARGET COMPOUNDS

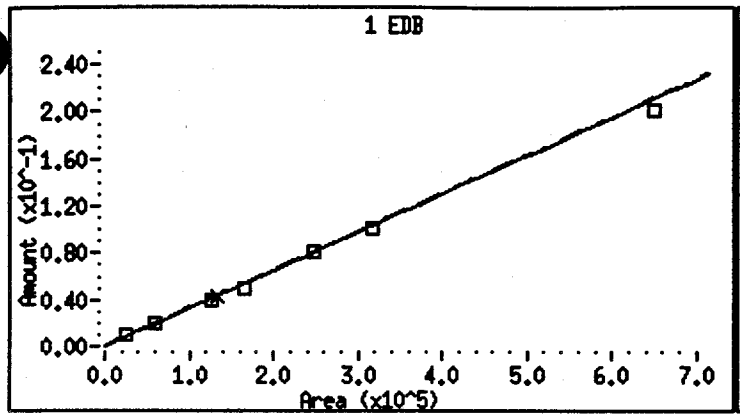
Client Name:
Lab Smp Id: mw9MSD
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22031.01R, 26-Jul-1995 14:33

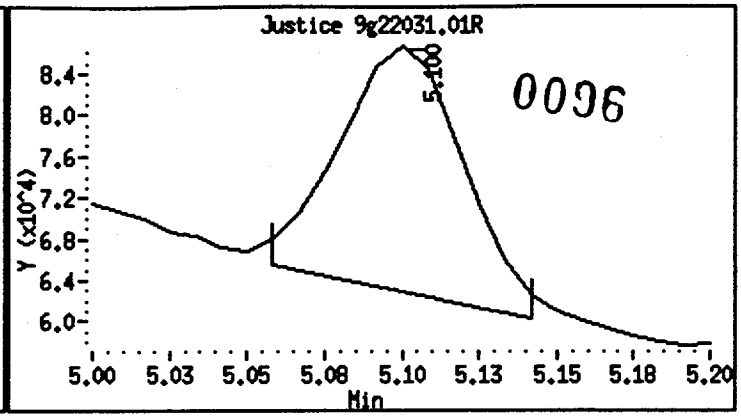
Client SDG: 9g22-1
Client Smp ID: mw9MSD
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.0435	
	DBCP	0.0496	

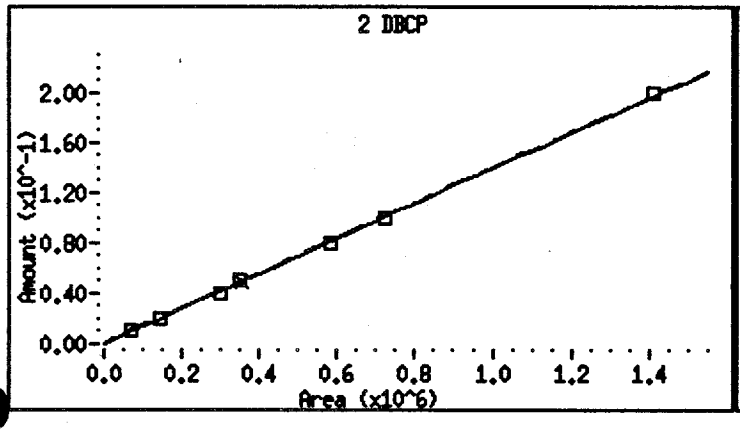

/disc/draper_aden/07-0230/B011/9g22-1.b/9g22031-01R.d/9g22031.01R
0095
Y (x10^6)
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-EDB (5.100)
-DBCP (10.075)
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

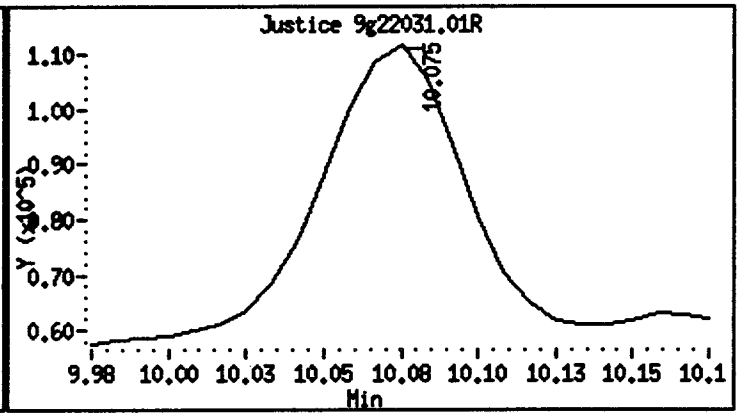
1 EDB


1 EDB
Amount (x10^-1)
2.40
2.00
1.60
1.20
0.80
0.40
0.00
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0
Area (x10^5)


Justice 9g22031.01R
5.100
0096
Y (x10^4)
8.4
8.0
7.6
7.2
6.8
6.4
6.0
5.00 5.03 5.05 5.08 5.10 5.13 5.15 5.18 5.20
Min

2 DBCP


2 DBCP
Amount (x10^-1)
2.00
1.60
1.20
0.80
0.40
0.00
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4
Area (x10^6)


Justice 9g22031.01R
10.075
Y (x10^5)
1.10
1.00
0.90
0.80
0.70
0.60
9.98 10.00 10.03 10.05 10.08 10.10 10.13 10.15 10.1
Min

CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-001

Respectfully Submitted:

MW1 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/10/95 12:30
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/22/95 17:16 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/22/95 17:16 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

mw1

0098

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22-1

Matrix: (soil/water) WATER Lab Sample ID: mw1

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22012-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

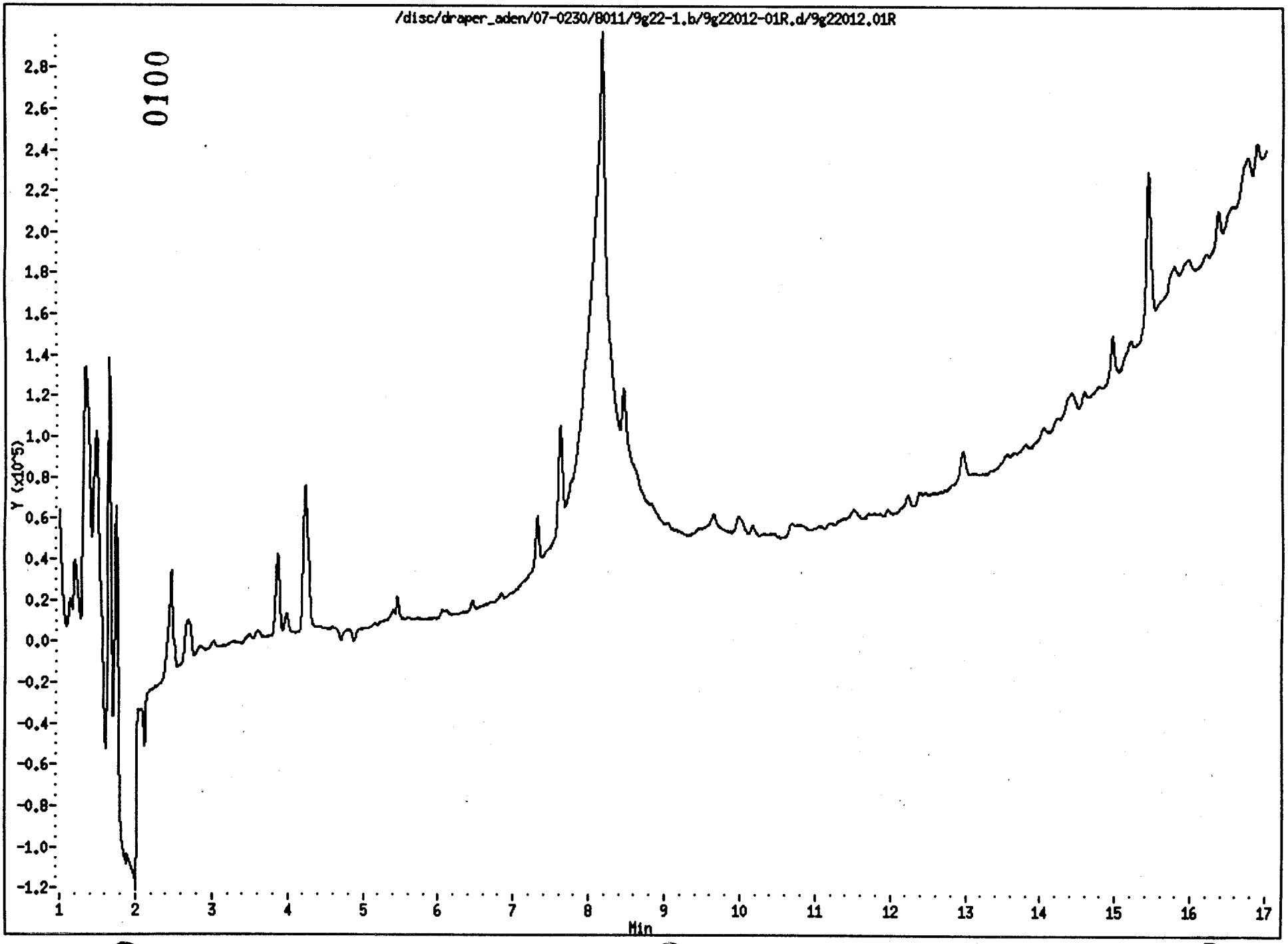
0099

CT&E Environmental Services Inc. Charleston,WV

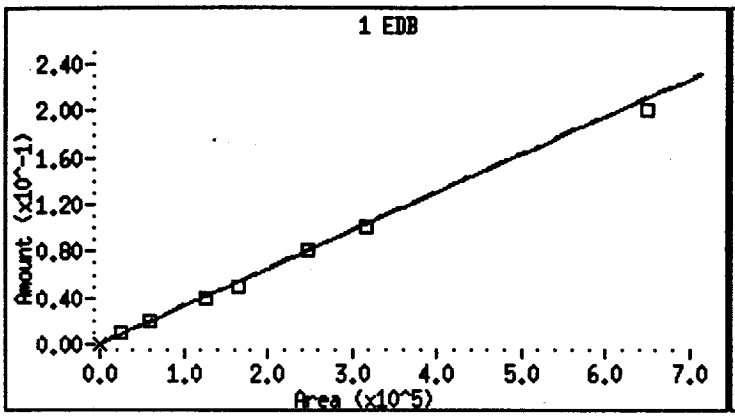
VOLATILE REPORT SW8011 method

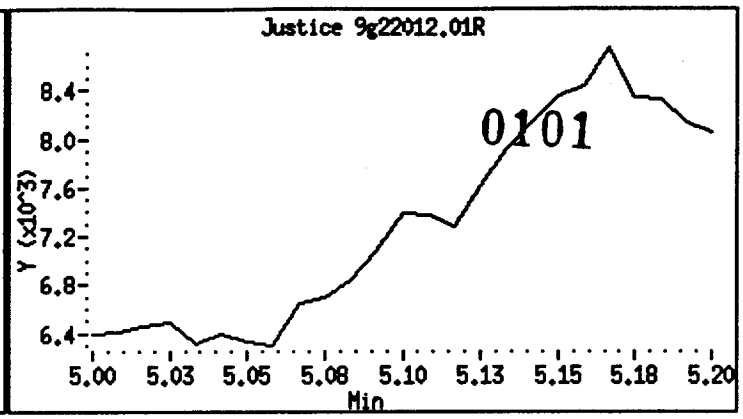
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22012-01R.d
Lab Smp Id: mw1 Client Smp ID: mw1
Inj Date : 22-JUL-1995 17:16
Operator : ra Inst ID: gc9.i
Smp Info : 7-230-1mw1
Misc Info : Created from: 9g22012.01R, 10-Aug-1995 15:20
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				

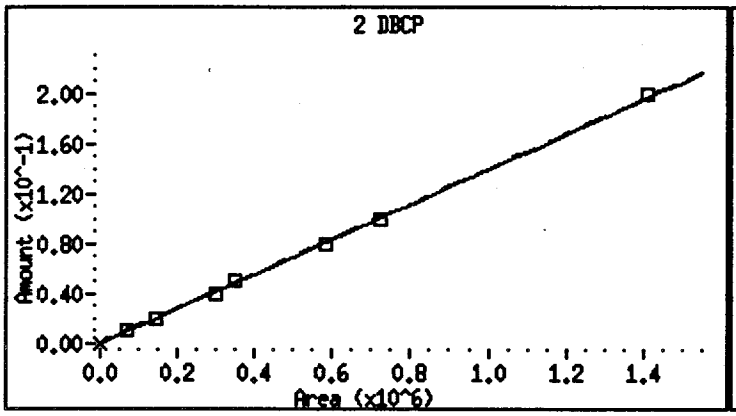

/disc/draper_aden/07-0230/B011/9g22-1.b/9g22012-01R.d/9g22012.01R
0100
Y (x10^5)
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
-1.2
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

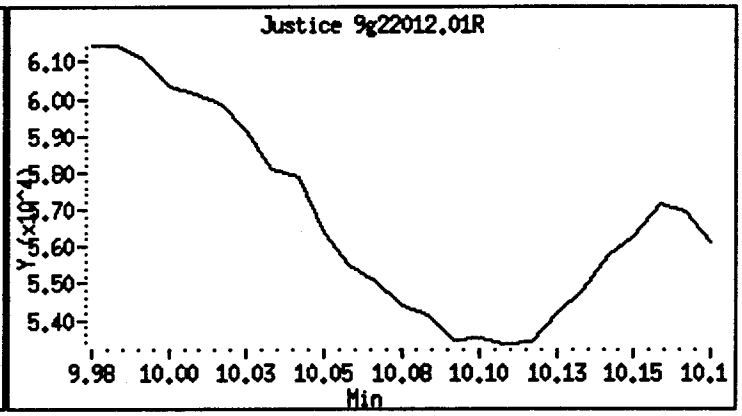
1 EDB (Undetected)





2 DBCP (Undetected)





CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-004

Respectfully Submitted: 0102

MW6 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/10/95 14:30
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/22/95 18:29 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/22/95 18:29 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

150/510/95

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4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-230-4mw6

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22-1

Matrix: (soil/water) WATER Lab Sample ID: 7-230-4mw6 0103

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22015-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

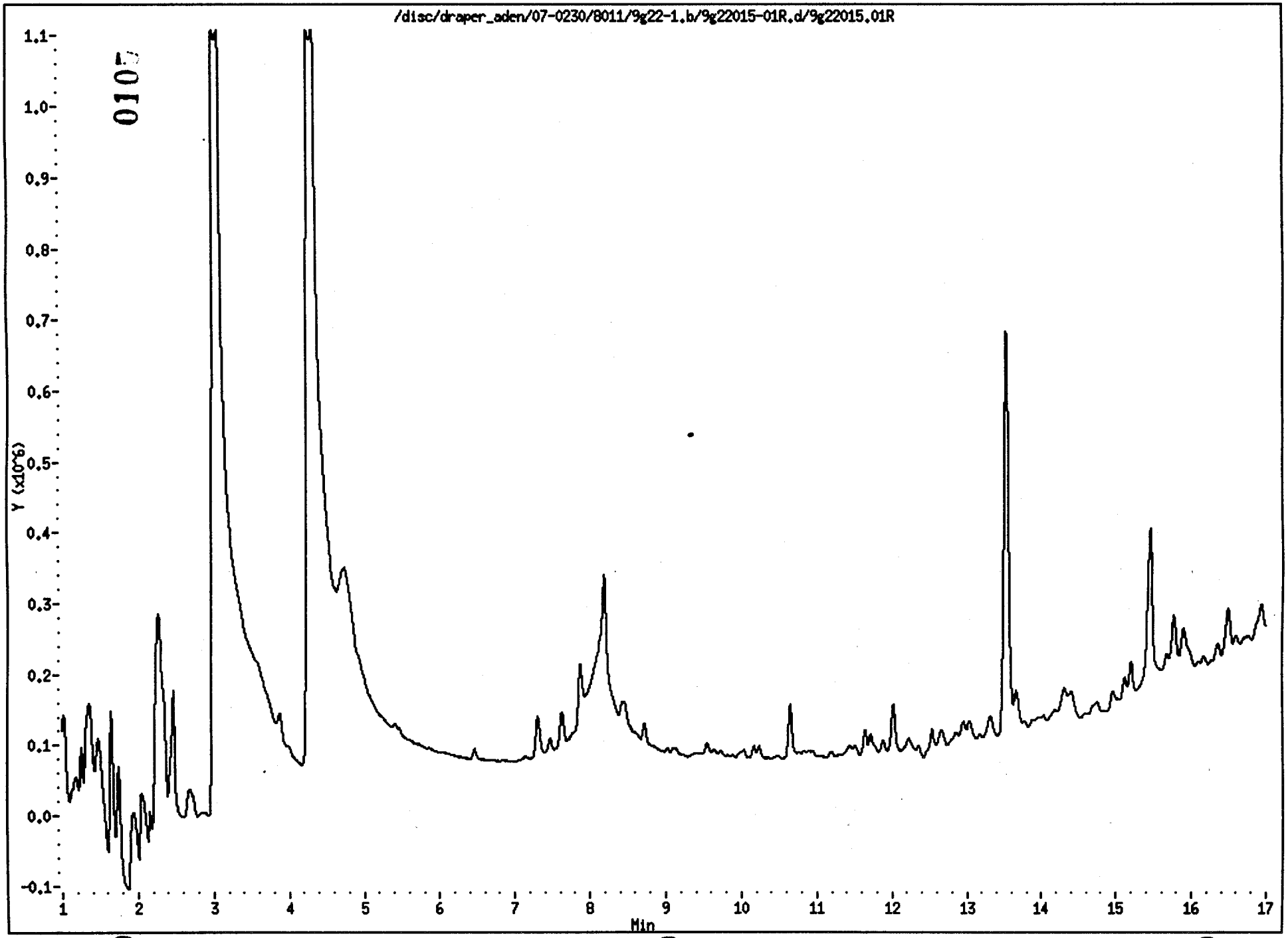
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	EDB	0.0300	U
----------	DBCP	0.0300	U

CT&E Environmental Services Inc. Charleston,WV 0104

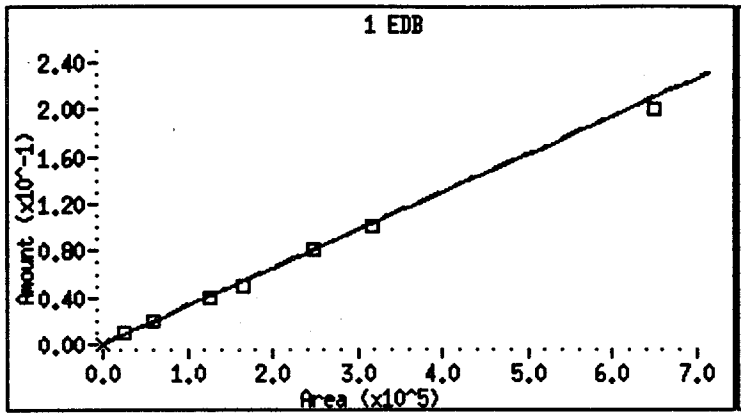
VOLATILE REPORT SW8011 method

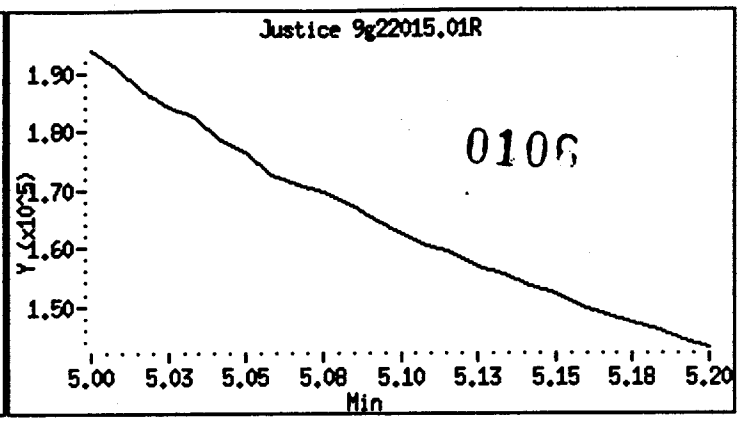
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22015-01R.d
Lab Smp Id: 7-230-4mw6 Client Smp ID: 7-230-4mw6
Inj Date : 22-JUL-1995 18:29
Operator : ra Inst ID: gc9.i
Smp Info : 7-230-4mw6
Misc Info : Created from: 9g22015.01R, 10-Aug-1995 15:20
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				


/disc/draper_aden/07-0230/8011/9g22-1.b/9g22015-01R.d/9g22015.01R
0107
Y (x10^6)
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Min

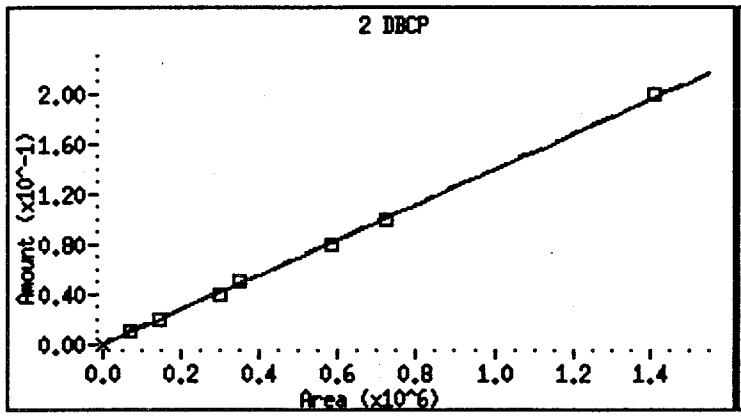
1 EDB (Undetected)

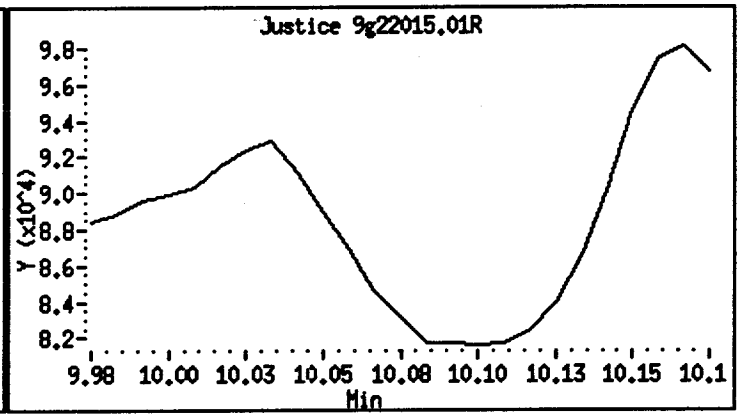




0106

2 DBCP (Undetected)





CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

0107

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-005

Respectfully Submitted:

RCM-9

MW3 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/10/95 15:30
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/22/95 18:54 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/22/95 18:54 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

150/510/

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-230-5mw3

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22.1

0108

Matrix: (soil/water) WATER Lab Sample ID: 7-230-5mw3

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22016-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	EDB	0.0300	U
----------	DBCP	0.0300	U

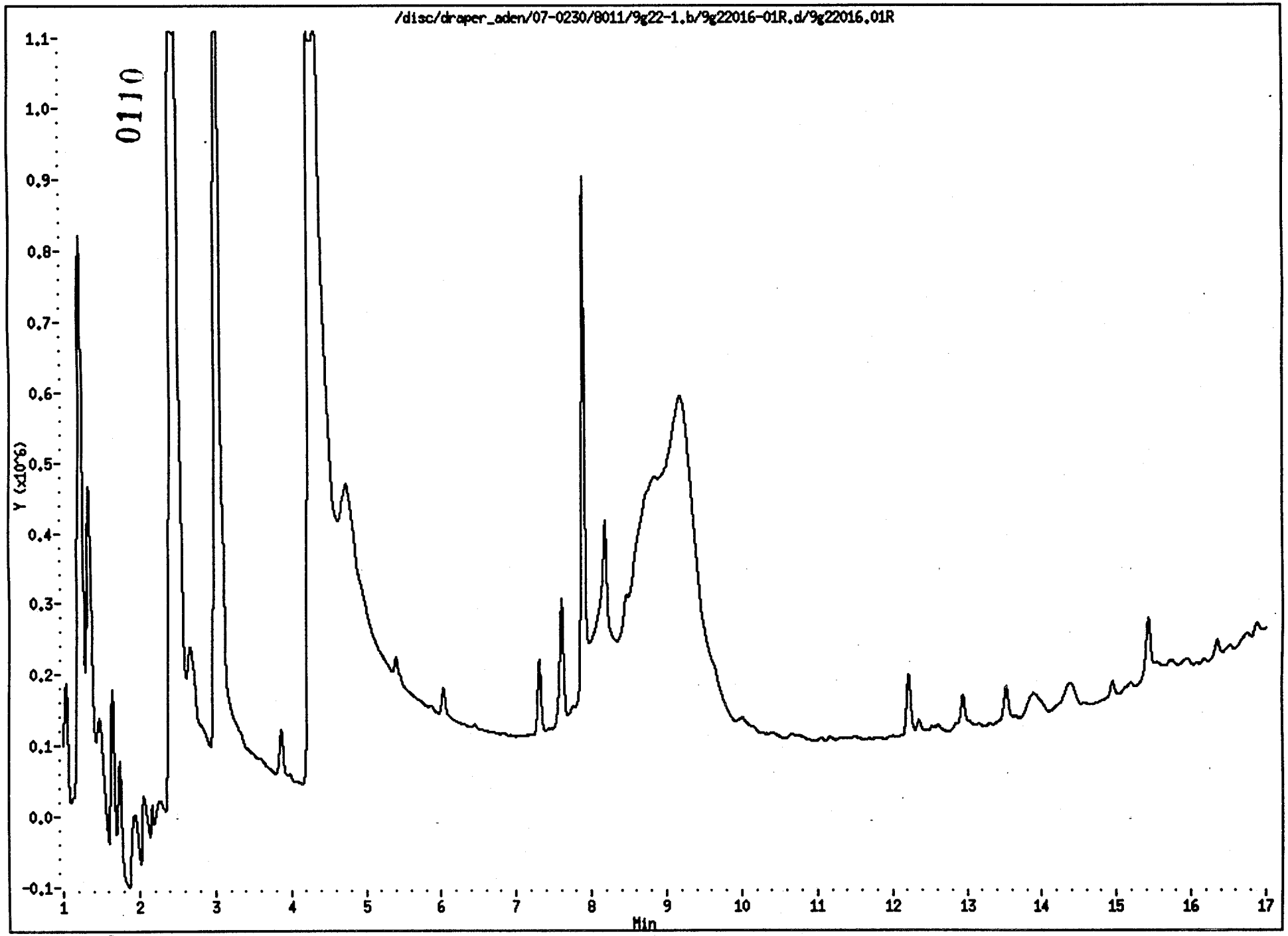
CT&E Environmental Services Inc. Charleston,WV

0109

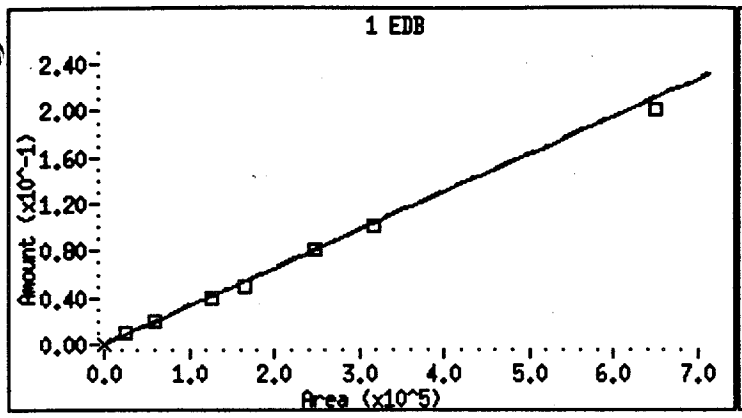
VOLATILE REPORT SW8011 method

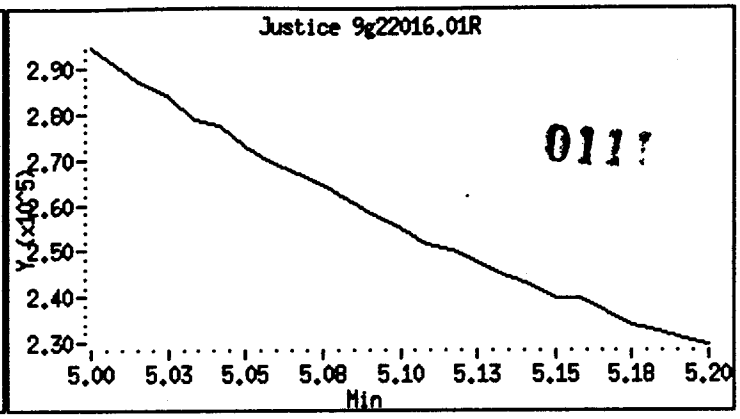
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22016-01R.d
Lab Smp Id: 7-230-5mw3 Client Smp ID: 7-230-5mw3
Inj Date : 22-JUL-1995 18:54
Operator : ra Inst ID: gc9.i
Smp Info : 7-230-5mw3
Misc Info : Created from: 9g22016.01R, 10-Aug-1995 15:20
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:45 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				


/disc/draper_aden/07-0230/8011/9g22-1.b/9g22016-01R.d/9g22016.01R
0110
Y (x10^6)
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

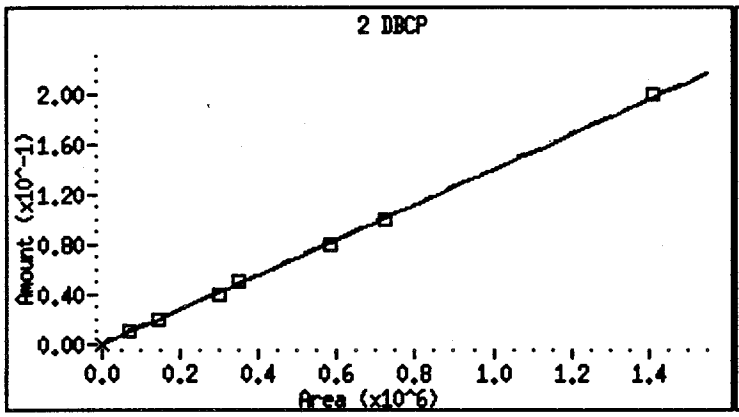
1 EDB (Undetected)

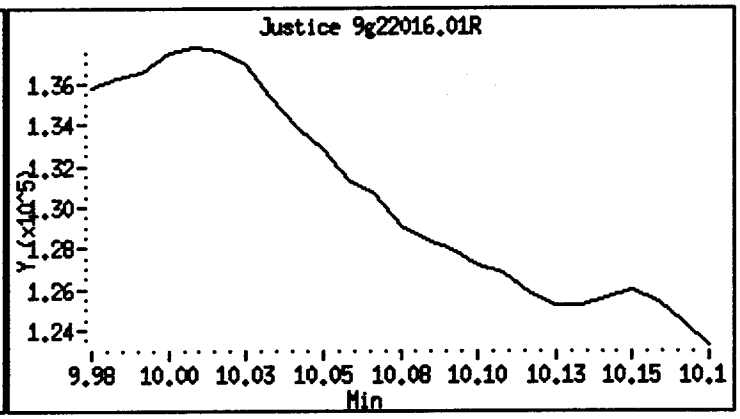




011

2 DBCP (Undetected)





CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-006

Respectfully Submitted:

R C M 0112

MW7 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/10/95 16:20
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/22/95 20:29 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/22/95 20:29 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

150/511/95

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-230-6mw7

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22-1

Matrix: (soil/water) WATER Lab Sample ID: 7-230-6mw0113

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22020-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

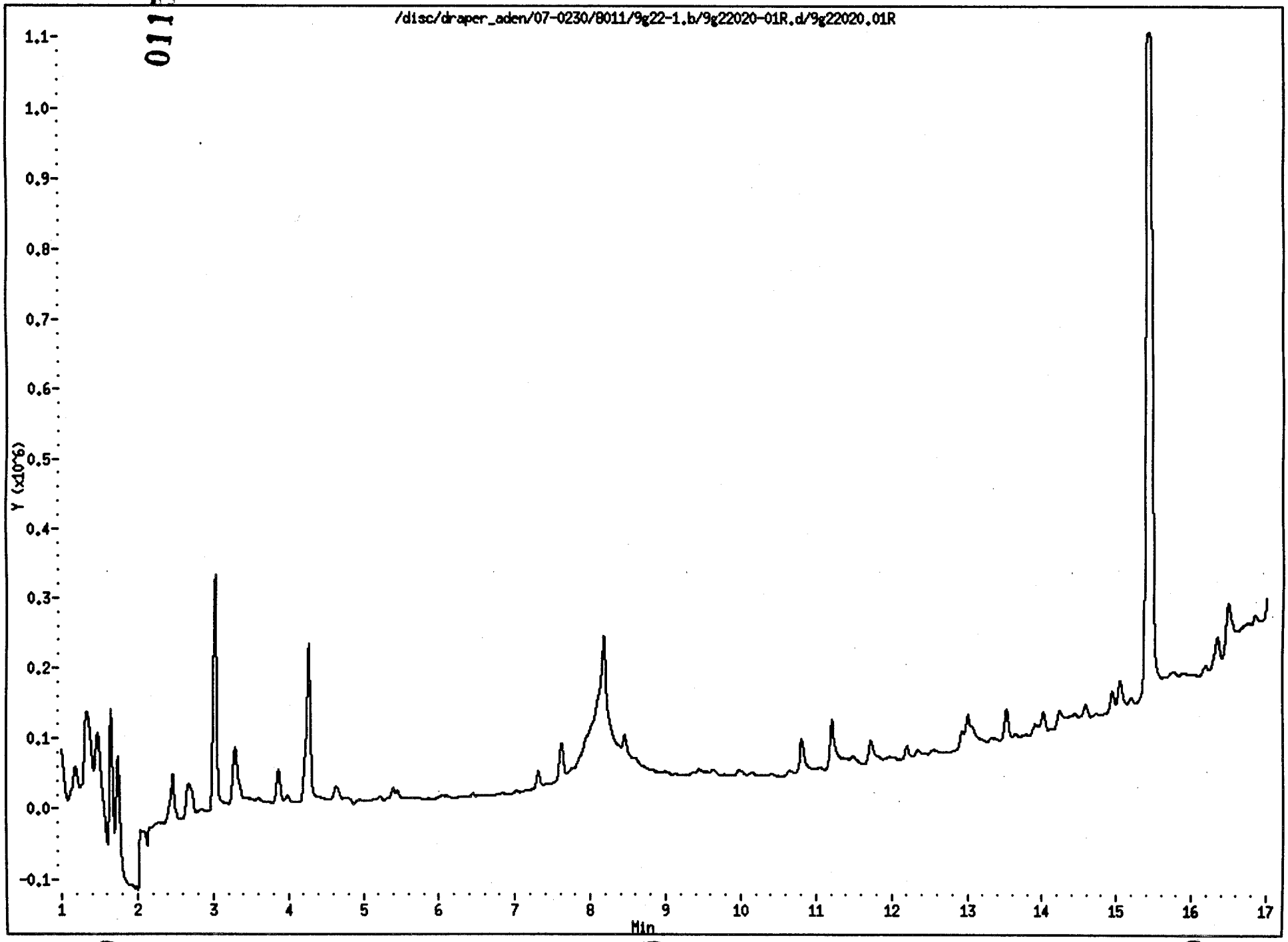
CT&E Environmental Services Inc. Charleston,WV

0114

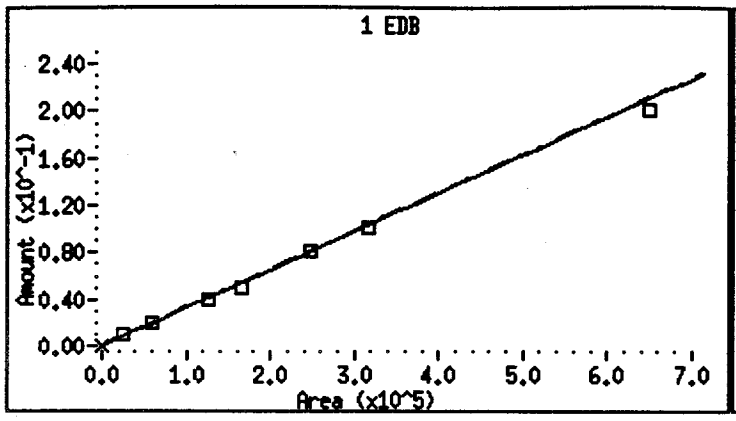
VOLATILE REPORT SW8011 method

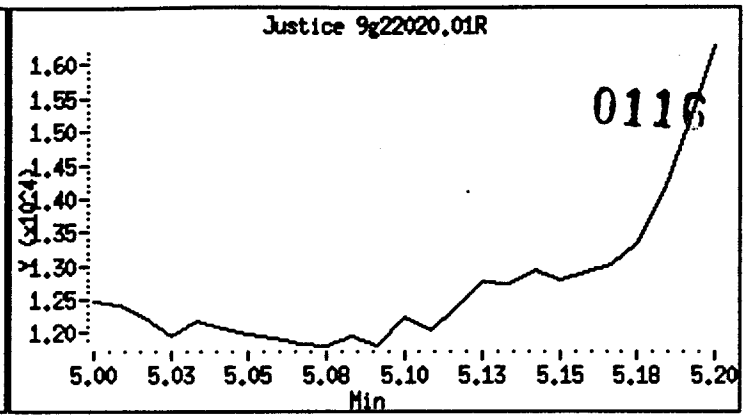
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22020-01R.d
Lab Smp Id: 7-230-6mw7 Client Smp ID: 7-230-6mw7
Inj Date : 22-JUL-1995 20:29
Operator : ra Inst ID: gc9.i
Smp Info : 7-230-6mw7
Misc Info : Created from: 9g22020.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				

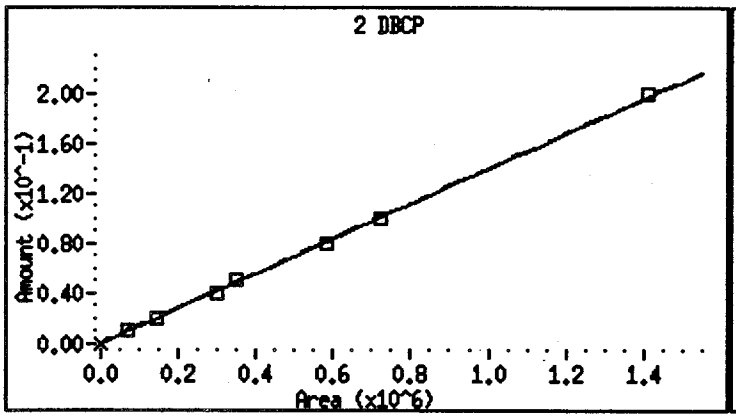

/disc/draper_aden/07-0230/8011/9g22-1.b/9g22020-01R.d/9g22020.01R
Y (x10^6)
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

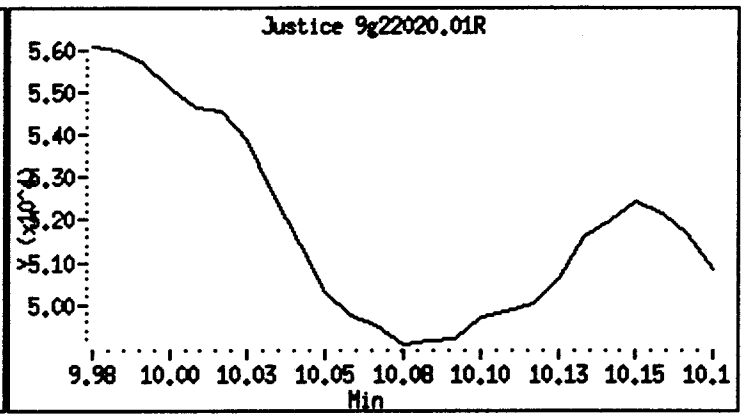
1 EDB (Undetected)





2 DBCP (Undetected)





CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-007 Respectfully Submitted:

0117

MW8 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/10/95 16:45
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/22/95 20:54 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/22/95 20:54 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-230-7mw8

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22-1

0118

Matrix: (soil/water) WATER Lab Sample ID: 7-230-7mw8

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22021-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

CT&E Environmental Services Inc. Charleston,WV

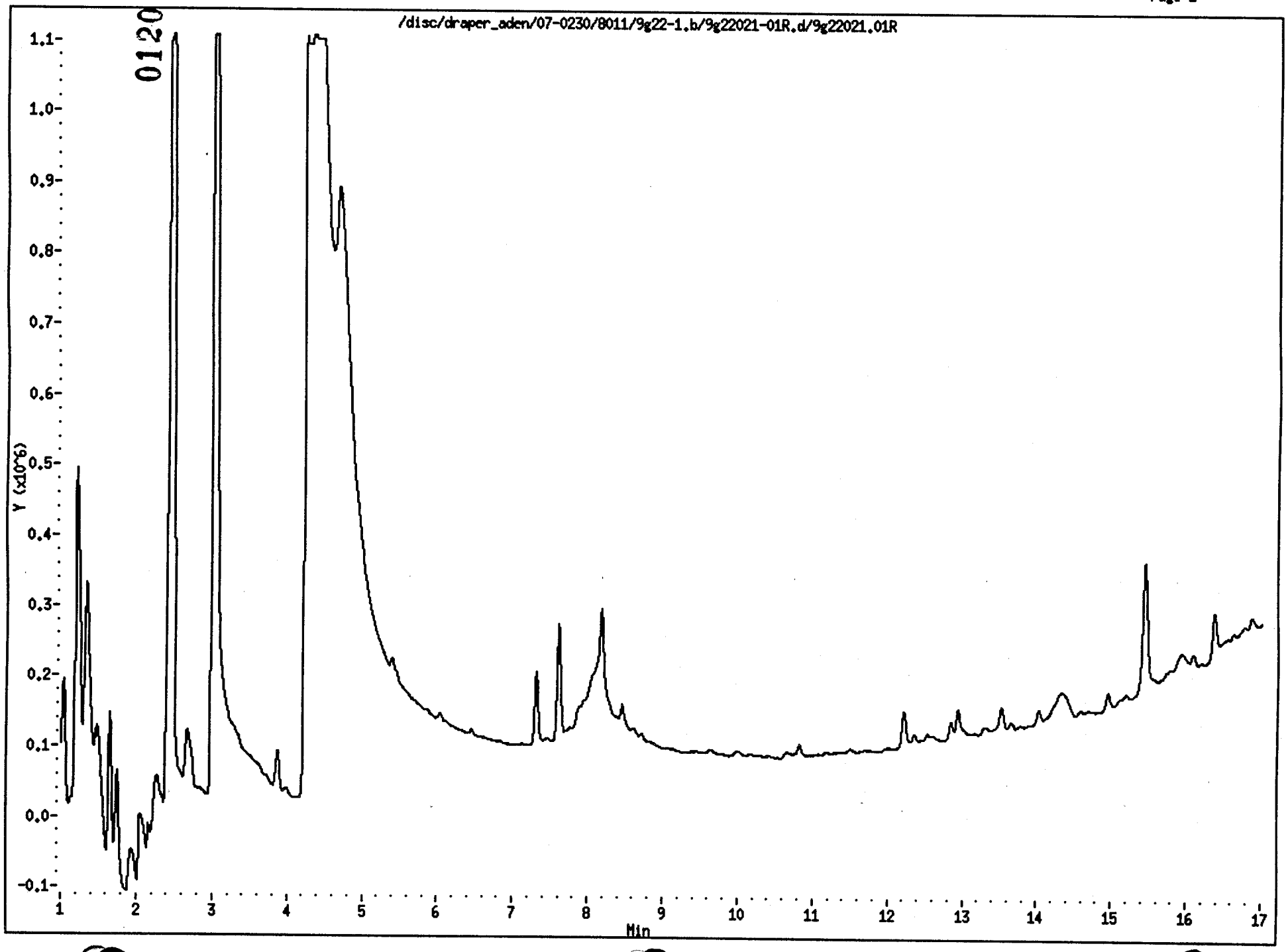
0119

VOLATILE REPORT SW8011 method

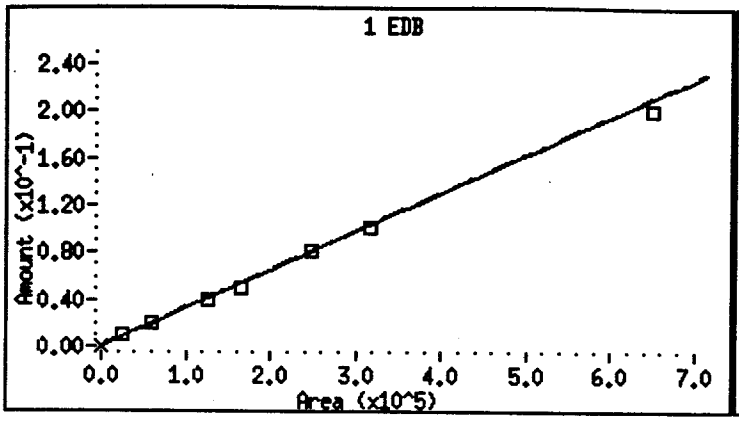
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22021-01R.d
Lab Smp Id: 7-230-7mw8 Client Smp ID: 7-230-7mw8
Inj Date : 22-JUL-1995 20:54
Operator : ra Inst ID: gc9.i
Smp Info : 7-230-7mw8
Misc Info : Created from: 9g22021.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

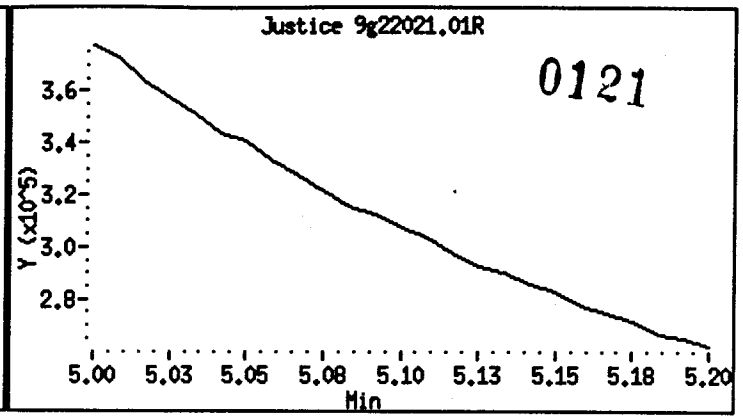
RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22021-01R.d

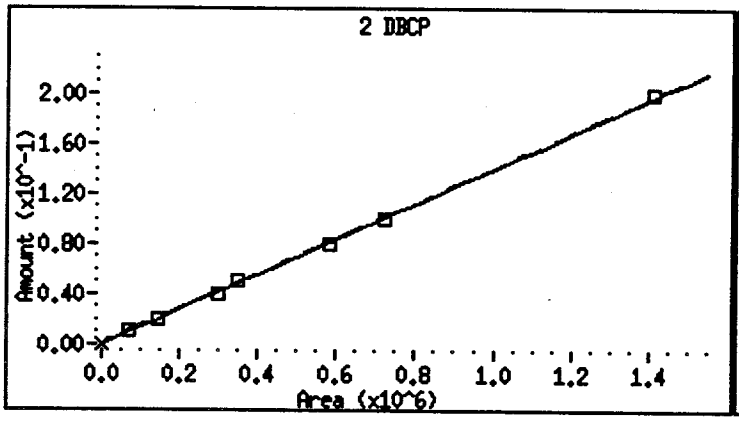


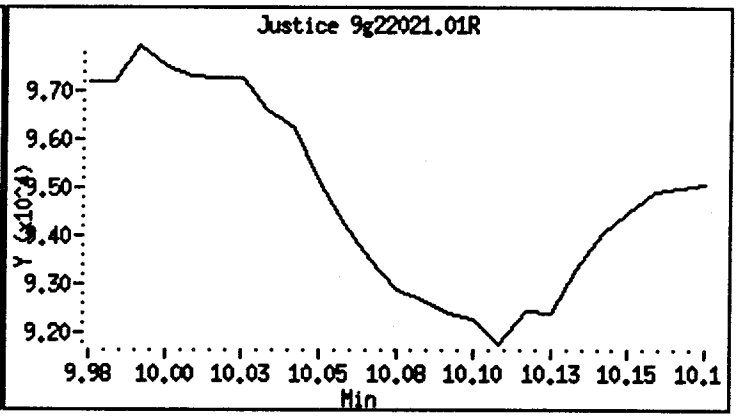
1 EDB (Undetected)





2 DBCP (Undetected)





CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

0122

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-008

Respectfully Submitted:

R C M

MW11 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/11/95 9:30
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/22/95 21:18 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/22/95 21:18 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

150 5 10/95

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-230-8mw11

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22-1

Matrix: (soil/water) WATER Lab Sample ID: 7-230-8mw11 0123

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22022-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

CT&E Environmental Services Inc. Charleston,WV

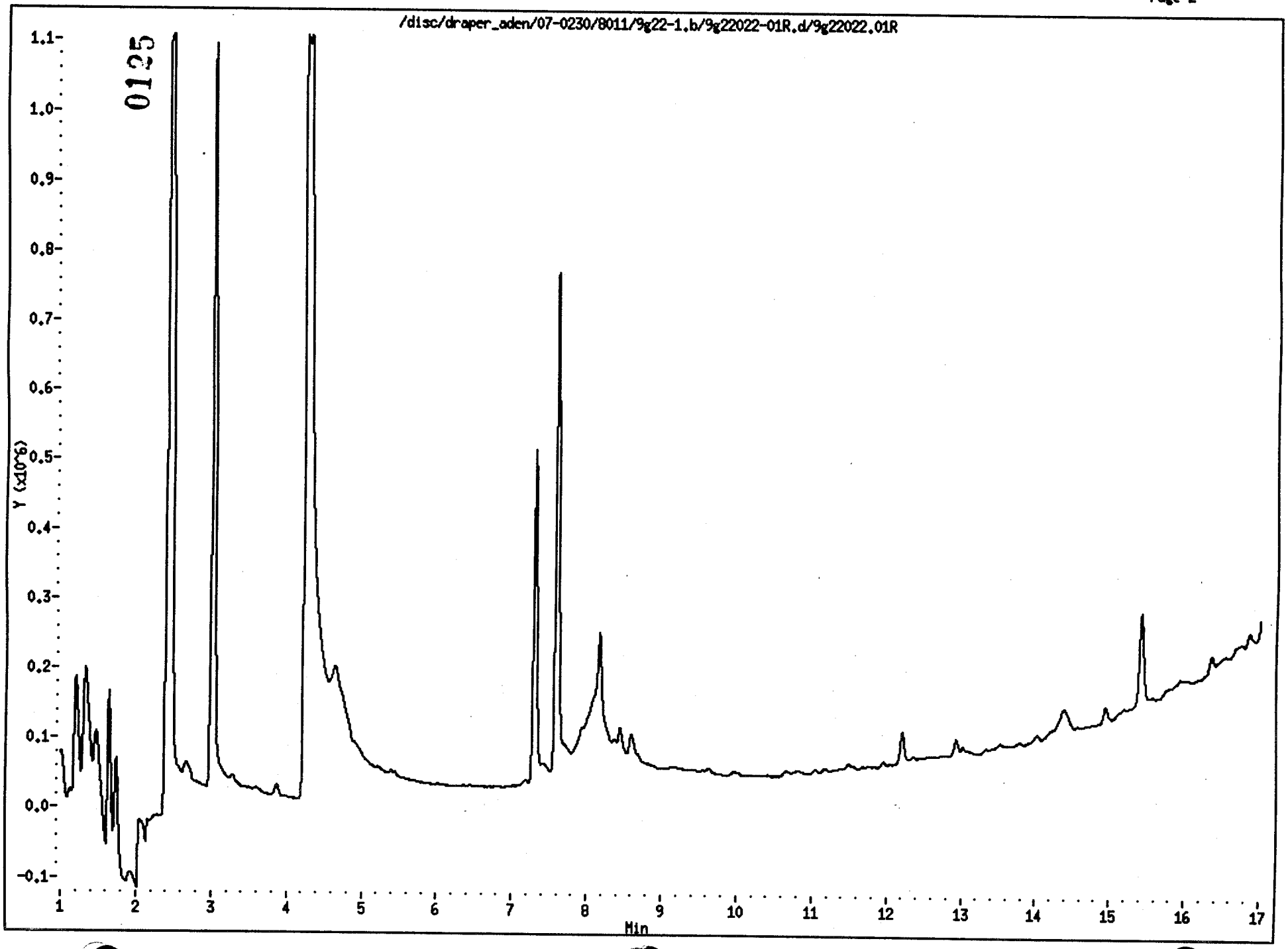
0124

VOLATILE REPORT SW8011 method

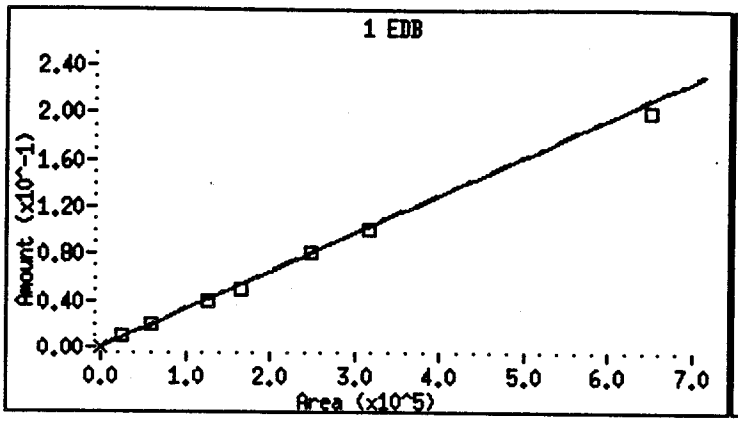
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22022-01R.d
Lab Smp Id: 7-230-8mw11 Client Smp ID: 7-230-8mw11
Inj Date : 22-JUL-1995 21:18
Operator : ra Inst ID: gc9.i
Smp Info : 7-230-8mw11
Misc Info : Created from: 9g22022.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

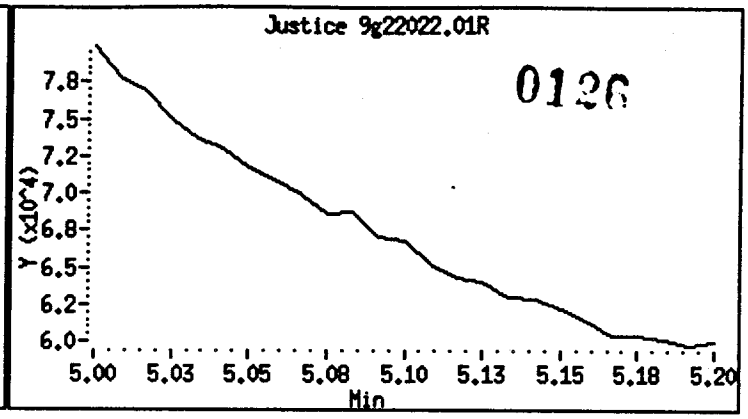
RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				

Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22022-01R.d



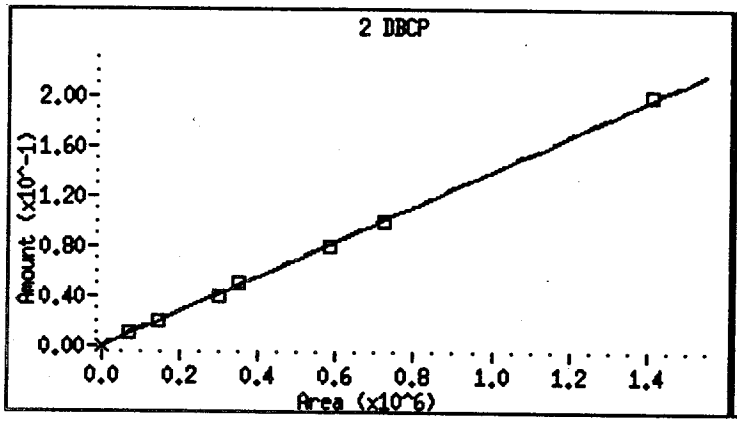
1 EDB (Undetected)

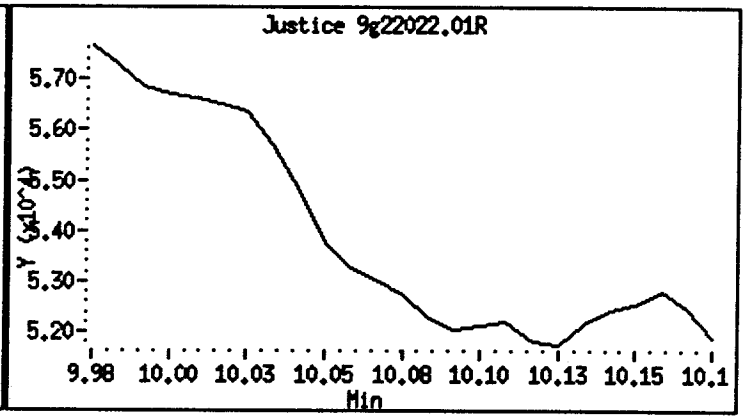




0126

2 DBCP (Undetected)





CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-009

Respectfully Submitted:

0127

MW10 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/11/95 10:30
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/22/95 21:42 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/22/95 21:42 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-230-9mw10

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22023

0128

Matrix: (soil/water) WATER Lab Sample ID: 7-230-9mw10

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22023-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

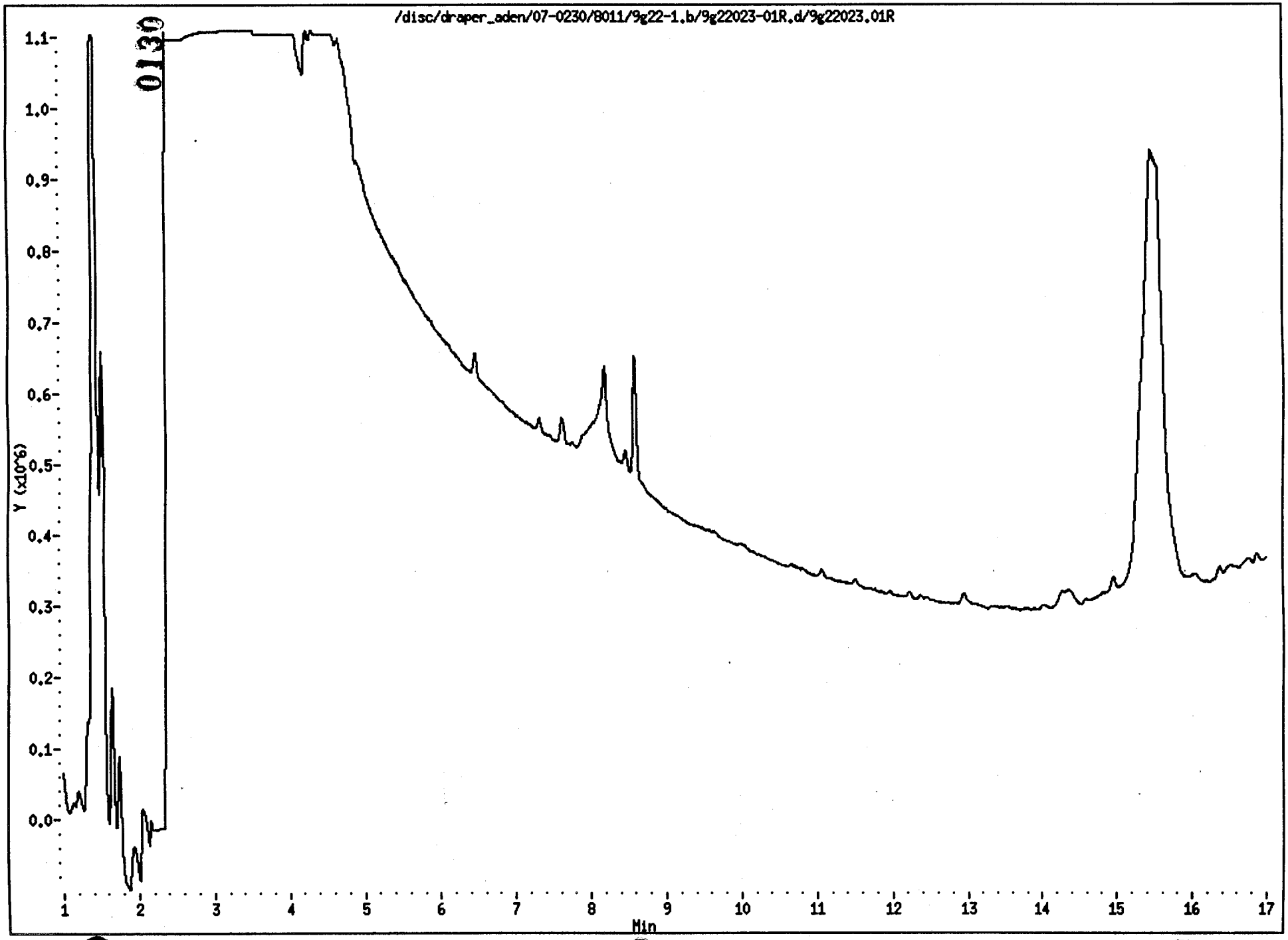
0129

CT&E Environmental Services Inc. Charleston,WV

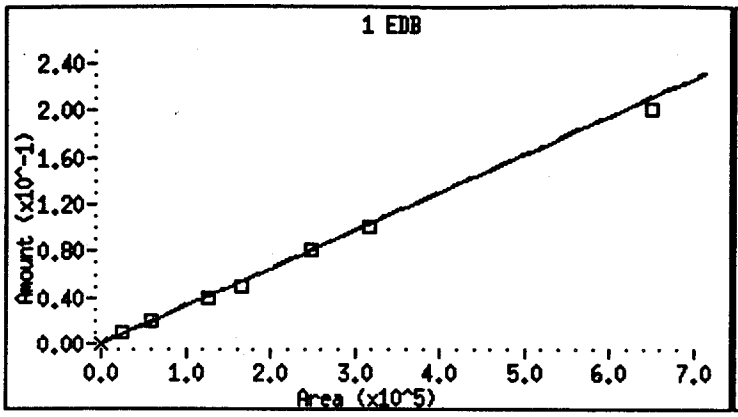
VOLATILE REPORT SW8011 method

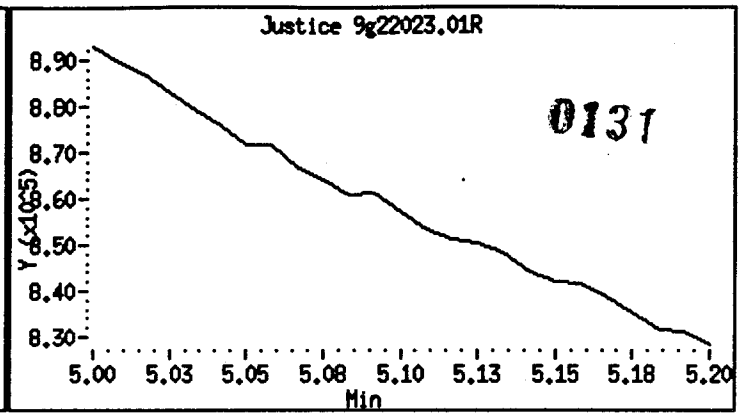
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22023-01R.d
Lab Smp Id: 7-230-9mw10 Client Smp ID: 7-230-9mw10
Inj Date : 22-JUL-1995 21:42
Operator : ra Inst ID: gc9.i
Smp Info : 7-230-9mw10
Misc Info : Created from: 9g22023.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				


/disc/draper_aden/07-0230/B011/9g22-1.b/9g22023-01R.d/9g22023.01R
0130
Y (x10^6)
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

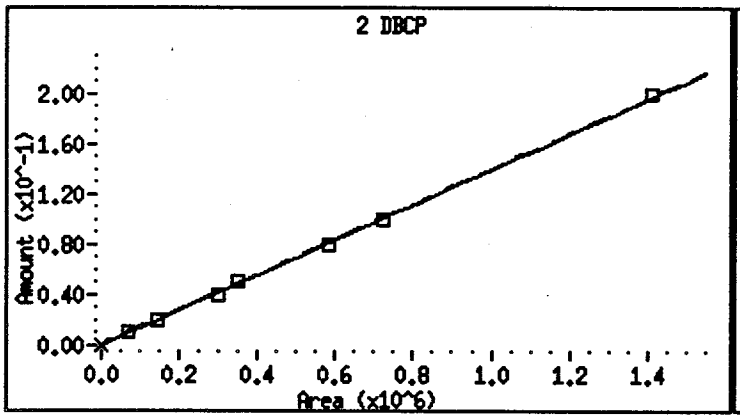
1 EDB (Undetected)

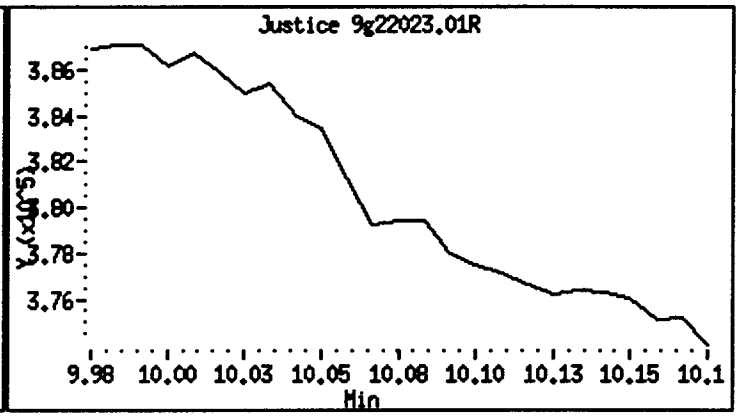




0131

2 DBCP (Undetected)





CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

0132

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-011

Respectfully Submitted: R C M

MW17 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/11/95 12:20
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/22/95 22:06 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/22/95 22:06 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

150-510/9F

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-230-11mw17

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22-1

Matrix: (soil/water) WATER Lab Sample ID: 7-230-11mw17

0133

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22024-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

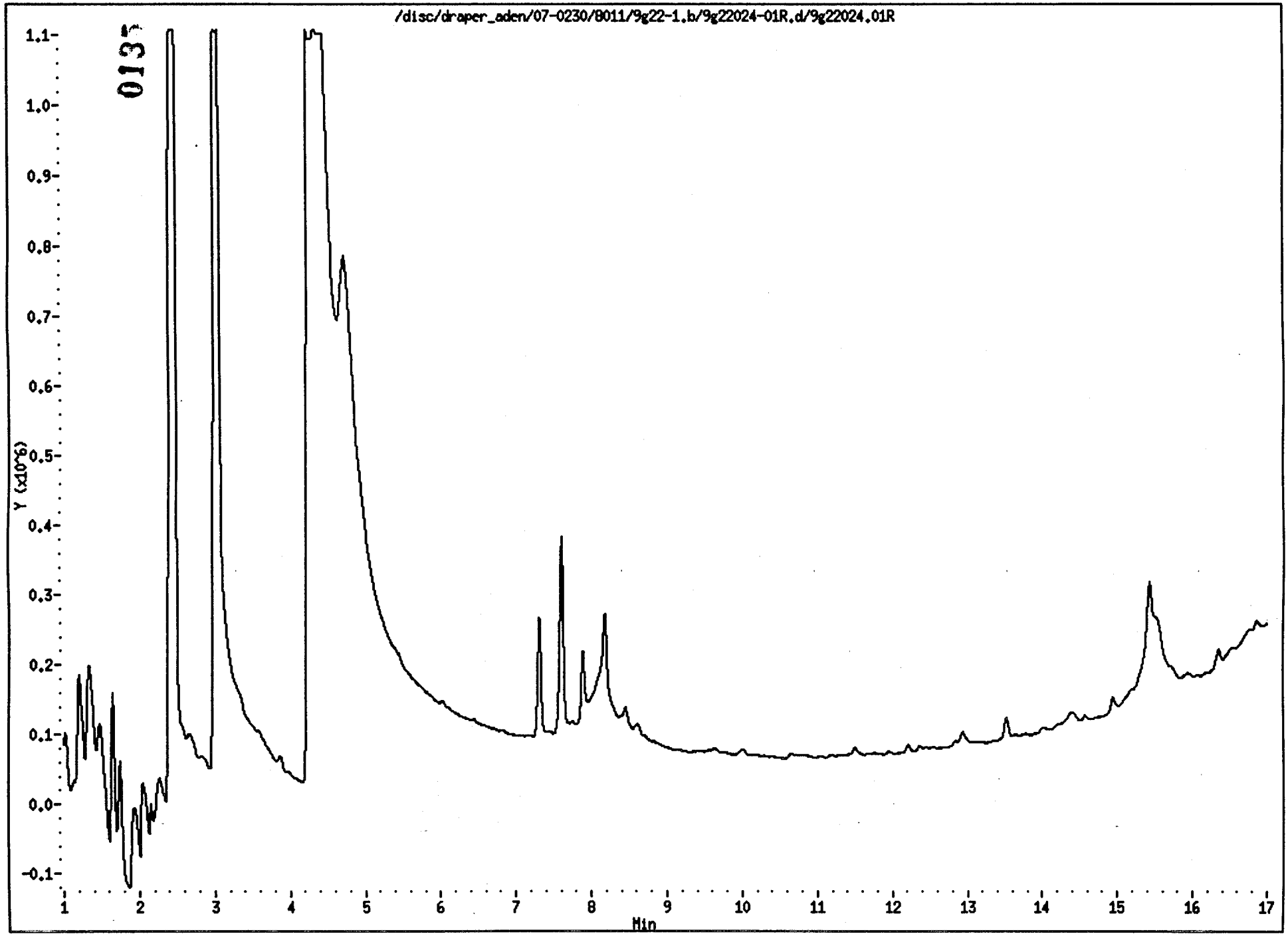
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

CT&E Environmental Services Inc. Charleston,WV 0134

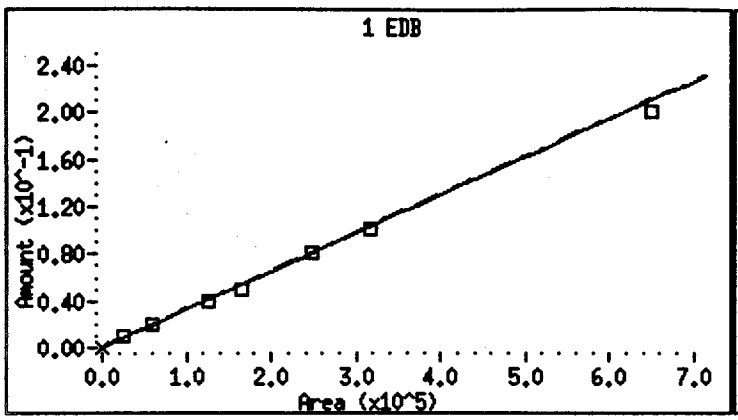
VOLATILE REPORT SW8011 method

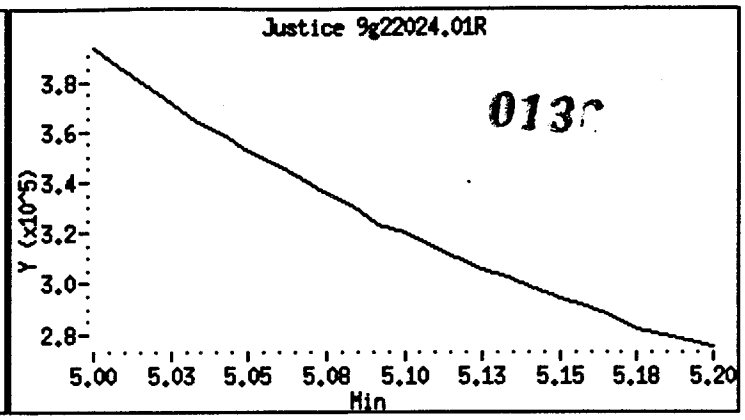
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22024-01R.d
Lab Smp Id: 7-230-11mw17 Client Smp ID: 7-230-11mw17
Inj Date : 22-JUL-1995 22:06
Operator : ra Inst ID: gc9.i
Smp Info : 7-230-11mw17
Misc Info : Created from: 9g22024.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				

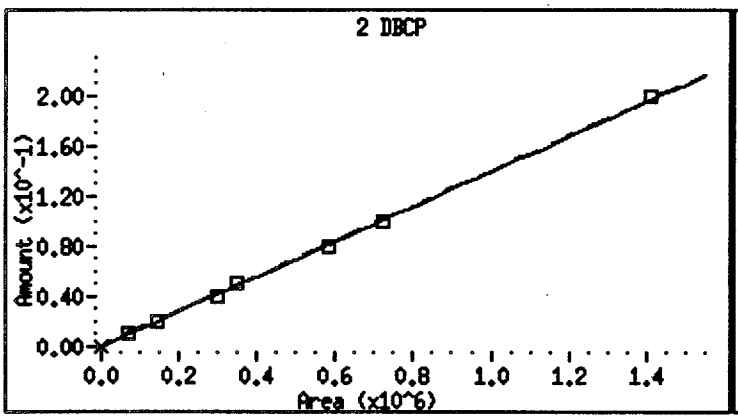

/disc/draper_aden/07-0230/B011/9g22-1.b/9g22024-01R.d/9g22024.01R
0135
Y (x10^6)
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

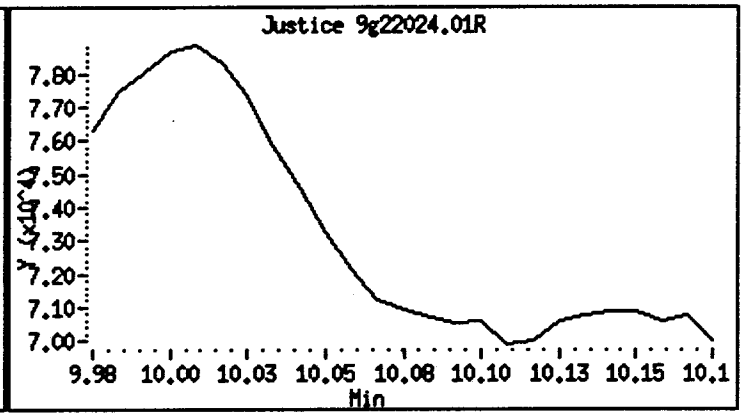
1 EDB (Undetected)





2 DBCP (Undetected)





CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

0137

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-014 Respectfully Submitted:

TRIP BLANK 1 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/06/95 8:00
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/22/95 23:45 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/22/95 23:45 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-230-14tb

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 9g22-1

Matrix: (soil/water) WATER Lab Sample ID: 7-230-14tb

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22028-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

0138

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

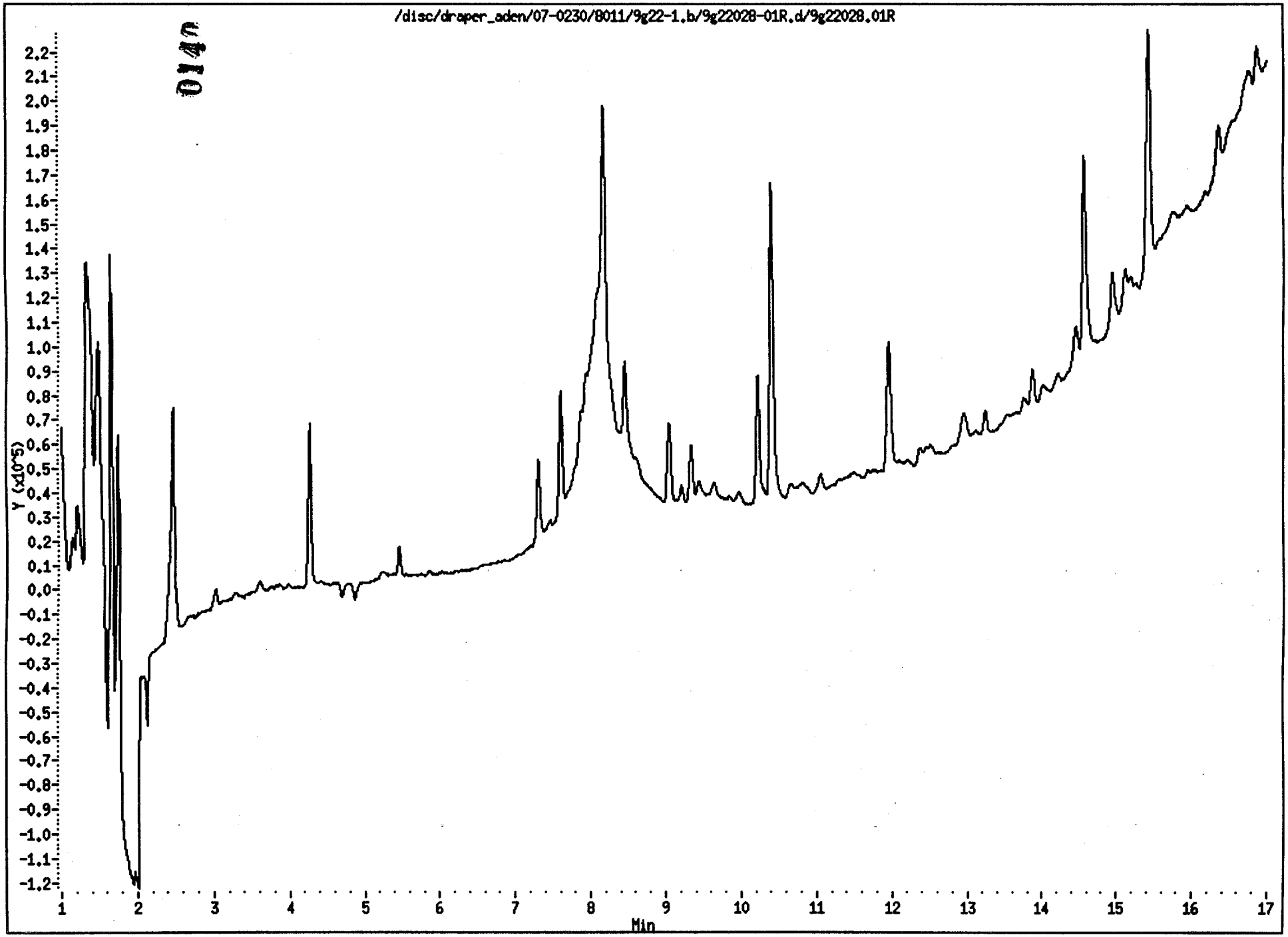
CT&E Environmental Services Inc. Charleston,WV

0133

VOLATILE REPORT SW8011 method

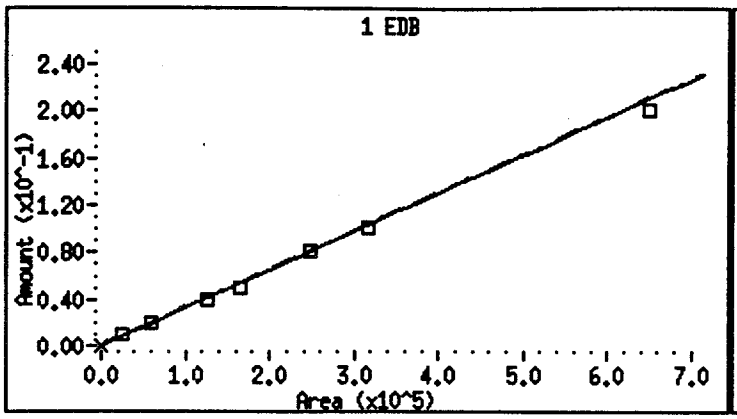
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22028-01R.d
Lab Smp Id: 7-230-14tb Client Smp ID: 7-230-14tb
Inj Date : 22-JUL-1995 23:45
Operator : ra Inst ID: gc9.i
Smp Info : 7-230-14tb
Misc Info : Created from: 9g22028.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

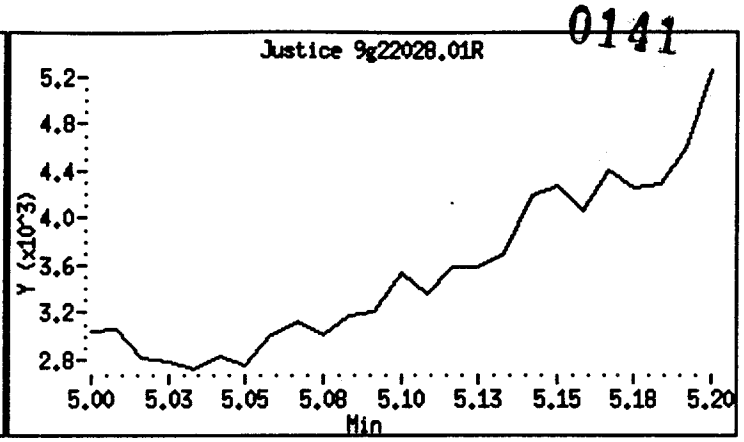
RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				


/disc/draper_aden/07-0230/8011/9g22-1.b/9g22028-01R.d/9g22028.01R
0140
Y (x10^5)
2.2
2.1
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Min

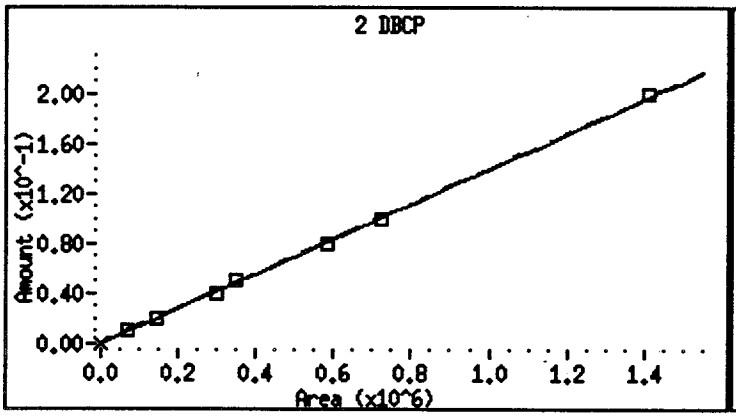
0141

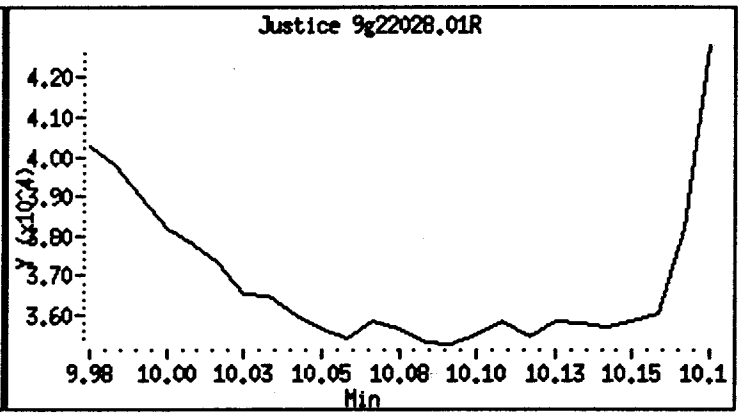
1 EDB (Undetected)





2 DBCP (Undetected)





CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

0142

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0276-001

Respectfully Submitted:

R C M

MW9 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/12/95 8:45
Date Received 07/13/95

Sampled by CLIENT

090895 1411

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/23/95 00:10 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/23/95 00:10 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

150-5 10/91

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

mw9

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-276 Case No.: SAS No.: SDG No.: 9g22-1

0143

Matrix: (soil/water) WATER Lab Sample ID: mw9

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22029-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/23/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	EDB	0.0300	U
----------	DBCP	0.0300	U

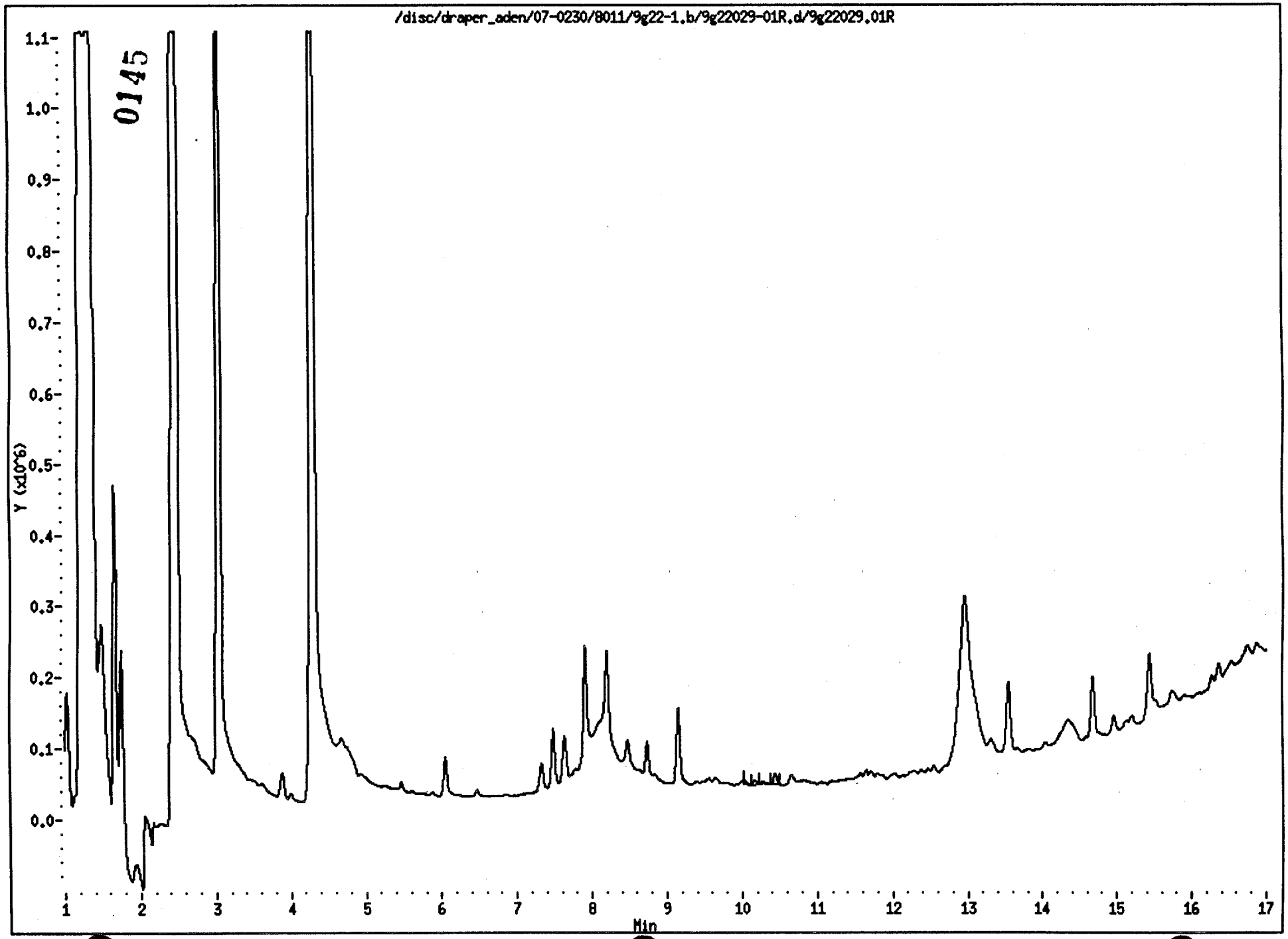
0144

CT&E Environmental Services Inc. Charleston,WV

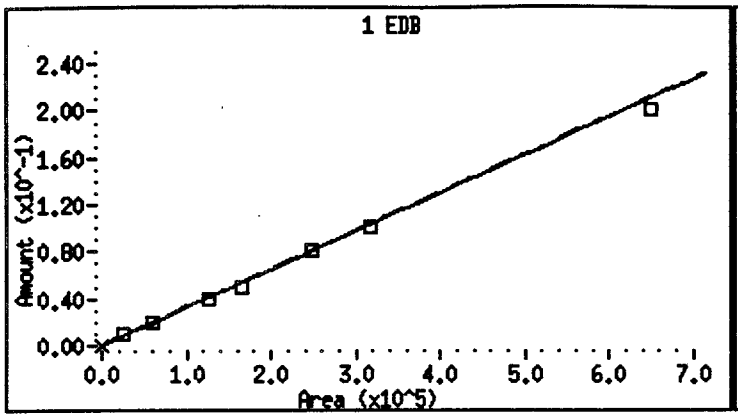
VOLATILE REPORT SW8011 method

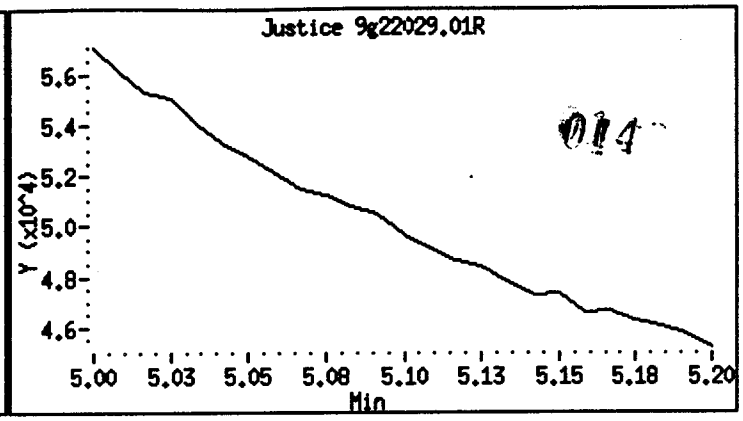
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22029-01R.d
Lab Smp Id: mw9 Client Smp ID: mw9
Inj Date : 23-JUL-1995 00:10
Operator : ra Inst ID: gc9.i
Smp Info : 7-276-1mw9
Misc Info : Created from: 9g22029.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				


/disc/draper_aden/07-0230/8011/9g22-1.b/9g22029-01R.d/9g22029.01R
0145
Y (x10^6)
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

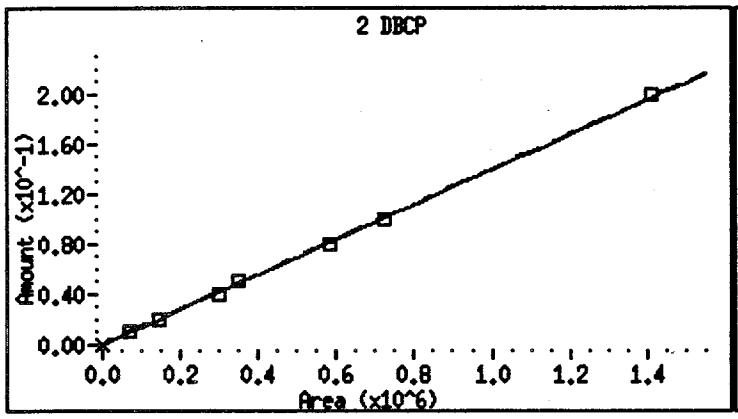
1 EDB (Undetected)

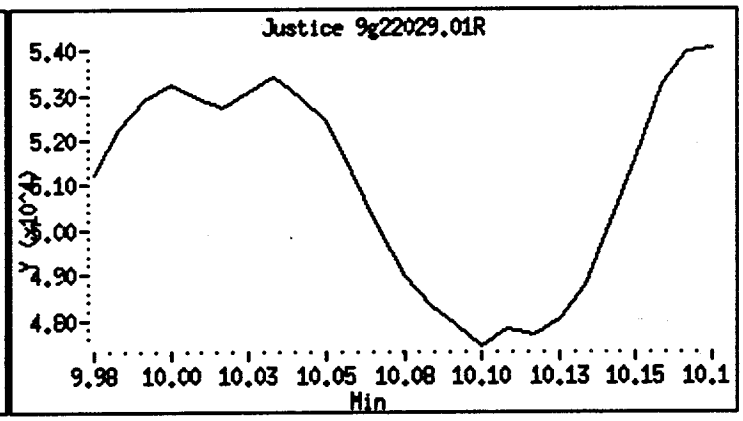




014

2 DBCP (Undetected)





CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

0147

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0276-004

Respectfully Submitted:

RCM

MW12 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/12/95 10:00
Date Received 07/13/95

Sampled by CLIENT

090895 1411

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/23/95 01:25 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/23/95 01:25 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

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4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-276-4mw12

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-276 Case No.: SAS No.: SDG No.: 9g22-1 0148

Matrix: (soil/water) WATER Lab Sample ID: 7-276-4mw12

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22032-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/23/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

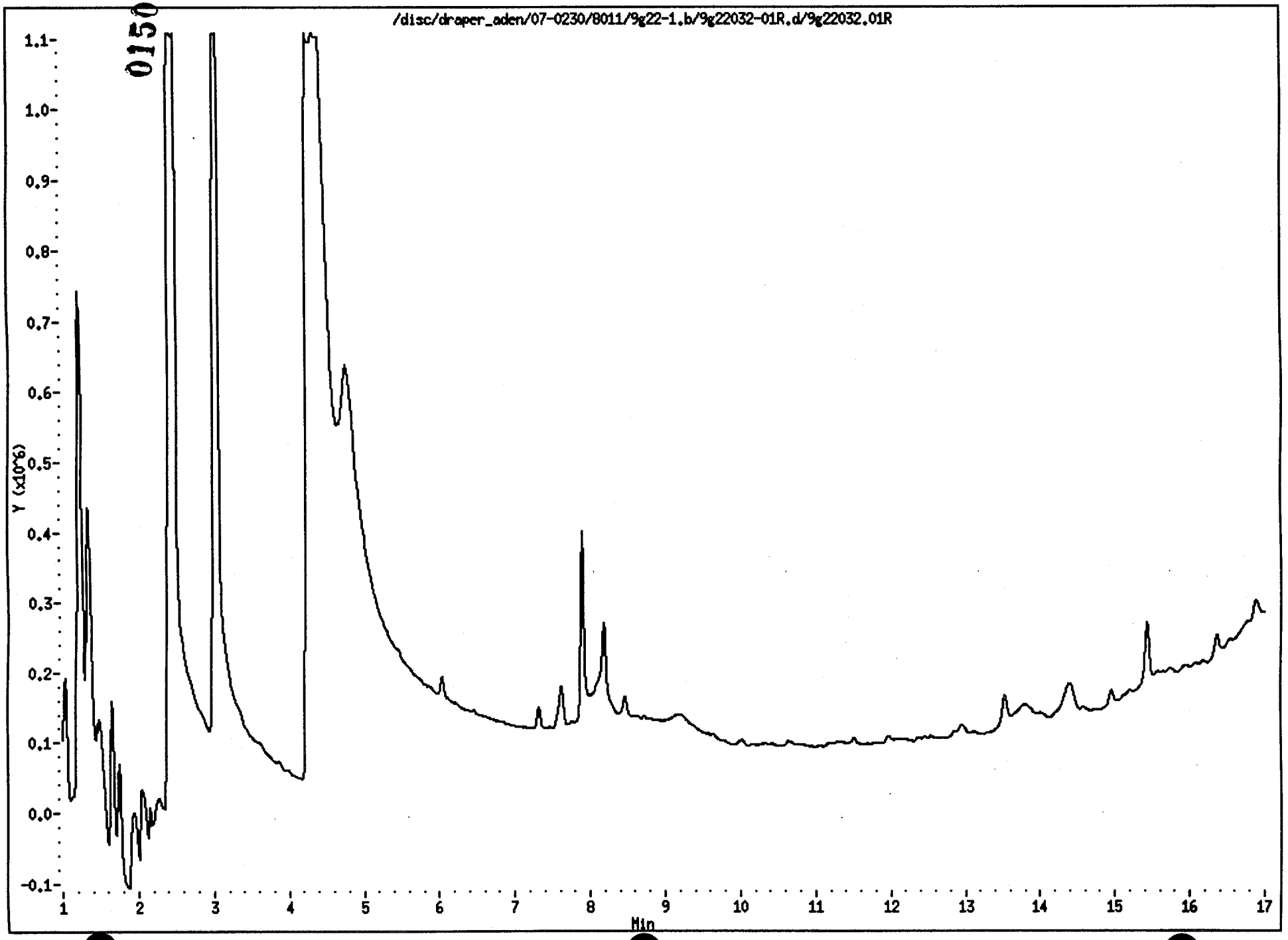
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

CT&E Environmental Services Inc. Charleston,WV 0149

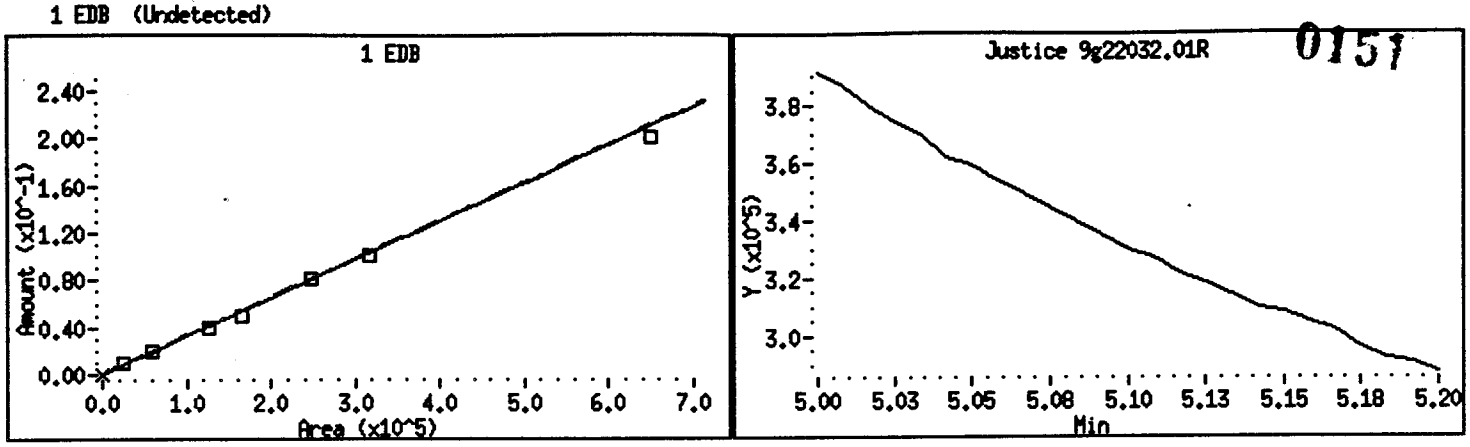
VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22032-01R.d
Lab Smp Id: 7-276-4mw12 Client Smp ID: 7-276-4mw12
Inj Date : 23-JUL-1995 01:25
Operator : ra Inst ID: gc9.i
Smp Info : 7-276-4mw12
Misc Info : Created from: 9g22032.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:46 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				

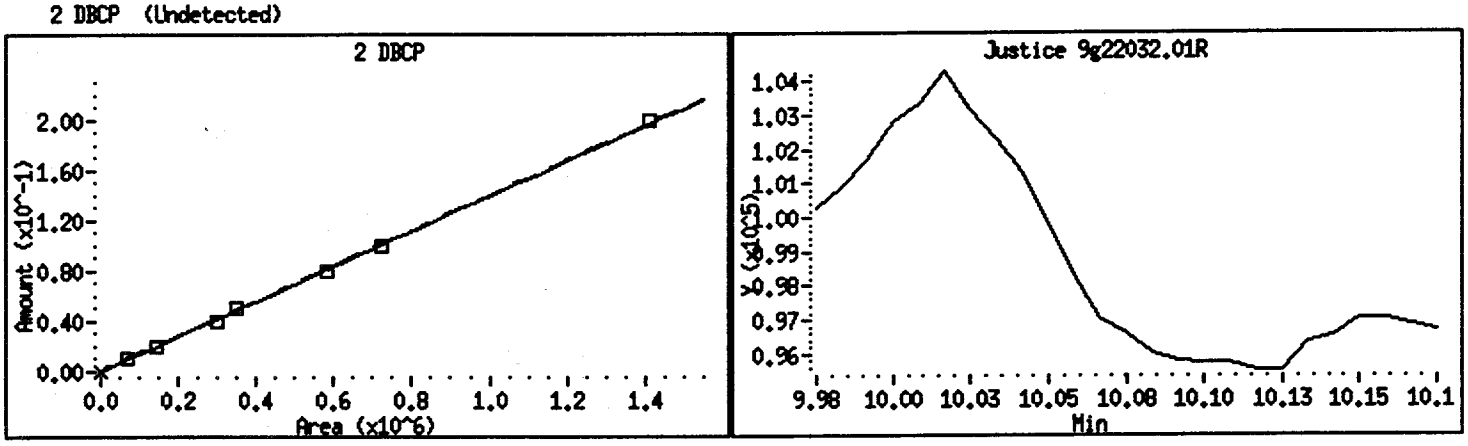

/disc/draper_aden/07-0230/8011/9g22-1.b/9g22032-01R.d/9g22032.01R
0150
Y (x10^6)
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

1 EDB (Undetected)



0151

2 DBCP (Undetected)



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0276-005

Respectfully Submitted: 0152

MW2 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/12/95 17:30
Date Received 07/13/95

Sampled by CLIENT

090895 1411

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/23/95 03:02 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/23/95 03:02 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

150-510/95

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-276-5mw2

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-276 Case No.: SAS No.: SDG No.: 9g20153

Matrix: (soil/water) WATER Lab Sample ID: 7-276-5mw2

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22036-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/23/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

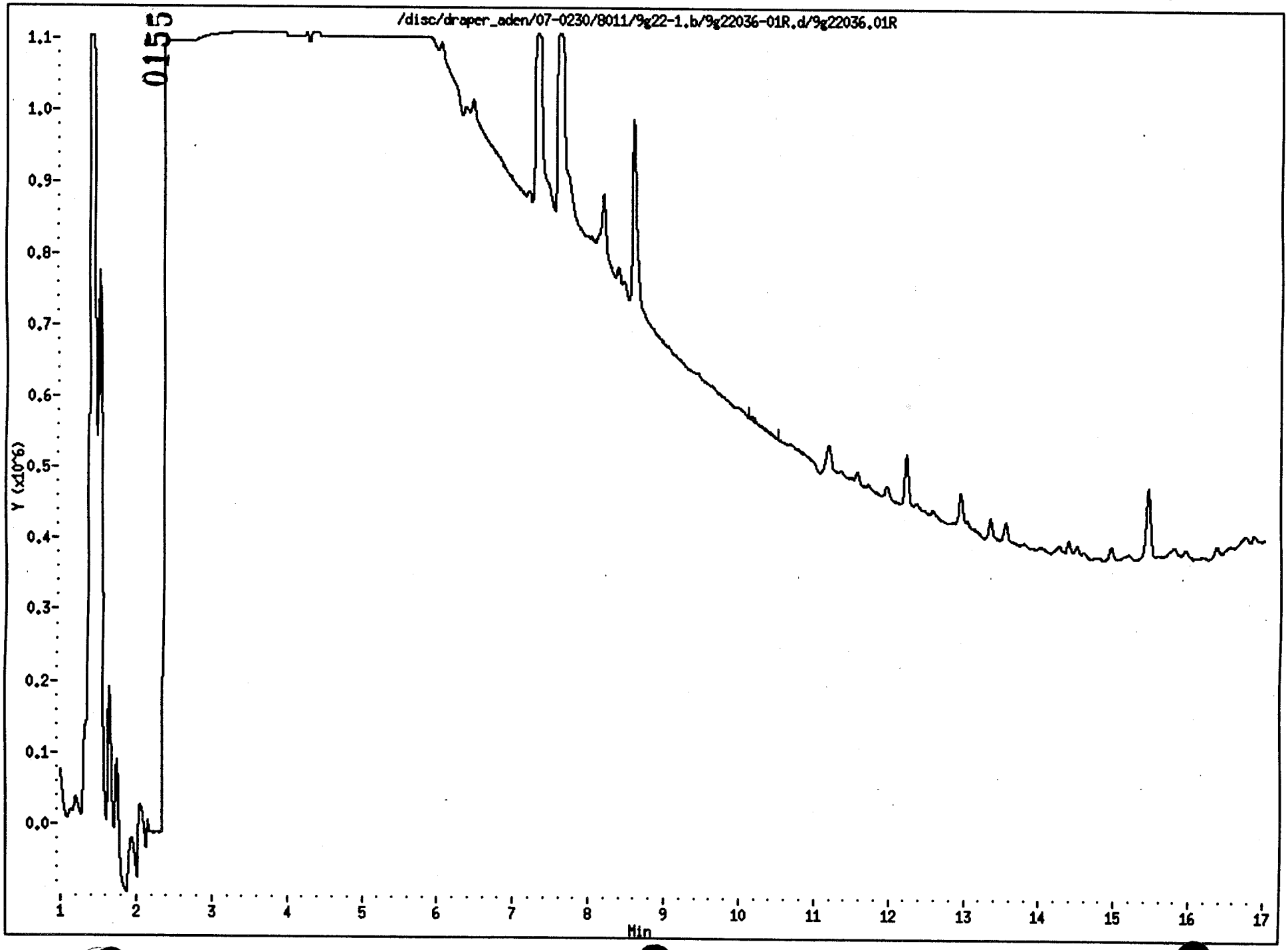
0154

CT&E Environmental Services Inc. Charleston,WV

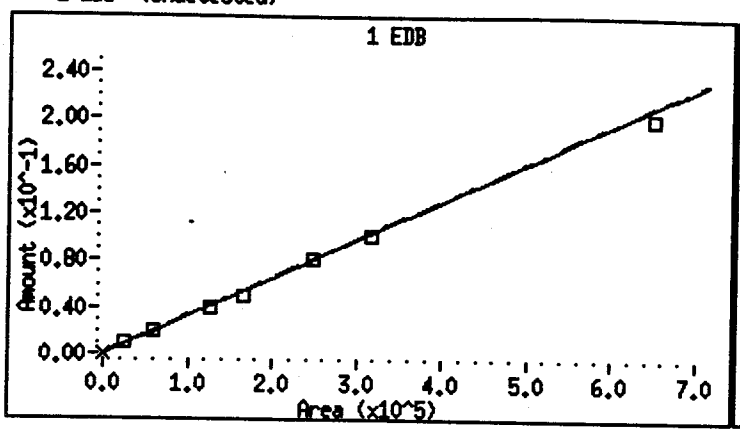
VOLATILE REPORT SW8011 method

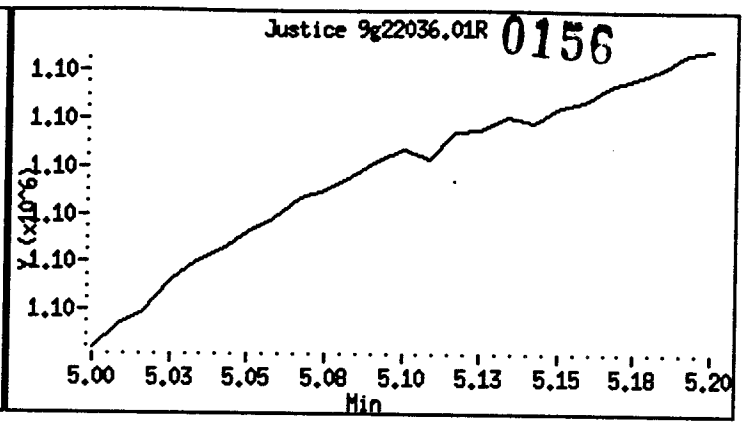
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22036-01R.d
Lab Smp Id: 7-276-5mw2 Client Smp ID: 7-276-5mw2
Inj Date : 23-JUL-1995 03:02
Operator : ra Inst ID: gc9.i
Smp Info : 7-276-5mw2
Misc Info : Created from: 9g22036.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:47 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				

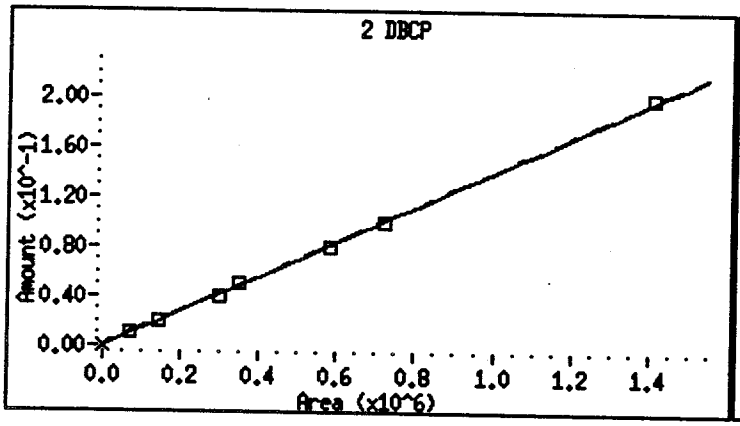

/disc/draper_aden/07-0230/8011/9g22-1.b/9g22036-01R.d/9g22036.01R
0155
Y (x10^6)
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

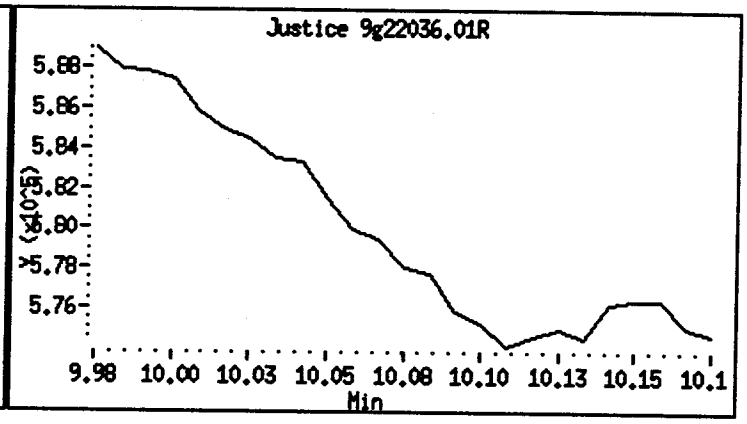
1 EDB (Undetected)





2 DBCP (Undetected)





CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

0157

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0276-006

Respectfully Submitted:

RCM-4

MW4 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/12/95 18:15
Date Received 07/13/95

Sampled by CLIENT

090895 1411

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/23/95 03:27 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/23/95 03:27 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

150/510/97

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-276-6mw4

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-276 Case No.: SAS No.: SDG No.: 9g22-1

Matrix: (soil/water) WATER Lab Sample ID: 7-276-6mw4

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22037-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/23/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

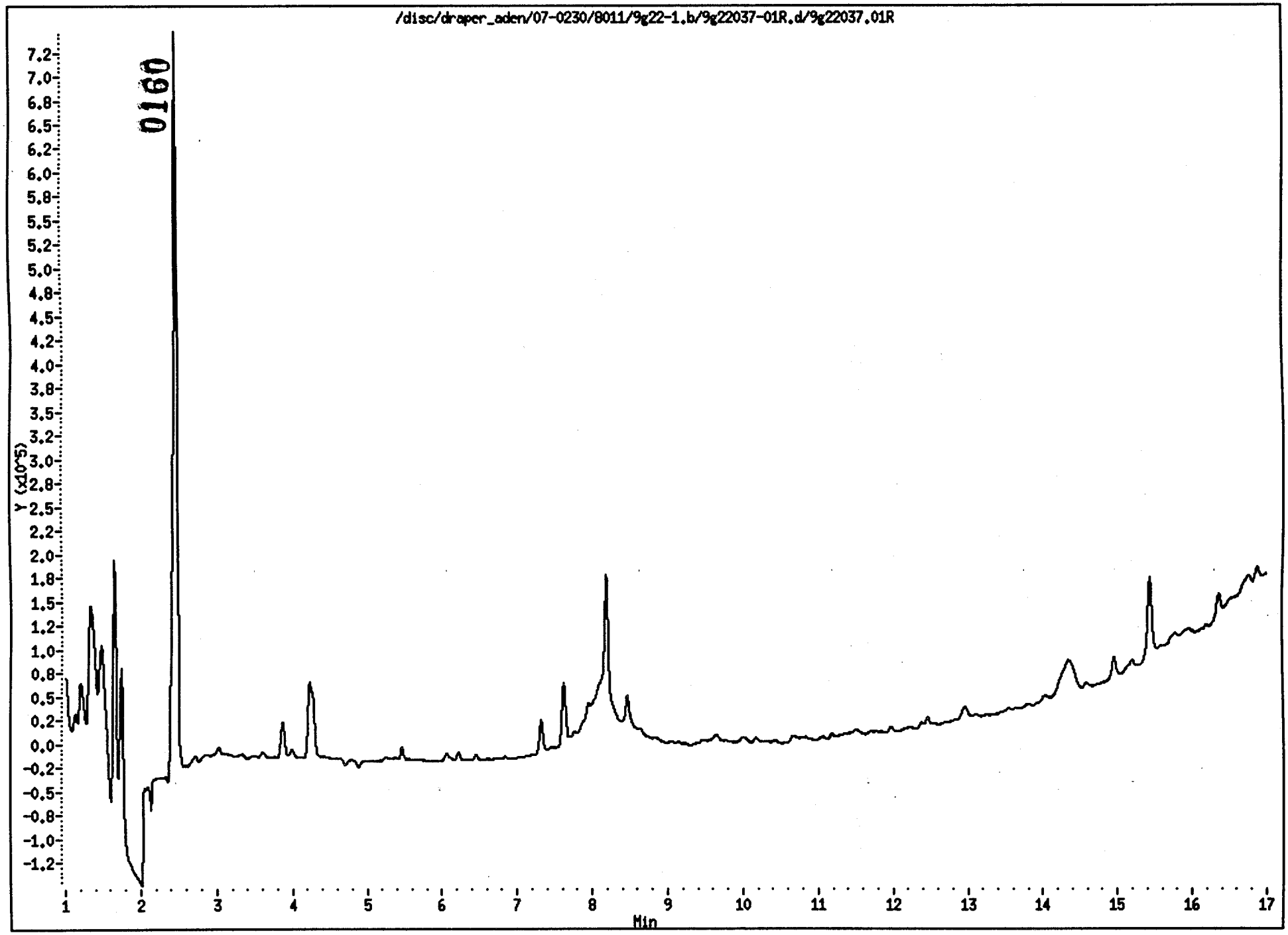
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

CT&E Environmental Services Inc. Charleston,WV

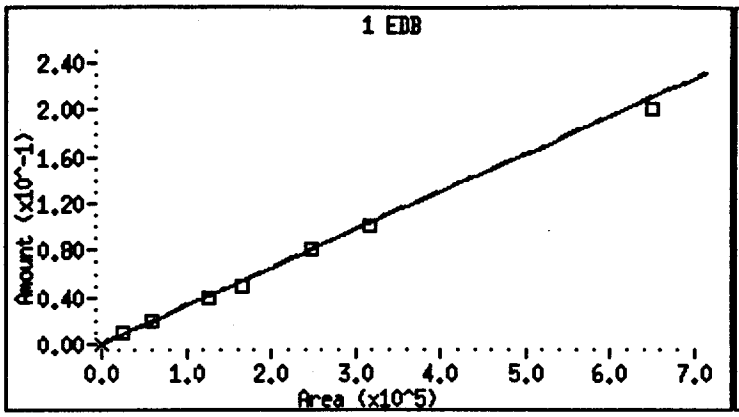
VOLATILE REPORT SW8011 method 0159

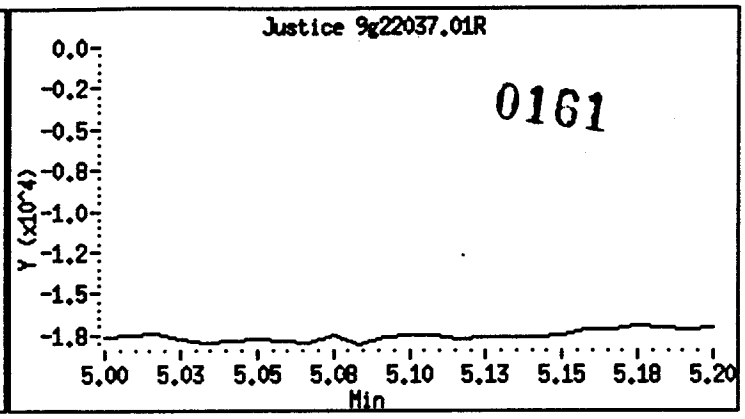
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22037-01R.d
Lab Smp Id: 7-276-6mw4 Client Smp ID: 7-276-6mw4
Inj Date : 23-JUL-1995 03:27
Operator : ra Inst ID: gc9.i
Smp Info : 7-276-6mw4
Misc Info : Created from: 9g22037.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:47 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				

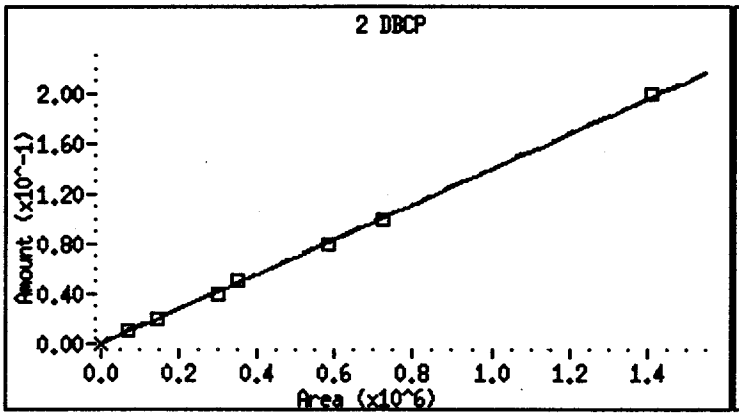

/disc/draper_aden/07-0230/8011/9g22-1.b/9g22037-01R.d/9g22037.01R
0160
Y (x10^5)
7.2
7.0
6.8
6.5
6.2
6.0
5.8
5.5
5.2
5.0
4.8
4.5
4.2
4.0
3.8
3.5
3.2
3.0
2.8
2.5
2.2
2.0
1.8
1.5
1.2
1.0
0.8
0.5
0.2
0.0
-0.2
-0.5
-0.8
-1.0
-1.2
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

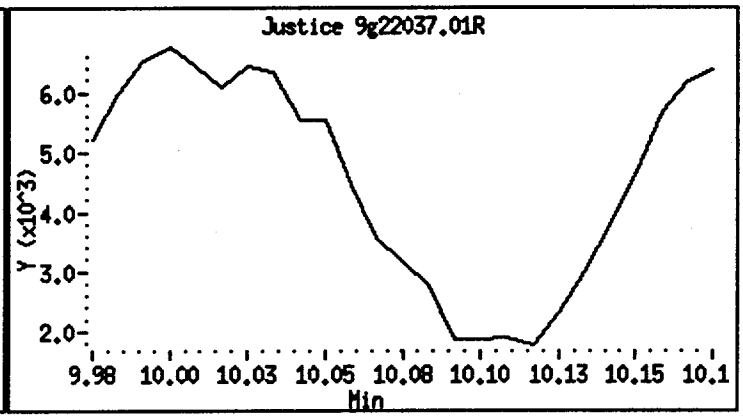
1 EDB (Undetected)





2 DBCP (Undetected)





CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

0162

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0276-011

Respectfully Submitted:

TRIP BLANK-2 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/06/95 8:00
Date Received 07/13/95

Sampled by CLIENT

090895 1411

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Ethylene Dibromide[106-93-4]	ND	0.03	ug/L	SW8011	07/23/95 03:51 RA
1,2-Dibromo-3-chloropropane[96-12-8]	ND	0.03	ug/L	SW8011	07/23/95 03:51 RA

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

150/51

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-276-11tb

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-276 Case No.: SAS No.: SDG No.: 9g22-1

Matrix: (soil/water) WATER Lab Sample ID: 7-276-11tb

0163

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22038-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/23/95

GC Column:XTI-1701 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

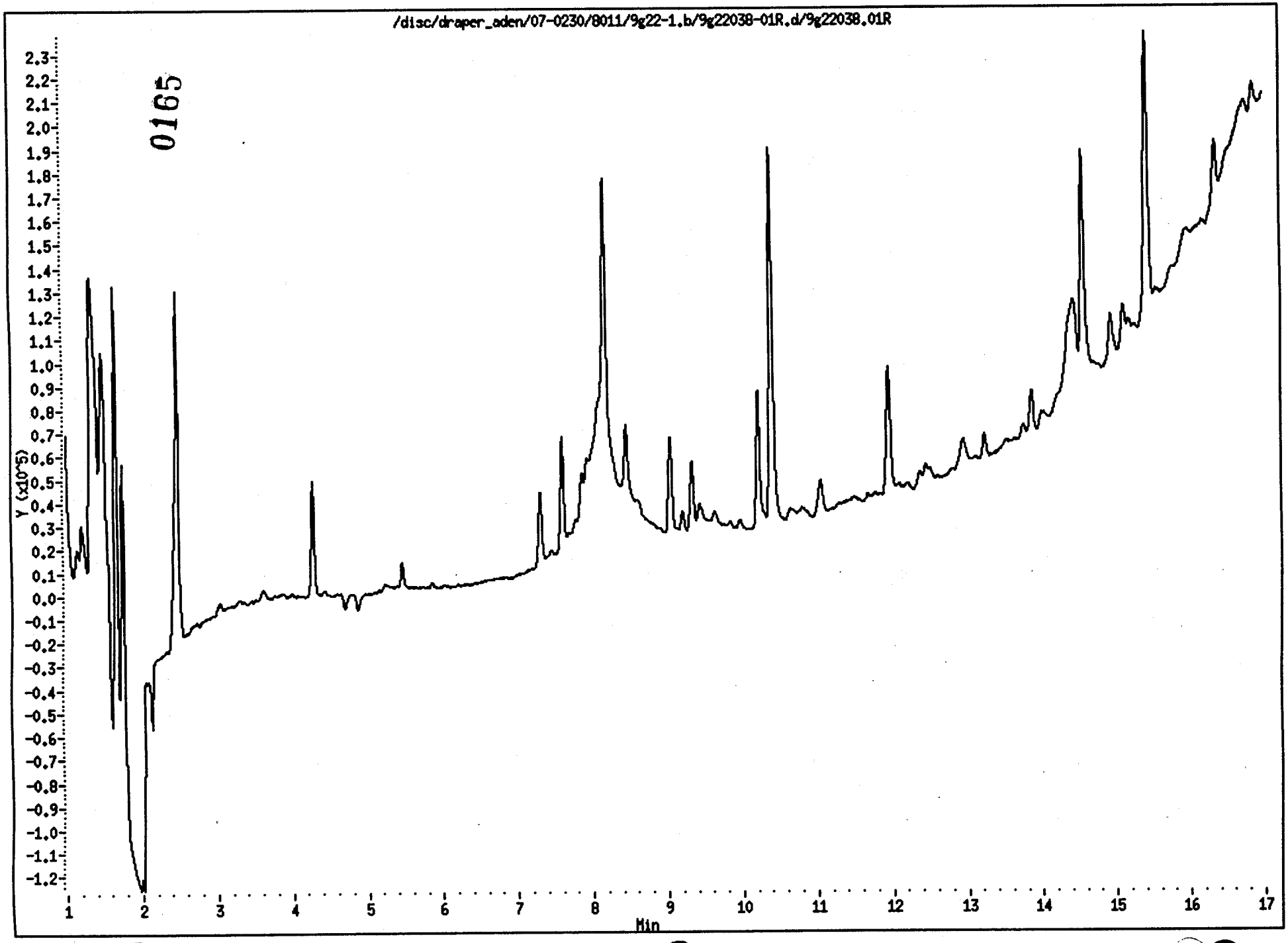
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	EDB	0.0300	U
----------	DBCP	0.0300	U

CT&E Environmental Services Inc. Charleston,WV 0164

VOLATILE REPORT SW8011 method

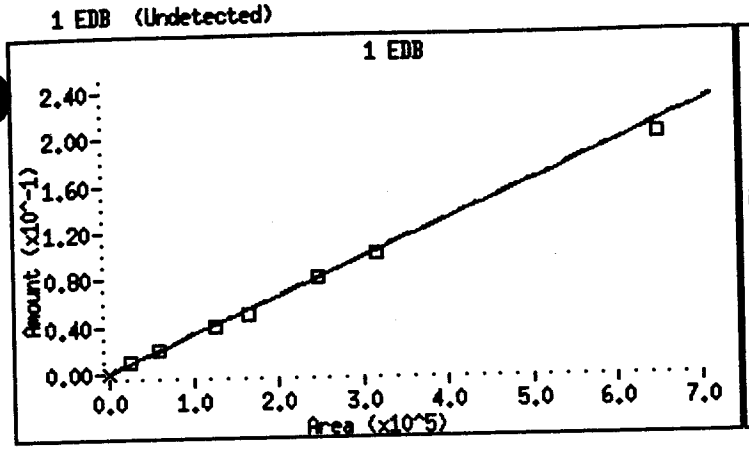
Data file : /disc/draper_aden/07-0230/8011/9g22-1.b/9g22038-01R.d
Lab Smp Id: 7-276-11tb
Client Smp ID: 7-276-11tb
Inj Date : 23-JUL-1995 03:51
Operator : ra
Inst ID: gc9.i
Smp Info : 7-276-11tb
Misc Info : Created from: 9g22038.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-1.b/gc9_EDB_chA.m
Meth Date : 07-Sep-1995 09:47 lwork
Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04
Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie
Compound Sublist: all.sub
Target Version: 3.12
Sample Matrix: WATER
Concentration Formula: 1

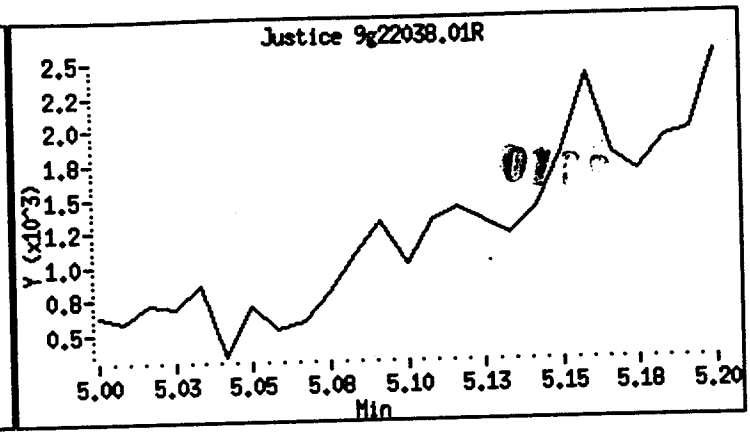
RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
5.105	Compound Not Detected				
2 DBCP					CAS #:
10.076	Compound Not Detected				


/disc/draper_aden/07-0230/8011/9g22-1.b/9g22038-01R.d/9g22038.01R
0165
Y (x10^5)
Min

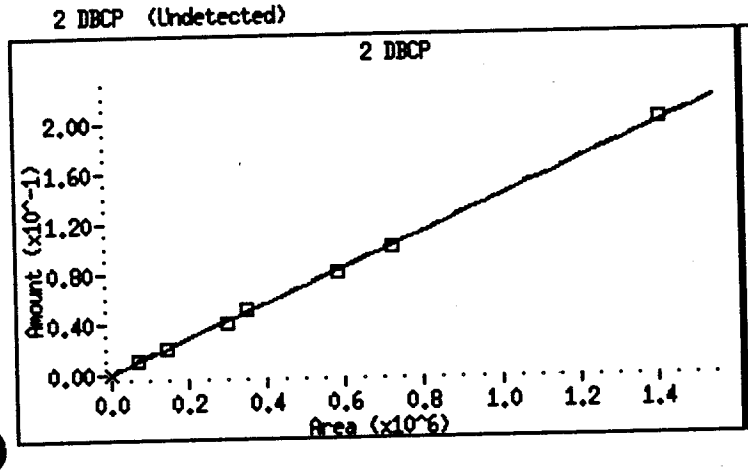
Data File: /disc/draper_aden/07-0230/8011/9g22-1.b/9g22038-01R.d

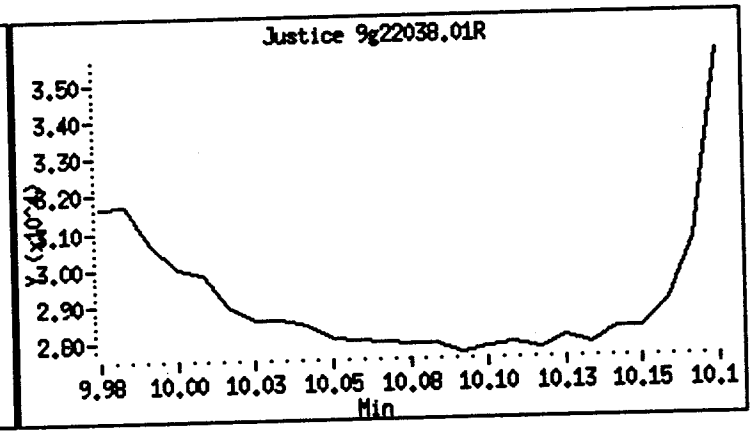
1 EDB (Undetected)





2 DBCP (Undetected)





CT&E Environmental Services Inc. Charleston,WV

INITIAL CALIBRATION DATA

0167

Start Cal Date : 28-APR-95 20:05
End Cal Date : 22-JUL-1995 16:04
Quant Method : ESTD
Target Version : 3.12
Integrator : HP Genie
Method file : /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m
Cal Date : 02-Sep-1995 16:30 lwork
Curve Type : Average

Calibration File Names:
Level 1: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22009-01R.d
Level 2: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22008-01R.d
Level 3: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22007-01R.d
Level 4: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22006-01R.d
Level 5: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22005-01R.d
Level 6: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22004-01R.d
Level 7: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22003-01R.d

Compound	0.0100 Level 1	0.0200 Level 2	0.0400 Level 3	0.0500 Level 4	0.0800 Level 5	0.1000 Level 6	$\overline{RRF}$	% RSD
	0.2000 Level 7							
1 EDB	+++++	1299850	1634700	1619620	1688650	1597510		
	1674085						1585736	9.087
2 DBCP	4832100	+++++	4059675	4747540	3995088	3979660		
	4010350						4270735	9.457

CT&E Environmental Services Inc. Charleston,WV 0168

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-2.b/9g22003-01R.d
Lab Smp Id: ical7 Client Smp ID: ical7
Inj Date : 22-JUL-1995 13:41
Operator : ra Inst ID: gc9.i
Smp Info : ical7
Misc Info : Created from: 9g22003.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m
Meth Date : 07-Sep-1995 09:48 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 7
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)		
1 EDB					CAS #:		
3.700	3.703	-0.003	334817	0.200	0.211		(AM)
2 DBCP					CAS #:		
8.300	8.298	0.002	802070	0.200	0.188		(M)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical7
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22003.01R, 25-Jul-1995 16:03

Client SDG: 9g22-2
Client Smp ID: ical7
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

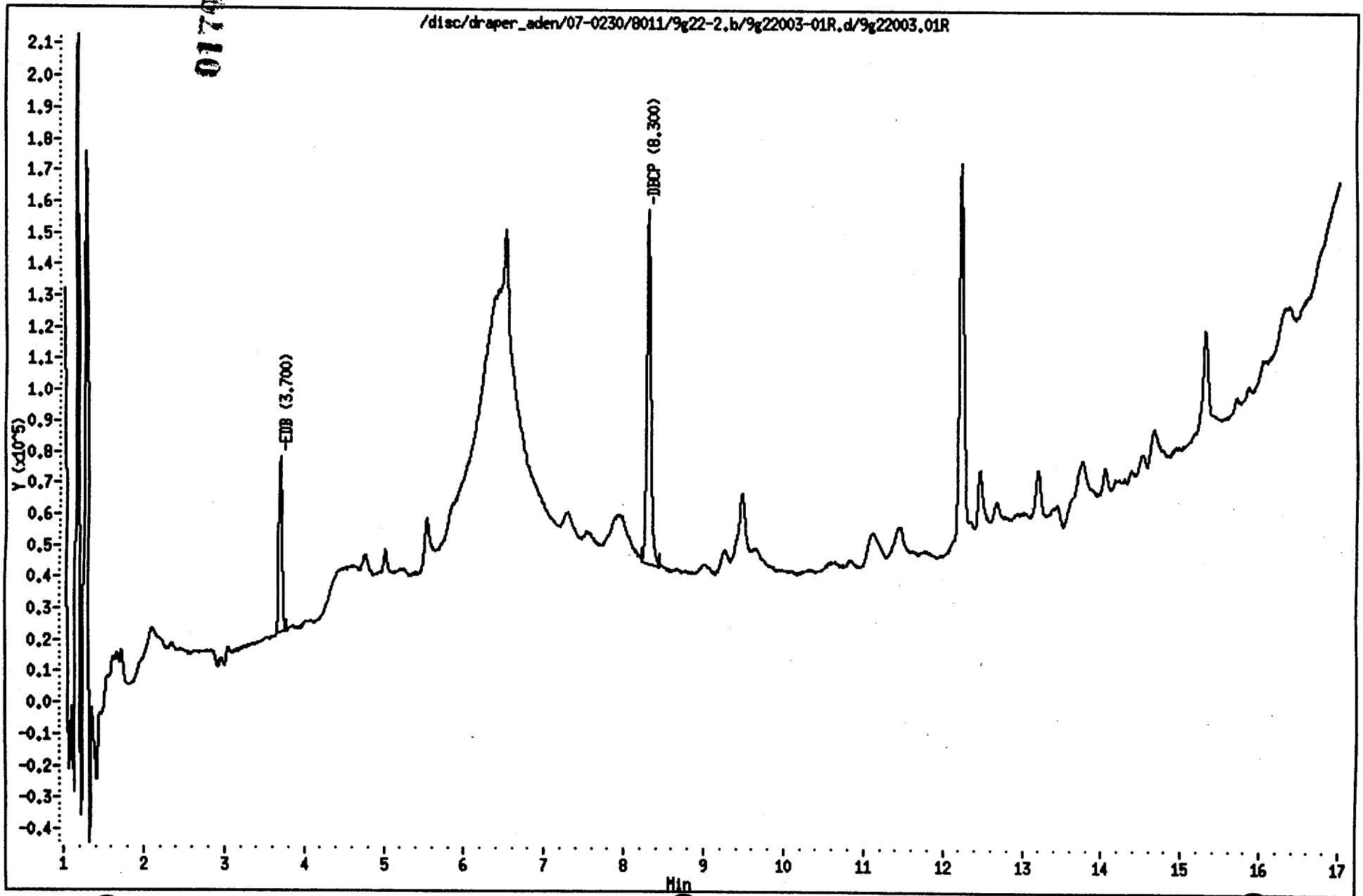
0100

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.211	E
	DBCP	0.188	

Data File: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22003-01R.d
Date : 22-JUL-1995 13:41
Client ID: ical7
Sample Info: ical7
Purge Volume: 5.0
Column phase: DB608

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

0171

Data file : /disc/draper_aden/07-0230/8011/9g22-2.b/9g22004-01R.d
Lab Smp Id: ical6 Client Smp ID: ical6
Inj Date : 22-JUL-1995 14:05
Operator : ra Inst ID: gc9.i
Smp Info : ical6
Misc Info : Created from: 9g22004.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m
Meth Date : 07-Sep-1995 09:48 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)		
1 EDB					CAS #:		
3.692	3.703	-0.011	159751	0.100	0.101		(M)
2 DBCP					CAS #:		
8.283	8.298	-0.015	397966	0.100	0.0932		(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

0172

Client Name:
Lab Smp Id: ical6
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22004.01R, 25-Jul-1995 16:03

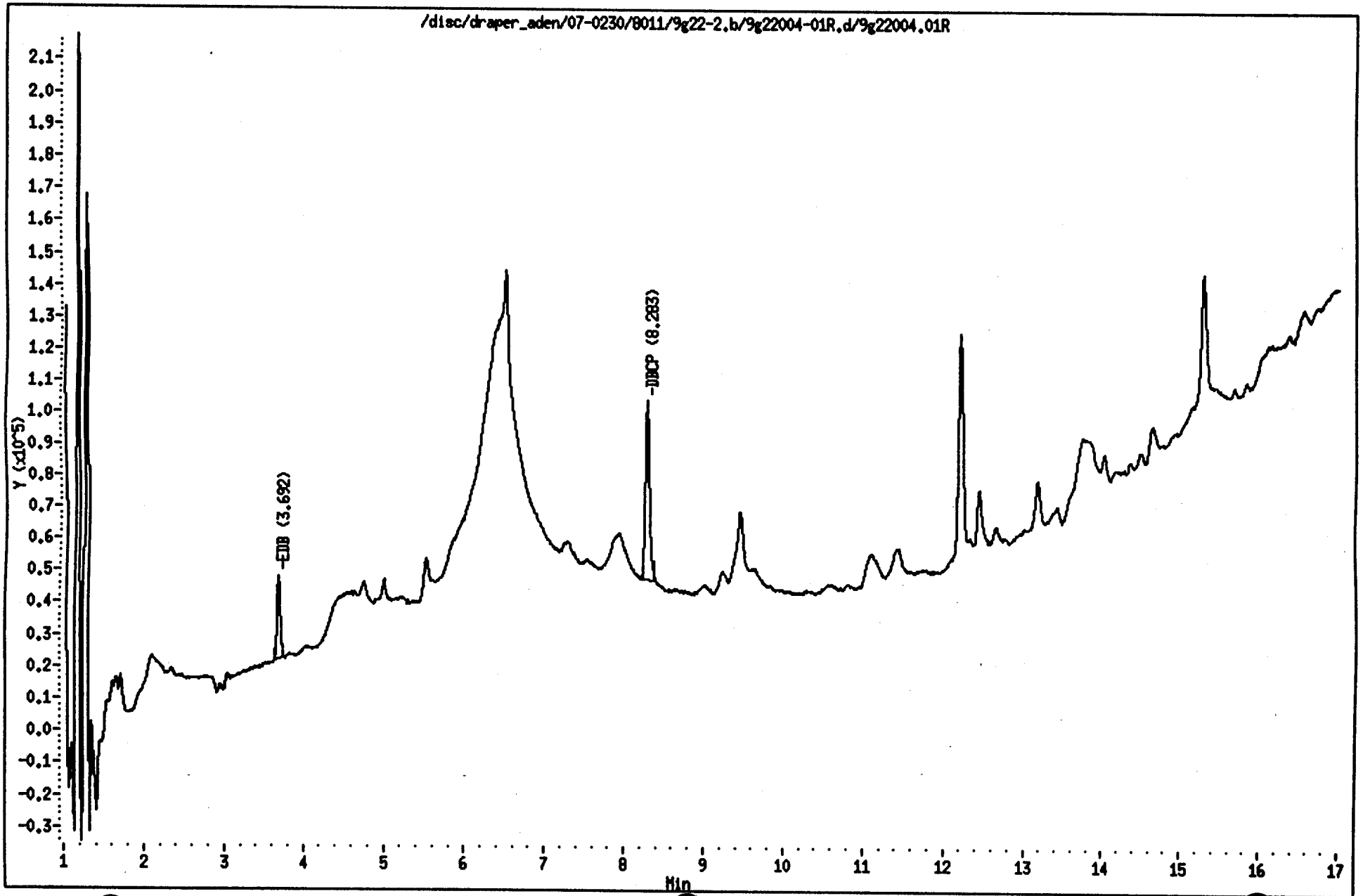
Client SDG: 9g22-2
Client Smp ID: ical6
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.101	
	DBCP	0.0932	

Data File: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22004-01R.d
Date : 22-JUL-1995 14:05
Client ID: ical6
Sample Info: ical6
Purge Volume: 5.0
Column phase: DB608

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

0174

Data file : /disc/draper_aden/07-0230/8011/9g22-2.b/9g22005-01R.d
Lab Smp Id: ical5 Client Smp ID: ical5
Inj Date : 22-JUL-1995 14:28
Operator : ra Inst ID: gc9.i
Smp Info : ical5
Misc Info : Created from: 9g22005.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m
Meth Date : 07-Sep-1995 09:48 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
1 EDB					CAS #:	
3.700	3.703	-0.003	135092	0.0800	0.0852	(M)
2 DBCP					CAS #:	
8.300	8.298	0.002	319607	0.0800	0.0748	(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical5
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22005.01R, 25-Jul-1995 16:03

Client SDG: 9g22-2
Client Smp ID: ical5
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

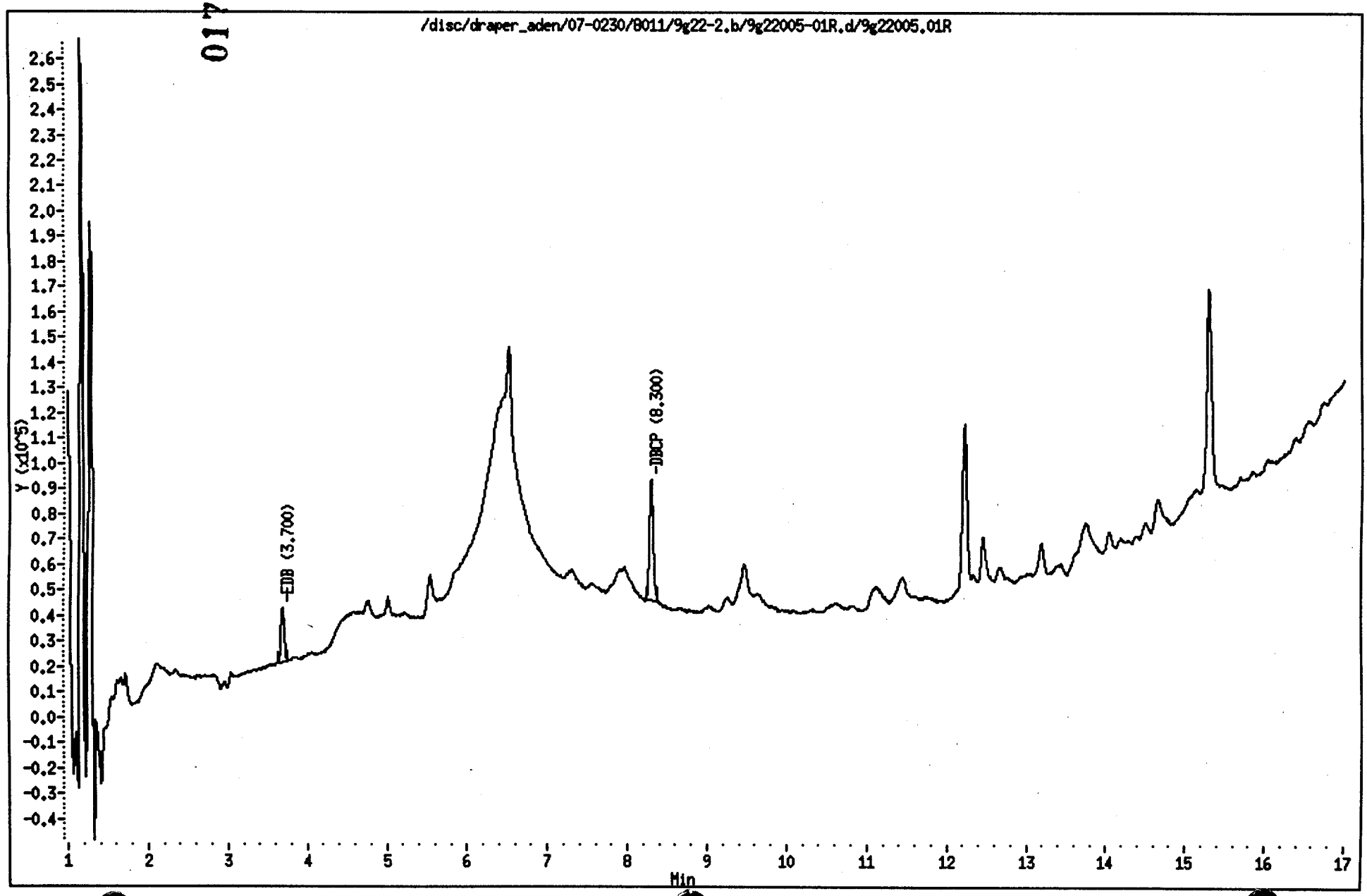
0175

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.0852	
	DBCP	0.0748	

Data File: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22005-01R.d
Date : 22-JUL-1995 14:28
Client ID: ical5
Sample Info: ical5
Purge Volume: 5.0
Column phase: DB608

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

0177

Data file : /disc/draper_aden/07-0230/8011/9g22-2.b/9g22006-01R.d
Lab Smp Id: ical4 Client Smp ID: ical4
Inj Date : 22-JUL-1995 14:52
Operator : ra Inst ID: gc9.i
Smp Info : ical4
Misc Info : Created from: 9g22006.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m
Meth Date : 07-Sep-1995 09:48 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
1 EDB					CAS #:	
3.692	3.703	-0.011	80981	0.0500	0.0511	(M)
2 DBCP					CAS #:	
8.283	8.298	-0.015	237377	0.0500	0.0556	(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

0178

Client Name:
Lab Smp Id: ical4
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22006.01R, 25-Jul-1995 16:03

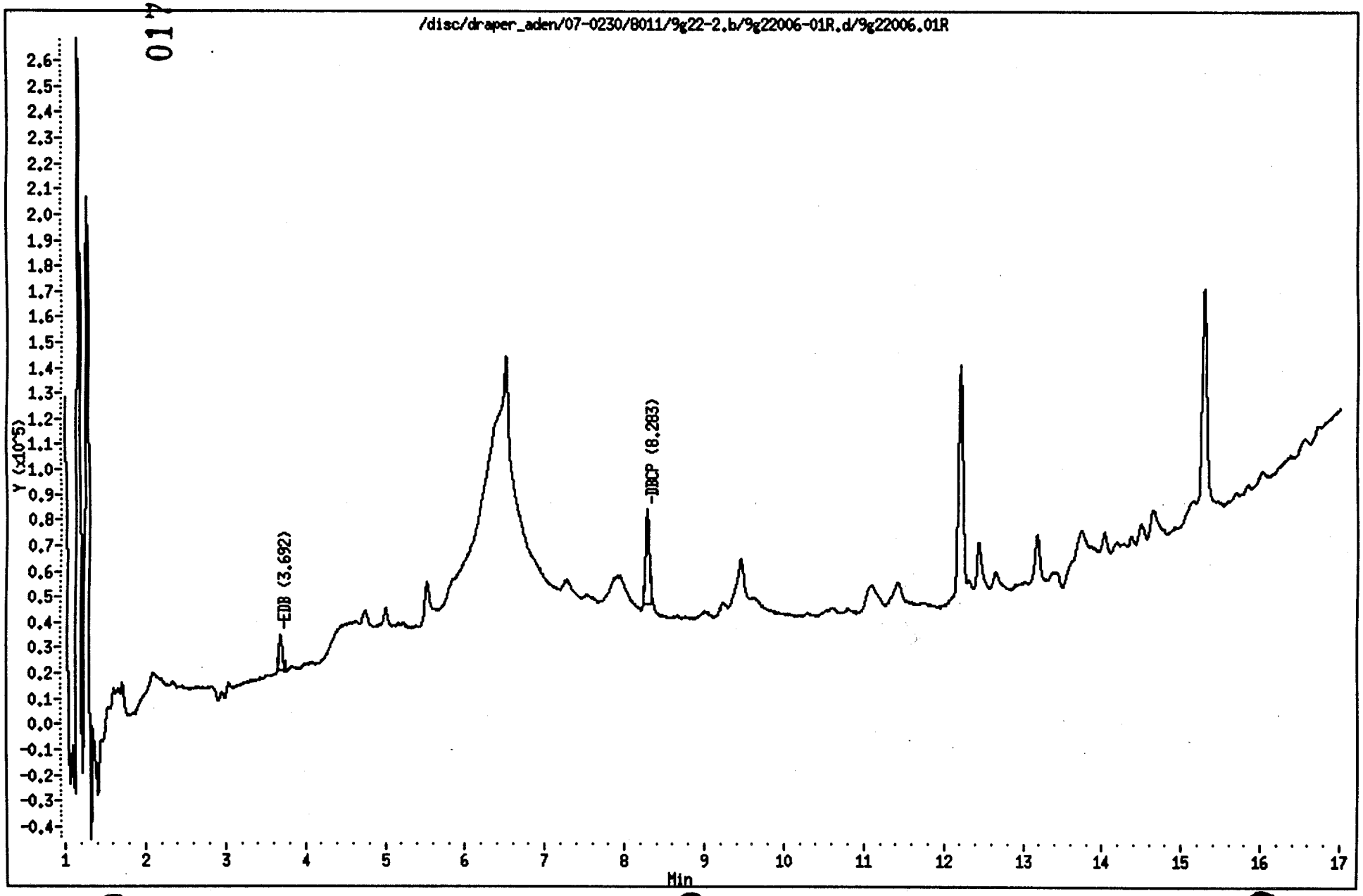
Client SDG: 9g22-2
Client Smp ID: ical4
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.0511	
	DBCP	0.0556	

Data File: /disc/draper_aden/07-0230/B011/9g22-2.b/9g22006-01R.d
Date : 22-JUL-1995 14:52
Client ID: ical4
Sample Info: ical4
Purge Volume: 5.0
Column phase: DB608

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



0180

CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-2.b/9g22007-01R.d
Lab Smp Id: ical3 Client Smp ID: ical3
Inj Date : 22-JUL-1995 15:16
Operator : ra Inst ID: gc9.i
Smp Info : ical3
Misc Info : Created from: 9g22007.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m
Meth Date : 07-Sep-1995 09:48 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)		
1 EDB					CAS #:		
3.700	3.703	-0.003	65388	0.0400	0.0412		(M)
2 DBCP					CAS #:		
8.300	8.298	0.002	162387	0.0400	0.0380		(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

0181

Client Name:
Lab Smp Id: ical3
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22007.01R, 25-Jul-1995 16:03

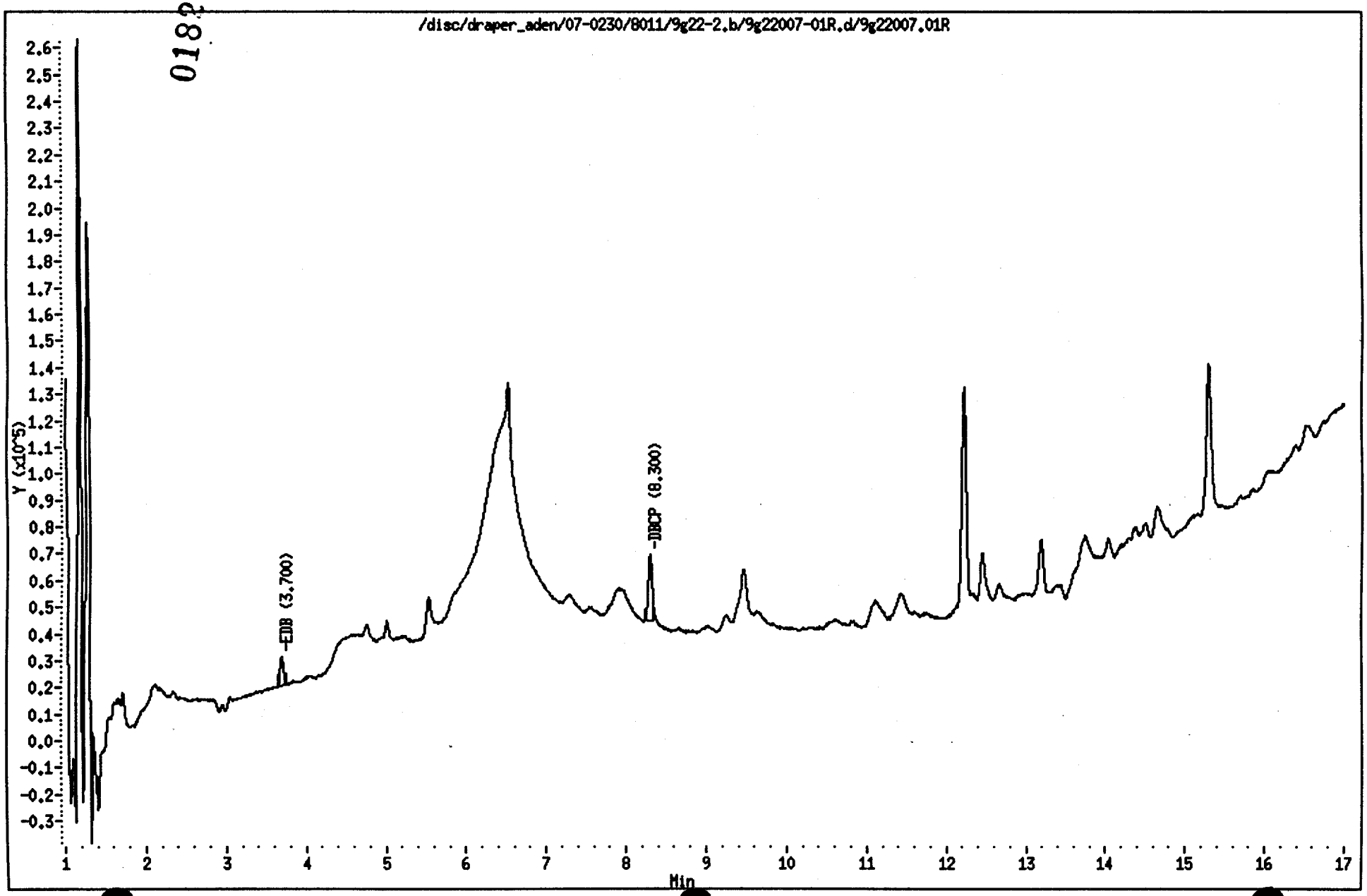
Client SDG: 9g22-2
Client Smp ID: ical3
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.0412	
	DBCP	0.0380	

Data File: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22007-01R.d
Date : 22-JUL-1995 15:16
Client ID: ical3
Sample Info: ical3
Purge Volume: 5.0
Column phase: DB608

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV 0183

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-2.b/9g22008-01R.d
Lab Smp Id: ical2 Client Smp ID: ical2
Inj Date : 22-JUL-1995 15:40
Operator : ra Inst ID: gc9.i
Smp Info : ical2
Misc Info : Created from: 9g22008.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m
Meth Date : 07-Sep-1995 09:48 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
1 EDB					CAS #:	
3.708	3.703	0.005	25997	0.0200	0.0164	(aM)
2 DBCP					CAS #:	
8.308	8.298	0.010	149259	0.0200	0.0349	(M)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

0184

Client Name:
Lab Smp Id: ical2
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22008.01R, 25-Jul-1995 16:03

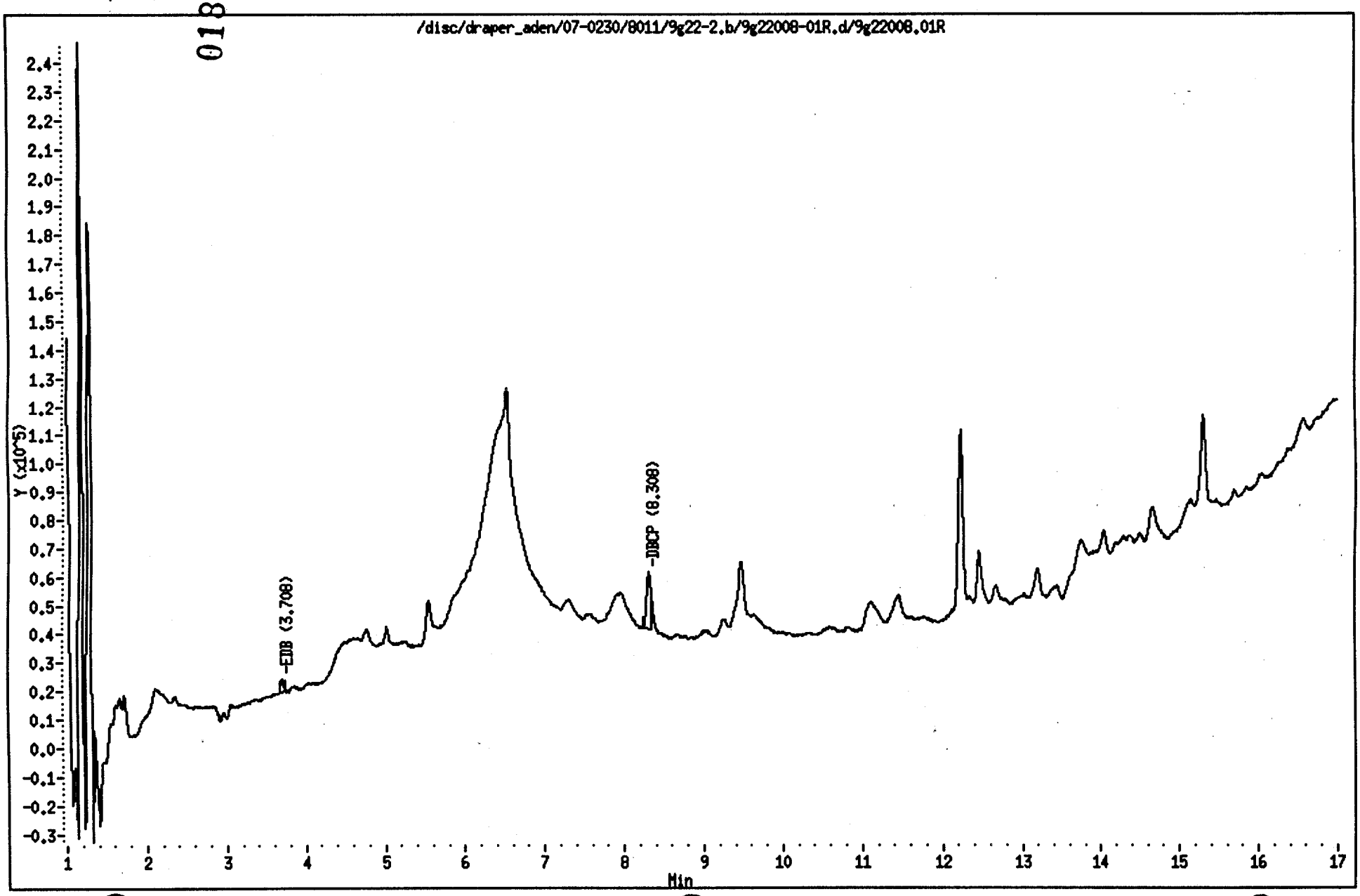
Client SDG: 9g22-2
Client Smp ID: ical2
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.0164	J
	DBCP	0.0349	

Data File: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22008-01R.d
Date : 22-JUL-1995 15:40
Client ID: ical2
Sample Info: ical2
Purge Volume: 5.0
Column phase: DB608

Instrument: gc9.i
Operator: ra
Column diameter: 0.32

0185



CT&E Environmental Services Inc. Charleston, WV 0186

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-2.b/9g22009-01R.d
Lab Smp Id: ical1 Client Smp ID: ical1
Inj Date : 22-JUL-1995 16:04
Operator : ra Inst ID: gc9.i
Smp Info : ical1
Misc Info : Created from: 9g22009.01R, 25-Jul-1995 16:03
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m
Meth Date : 07-Sep-1995 09:48 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
1 EDB					CAS #:	
3.700	3.703	-0.003	9168	0.0100	0.00578	(aM)
2 DBCP					CAS #:	
8.308	8.298	0.010	48321	0.0100	0.0113	(aM)

QC Flag Legend

a - Target compound detected but, quantitated amount
Below Limit Of Quantitation(BLOQ).
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

0187

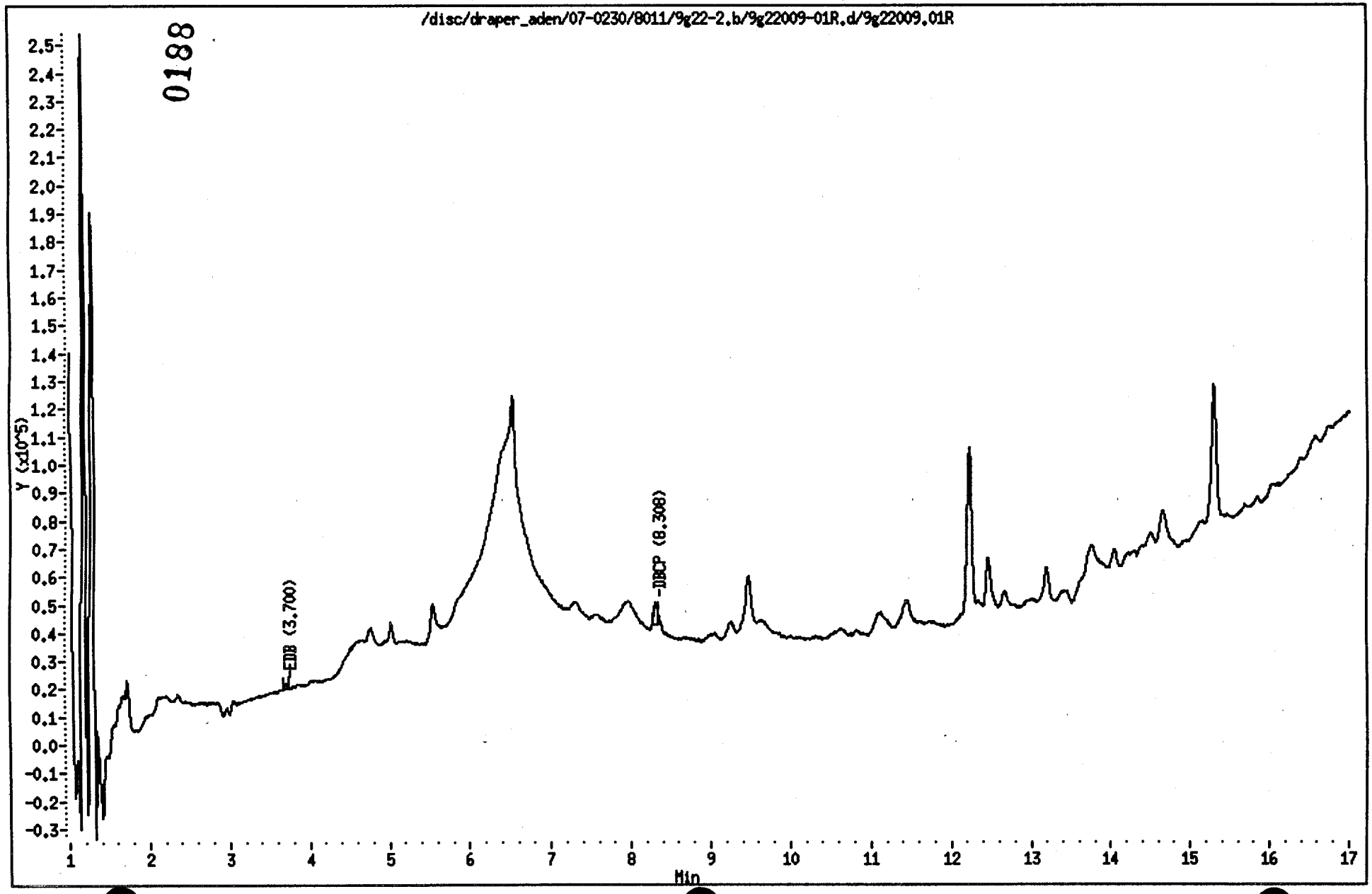
Client Name:
Lab Smp Id: ical1
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22009.01R, 25-Jul-1995 16:03

Client SDG: 9g22-2
Client Smp ID: ical1
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	EDB	0.00578	J
	DBCP	0.0113	J

Data File: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22009-01R.d
Date : 22-JUL-1995 16:04
Client ID: ical1
Sample Info: ical1
Purge Volume: 5.0
Column phase: DB608

Instrument: gc9.i
Operator: ra
Column diameter: 0.32



CT&E Environmental Services Inc. Charleston,WV 0183

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: gc9.i
Lab File ID: 9g22033-01R.d
Analysis Type: WATER
Lab Sample ID: ccal
Injection Date: 23-JUL-1995 01:49
Init. Calibration Date(s): 04/28/95 07/22/95
Init. Calibration Times: 20:05 16:04
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m

COMPOUND	RRF	RF0	MIN RRF	%D	MAX %D	
1 EDB	1585735.833	1435220.000	0.010	9.5	10.0	
2 DBCP	4270735.417	4827460.000	0.010	13.0	10.0	<-

0100

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VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-2.b/9g22033-01R.d
Lab Smp Id: ccal Client Smp ID: ccal
Inj Date : 23-JUL-1995 01:49
Operator : ra Inst ID: gc9.i
Smp Info : ccal
Misc Info : Created from: 9g22033.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m
Meth Date : 07-Sep-1995 09:48 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)		
1 EDB					CAS #:		
3.700	3.703	-0.003	71761	0.0500	0.0452		(M)
2 DBCP					CAS #:		
8.300	8.298	0.002	241373	0.0500	0.0565		(M)

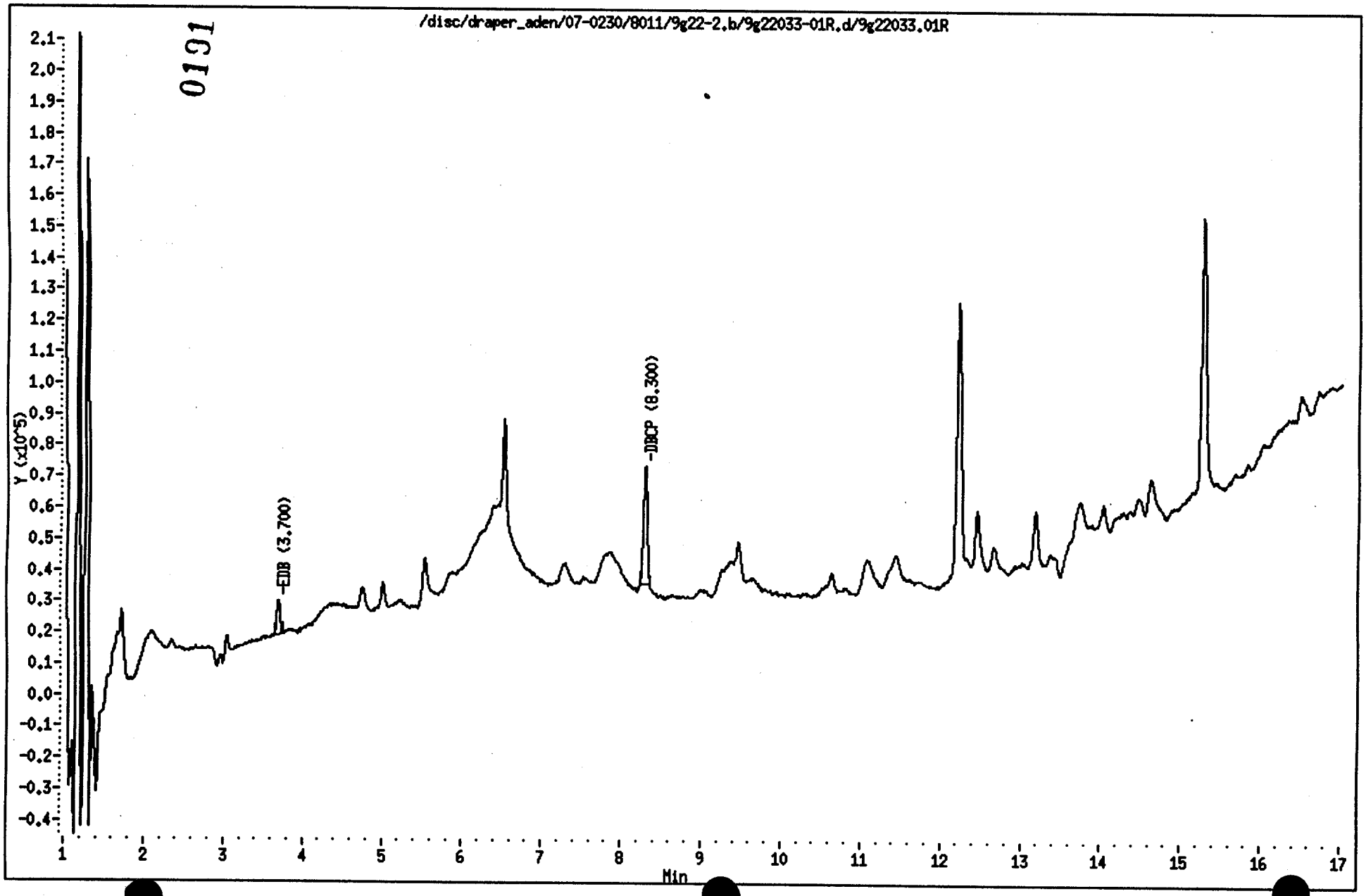
QC Flag Legend

M - Compound response manually integrated.

Data File: /disc/draper_aden/07-0230/8011/9g22-2.b/9g22033-01R.d
Date : 23-JUL-1995 01:49
Client ID: ccal
Sample Info: ccal
Purge Volume: 5.0
Column phase: DB608

Instrument: gc9.i

Operator: ra
Column diameter: 0.32



1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

eb

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-276 Case No.: SAS No.: SDG No.: 9g22-2

Matrix: (soil/water) WATER Lab Sample ID: eb 0192

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22011-01R

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/22/95

GC Column:DB608 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	EDB	0.0300	U
----------	DBCP	0.0300	U

CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

0193

Data file : /disc/draper_aden/07-0230/8011/9g22-2.b/9g22011-01R.d
Lab Smp Id: eb Client Smp ID: eb
Inj Date : 22-JUL-1995 16:52
Operator : ra Inst ID: gc9.i
Smp Info : eb
Misc Info : Created from: 9g22011.01R, 10-Aug-1995 15:20
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m
Meth Date : 07-Sep-1995 09:48 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 QC Sample: EXTBLANK
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
3.703	Compound Not Detected				
2 DBCP					CAS #:
8.298	Operator disabled compound identification.				

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

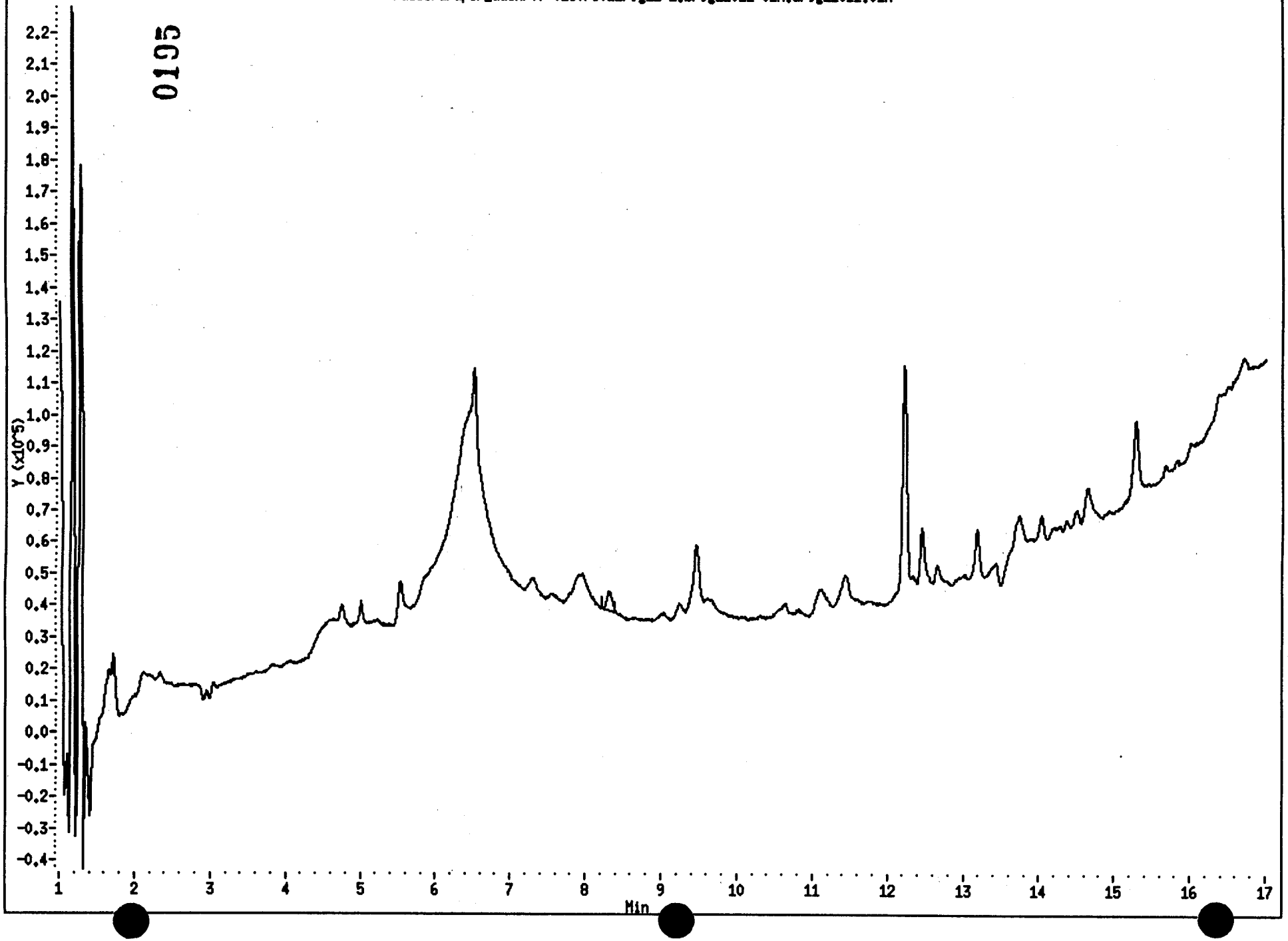
0194

Client Name:
Lab Smp Id: eb
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22011.01R, 10-Aug-1995 15:20

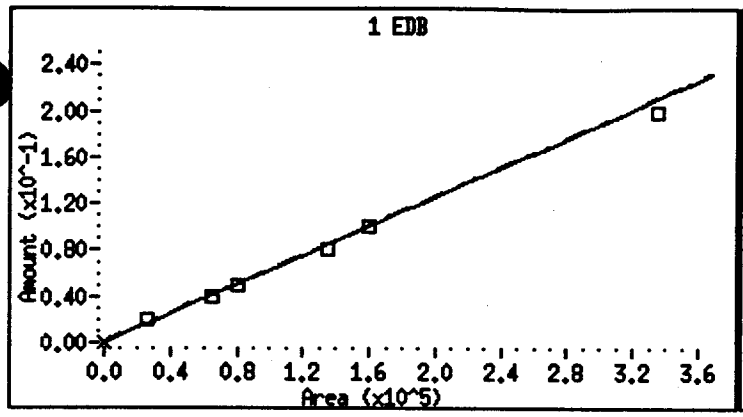
Client SDG: 9g22-2
Client Smp ID: eb
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

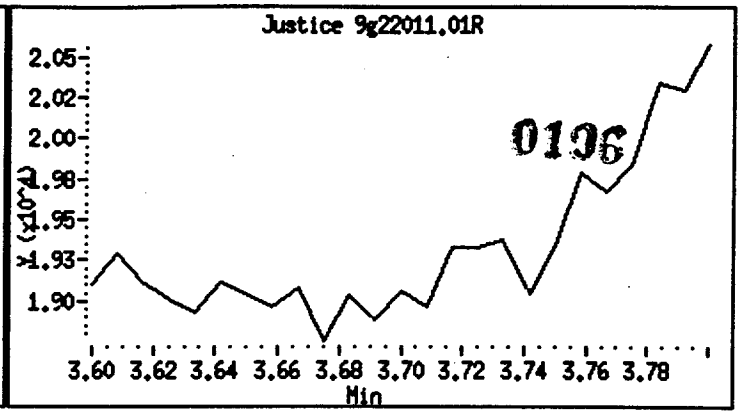
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
==========	==========	==========	=====

/disc/draper_aden/07-0230/8011/9g22-2.b/9g22011-01R.d/9g22011.01R



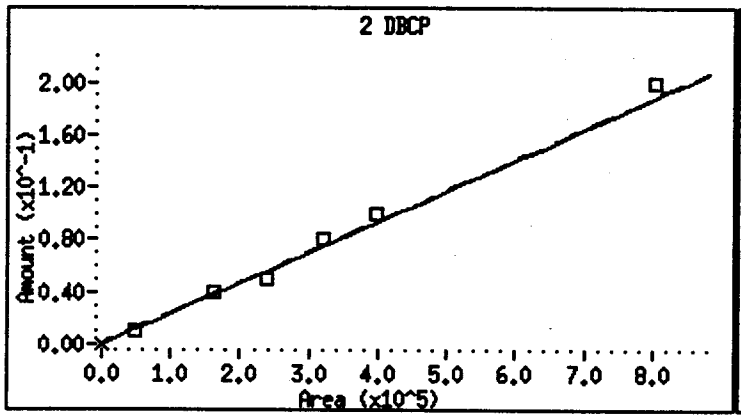
1 EDB (Undetected)

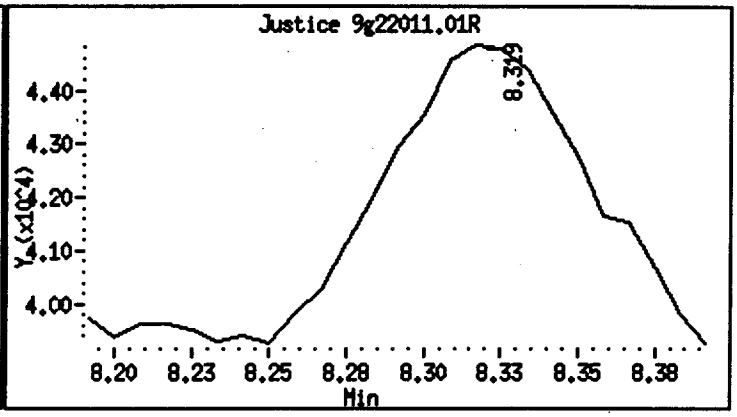




0106

2 DBCP (Undetected)





4A
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

mb

Lab Name: CT&E-ELS Contract: Draper Aden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: 9g22-2

Lab File ID: 9G22034-01R Lab Sample ID: mb

Date Analyzed: 07/23/95 Time Analyzed: 0214

0197

GC Column: DB608 ID: 0.32 (mm) Heated Purge: (Y/N) N

Instrument ID: GC9

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	7-276-5mw2	7-276-5mw2	9G22036-01R	0302
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

mb

Lab Name: CT&E-ELS Contract: Draper Aden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: 9g22-2

Matrix: (soil/water) WATER Lab Sample ID: mb

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22034.01R

0193

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/23/95

GC Column:DB608 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	EDB	0.0300	U
	DBCP	0.0300	U

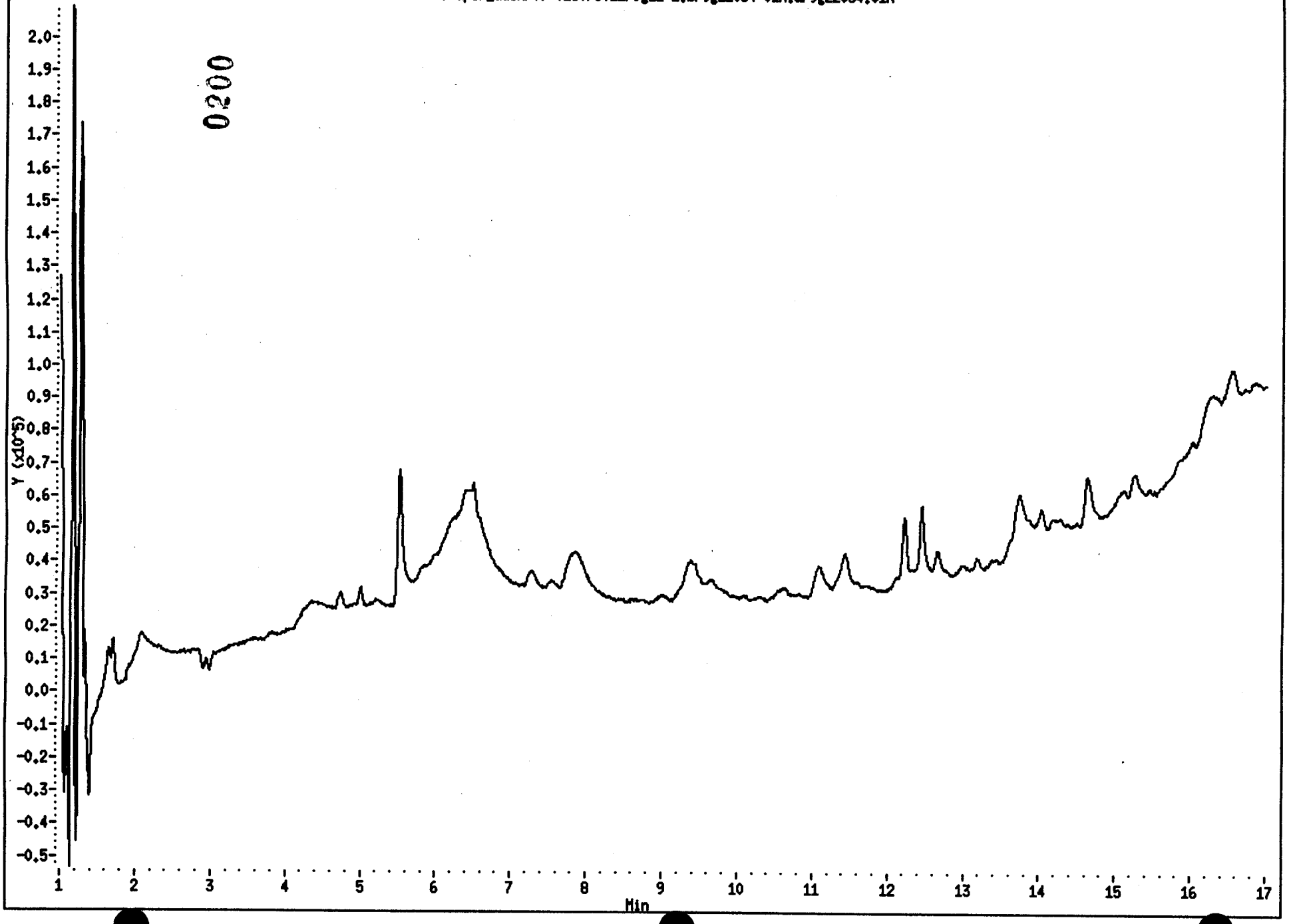
CT&E Environmental Services Inc. Charleston,WV

VOLATILE REPORT SW8011 method

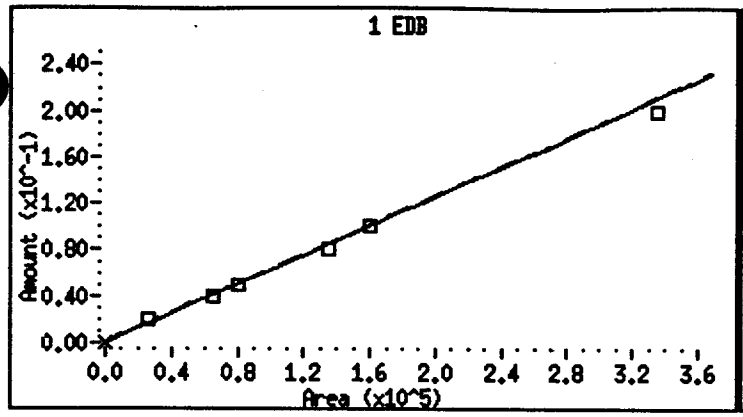
Data file : /disc/draper_aden/07-0230/8011/9g22-2.b/9g22034-01R.d
Lab Smp Id: mb Client Smp ID: mb
Inj Date : 23-JUL-1995 02:14
Operator : ra Inst ID: gc9.i
Smp Info : mb
Misc Info : Created from: 9g22034.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m
Meth Date : 07-Sep-1995 09:48 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

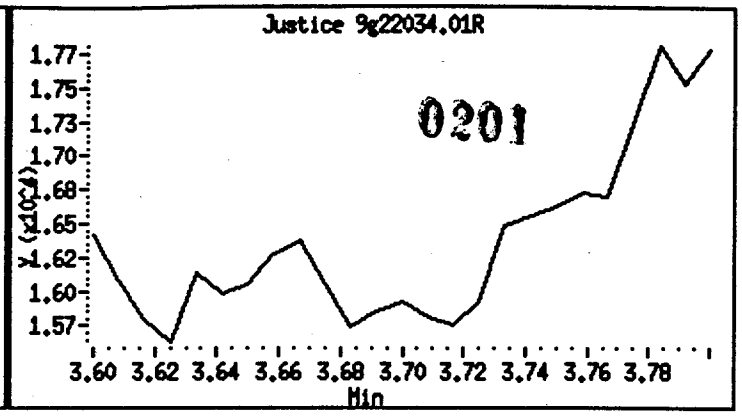
RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
3.703	Compound Not Detected				
2 DBCP					CAS #:
8.298	Compound Not Detected				

/disc/draper_aden/07-0230/8011/9g22-2.b/9g22034-01R.d/9g22034.01R

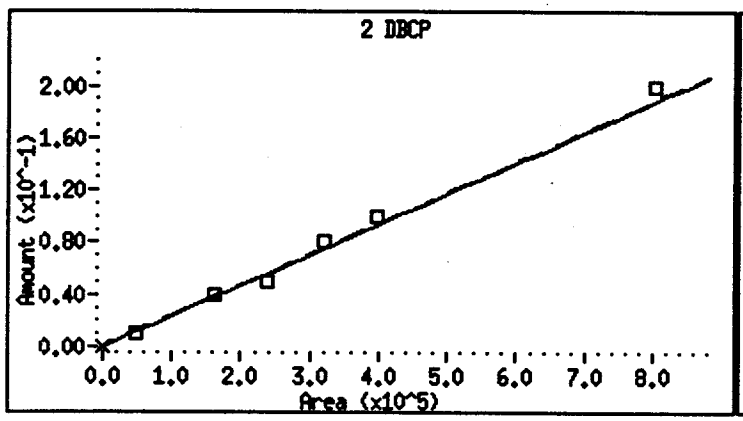


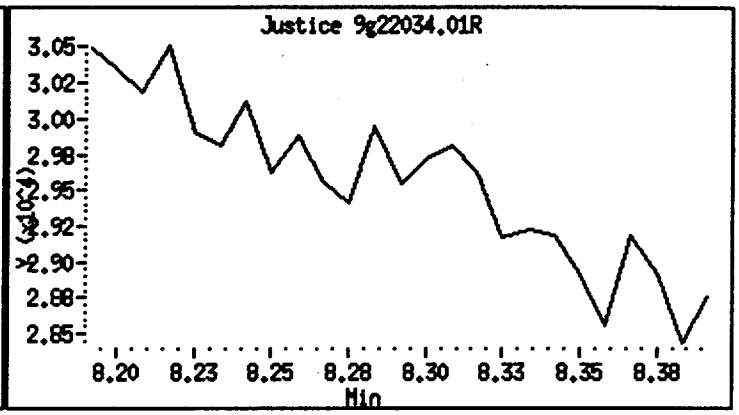
1 EDB (Undetected)





2 DBCP (Undetected)





1A
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-276-5mw2

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-276 Case No.: SAS No.: SDG No.: 9g22-2

Matrix: (soil/water) WATER Lab Sample ID: 7-276-5mw2

Sample wt/vol: 5.0 (g/mL) mL Lab File ID: 9G22036-01R 0202

Level: (low/med) LOW Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 07/23/95

GC Column:DB608 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	EDB	0.0300	U
----------	DBCP	0.0300	U

CT&E Environmental Services Inc. Charleston,WV

0203

VOLATILE REPORT SW8011 method

Data file : /disc/draper_aden/07-0230/8011/9g22-2.b/9g22036-01R.d
Lab Smp Id: 7-276-5mw2 Client Smp ID: 7-276-5mw2
Inj Date : 23-JUL-1995 03:02
Operator : ra Inst ID: gc9.i
Smp Info : 7-276-5mw2
Misc Info : Created from: 9g22036.01R, 26-Jul-1995 14:33
Comment :
Method : /disc/draper_aden/07-0230/8011/9g22-2.b/gc9_EDB_chB.m
Meth Date : 07-Sep-1995 09:48 lwork Quant Type: ESTD
Cal Date : 22-JUL-1995 16:04 Cal File: 9g22009-01R.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: all.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: 1

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
1 EDB					CAS #:
3.703	Compound Not Detected				
2 DBCP					CAS #:
8.298	Operator disabled compound identification.				

CT&E Environmental Services Inc. Charleston,WV

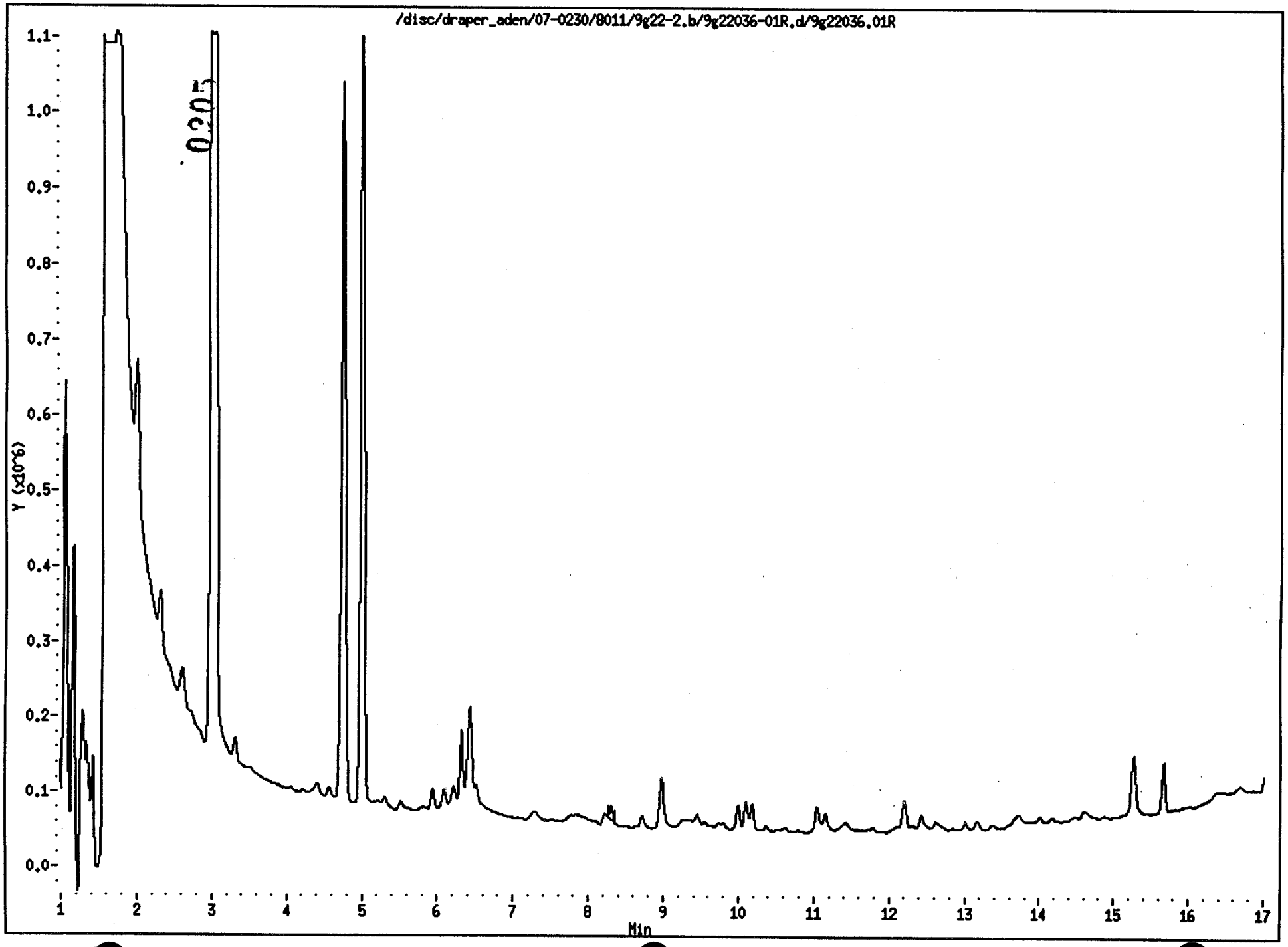
TARGET COMPOUNDS

0204

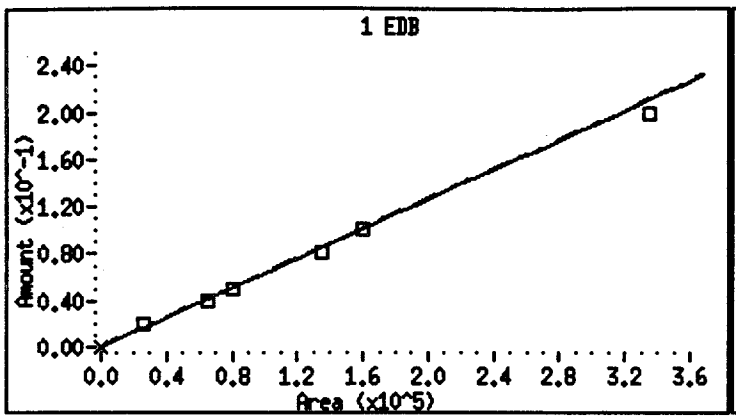
Client Name:
Lab Smp Id: 7-276-5mw2
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: GC DATA
Misc Info: Created from: 9g22036.01R, 26-Jul-1995 14:33

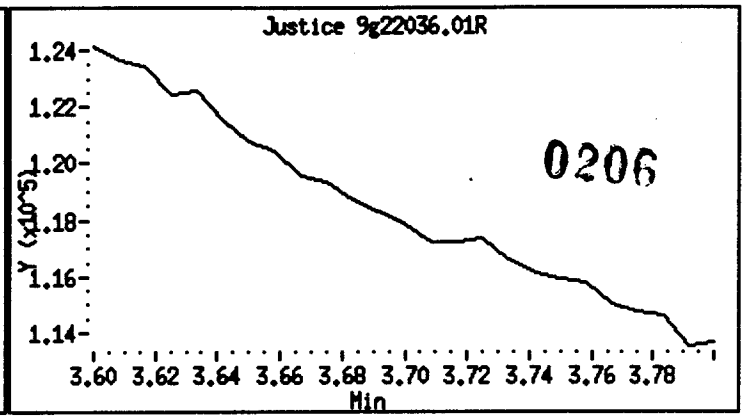
Client SDG: 9g22-2
Client Smp ID: 7-276-5mw2
Sample Point:
Date Received:
Quant Type: ESTD
Level: LOW
Operator: ra

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
==========	==========	==========	=====


/disc/draper_aden/07-0230/8011/9g22-2.b/9g22036-01R.d/9g22036.01R
Y (x10^6)
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Min

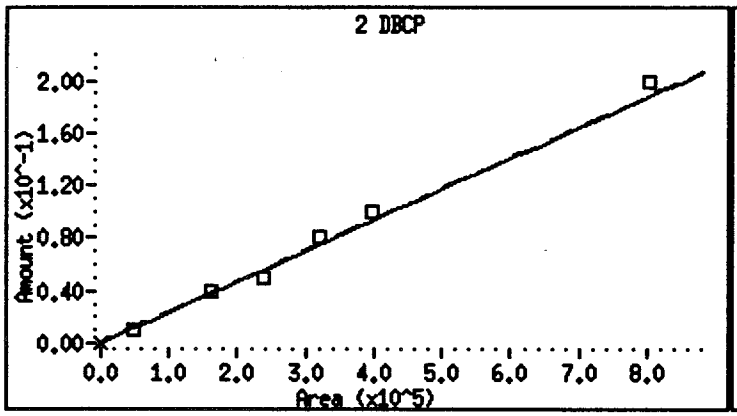
1 EDB (Undetected)

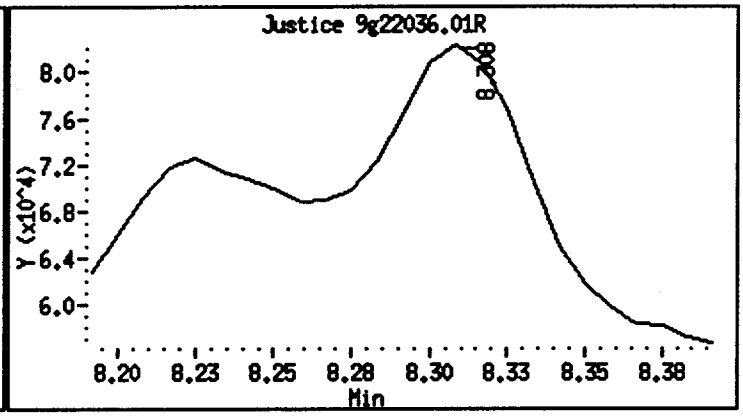




0206

2 DBCP (Undetected)





SECTION IX

SW-846 METHOD 8310 PNA

SECTION 9.1

SW-846 REPORTING QUALIFIERS

NONE

SECTION 9.2

DAA SW-846 PNA DATA VALIDATION FORMS

GC-Volatile Organic Data Validation

Data validation was completed on laboratory analytical results generated from SW-846 Methods 8011, 8021, 8081, 8151, and 8310 for the July 10-13, 1995 first Semi-Annual Assessment Monitoring event at the Watauga County Landfill. The monitoring wells at the Watauga County Landfill are designated as either core or boundary monitoring wells. The core monitoring wells at the landfill are MW-1, MW-2, MW-3, MW-4, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, and MW-17. The boundary monitoring wells are MW-5, MW-13, MW-14, MW-15, MW-16, and MW-18. Sample MW-1A (method 8021 only) was also submitted as a double blind Performance Evaluation Sample (PE) and treated as a core monitoring well. SW-846 Method 8011 was prescribed to analyze for ethylene dibromide (EDB) and 1,2-dibromo-3-chloropropane (DBCP) in the 12 core monitoring wells only. SW-846 Method 8021 was prescribed to analyze for the following 12 target parameters for the core and boundary wells: benzene, chloroethane, 1,1-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,3-dichloropropene, dichlorodifluoromethane, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, trichloroethene, and vinyl chloride. Five additional target parameters were analyzed for in the core well samples: bromoform, carbon tetrachloride, chloroform, 1,2-dichloroethane, and 1,2-dichloropropane, for a total of 17 parameters. SW-846 Method 8081 was prescribed to analyze for 20 pesticides and PCBs (7 Aroclors) for the core monitoring wells only. SW-846 Method 8151 was prescribed to analyze for 5 herbicides for the core monitoring wells only. SW-846 Method 8310 was prescribed to analyze for benzo[a]pyrene for the core monitoring wells only.

Samples collected from MW-1, MW-3, MW-6, MW-7, MW-8, MW-10, MW-11, MW-13, MW-15, MW-17 and PE sample MW-1A were representative of the first Sample Delivery Group (SDG-1) and samples from MW-2, MW-4, MW-5, MW-9, MW-12, MW-14, MW-16 and MW-18 were representative of the second Sample Delivery Group (SDG-2). Samples were divided into separate SDGs to meet contractual requirements.

GC analyses were performed by CT&E Environmental Services Inc. of Charleston, WV. CT&E analyzed for the aforementioned parameters following the prescribed methods. The certificate of analysis prepared by CT&E laboratory included: extraction notes, instrument calibration data, raw chromatographic data printouts, Quality Assurance/Quality Control documentation, and tabulated results.

Validation for the laboratory's compliance with GC Methods 8011, 8021, 8081, 8151 and 8310 encompassed review of the following items: sample holding times, sample preservation requirements, sample extraction and purge procedures, laboratory QA/QC performance checks, instrument calibrations, blank analyses, surrogate spike analyses, and matrix spike analyses. Review of transcriptions from raw data to summary sheets and specific calculations were performed on random data points.

Method 8011 Review. Overall, the data set for Method 8011 was complete in its presentation and data was of acceptable quality. A single revision was required to obtain documentation to finalize the quality control deliverables package. The data set exhibited the analyst's ability to achieve the reported LOQ of 0.03 μg/L for both target parameters as outlined by the precision and accuracy data presented by the laboratory. The first nonzero calibration standard was run at a concentration of 0.01 μg/L. Criteria for sample preservation and holding times were met. Method retention time criteria were met. Reagent / System / Trip Blank criteria were met. No matrix interference due to coelution with DBCM was found to exist. The laboratory employed a dual column (denoted Channel A and B) GC system to achieve method confirmational requirements. Channel A was used as the primary quantification column and channel B was used for confirmational purposes only. No DBCP was detected in the samples analyzed via channel A; therefore, review of channel B hromatographic information was not warranted. Channel A detected the presence of EDB in e sample from MW-2; however, the detection was unconfirmed by Channel B. The results om MW-2 were validated as undetected, "U". The matrix spike and duplicate analyses hibited acceptable recoveries of 80-120%. No target parameters were detected above the Q in any of the 12 core monitoring wells, (MW-1, MW-2, MW-3, MW-4, MW-6, MW-7, -8, MW-9, MW-10, MW-11, MW-12, and MW-17). Results for target parameters not cted above the LOQs in the samples were validated as "U".

Method 8021 Review. Overall, the data set for Method 8021 was generally complete presentation and data was of acceptable quality. Draper Aden Associates requested two ons (Nov. 9, 1995 and Dec. 1, 1995) to have CT&E address the matrix interference in W-9 MS and MW-9 MSD analyses, which caused several parameters to fail recovery , and to address CT&E's failure to follow various technical requirements, which resulted fication of some of the data. Also requested, in Revision 2, a discussion of the non- n of chloroethane, dichlorodifluoromethane, and 1,1-dichloroethane in several samples. concerns discovered during data review, which were addressed in the revision requests, ssed below. The data set exhibited the analyst's ability to achieve the reported LOQ

of 2.0 ug/L for all target parameters as outlined by the precision and accuracy data presented by the laboratory and was further supported by the first non-zero calibration standard at a concentration of 2.0 ug/L. Analysis for benzene was conducted via a photoionization detector (PID) and all other parameters were analyzed for via the Hall Electrolytic Conductivity Detector (HECD).

Criteria for sample preservation, temperature, and holding times were met, with the exception of exceeded holding times for the analysis of several parameters which required sample dilution. Results for these parameters were estimated in samples MW-6, MW-8, MW-10, and MW-17. Method retention time criteria were met. Surrogate recoveries for all samples were within laboratory control limits of 100 $\pm$ 20%. Blank analysis criteria were met and no target parameters were detected above the LOQ in any laboratory method blanks, Trip Blank-1, or Trip Blank-2.

All initial calibration criteria met SW-846 Method requirements. All continuing calibration criteria met SW-846 requirements with the exception of CCAL-2 on 7/22/95 in which the %Difference (%D) exceeded requirements for 1,2-dichloroethane and trichloroethene. Qualification of the results for these two compounds was required in the associated samples MW-15 and MW-17. Additionally, the CCAL on 7/26/95 failed %D criteria for dichlorodifluoromethane, resulting in qualification of the results for the compound in the associated samples listed in the table in Section E of the Method 8021 GC Volatile Data Review.

Matrix interference was evident in the matrix spike and matrix spike duplicate analyses of MW-9 as noted in CT&E's response to Revision 2. CT&E replied the matrix interference caused several parameters to fail recovery criteria and was also the cause of chloroethane being undetected. CT&E stated the chloroethane response were "buried" by later coeluting peaks at high concentrations, rendering quantification of chloroethane impossible. As a result of the coelution, CT&E raised the LOQ for chloroethane based on the matrix interference level, from 2.0 ug/L to 5.0-20.0 ug/L depending on the sample, in the associated samples in SDG-2. Due to the raised LOQ, sample results less than these values were validated as ("U"). CT&E conducted confirmational GC/MS analysis by method 8260 for chloroethane, dichlorodifluoromethane and 1,1-dichloroethane, and reported preliminary results, which are consistent with 8260 results provided by ETS Analytical Services, Inc. of Roanoke, VA, for this event, and with past historical event GC/MS data. These values were reviewed strictly for confirmation purposes only, and were not validated.

Samples collected from MW-2, MW-3, MW-4, MW-6, MW-8, MW-9, MW-10, MW-12 and MW-17 were diluted as necessary for specific parameters due to elevated parameter concentrations which exceeded the linear calibration range of 2-40 ug/L. Analysis of the diluted samples was conducted, however, holding times were exceeded for the diluted samples MW-6, MW-8, MW-10, and MW-17. LOQs for all detected parameters of interest, in these samples, were raised accordingly based on the dilutions and estimated due to exceedance of holding times.

A double blind Performance Evaluation Sample (PE), sample identification MW-1A, was prepared by third party laboratory, Environmental Resource Associates (ERA) of Arvada, CO, for Method 8021. CT&E analyzed for the extended target parameter list of 17 parameters. Validation of the PE results was not conducted by DAA, however, it should be noted that the MW-1A sample was associated with the failed CCAL on 7/22/95 along with the MW-15 and MW-17 samples and results for 1,2-dichloroethane and dichloroethene should be considered estimated. CT&E's analytical results and ERA's certified values and performance acceptance limits are included after the Analytical Data Set Notes tables for review.

Vinyl chloride was detected above the U.S. EPA MCL of 2 ug/L in the MW-3, MW-6, and MW-8 samples, however, further examination of the chromatograms and mass spectra revealed vinyl chloride coeluted with an unknown halogenated freon of mass 68. The coelution of these two compounds presented difficulty in estimating the true concentration of vinyl chloride when in the presence of the other compound. Supporting mass spectra obtained through a library search illustrated the detection of the mass 68 compound, having a significant ion abundance in relation to vinyl chloride's mass 62. Because of the presence of the coeluting compound the ability to accurately quantify the concentration of vinyl chloride may have been inhibited, and is a direct relationship to Method 8021 limitations. As a result of the method limitations and the coelution, the results for vinyl chloride in these samples were estimated as "J".

No Method 8021 target parameters were detected above the LOQ in core monitoring wells MW-1 and MW-4 or in boundary wells MW-5, MW-13, MW-14, MW-16, and MW-18. However, several target parameters were detected above and below the LOQ in core wells MW-2, MW-3, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, and MW-17 and one parameter was detected above the LOQ in boundary well MW-15. All validated results are tabulated in the Analytical Data Set Notes after the Method 8021 GC Volatile Data Review.

The table lists all validated and qualified results for all parameters for all samples. Results for all target parameters not detected above the LOQs were validated as "U".

Method 8081 Review. Overall, the data set was complete in its presentation and data was of acceptable quality. The data set exhibited the analyst's ability to achieve the reported LOQs for the target parameters as outlined by the precision and accuracy data presented by the laboratory. The first nonzero calibration standard was at a concentration equal to or less than the reported LOQs. Criteria for sample preservation, storage temperature, and holding times were met. Five point calibration and continuing calibration criteria were achieved. Endrin breakdown was not observed by the laboratory. The laboratory employed a dual column (denoted Channel A and B) GC system to achieve method requirements. Channel B was used as the primary quantitation column and Channel A was for confirmation purposes. Channel A data was reviewed to disconfirm the presence of target parameters in samples MW-6 and MW-11, as presented in the addendum submitted by the laboratory. Extraction criteria was met by the laboratory and samples were concentrated by an approximate factor of 800 during preparation. Surrogate recoveries between 40-130% were achieved for all samples. No target parameters were identified above the LOQs in any of the wells. Results for target parameters not detected above the LOQs in the samples were validated as "U".

Method 8151 Review. Overall, the data set for Method 8151 was complete in its presentation and data was of acceptable quality. The data set exhibited the analyst's ability to achieve the reported LOQs for the target parameters as outlined by the laboratory precision and accuracy statement. Criteria for sample preservation, holding times, and temperature requirements were met. Samples were extracted and concentrated by a factor of 100 as specified in Method 8151.

The laboratory employed a dual column (denoted Channel A and B) GC system to achieve confirmational requirements. Channel B was used as the primary quantitation column and channel A was used for confirmational purposes only. The five point method calibration criteria were met with the exception of 2,4,5-T, Dinoseb and pentachlorophenol. These parameters were not detected by the laboratory, therefore no corrective action or qualification was warranted. Method retention time criteria were met. Continuing calibration criteria was met.

Surrogate recovery limits of 40-120% were met for all samples. Method, extraction, and trip blank criteria were met. Matrix spikes recovery limits of 40-120% were achieved for all spiking parameters. No target parameters were reported by the laboratory as being detected

in any sample. Channel A data was reviewed to disconfirm the presence of target parameters in samples MW-3, MW-4, MW-8, and MW-17, and an addendum was submitted by the laboratory. Results for target parameters not detected above the LOQ in the samples were validated as "U".

Method 8310 Review. Overall, the data set for Method 8310 was complete in its presentation and data was of acceptable quality. The data set exhibited the analyst's ability to achieve the reported LOQ of 1.0 μg/L for benzo[a]pyrene as outlined by the laboratory's precision and accuracy statement. A matrix spike and spike duplicate was performed at a concentration of 0.05 ug/L indicating that the data would support an LOQ equal to 0.05 ug/L, therefore, an LOQ of 0.05 ug/L was established for the data set. The first non-zero calibration standard was at a concentration equivalent to a 0.03 μg/L extracted sample concentration.

Criteria for samples preservation, holding times, and storage temperatures were met. Sampies were extracted and concentrated following Method 8310 sample preparation protocol. Method retention time criteria were met. Surrogate recoveries for all samples were within laboratory control limits of 40% to 120%. Extraction blank analysis criteria were met and no benzo[a]pyrene was identified above the LOQ in the trip or laboratory control blank. Matrix spikes were performed and no indication of matrix interference was observed. The matrix spike and spike duplicate analyses exhibited acceptable recoveries between 40-140%. No benzo[a]pyrene was reported by the laboratory as being detected in any of the samples. Benzo[a]pyrene results not detected above the LOQ were validated as "U".

Method 8011 (EDB and DBCP) G.C. Volatile Data Review

Wells: SDG-1 Core wells: MW-1, MW-3, MW-6, MW-7, MW-8, MW-10, MW-11, MW-17

SDG-2 Core wells: MW-2, MW-4, MW-9, MW-12

QC Samples: MW-1 MS, MW-1 MSD, MW-9 MS, MW-9 MSD, Trip Blank-1, Trip Blank-2, Method Blanks

Laboratory: CT&E Environmental Services, Inc., Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? X YES __NO

ethylene dibromide (EDB) and 1,2-dibromo-3-chloropropane (DBCP)

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 14 days maximum holding time? X YES __NO
2. Cool 4°C (+-2°C)? X YES __NO
3. pH adjusted <2 with H_2SO_4, HCl, or $NaSo_4$? X YES __NO

Comments:

1. All samples were analyzed within 14 days of collection. Criteria met.
2. Sample temperatures were recorded below 4°C. Criteria met.
3. All pHs were recorded <2. Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. NaCl added prior to extraction? X YES __NO
2. Document Sample extraction follows 8011, Section 7.4? X YES __NO

3.	Instrument Specific LOD for target analytes?	X YES __NO
4.	Instrument Specific LOQ for target analytes?	X YES __NO
5.	Instrument specific Check Sample Data?	X YES __NO
6.	Instrument Working Range for target analytes?	X YES __NO
7.	Sample analysis log sheet?	X YES __NO
8.	Chromatogram and integration report for each sample?	X YES __NO
9.	Any Coelution problem identified between EDB and DBCM (dibromochloromethane)?	__YES X NO

Comments: All instrument QC history documentation was provided and was acceptable.

C. QC REFERENCE CHECK SAMPLES CRITERIA:

1.	QC check sample data is for G.C. used for analyses?	X YES __NO
2.	QC reference sample contains all target analytes outlined in Method.	X YES __NO
3.	QC reference check sample run once per week?	X YES __NO
4.	Reported percent recovery range is 60% to 140%?	X YES __NO

Comments: All QC reference check sample criteria was met.

D. QC CHECK STANDARD CRITERIA:

1.	QC check standard run once per analytical batch or 5% sample load?	X YES __NO
2.	Check standard identified by laboratory?	X YES __NO
3.	Recovery of EDB and DBCP analytes range is 60-140%?	X YES __NO

Comments: All QC check standards met criteria.

E. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper limit)? _X_ YES __NO

   7 point calibration was run:

   (0.01, 0.02, 0.04, 0.05, 0.08, 0.10, and 0.20 μg/L stds.)

2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes? __N/A _X_ YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

   b. Determined Internal Calibration Factor (CF) for target analytes? _X_ N/A__YES __NO

   $$CF = (A_s * C_{is})/(C_s * A_{is})$$

   A_s = Analyte Response
   A_{is} = Internal Standard Response
   C_s = Analyte Concentration
   C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <10% over the established working range? __N/A _X_ YES __NO

   $$\%RSD = SD/(CF)_a \times 100$$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD≥10% over established working range.

   None

Comments: All initial GC calibration criteria were met.

F. RETENTION TIME CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? X YES __NO

   Daily RT Window = midpoint +- 3 times standard deviation.

Comments: All target parameters were within the specified retention time windows.

G. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO

2. Matrix spikes contain target analytes? _X_ YES __NO

3. Spike and Spike duplicate run on specific batch matrix? _X_ YES __NO

4. List laboratory's acceptable %recovery matrix spike ranges:

   EDB (80-120%)
   DBCP (80-120%)

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   None

6. Was a check standard run to address problem of failed Matrix Spike? _X_ N/A __YES __NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? _X_ N/A __YES __NO

8. Any analytes flagged as "Estimated Concentration"? __YES _X_ NO

9. List Analytes labeled as "Estimated Concentrations":

   None

Comments: All matrix spike criteria was met.

H. TRIP/REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run? X YES __NO
2. Reagent Blank run after 20 batch samples? X YES __NO
3. List target analytes identified in the Reagent/system blanks:

   None

4. Trip blank run per analytical batch? X YES __NO

Comments: No target parameters were detected in any laboratory method blanks or Trip Blank-1 and Trip Blank-2. All blank criteria met.

I. DAA CORRECTIVE ACTION STEPS TAKEN

Revision 1 was requested to provide a Precision and Accuracy Statement for instrument GC#9 Channel A and to revise the sample receipt temperatures in the case narrative.

J. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines (USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, February, 1994). Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: Date: 1/11/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8011	EDB	MW-1 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-2 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-3 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-4 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-6 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-7 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-8 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-9 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-10 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-11 (core)	U	U	LOQ = 0.03 μg/L.
8011	EDB	MW-12 (core)	U	U	LOQ = 0.03 μg/L.

SBl 1/96

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8011	EDB	MW-17 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-1 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-2 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-3 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-4 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-6 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-7 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-8 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-9 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-10 (core)	U	U	LOQ = 0.03 μg/L.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

JSP 1/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8011	DBCP	MW-11 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-12 (core)	U	U	LOQ = 0.03 μg/L.
8011	DBCP	MW-17 (core)	U	U	LOQ = 0.03 μg/L.

e definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

JSL 1/96

Method 8021 G.C. Volatile Data Review

Wells:	SDG-1 Core wells:	MW-1, MW-3, MW-6, MW-7, MW-8, MW-10, MW-11, MW-17
	SDG-2 Core Wells:	MW-2, MW-4, MW-9, MW-12
	SDG-1 Boundary wells:	MW-13, MW-15,
	SDG-2 Boundary wells:	MW-5, MW-14, MW-16, MW-18

QC Samples: MW-1 MS, MW-1 MSD, MW-9 MS, MW-9 MSD, Trip Blank-1, Trip Blank-2, Method Blanks, Performance Evaluation Sample MW-1A.

Laboratory: CT&E Environmental Services, Inc., Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

Core wells: (extended Method 8021 parameter list of 17 compounds);
Boundary wells (short Method 8021 parameter list of 12 compounds)

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 14 days maximum holding time? **(See Note 1)** __YES _X_ NO
2. Cool 4°C (+-2°C)? _X_ YES __NO
3. pH adjusted <2 with H_2SO_4, HCl, or $NaSo_4$? _X_ YES __NO

Comments:

1. Samples collected from MW's - 2,3,6,8,9,10,12, and 17 were diluted 1:10 or 1:100 due to specific target parameters exceeding the linear calibration range of 2-40 μg/L. Holding times for diluted analyses were exceeded for the following:

A. MW-6: 1:10 dilution for trichloroethene and 1,1-dichloroethane
1:100 dilution for cis-1,2-dichloroethene

B. MW-8: 1:10 dilution for 1,1-dichloroethane, cis-1,2-dichloroethene, and tetrachloroethene

C. MW-10: 1:10 dilution for 1,1-dichloroethane and 1,1-dichloroethene

D. MW-17: 1:10 dilution for 1,1-dichloroethane and cis-1,2-dichloroethene

As a result of the exceeded holding times, results for these parameters/samples were validated as estimated ("J"). All technical holding times for all other diluted analyses and initial analyses were completed within 14 days of sample collection, and met criteria.

2. Sample temperatures were recorded below 4°C. Criteria met.

3. The pH of all samples was recorded $\leq$ 2.0. Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Documentation of Purge and Trap operation within SW846 guidelines? _X_ YES __NO
2. Instrument specific LOD for target analytes? _X_ YES __NO
3. Instrument specific LOQ for target analytes? _X_ YES __NO
4. Instrument specific Check Sample Data? _X_ YES __NO
5. Instrument Working Range for target analytes? _X_ YES __NO
6. Lab acceptable surrogates %recovery ranges? _X_ YES __NO
7. Lab acceptable matrix spike recovery ranges for target analytes? __YES _X_ NO
8. Sample analysis log sheet? _X_ YES __NO
9. Chromatogram and integration report for each sample? _X_ YES __NO

Comments: All instrument QC history documentation was provided and met criteria with exception (7.) noted below regarding matrix spike recovery ranges.

Analysis for benzene was conducted separate from all other target parameters via the PID detector. All other parameters were analyzed via the Hall Electrolytic Conductivity Detector (HECD).

7. Matrix spike recoveries of dichlorofluoromethane were exceeded for the MW-1 MS/MSD and MW-9 MS/MSD 1:10 diluted analyses. See Section I for detailed discussion.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for the G.C. used for analyses? _X_ YES __NO
2. QC check sample contains all target analytes outlined in RFP? _X_ YES __NO
3. QC check samples analyzed in quadruplicate? _X_ YES __NO
4. Reported average recovery (X) of target analytes from check samples? _X_ YES __NO
5. Reported Standard deviation(s) for the recovery of target analytes quadruplicated? _X_ YES __NO
6. Reported acceptable laboratory ranges for X and S values? _X_ YES __NO
7. QC check samples are within established laboratory acceptable range for target analytes? _X_ YES __NO

Comments: All check sample criteria was met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) _X_ YES __NO
   (2.0, 5.0, 10.0, 20.0, and 40.0 μg/L standards)

2. Calibration Type: Internal

   a. Determined External Calibration Factor (CF) for target analytes? __YES _X_ NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

   b. Determined Internal Calibration Factor (CF) for target analytes? _X_ YES __NO

   $CF = (A_s * C_{is})/(C_s * A_{is})$

   A_s = Analyte Response
   A_{is} = Internal Standard Response
   C_s = Analyte Concentration
   C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? __N/A _X_ YES __NO

   $\%RSD = SD/(CF)_a \times 100$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD≥20% over established working range.

   None

Comments: Two initial calibrations using the ELCD detector were associated with this sample batch excluding benzene. ICAL #1 on 7/22/95 was associated with the first Sample Delivery Group (SDG-1) and ICAL #2 on 7/24/95 was associated with the second Sample Delivery Group (SDG-2) and all diluted sample analyses. A separate ICAL on 7/22/95, associated with all samples, was conducted using the PID detector to analyze for benzene only. All initial calibration criteria was met for both analyses.

E. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? X YES __NO

2. Target analytes responses have a % Difference (%Diff) of ±15% from previously run standards? __YES _X_NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

Comments: Nine continuing calibrations were associated with these sample batches and are tabulated below:

CCAL	Associated Samples	SW-846 Method Criteria
CCAL-1 7/22/95 1327 File: 11g2211-01R.d All parameters except benzene	Trip Blank-1, MW-1, MW-1MS, MW-1MSD, MW-6, MW-3, MW-7, MW-8, MW-11, MW-10, MW-13	All criteria met.
CAL-2 7/22/95 2357 File: 11g2228.01R.d All parameters except benzene	MW-17, MW-15, MW-1A (MW-1A Performance Evaluation Sample)	Criteria for % Difference (%D) exceeded requirements for 1,2-dichloroethane and trichloroethene. Qualification of results for these parameters for MW-17 and MW-15 was required. Sample for MW-17 was diluted (1:10) for 1,1-dichloroethane and cis-1,2-dichloroethene, and reanalyzed on 7/26/95; however, holding times were missed, resulting in estimation of results for both parameters.
CCAL 7/25/95 0802 File: 11g2503.01R.d All parameters except benzene	Trip Blank-2, MW-9, MW-9MS, MW-9MSD, MW-12, MW-2, MW-4, MW-16, MW-14.	All criteria met.
CCAL 7/25/95 1842 File: 11g2520-01R.d All parameters except benzene	MW-18, MW-5, MW-6 (1:100 dil), MW-6 (1:10 dil), MW-10 (1:100 dil), MW-10 (1:10 dil), MW-17 (1:10 dil)	All criteria met.
CCAL 7/26/95 0935 File: 11g2605-01R.d All parameters except benzene	MW-9MS (1:10 dil), MW-9MSD (1:10 dil), MW-9 (1:10 dil), MW-18, MW-5, MW-12 (1:10 dil), MW-2 (1:100 dil), MW-2 (1:10 dil)	Criteria for %D exceeded requirements for dichlorodifluoromethane (%D-22.8%). Qualification of results for the associated samples was required for this target parameter.

CCAL 7/22/95 1327 File: 11g2211.01R.d Benzene only	Trip Blank-1, MW-1, MW-1MS, MW-1MSD, MW-6, MW-3, MW-7, MW-8, MW-11, MW-10, MW-13	All criteria met.
CCAL 7/22/95 2357 File: 11g2228.01R.d Benzene only	MW-17, MW-15, MW-1A (MW-1A: Performance Evaluation Sample)	All criteria met.
CCAL 7/25/95 0725 File: 11g2502.01R.d Benzene only	Trip Blank-2, MW-9, MW-9MS, MW-9MSD, MW-12, MW-2, MW-4, MW-16, MW-14	All criteria met.
CCAL 7/26/95 1110 File: 11g2606.01R.d Benzene only	MW9MS, MW9MSD, MW-9, MW-18, MW-5	All criteria met.

F. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 2 surrogate compounds? _X_ YES __NO

2. List surrogate compounds used and laboratory's acceptable surrogate % Recovery Limits:

   ELCD surrogate: 2-bromo-1-chloropropane (80-120%)
   ELCD internal std: 1,4-bromochlorobenzene (80-120%)

   PID surrogate: a,a,a,trifluorotoluene (80-120%)
   PID internal std: fluorobenzene (80-120%)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

   None

Comments: All surrogate criteria was met. All surrogate % recoveries were within established limits.

G. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? _X_ YES __NO

Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Retention time data/windows were provided for all target parameters.

H. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? _X_ YES __NO
2. Reagent Blank run after 20 batch samples? _X_ YES __NO
3. List target analytes identified in the Reagent/system blanks:

   None

4. Trip blank run per analytical batch _X_ YES __NO
5. List target analytes identified in trip blanks.

   None

Comments: No target parameters were detected in trip/reagent/system blanks for these sample batches. All blank criteria met.

I. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO

2. Matrix spikes contain target analytes? _X_ YES __NO

3. Spike and Spike duplicate run on specific batch matrix? X YES __NO

4. List laboratory's acceptable %recovery matrix spike ranges:

benzene	(80-120%)	PID detector
dichlorodifluoromethane	(75-125%)	HECD detector
methylene chloride	(75-125%)	HECD detector
chloroethane	(75-125%)	HECD detector
1,1-dichloroethene	(75-125%)	HECD detector
vinyl chloride	(75-125%)	HECD detector
1,1-dichloroethane	(75-125%)	HECD detector
cis-1,2-dichloroethene	(75-125%)	HECD detector
chloroform	(75-125%)	HECD detector
1,2-dichloroethane	(75-125%)	HECD detector
1,1,1-trichloroethane	(75-125%)	HECD detector
carbon tetrachloride	(75-125%)	HECD detector
1,2-dichloropropane	(75-125%)	HECD detector
trichloroethene	(75-125%)	HECD detector
trans-1,3-dichloropropene	(75-125%)	HECD detector
tetrachloroethene	(75-125%)	HECD detector
bromoform	(75-125%)	HECD detector

5. List matrix spike target analytes not within acceptable laboratory recoveries:

MW-1 MS: dichlorodifluoromethane (7/22/95 at time 1518)
MW-1 MSD: dichlorodifluoromethane (7/22/95 at time 1555)

MW-9 MS: 1:10 diluted analysis for dichlorodifluoromethane (7/26/95 at time 1224)
MW-9 MSD: 1:10 diluted analysis for dichlorodifluoromethane (7/26/95 at time 1301)

Matrix interference was present in the initial analysis on 7/25/95. A 1:10 diluted MW-9MS and MSD analysis was conducted on 7/26/95 resulting in poor recovery of dichlorodifluoromethane only.

6. Was a check standard run to address problem of failed Matrix Spike? _X_ YES __NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? __N/A _X_ YES __NO

8. Any analytes flagged as "Estimated Concentration"? _X_ YES __NO

9. List Analytes labeled as "Estimated Concentrations":

Dichlorodifluoromethane was estimated as "UJ" in the MW-1, MW-6, MW-7, MW-10, MW-11 and MW-13 samples due to exceedance of acceptable laboratory recoveries in the MW-1 MS and MW-1MSD analyses. Dichlorodifluoromethane was estimated as "UJ" in the MW-5, MW-9, and MW-18 samples due to exceedance of acceptable laboratory recoveries in the MW-9 MS and MSD analyses.

Comments: Dichlorodifluoromethane was the only target parameter that failed the matrix spike recoveries for MW-1MS/MSD. As a result, dichlorodifluoromethane results were estimated for all samples analyzed on 7/22/95. The MW-9 MS and MSD samples were diluted 1:10 due to matrix interference and dichlorodifluoromethane was the only target parameter that failed MS and MSD spike recoveries. As a result, dichlorodifluoromethane results for all samples analyzed on 7/26/95 were validated as estimated ("J"). A separate MS/MSD analyses via the PID detector was conducted for benzene for all samples and met all criteria.

J. DAA CORRECTIVE ACTION STEPS TAKEN AND NOTES

Revision 1 was requested on November 9, 1995 and Revision 2 was requested December 1, 1995.

K. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements (Test methods for evaluating solid waste - Physical/Chemical Method, USEPA SW-846, 3rd Edition - Final Update I and II/IIA) and CLP data validation guidelines, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, February, 1994. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: Date:

1/11/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8021	dichlorofluoromethane	MW's-1, 2, 5, 6, 7, 9, 10, 11, 13, 18 (core and boundary)	U	UJ	Results were estimated for these samples due to low % recoveries on the MW-1MS and MSD, MW-9 MS and MW-9 MSD analyses, indicating a problem with this parameter.
8021	All remaining parameters	MW-1 (core)	U	U	Not detected above the LOQ.
8021	1,1-dichloroethane	MW-2 (core)	81.2	81	No action taken. Result taken from the 7/26/95 (1758) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	1,1-dichloroethene	MW-2 (core)	167	170	No action taken. Result taken from the 7/26/95 (1758) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	tetrachloroethene	MW-2 (core)	12.4	12	No action taken. Result taken from the initial undiluted sample.
8021	1,1,1-trichloroethane	MW-2 (core)	1580	1600	No action taken. Result taken from the 7/26/95 (1721) 1:100 diluted sample. Sample LOQ was raised to 200 ug/L.
8021	trichloroethene	MW-2 (core)	1.18J	1.2J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-2 (core)	U	U	Not detected above the LOQ.
8021	benzene	MW-3 (core)	2.34	2.3	No action taken. LOQ = 2.0 ug/L.

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8021	chloroethane	MW-3 (core)	U	U	Sample LOQ was raised to 10.0 ug/L due to level of matrix interference. Parameter validated as undetected above the LOQ.
8021	1,1-dichloroethane	MW-3 (core)	131	130	No action taken. Result taken from the 7/24/95 (2353) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	1,1-dichloroethene	MW-3 (core)	3.96	4.0	No action taken. LOQ = 2.0 ug/L.
8021	cis-1,2-dichloroethene	MW-3 (core)	65.2	65	No action taken. Result taken from the 7/24/95 (2353) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	dichlorodifluoromethane	MW-3 (core)	6.92	6.9J	Sample result estimated due to low % recoveries of the parameter on the MW-1MS and MW-1MSD analyses.
8021	methylene chloride	MW-3 (core)	2.43	2.4	No action taken. LOQ = 2.0 ug/L.
8021	tetrachloroethene	MW-3 (core)	30.9	31	No action taken. LOQ = 2.0 ug/L.
8021	1,1,1-trichloroethane	MW-3 (core)	25.7	26	No action taken. LOQ = 2.0 ug/L.
8021	trichloroethene	MW-3 (core)	20.5	20	No action taken. LOQ = 2.0 ug/L.
8021	vinyl chloride	MW-3 (core)	2.88	2.9J	Sample result was estimated due to coelution with an unknown halogenated freon at mass 68, which presented difficulty in quantifying the concentration of vinyl chloride.
8021	1,2-dichloroethane	MW-3 (core)	1.23J	1.23J	Sample result below LOQ of 2.0 ug/L.

8021	All remaining parameters	MW-3 (core)	U	U	Not detected above the LOQ.
8021	All parameters	MW-4 (core)	U	U	Not detected above the LOQ.
8021	All remaining parameters	MW-5 (boundary)	U	U	Not detected above the LOQ.
8021	benzene	MW-6 (core)	14.2	14	No action taken. LOQ = 2.0 ug/L.
8021	chloroethane	MW-6 (core)	U	U	Sample LOQ was raised to 15.0 ug/L due to level of matrix interference. Parameter validated as undetected above the LOQ.
8021	1,1-dichloroethane	MW-6 (core)	102	100J	No action taken. Result taken from the 7/25/95 (2224) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.
8021	cis-1,2-dichloroethene	MW-6 (core)	443	440J	No action taken. Result taken from the 7/25/95 (2147) 1:100 diluted sample. Sample LOQ was raised to 200 ug/L. Result estimated due to missed holding time on diluted analyses.
8021	tetrachloroethene	MW-6 (core)	13.2	13	No action taken. LOQ = 2.0 ug/L.
8021	trichloroethene	MW-6 (core)	66.6	67J	No action taken. Result taken from the 7/25/95 (2224) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.

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8021	vinyl chloride	MW-6 (core)	11.5	12J	No action taken. LOQ = 2.0 ug/L. Result estimated due to coelution
8021	methylene chloride	MW-6 (core)	1.18J	1.2J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-6 (core)	U	U	Not detected above the LOQ.
8021	benzene	MW-7 (core)	2.19	2.2	No action taken. LOQ = 2.0 ug/L.
8021	chloroethane	MW-7 (core)	9.20	9.2	No action taken. LOQ = 2.0 ug/L.
8021	1,1-dichloroethane	MW-7 (core)	4.78	4.8	No action taken. LOQ = 2.0 ug/L.
8021	cis-1,2-dichloroethene	MW-7 (core)	4.37	4.4	No action taken. LOQ = 2.0 ug/L.
8021	1,2-dichloropropane	MW-7 (core)	1.38J	1.4J	Sample result below LOQ of 2.0 ug/L.
8021	trichloroethene	MW-7 (core)	1.63J	1.6J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-7 (core)	U	U	Not detected above the LOQ.
8021	benzene	MW-8 (core)	6.20	6.2	No action taken. LOQ = 2.0 ug/L.
8021	chloroethane	MW-8 (core)	U	U	Sample LOQ was raised to 10.0 ug/L due to level of matrix interference. Parameter validated as undetected above the LOQ.

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8021	1,1-dichloroethane	MW-8 (core)	60.1	60J	No action taken. Result taken from the 7/25/95 (0030) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.
8021	1,1-dichloroethene	MW-8 (core)	5.69	5.7	No action taken. LOQ = 2.0 ug/L.
8021	cis-1,2-dichloroethene	MW-8 (core)	107	110J	No action taken. Result taken from the 7/25/95 (0030) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.
8021	dichlorodifluoromethane	MW-8 (core)	15.6	16J	Sample result estimated due to low % recoveries of the parameter on the MW-1MS and MW-1MSD analyses.
8021	methylene chloride	MW-8 (core)	4.67	4.7	No action taken. LOQ = 2.0 ug/L.
8021	tetrachloroethene	MW-8 (core)	41.9	42J	No action taken. Result taken from the 7/25/95 (0030) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.
8021	1,1,1-trichloroethane	MW-8 (core)	6.03	6.0	No action taken. LOQ = 2.0 ug/L.
8021	trichloroethene	MW-8 (core)	27.6	28	No action taken. LOQ = 2.0 ug/L.
8021	vinyl chloride	MW-8 (core)	10.8	11J	No action taken. LOQ = 2.0 ug/L. Result estimated due to coelution.
8021	1,2-dichloroethane	MW-8 (core)	0.893J	0.89J	Sample result below LOQ of 2.0 ug/L.

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8021	1,2-dichloropropane	MW-8 (core)	0.870J	0.87J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-8 (core)	U	U	Not detected above the LOQ.
8021	benzene	MW-9 (core)	4.03	4.0	No action taken. LOQ = 2.0 ug/L.
8021	chioroethane	MW-9 (core)	U	U	Sample LOQ was raised to 20.0 ug/L due to level of matrix interference. Parameter validated as undetected above the LOQ.
8021	1,1-dichloroethane	MW-9 (core)	35.8	36	No action taken. LOQ = 2.0 ug/L.
8021	cis-1,2-dichloroethene	MW-9 (core)	7.36	7.4	No action taken. LOQ = 2.0 ug/L.
8021	methylene chloride	MW-9 (core)	88.9	89	No action taken. Result taken from the 7/26/95 (1415) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	tetrachloroethene	MW-9 (core)	4.96	5.0	No action taken. LOQ = 2.0 ug/L.
8021	1,1,1-trichloroethane	MW-9 (core)	12.0	12	No action taken. LOQ = 2.0 ug/L.
8021	trichloroethene	MW-9 (core)	8.63	8.6	No action taken. LOQ = 2.0 ug/L.
8021	All remaining parameters	MW-9 (core)	U	U	Not detected above the LOQ.
8021	1,1-dichloroethane	MW-10 (core)	58.4	58J	No action taken. Result taken from the 7/26/95 (0014) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.

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8021	1,1-dichloroethene	MW-10 (core)	158	160J	No action taken. Result taken from the 7/26/95 (0014) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result estimated due to missed holding time on diluted analyses.
8021	tetrachloroethene	MW-10 (core)	13.0	13	No action taken. LOQ = 2.0 ug/L.
8021	1,1,1-trichloroethane	MW-10 (core)	990	990	No action taken. Result taken from the 7/25/95 (2357) 1:100 diluted sample. Sample LOQ was raised to 200 ug/L.
8021	All remaining parameters	MW-10 (core)	U	U	Not detected above the LOQ.
8021	1,1-dichloroethane	MW-11 (core)	22.5	22	No action taken. LOQ = 2.0 ug/L.
8021	cis-1,2-dichloroethene	MW-11 (core)	11.4	11	No action taken. LOQ = 2.0 ug/L.
8021	methylene chloride	MW-11 (core)	2.88	2.9	No action taken. LOQ = 2.0 ug/L.
8021	tetrachloroethene	MW-11 (core)	10.4	10	No action taken. LOQ = 2.0 ug/L.
8021	1,1,1-trichloroethane	MW-11 (core)	5.88	5.9	No action taken. LOQ = 2.0 ug/L.
8021	trichloroethene	MW-11 (core)	5.80	5.8	No action taken. LOQ = 2.0 ug/L.
8021	1,1-dichloroethene	MW-11 (core)	0.859J	0.86J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-11 (core)	U	U	Not detected above the LOQ.

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8021	chloroethane	MW-12 (core)	U	U	Sample LOQ was raised to 5.0 ug/L due to level of matrix interference. Parameter was validated as undetected above the LOQ.
8021	1,1-dichloroethane	MW-12 (core)	101	100	No action taken. Result taken from the 7/26/95 (1644) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	1,1-dichloroethene	MW-12 (core)	3.93	3.9	No action taken. LOQ = 2.0 ug/L.
8021	cis-1,2-dichloroethene	MW-12 (core)	37.3	37	No action taken. Result taken from the 7/26/95 (1644) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L.
8021	dichlorodifluoromethane	MW-12 (core)	5.74	5.7J	No action taken. LOQ = 2.0 ug/L. Result estimated due to low % recovery of parameter on the 1:10 diluted analysis of MW-9 MS and MSD samples.
8021	methylene chloride	MW-12 (core)	3.32	3.3	No action taken. LOQ = 2.0 ug/L.
8021	tetrachloroethene	MW-12 (core)	26.8	27	No action taken. LOQ = 2.0 ug/L.
8021	1,1,1-trichloroethane	MW-12 (core)	16.7	17	No action taken. LOQ = 2.0 ug/L.
8021	trichloroethene	MW-12 (core)	16.1	16	No action taken. LOQ = 2.0 ug/L.
8021	vinyl chloride	MW-12 (core)	2.26	2.3	No action taken. LOQ = 2.0 ug/L.
8021	All remaining parameters	MW-12 (core)	U	U	Not detected above the LOQ.
8021	methylene chloride	MW-13 (boundary)	0.834J	0.84J	Sample result below LOQ of 2.0 ug/L.

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8021	All remaining parameters	MW-13 (boundary)	U	U	Not detected above the LOQ.
8021	All parameters	MW-14 (boundary)	U	U	Not detected above the LOQ.
8021	1,1,1-trichloroethane	MW-15 (boundary)	2.71	2.7	No action taken. LOQ = 2.0 ug/L.
8260	1,2-dichloroethane	MW-15 (boundary)	U	UJ	Result was validated as estimated and not detected (UJ) due to effects from changes in the instrument response factor in the failed CCAL as noted by the lab in the case narrative. The parameter was analyzed by method 8260 for quantitation but was not detected.
8260	trichloroethene	MW-15 (boundary)	U	UJ	Result was validated as estimated and not detected (UJ) due to effects from changes in the instrument response factor in the failed CCAL as noted by the lab in the case narrative. The parameter was analyzed by method 8260 for quantitation but was not detected.
8021	All remaining parameters	MW-15 (boundary)	U	U	Not detected above the LOQ.
8021	All parameters	MW-16 (boundary)	U	U	Not detected above the LOQ.
8021	chloroethane	MW-17 (core)	U	U	Sample LOQ was raised to 5.0 ug/L due to level of matrix interference. Result was validated as undetected above the LOQ.

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8021	1,1-dichloroethane	MW-17 (core)	102	102J	No action taken. Result taken from 7/26/95 (0128) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result was estimated due to missed holding time on diluted analyses.
8021	cis-1,2-dichloroethene	MW-17 (core)	71.7	72J	No action taken. Result taken from 7/26/95 (0128) 1:10 diluted sample. Sample LOQ was raised to 20 ug/L. Result was estimated due to missed holding time on diluted analyses.
8021	dichlorodifluoromethane	MW-17 (core)	5.27	5.3J	Sample result estimated due to low % recoveries on the MW-1MS and MW-1MSD analyses.
8021	methylene chloride	MW-17 (core)	2.25	2.2	No action taken. LOQ = 2.0 ug/L.
8021	tetrachloroethene	MW-17 (core)	40.1	40	No action taken. LOQ = 2.0 ug/L.
8021	1,1,1-trichloroethane	MW-17 (core)	7.84	7.8	No action taken. LOQ = 2.0 ug/L.
8260	trichloroethene	MW-17 (core)	20.9	21J	No action taken. Result was validated as estimated due to effects from changes in the instrument response factor in the failed CCAL as noted by the lab in the case narrative. The parameter was analyzed by method 8260 for quantitation.

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8260	1,2-dichloroethane	MW-17 (core)	1.68J	1.7J	Result from 8260 analyses on 7/25/95 (0124) reported 1.68J, which was below LOQ of 2.0 ug/L. Results from 7/23/95 (0112) were rejected due to poor response factor in the failed CCAL as noted by the lab in the case narrative.
8021	1,1-dichloroethene	MW-17 (core)	1.76J	1.8J	Sample result below LOQ of 2.0 ug/L.
8021	vinyl chloride	MW-17 (core)	0.935J	0.94J	Sample result below LOQ of 2.0 ug/L.
8021	1,2-dichloropropane	MW-17 (core)	0.804J	0.80J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-17 (core)	U	U	Not detected above the LOQ.
8021	methylene chloride	MW-18 (boundary)	0.585J	0.58J	Sample result below LOQ of 2.0 ug/L.
8021	All remaining parameters	MW-18 (boundary)	U	U	Not detected above the LOQ.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

JB 1/96

Method 8081 (Organochlorine Pesticides and PCBs) G.C. Volatile Data Review

Wells: SDG-2 Core Wells: MW-2, MW-4, MW-9, and MW-12

QC Samples: MW-9 MS, MW-9 MSD, Trip Blank, Method Blanks

Laboratory: CT&E Environmental Services, Inc., Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 7 days maximum holding time before extraction? _X_ YES __NO
2. 40 days maximum holding time after sample extraction? _X_ YES __NO
3. Cool 4°C (+-2°C)? _X_ YES __NO

Comments: Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Specific extraction method specified _X_ YES __NO
2. Documentation of DDT/Endrin breakdown study? _X_ YES __NO
3. Instrument specific LOD for target analytes? _X_ YES __NO
4. Instrument specific LOQ for target analytes? _X_ YES __NO
5. Instrument specific Check Sample Data? _X_ YES __NO
6. Instrument Working Range for target analytes? _X_ YES __NO
7. Lab acceptable surrogates %recovery ranges? _X_ YES __NO
8. Lab acceptable matrix spike %recovery ranges for target analytes? _X_ YES __NO
9. Sample analysis log sheet? _X_ YES __NO
10. Chromatogram and integration report for each sample? _X_ YES __NO
11. Dual columns follow 8081 method? _X_ YES __NO

Comments: Criteria met.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for the G.C. that was used for analyses? _X_ YES __NO

2. QC check sample contains all target analytes outlined in RFP? X YES __NO

3. QC check samples analyzed in quadruplicate? X YES __NO

4. Reported average recovery (X) of target analytes from check samples? X YES __NO

5. Reported Standard deviation(s) for the recovery of target analytes quadruplicated? X YES __NO

Comments: Criteria met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) X YES __NO

   all five point calibrations except PCBs.

2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes? N/A X YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

   b. Determined Internal Calibration Factor (CF) for target analytes? X N/A __YES __NO

   $$CF = (A_s * C_{is})/(C_s * A_{is})$$

   A_s = Analyte Response
   A_{is} = Internal Standard Response
   C_s = Analyte Concentration
   C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? __N/A X YES __NO

   $$\%RSD = SD/(CF)_a \times 100$$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD≥20% over established working range.

   None

Comments: PCBs calibrated using Arochlor 1016/1260 standards, criteria met.

E. DDT/ENDRIN BREAKDOWN CHECK CRITERIA:

1. A 4,4'-DDT and Endrin standard was run and % breakdown of each compound calculated? _X_ YES __NO

2. The calculated % Breakdown is less than 20%? _X_ YES __NO

Comments: Criteria met.

F. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? X YES __NO

2. Target analytes responses have a % Difference (%Diff) of ±15% from previously run standards? __YES X NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

3. A Mid-concentration standard run after each group of 10 samples in the analysis sequence. X YES __NO

Comments: % Difference criteria not achieved due to inflated response. Since no parameters were quantified by the laboratory, no additional information was required.

G. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 1 surrogate compound? X YES __NO

2. List surrogate compounds used and laboratory's acceptable surrogate % Recovery Limits:

   TCMX (40-130)
   DCBP (40-130)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

   None

Comments: Criteria met.

H. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? X YES __NO

Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Criteria met.

I. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? X YES __NO
2. Reagent Blank run after 20 batch samples? X YES __NO
3. List target analytes identified in the Reagent/system blanks:

   None

4. Trip blank run for sample batch? X YES __NO
5. List target analytes identified in the trip blank:

   None

Comments: All blank criteria were met.

J. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? X YES __NO
2. Matrix spikes contain target analytes? X YES __NO
3. Spike and Spike duplicate run on specific batch matrix? X YES __NO
4. List laboratory's acceptable %recovery matrix spike ranges:

   All parameters: 40-130%

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   Several spiked compounds exceeded the recovery range.

6. Was a check standard run to address problem of failed Matrix Spike? __N/A __YES X NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? _X_ N/A __YES __NO

8. Any analytes flagged as "Estimated Concentration"? __YES _X_ NO

9. List Analytes labeled as "Estimated Concentrations":

None

Comments: Several of the matrix spike compounds exceeded the QC limits indicating an inflated signal. No corrective action was performed by laboratory. No additional information was requested from the laboratory.

K. DAA CORRECTIVE ACTION STEPS TAKEN AND NOTES

Channel A data was requested for MW-9 to review chromatographic activity. Addendum from laboratory disconfirmed the presence of target parameters. No additional information was requested.

L. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: Marlen Skolte

Date: 1/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8081	aldrin	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	alpha - BHC	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	beta - BHC	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	delta - BHC	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	gamma - BHC	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	chlordane	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	4,4' - DDD	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	4,4' - DDE	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	4,4' - DDT	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Dieldrin	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Endosulfan I	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Endosulfan II	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Endosulfan Sulfate	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Endrin Aldehyde	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Heptachlor	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.

8081	Heptachlor Epoxide	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	Hexachlorobenzene	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	PCBs	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.
8081	toxaphene	MW-2, MW-4, MW-9, MW-12	ND	U	Less than LOQ.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

Method 8081 (Organochlorine Pesticides and PCBs) G.C. Volatile Data Review

Wells: SDG-1 Core wells: MW-1, MW-3, MW-6, MW-8, MW-10, MW-11, and MW-17 (No sample submitted for MW-7 due to insufficient water)

QC Samples: MW-1 MS, MW-1 MSD, Trip Blank, Method Blanks

Laboratory: CT&E Environmental Services, Inc., Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 7 days maximum holding time before extraction? _X_ YES __NO
2. 40 days maximum holding time after sample extraction? _X_ YES __NO
3. Cool 4°C (+-2°C)? _X_ YES __NO

Comments: Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Specific extraction method specified _X_ YES __NO
2. Documentation of DDT/Endrin breakdown study? _X_ YES __NO
3. Instrument specific LOD for target analytes? _X_ YES __NO
4. Instrument specific LOQ for target analytes? _X_ YES __NO
5. Instrument specific Check Sample Data? _X_ YES __NO
6. Instrument Working Range for target analytes? _X_ YES __NO
7. Lab acceptable surrogates %recovery ranges? _X_ YES __NO
8. Lab acceptable matrix spike %recovery ranges for target analytes? _X_ YES __NO
9. Sample analysis log sheet? _X_ YES __NO
10. Chromatogram and integration report for each sample? _X_ YES __NO
11. Dual columns follow 8081 method? _X_ YES __NO

Comments: Criteria met.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for the G.C. that was used for analyses? _X_ YES __NO
2. QC check sample contains all target analytes outlined in RFP? _X_ YES __NO
3. QC check samples analyzed in quadruplicate? _X_ YES __NO
4. Reported average recovery (X) of target analytes from check samples? _X_ YES __NO
5. Reported Standard deviation(s) for the recovery of target analytes quadruplicated? _X_ YES __NO

Comments: Criteria met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) _X_ YES __NO

   All pesticides were calibrated with a five point calibration. PCBs were calibrated using Aroclor 1016/1260 mix.

2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes?_N/A _X_ YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

   b. Determined Internal Calibration Factor (CF) for target analytes?_X_ N/A __YES __NO

   $$CF = (A_s * C_{is})/(C_s * A_{is})$$

   A_s = Analyte Response
   A_{is} = Internal Standard Response
   C_s = Analyte Concentration
   C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? __N/A _X_YES __NO

$$\%RSD = SD/(CF)_a \times 100$$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD≥20% over established working range.

   None

Comments: PCBs were calibrated using Aroclor 1016/1260 standards. Criteria met.

E. DDT/ENDRIN BREAKDOWN CHECK CRITERIA:

1. A 4,4'-DDT and Endrin standard was run and % breakdown of each compound calculated? _X_YES __NO

2. The calculated % Breakdown is less than 20%? X YES __NO

Comments: Criteria met.

F. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? X YES __NO

2. Target analytes responses have a % Difference (%Diff) of ±15% from previously run standards? __YES X NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

3. A Mid-concentration standard run after each group of 10 samples in the analysis sequence. X YES __NO

Comments: %Difference criteria not achieved due to inflated response. No parameters were detected, therefore, no additional information was requested.

G. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 1 surrogate compound? X YES __NO

2. List surrogate compounds used and laboratory's acceptable surrogate % Recovery Limits:

   TCMX (40-130%)
   DCBP (40-130%)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

   None

Comments: Criteria met.

H. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? _X_ YES __NO

   Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Criteria met.

I. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? _X_ YES __NO
2. Reagent Blank run after 20 batch samples? _X_ YES __NO
3. List target analytes identified in the Reagent/system blanks:

   None

4. Trip blank run for sample batch? _X_ YES __NO
5. List target analytes identified in the trip blank:

   None

Comments: All blank criteria were met.

J. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO
2. Matrix spikes contain target analytes? _X_ YES __NO
3. Spike and Spike duplicate run on specific batch matrix? _X_ YES __NO
4. List laboratory's acceptable %recovery matrix spike ranges:

   All parameters: 40-130%

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   Several spiked compounds exceeded the recovery range.

6. Was a check standard run to address problem of failed Matrix Spike? __N/A __YES _X_NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? _X_N/A __YES __NO

8. Any analytes flagged as "Estimated Concentration"? __YES _X_NO

9. List Analytes labeled as "Estimated Concentrations":

   None

Comments: The matrix spike compounds exceeded QC limits indicating an inflated signal. No corrective action was taken by the laboratory. No additional information required since no parameters were quantified by the laboratory.

K. DAA CORRECTIVE ACTION STEPS TAKEN AND NOTES

1. Channel A data was requested for MW-6 & MW-11 to review chromatographic activity. Addendum provided by the laboratory met criteria.

L. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: _____

Date: 1/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8081	aldrin	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	alpha - BHC	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	beta - BHC	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	delta - BHC	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	gamma - BHC	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	chlordane	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	4,4' - DDD	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	4,4' - DDE	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	4,4' - DDT	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Dieldrin	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Endosulfan I	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Endosulfan II	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Endosulfan Sulfate	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Endrin Aldehyde	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Heptachlor	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	Heptachlor Epoxide	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.

8081	Hexachlorobenzene	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	PCBs	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.
8081	toxaphene	MW-1, 3, 6, 8 10, 11, 17	ND	U	Less than LOQ.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

Method 8151 (Chlorinated herbicides) G.C. Data Review

Wells: SDG-1 Core Wells: MW-1, MW-3, MW-6, MW-8, MW-10, MW-11, and MW-17 (No sample submitted for MW-7 due to insufficent water)

QC Samples: MW-1 MS, MW-1 MSD, Trip Blank, Method Blanks

Laboratory: CT&E Environmental Services, Inc., Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? X YES __NO

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 7 days maximum holding time before extraction? X YES __NO
2. 40 days maximum holding times after sample extraction? X YES __NO
3. Cool 4°C (+-2°C)? X YES __NO

Comments: Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Specific extraction method specified? X YES __NO
2. Instrument specific LOD for target analytes? X YES __NO
3. Instrument specific LOQ for target analytes? X YES __NO
4. Instrument specific Check Sample Data? X YES __NO
5. Instrument Working Range for target analytes? X YES __NO
6. Lab acceptable surrogates %recovery ranges? X YES __NO
7. Lab acceptable matrix spike recovery ranges for target analytes? X YES __NO
8. Sample analysis log sheet? X YES __NO
9. Chromatogram and integration report for each sample? X YES __NO

Comments: Criteria met.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for the G.C. that was used for analyses? X YES __NO

2. QC check sample contains all target analytes outlined in RFP? X YES __NO

3. QC check samples analyzed in quadruplicate? X YES __NO

4. Reported average recovery (X) of target analytes from check samples? X YES __NO

5. Reported Standard deviation(s) for the recovery of target analytes? X YES __NO

6. Reported acceptable laboratory ranges for X and S values? X YES __NO

7. QC check samples are within established laboratory acceptable range for target analytes? X YES __NO

Comments: Criteria met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) X YES __NO

2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes? __N/A X YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

   b. Determined Internal Calibration Factor (CF) for target analytes? X N/A __YES __NO

   $$CF = (A_s * C_{is})/(C_s * A_{is})$$

   A_s = Analyte Response
   A_{is} = Internal Standard Response
   C_s = Analyte Concentration
   C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? X YES __NO

$\%RSD = SD/(CF)_a \times 100$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

Calibration Factor

5. List target analytes with %RSD≥20% over established working range.

None

Comments: Criteria met.

E. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? X YES __NO

2. Target analytes responses have a % Difference (%Diff) of ±15% from previously run standards? X YES __NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

Comments: Criteria met.

F. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 1 surrogate compound? X YES __NO

2. List surrogate compound used and laboratory's acceptable surrogate % Recovery Limit:

   2,4-DAA (40-120%)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

   None

Comments: Criteria met.

G. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? X YES __NO

   Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Criteria met.

H. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? X YES __NO
2. Reagent Blank run after 20 batch samples? X YES __NO
3. List target analytes identified in the Reagent/system blanks:

   None

Comments: Criteria met.

I. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? X YES __NO
2. Matrix spikes contain target analytes? X YES __NO
3. Spike and Spike duplicate run on specific batch matrix? X YES __NO
4. List laboratory's acceptable %recovery matrix spike ranges:

   40-120% for 2,4-D; 2,4,5-TP; and 2,4,5-T.

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   2,4-D 29% for MW-1 MSD

6. Was a check standard run to address problem of failed Matrix Spike? __YES X NO
7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? X N/A __YES __NO
8. Any analytes flagged as "Estimated Concentration"? __YES X NO
9. List Analytes labeled as "Estimated Concentrations":

   None

Comments: The MW-1 MS was in laboratory control limits and no target parameteres were detected, therefore, no additional information was required, criteria met.

J. DAA CORRECTIVE ACTION STEPS TAKEN

DAA requested Channel A data for MW-3, MW-8, and MW-17 to disconfirm the presence of pentachlorophenol chromatographic activity. Addendum provided by laboratory disconfirmed the presence of pentachlorophenol in these samples.

K. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: Charles Storte

Date: 1/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8151	2,4-D	MW-1, 3, 6, 8, 10, 11 & 17	ND	U	LOQ equal to 0.08 μg/L.
8151	pentachlorophenol	MW-1, 3, 6, 8, 10, 11 & 17	ND	U	LOQ equal to 0.08 μg/L.
8151	2,4,5-TP	MW-1, 3, 6, 8, 10, 11 & 17	ND	U	LOQ equal to 0.08 μg/L.
8151	2,4,5-T	MW-1, 3, 6, 8, 10, 11 & 17	ND	U	LOQ equal to 0.08 μg/L.
8151	Dinoseb	MW-1, 3, 6, 8, 10, 11 & 17	ND	U	LOQ equal to 0.08 μg/L.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

Method 8151 (Chlorinated herbicides) G.C. Data Review

Wells: SDG-2 Core Wells: MW-2, MW-4, MW-9, and MW-12

QC Samples: MS MW-9, MSD MW-9, Trip Blank, Method Blanks

Laboratory: CT&E Environmental Services, Inc., Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 7 days maximum holding time before extraction? _X_ YES __NO
2. 40 days maximum holding times after sample extraction? _X_ YES __NO
3. Cool 4°C (+-2°C)? _X_ YES __NO

Comments: Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Specific extraction method specified? _X_ YES __NO
2. Instrument specific LOD for target analytes? _X_ YES __NO
3. Instrument specific LOQ for target analytes? _X_ YES __NO
4. Instrument specific Check Sample Data? _X_ YES __NO
5. Instrument Working Range for target analytes? _X_ YES __NO
6. Lab acceptable surrogates %recovery ranges? _X_ YES __NO
7. Lab acceptable matrix spike recovery ranges for target analytes? _X_ YES __NO
8. Sample analysis log sheet? _X_ YES __NO
9. Chromatogram and integration report for each sample? _X_ YES __NO

Comments: Criteria met.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for the G.C. that was used for analyses? _X_ YES __NO

2. QC check sample contains all target analytes outlined in RFP? _X_ YES __NO

3. QC check samples analyzed in quadruplicate? _X_ YES __NO

4. Reported average recovery (X) of target analytes from check samples? _X_ YES __NO

5. Reported Standard deviation(s) for the recovery of target analytes? _X_ YES __NO

6. Reported acceptable laboratory ranges for X and S values? _X_ YES __NO

7. QC check samples are within established laboratory acceptable range for target analytes? _X_ YES __NO

Comments: Criteria met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) _X_ YES __NO

2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes? __N/A _X_ YES __NO

$$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

b. Determined Internal Calibration Factor (CF) for target analytes? _X_ N/A __YES __NO

$CF = (A_s * C_{is})/(C_s * A_{is})$

A_s = Analyte Response
A_{is} = Internal Standard Response
C_s = Analyte Concentration
C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? _X_ YES __NO

$\%RSD = SD/(CF)_a \times 100$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

Calibration Factor

5. List target analytes with %RSD≥20% over established working range.

None

Comments: Criteria met.

E. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? _X_ YES __NO

2. Target analytes responses have a % Difference (%Diff) of ±15% from previously run standards? _X_ YES __NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

Comments: Criteria met.

F. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 1 surrogate compound? _X_ YES __NO

2. List surrogate compound used and laboratory's acceptable surrogate % Recovery Limit:

2,4-DAA (40-120%)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

None

Comments: Criteria met.

G. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? _X_ YES __NO

   Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Criteria met.

H. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? _X_ YES __NO
2. Reagent Blank run after 20 batch samples? _X_ YES __NO
3. List target analytes identified in the Reagent/system blanks:

   None

Comments: Criteria met.

I. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO
2. Matrix spikes contain target analytes? _X_ YES __NO
3. Spike and Spike duplicate run on specific batch matrix? _X_ YES __NO
4. List laboratory's acceptable %recovery matrix spike ranges:

   40-120% for 2,4-D; 2,4,5-TP; and 2,4,5-T.

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   2,4-D in the MW-1 MSD @ 29%.

6. Was a check standard run to address problem of failed Matrix Spike? __YES _X_ NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? X N/A __YES __NO

8. Any analytes flagged as "Estimated Concentration"? __YES X NO

9. List Analytes labeled as "Estimated Concentrations":

None

Comments: Matrix spike for 2,4-D was in control limits and samples contained no detected parameters, therefore, no additional information was requested.

J. DAA CORRECTIVE ACTION STEPS TAKEN

Requested channel A data for MW-4 to disconfirm the presence of pentachlorophenol associated with chromatographic activity. Laboratory provided an addendum and pentachlorophenol was disconfirmed in channel A data.

K. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: [signature]

Date: 1/94

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8081	2,4-D	MW-2, 4, 9 & 12	ND	U	No action required.
8081	pentachlorophenol	MW-2, 4, 9 & 12	ND	U	No action required.
8081	2,4,5-TP	MW-2, 4, 9 & 12	ND	U	No action required.
8081	2,4,5-T	MW-2, 4, 9 & 12	ND	U	No action required.
8081	Dinoseb	MW-2, 4, 9 & 12	ND	U	No action required.

Method 8310 HPLC (P.A.H.S) Data Review

Wells: SDG-1 Core Wells: MW-1, MW-3, MW-6, MW-8, MW-10, MW-11, and MW-17 (No sample was submitted for MW-7 due to insufficient water)

QC Samples: MW-1 MS, MW-1 MSD, Trip Blank, Method Blanks

Laboratory: CT&E Environmental Services, Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

Note: Benzo[a]pyrene only.

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 7 days maximum holding time from sample collection? _X_ YES __NO
2. 40 days maximum holding time from sample extraction date? _X_ YES __NO
3. Cool 4°C (+-2°C)? _X_ YES __NO

Comments: Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Extraction procedure follows 8310 guidelines? _X_ YES __NO
2. Instrument specific LOD for target analytes? _X_ YES __NO
3. Instrument specific LOQ for target analytes? _X_ YES __NO
4. Instrument specific Check Sample Data? _X_ YES __NO
5. Instrument Working Range for target analytes? _X_ YES __NO
6. Lab acceptable surrogates %recovery ranges? _X_ YES __NO
7. Lab acceptable matrix spike recovery ranges for target analytes? _X_ YES __NO
8. Sample analysis log sheet? _X_ YES __NO
9. Chromatogram and integration report for each sample? _X_ YES __NO

Comments: Criteria met.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for HPLC used for analyses? _X_ YES __NO
2. QC check sample contains all target analytes outlined in RFP? _X_ YES __NO
3. QC check samples analyzed in quadruplicate? _X_ YES __NO
4. Reported average recovery (X) of target analytes from check samples? _X_ YES __NO
5. Reported Standard deviation(s) for the recovery of target analytes quadruplicated? _X_ YES __NO
6. Reported acceptable laboratory ranges for X and S values? _X_ YES __NO
7. QC check samples are within established laboratory acceptable range for target analytes? _X_ YES __NO

Comments: Criteria met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) _X_ YES __NO
2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes? __N/A _X_ YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

b. Determined Internal Calibration Factor (CF) for target analytes? _X_ N/A __YES __NO

$CF = (A_s * C_{is})/(C_s * A_{is})$

A_s = Analyte Response
A_{is} = Internal Standard Response
C_s = Analyte Concentration
C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? __N/A _X_ YES __NO

$\%RSD = SD/(CF)_a \times 100$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD$\geq$20% over established working range.

   None

Comments: Criteria met.

E. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? _X_ YES __NO

2. Target analytes responses have a % Difference (%Diff) of $\pm$15% from previously run standards? _X_ YES __NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

Comments: Criteria met.

F. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 1 surrogate compound? _X_ YES __NO

2. List surrogate compounds used and laboratory's acceptable surrogate % Recovery Limits:

   OTP (40-120%)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

None

Comments: Criteria met.

G. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? _X_ YES __NO

Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Criteria met.

H. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? _X_ YES __NO
2. Reagent Blank run after 20 batch samples? _X_ YES __NO
3. List target analytes identified in the Reagent/system blanks:

Comments: Criteria met.

I. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO

2. Matrix spikes contain target analytes? _X_ YES __NO

3. Spike and Spike duplicate run on specific batch matrix? _X_ YES __NO

4. List laboratory's acceptable %recovery matrix spike ranges:

   All parameters: 40-140%

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   None

6. Was a check standard run to address problem of failed Matrix Spike? _X_ N/A __YES __NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? _X_ N/A __YES __NO

8. Any analytes flagged as "Estimated Concentration"? __YES _X_ NO

9. List Analytes labeled as "Estimated Concentrations":

   None

Comments: Criteria met.

J. DAA CORRECTIVE ACTION STEPS TAKEN

Initial data package acceptable with no additional information requested from the laboratory. LOQ reported as 1.0 μg/L on the accuracy and precision statement provided by the laboratory, however, matrix spiking concentration of 0.05 μg/L indicates sufficient accuracy and precision associated with a concentration of 0.05 μg/L. An LOQ of 0.05 ug/L was established for these analyses.

K. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: Marlen Stone

Date: 1/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8310	Benzo[a]pyrene	MW-1	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-3	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-6	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-8	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-10	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-11	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-17	ND	U	LOQ equal to 0.05 μg/L.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

Method 8310 HPLC (P.A.H.S) Data Review

Wells: SDG-2 Core Wells: MW-2, MW-4, MW-9, and MW-12

QC Samples: MW-9 MS, MW-9 MSD, Trip Blank, Method Blanks

Laboratory: CT&E Environmental Services, Charleston, WV

"X" denotes items reviewed. A detailed evaluation follows each item reviewed.

Does Laboratory analyte list correspond to analyte list requested by DAA? _X_ YES __NO

Note: Benzo[a]pyrene only.

A. TECHNICAL HOLDING TIMES AND PRESERVATION REQUIREMENTS:

1. 7 days maximum holding time from sample collection? _X_ YES __NO
2. 40 days maximum holding time from sample extraction date? _X_ YES __NO
3. Cool 4°C (+-2°C)? _X_ YES __NO

Comments: Criteria met.

B. INSTRUMENT QC HISTORY DOCUMENTATION CRITERIA:

1. Extraction procedure follows Method 8310 guidelines? _X_ YES __NO
2. Instrument specific LOD for target analytes? _X_ YES __NO
3. Instrument specific LOQ for target analytes? _X_ YES __NO
4. Instrument specific Check Sample Data? _X_ YES __NO
5. Instrument Working Range for target analytes? _X_ YES __NO
6. Lab acceptable surrogates %recovery ranges? _X_ YES __NO
7. Lab acceptable matrix spike recovery ranges for target analytes? _X_ YES __NO
8. Sample analysis log sheet? _X_ YES __NO
9. Chromatogram and integration report for each sample? _X_ YES __NO

Comments: Criteria met.

C. CHECK SAMPLES CRITERIA:

1. QC check sample data is for HPLC used for analyses? _X_ YES __NO
2. QC check sample contains all target analytes outlined in RFP? _X_ YES __NO
3. QC check samples analyzed in quadruplicate? _X_ YES __NO
4. Reported average recovery (X) of target analytes from check samples? _X_ YES __NO
5. Reported Standard deviation(s) for the recovery of target analytes quadruplicated? _X_ YES __NO
6. Reported acceptable laboratory ranges for X and S values? _X_ YES __NO
7. QC check samples are within established laboratory acceptable range for target analytes? _X_ YES __NO

Comments: Criteria met.

D. INITIAL GC CALIBRATION CRITERIA:

1. Five point calibration run prior to analyses (dL to upper end) _X_ YES __NO
2. Calibration Type: External

   a. Determined External Calibration Factor (CF) for target analytes? _X_ YES __NO

   $$CF = \frac{\text{Total Area of Target Analyte Peak}}{\text{Mass Target Analyte (ng)}}$$

b. Determined Internal Calibration Factor (CF) for target analytes? _X_ N/A __YES __NO

$CF = (A_s * C_{is})/(C_s * A_{is})$

A_s = Analyte Response
A_{is} = Internal Standard Response
C_s = Analyte Concentration
C_{is} = Internal Standard Concentration

3. The % Relative Standard Deviation (%RSD) of all target analytes CF is <20% over the established working range? __N/A _X_ YES __NO

$\%RSD = SD/(CF)_a \times 100$

$$SD = \frac{\sqrt{\sum^{5}_{i=1}(CF_i - CF_a)^2}}{5-1}$$

CF_i = Analyte Calibration factor from "i" run of the 5 point calibration (i = 1,2,3,4, or 5).

CF_a = Average Calibration factor for target analyte from 5 point calibration.

$$CF_a = \frac{(\sum^{5}_{i=1} RF_i)}{5}$$

4. Quantitation Methods used by laboratory:

   Calibration Factor

5. List target analytes with %RSD$\geq$20% over established working range.

   None

Comments: Criteria met.

E. CONTINUING CALIBRATION CRITERIA:

1. Continuing Calibration standard performed at least once every working day? _X_ YES __NO

2. Target analytes responses have a % Difference (%Diff) of $\pm$15% from previously run standards? _X_ YES __NO

$$\%\text{Difference} = \frac{R_1 - R_2}{R_1} \times 100$$

Comments: Criteria met.

F. SURROGATES CRITERIA:

1. All Samples, Standards, Blanks, and Checks are spiked with at least 1 surrogate compound? _X_ YES __NO

2. List surrogate compound used and laboratory's acceptable surrogate % Recovery Limits:

   OTP (40-120%)

3. List samples whose surrogate %recovery are not within laboratory Acceptable limits:

None

Comments: Criteria met.

G. RETENTION TIMES CRITERIA:

1. Reported daily Retention Time (RT) window for target analytes, with the mid-point being set from the continuous calibration standard run for that working day? _X_ YES __NO

Daily RT Window = midpoint +- 3 times standard deviation.

Comments: Criteria met.

H. REAGENT/SYSTEM BLANKS CRITERIA:

1. Reagent/System Blank run prior to analyzing any batch samples? _X_ YES __NO
2. Reagent Blank run after 20 batch samples? _X_ YES __NO
3. List target analytes identified in the Reagent/system blanks:

None

Comments: Criteria met.

I. MATRIX SPIKES CRITERIA:

1. Matrix spike and Matrix spike duplicate was run per sample batch or every 20 samples whichever may occur first? _X_ YES __NO

2. Matrix spikes contain target analytes? X YES __NO

3. Spike and Spike duplicate run on specific batch matrix? X YES __NO

4. List laboratory's acceptable %recovery matrix spike ranges:

   40-140%

5. List matrix spike target analytes not within acceptable laboratory recoveries:

   None

6. Was a check standard run to address problem of failed Matrix Spike? X N/A __YES __NO

7. Did check standard for failed target analyte fall within acceptable recovery range and problem identified as "Matrix Interference"? X N/A __YES __NO

8. Any analytes flagged as "Estimated Concentration"? __YES X NO

9. List Analytes labeled as "Estimated Concentrations":

   None

Comments: Criteria met.

J. DAA CORRECTIVE ACTION STEPS TAKEN

Initial data package acceptable in original form. No additional information requested from the laboratory. The LOQ reported as 1.0 μg/L on the accuracy and precision statement provided by the laboratory, however, matrix spiking concentration of 0.05 μg/L indicates sufficient accuracy and precision associated with a concentration of 0.05 μg/L. An LOQ of 0.05 ug/L was established for these analyses.

K. VALIDATION SIGN OFF:

Draper Aden Associates conducted a data validation of the above noted data set using summary tables and raw data provided by the analyzing laboratory. Data evaluation was conducted using SW-846 Method requirements and CLP data validation guidelines. Random representative data points were selected for calculation verification. Validation of this data set is not considered to be a comprehensive evaluation.

Validated by: Madlen Stott

Date: 1/96

Analytical Data Set Notes

METHOD	PARAMETER	WELLS	LAB RESULT (PPB)	VALIDATED RESULT (PPB)	NOTES
8310	Benzo[a]pyrene	MW-2	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-4	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-9	ND	U	LOQ equal to 0.05 μg/L.
8310	Benzo[a]pyrene	MW-12	ND	U	LOQ equal to 0.05 μg/L.

See definition section (Section IV.B of report [Volume 1]) for additional information on Data Validation and Reporting Qualifiers.

SECTION 9.3

REVISIONS TO ORIGINAL DATA SET

NONE

SECTION 9.4

SW-846 PNA ANALYTICAL DATA

CASE NARRATIVE

Laboratory Number 295-07-0230-001/014, 295-07-0276-001/011

DATE: September 8, 1995

METHOD 8310:

Nineteen water samples were analysed according to the guidelines of Method 8310. 800mls of sample and 1ml of o-Terphenyl as a surrogate was extracted. No internal standards were used in the analysis. All target hits were confirmed by second detector confirmation. The results reported relate only to those items tested.

The HPLC for instrument hplc1analysis condition were as follows:

Detector A: Fluorescence
Detector B: 254nm Ultraviolet
Detectors run in tandem
Column: Vydac C18 Reverse Phase
Injection Amount: 50µLs
Flow Rate: 1.5 ml/min
Instrument: Hewlett-Packard System

SAMPLE CALCULATIONS:

$$\text{Response Factor} = \frac{\text{(area analyte)}}{\text{(amt analyte)}}$$

$$\text{Concentration in µg/L} = \frac{\text{(area analyte in sample) x (final extract volume) x Ave.RF x DF}}{\text{sample extraction volume}}$$

where:

CCVS = Continuing Calibration Verification Standard
DF = Dilution Factor
Ave. RF = Average Response Factor

REPORT:
Enclosed with the case narrative are copies of the chain-of-custody and lists of the required compounds, methods, LOQ's and LOD's. The submitted data includes quantitation reports and chromatograms. As a result of the GC data software configuration, summary reports include only detected target analytes, internal standards, and surrogates. The quantitation report header lists computer batch filename, Laboratory ID number, injection date and time, analyst's initials, method used, method name, initial calibration date, dilution factor, sample type, and GC number. The response factors used for all calculations are response factors from the initial calibration listed in the header.

The concentration reported is in μg/L for the liquid samples. Three significant figures are utilized by the GC software to generate reports with greater accuracy levels for spikes, duplicates, and surrogate recovery data. Two significant figures are used for the Laboratory analysis reports. The retention time (RT) is listed for all internal standards and analytes which are detected. If a target analyte is not detected, it will be flagged with a "U" and a detection limit will be listed.. The quantitation limits for all analytes have been established from the Laboratory's current MDL study. Any amounts reported at a level below the quantitation limit will be flagged with a "J" and should be considered estimates. If a target analyte is found at a level exceeding the upper calibration limit, it will be flagged with an "E" and should also be considered estimated.

For ease of evaluation the data package is divided into sections by date of analysis.

The Fluorescence detector is used as the primary channel. Data from the Ultraviolet detector will be presented in the package only when required as confirmational analyses.

RESULTS:
The initial calibration for the surrogate OTP and the target analyte, Benz(a)pyrene was analyzed on August 2, 1995. Both calibration curves met the criteria for the method. The initial calibration summary is reported in on-column nanogram amounts, these are interpreted as:

Level	OTP	Benz(a)pyrene
1	0.05ug/ml	0.025ug/ml
2	0.1ug/ml	0.05ug/ml
3	0.25ug/ml	0.10ug/ml
4	0.5ug/ml	0.25ug/ml
5	1.0ug/ml	0.5ug/ml
6	5.0ug/ml	1.0ug/ml

All blanks were free of interference. The extraction blank, file 018-0101.d, was reported as 07-0230-015. The extraction blank, file 014-0101.d, was reported as 07-0276-012.

All surrogates met recovery criteria. Surrogate was not added to the method blank.

The matrix spike/matrix spike duplicates of MW1 and MW9 met the control limits established by the laboratory.

The sampling to extraction holding time of seven days was met for all samples.

HPLC Organics SW8310 Precision and Accuracy Statement for PNAs

Effective: 5/3/94

Instrument: HPLC#1 **Analyst: ATL**

Analyte	Number of Replicates	Spike Level (ug/L)	LOD (ug/L)	LOQ (ug/L)	Accuracy % Mean Recovery	Precision (% RSD)
Acenaphthene	7	1.0	0.114	0.200	76.1	4.8
Anthracene	7	1.0	0.223	0.500	72.7	9.8
Fluoranthene	7	1.0	0.125	0.200	76.3	5.2
Pyrene	7	1.0	0.108	0.200	72.3	4.8
Benzo(a)anthracene	7	1.0	0.101	0.200	76.6	4.2
Chyrsene	7	1.0	0.221	0.500	78.5	9.0
Benzo(a)fluoranthene	7	1.0	0.104	0.200	79.5	4.2
Benzo(k)fluoranthene	7	1.0	0.117	0.200	81.4	4.6
Benzo(a)pyrene	7	1.0	0.148	0.200	75.3	6.2
Dibenz(a,h)anthracene	7	1.0	0.143	0.200	60.5	7.5
Benzo(g,h,i)perylene	7	1.0	0.144	0.200	62.1	7.4
Indeno(1,2,3-c,d)pyrene	7	1.0	0.168	0.200	80.9	6.6

7. 230-1/14

0210

ANALYTICAL METHOD: 8310
TYPE METHOD: HPLC
CLASS: PNA

LANDFILL: Watauga County NC
SAMPLING EVENT: 1st Semi-annual Assessment
SAMPLING DATE: July 10-14, 1995
DAA JN: 6520-21

NORTH CAROLINA ASSESSMENT MONITORING
SW-846 TABLE 2 PARAMETERS

No.	PARAMETER		CAS RN
1	Benzo[a]pyrene	(class: PNA)	50-32-8

0211

Report Date : 28-Aug-1995 15:40

CT&E Environmental Services Inc. Charleston,WV
RETENTION TIME SUMMARY REPORT

Method File: /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Batch File: /disc/draper_aden/07-0230/8310/1h02pna-1.b
Inst ID: hplc1.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07
FILENAME:	008-0101	009-0101	010-0101	011-0101	012-0101	013-0101	003-0101
INJ.DATE:	03-AUG-1995	03-AUG-1995	03-AUG-1995	03-AUG-1995	03-AUG-1995	03-AUG-1995	03-AUG-1995
INJ.TIME:	02:21	03:07	03:53	04:39	05:25	06:11	19:28

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
14 Benzo(a)pyrene	26.026	26.075	26.086	26.038	26.028	26.103	25.703	26.026	25.626-26.426	26.009	0.138

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

Report Date : 28-Aug-1995 15:38

CT&E Environmental Services Inc. Charleston,WV
RETENTION TIME SUMMARY REPORT

Method File: /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Batch File: /disc/draper_aden/07-0230/8310/1h02pna-1.b
Inst ID: hplc1.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06	RT07
FILENAME:	002-0101	003-0101	004-0101	005-0101	006-0101	007-0101	004-0101
INJ.DATE:	02-AUG-1995	02-AUG-1995	02-AUG-1995	03-AUG-1995	03-AUG-1995	03-AUG-1995	03-AUG-1995
INJ.TIME:	21:46	22:32	23:18	00:04	00:50	01:35	20:14

Compound	RT01	RT02	RT03	RT04	RT05	RT06	RT07	EXPEC RT	RT WINDOW	AVG RT	STD DEV
$ 6 OTP	16.866	16.832	16.858	16.760	16.716	16.694	16.800	16.866	16.466-17.266	16.789	0.068

Reviewer 1 _____ Date: _____
Reviewer 2 _____ Date: _____

0213

CT&E ENVIRONMENTAL SERVICES INC. - ORGANIC EXTRACTION LOG

Date: July 13 Analyst: JS Date Code: 6-13 Page #: _____

CT&E #	DESCRIPTION	CLIENT	EXTRACTION TYPE	START. VOL./ WGHT.	SURROGATE and/or SPIKE	CLEAN-UP TYPE	FINAL VOLUME (mL)		
							NCU	A	B
0209-000	Soil	Andrew Miller	PHT	10.1	1ml PPS86		1.08		
0209-000	Spike	↓	↓	10.3	1ml PPS86 1ml AMS BNMS		1.0		
Blank	Soil	CTE	↓	30.1	1ml PPS86		1.10		
Blank	Spike	↓	↓	30.6	1ml PPS86 1ml AMS BNMS		1.10		
Blank	Soil	↓	PCB	30.9	1ml PCB35		5.8		
Blank	Spike	↓	↓	30.7	1ml PCB35 1ml 1254/50		5.8		
0230-001	Water	Draper Aden	PNA 8310	900ml	1ml OTP 1ug		1.09ml		
002	Spike	↓	↓	↓	1ml OTA 1ug 1ml HPLC-8		1ml		
003	Spike Dup	↓	↓	↓	↓		.98ml		
004	Water	↓	↓	↓	1ml OTP 1ug		1.08ml		
005	↓	↓	↓	↓	↓		1.1ml		
007	↓	↓	↓	↓	↓		.95ml		
008	↓	↓	↓	↓	↓		.95ml		
009	↓	↓	↓	↓	↓		1.04ml		

Comments:

0214

CT&E ENVIRONMENTAL SERVICES INC. - ORGANIC EXTRACTION LOG

Date: July 13 Analyst: JB Date Code: 0-13 Page #: _____

CT&E #	DESCRIPTION	CLIENT	EXTRACTION TYPE	START. VOL./ WGHT.	SURROGATE and/or SPIKE	CLEAN-UP TYPE	FINAL VOLUME (mL)		
							NCU	A	B
0230-011	Water	Draper Aden	PNA 8310	800ml	1ml OTP 1ug		1.1ml		
014	↓	↓	↓	↓	↓		1.23ml		
Blank	↓	CTE	↓	↓	↓		1.14ml		
Distilled	Spike	↓	↓	↓	1ml OTP 1ug 1ml HPLC.8		1.3ml		
0244-001	Soil Small gravel	Ensat	DRO	30.3	1ml OTP		1.0ml		
002	↓ Small Gravel	↓	↓	30.3	↓		1ml		
003	↓ Sandy Soil	↓	↓	30.1	↓		1.03ml		
Blank	↓	CTE	↓	30.1	↓		1.02ml		
Blank	Spike	↓	↓	30.6	1ml OTP 1ml DRO		1.02ml		
0244-002	Spike	Ensat	↓	30.6	↓		1.08ml		

Comments:

02144

CT&E ENVIRONMENTAL SERVICES INC. - ORGANIC EXTRACTION LOG

Date: July 14 Analyst: RES Date Code: G-14 Page #: 2

CT&E #	DESCRIPTION	CLIENT	EXTRACTION TYPE	START. VOL./ WGHT.	SURROGATE and/or SPIKE	CLEAN-UP TYPE	FINAL VOLUME (mL) NCU	A	B
7-276-001		Draper	PNA 8310	800ml	1m OTP at 1.0		0.97		
002							0.97		
003							1.08		
004							1.10		
005							1.13		
006							1.17		
011							1.20		
Blank							0.99		
Blank Spike					1ml OTP at 1.0 1ml HPLC at .8		1.20		
288-000		Vector	PCB	200ml	1ml PCB35		4.8		
Blank		CT&E		800ml	1ml PCB		6.2		
Blank Spike					1ml PCB 1ml 1254/50		5.3		

Comments:

SAMPLE INFORMATION SUMMARY

BATCH: /disc/draper_aden/07-0230/8310/1h02pna-1.b

Data File	Injection Date	Sample Type	Dil Factor	Inst ID	Method	Method Batch
002-0101.d	02-AUG-1995 21:46	Cal Level 6	1.00	hplc1	8310_chA.m	1h02pna-1.b
003-0101.d	02-AUG-1995 22:32	Cal Level 5	1.00	hplc1	8310_chA.m	1h02pna-1.b
004-0101.d	02-AUG-1995 23:18	Cal Level 4	1.00	hplc1	8310_chA.m	1h02pna-1.b
005-0101.d	03-AUG-1995 00:04	Cal Level 3	1.00	hplc1	8310_chA.m	1h02pna-1.b
006-0101.d	03-AUG-1995 00:50	Cal Level 2	1.00	hplc1	8310_chA.m	1h02pna-1.b
007-0101.d	03-AUG-1995 01:35	Cal Level 1	1.00	hplc1	8310_chA.m	1h02pna-1.b
008-0101.d	03-AUG-1995 02:21	Cal Level 6	1.00	hplc1	8310_chA.m	1h02pna-1.b
009-0101.d	03-AUG-1995 03:07	Cal Level 5	1.00	hplc1	8310_chA.m	1h02pna-1.b
010-0101.d	03-AUG-1995 03:53	Cal Level 4	1.00	hplc1	8310_chA.m	1h02pna-1.b
011-0101.d	03-AUG-1995 04:39	Cal Level 3	1.00	hplc1	8310_chA.m	1h02pna-1.b
012-0101.d	03-AUG-1995 05:25	Cal Level 2	1.00	hplc1	8310_chA.m	1h02pna-1.b
013-0101.d	03-AUG-1995 06:11	Cal Level 1	1.00	hplc1	8310_chA.m	1h02pna-1.b

Data File	Matrix	Fraction	Lab Sample ID	Lab Prep Batch	Client Sample ID	Client Sample Group
002-0101.d	LIQUID	SV	ical6	pna	ical6	pna
003-0101.d	LIQUID	SV	ical5	pna	ical5	pna
004-0101.d	LIQUID	SV	ical4	pna	ical4	pna
005-0101.d	LIQUID	SV	ical3	pna	ical3	pna
006-0101.d	LIQUID	SV	ical2	pna	ical2	pna
007-0101.d	LIQUID	SV	ical1	pna	ical1	pna
008-0101.d	LIQUID	SV	ical6	pna	ical6	pna
009-0101.d	LIQUID	SV	ical5	pna	ical5	pna
010-0101.d	LIQUID	SV	ical4	pna	ical4	pna
011-0101.d	LIQUID	SV	ical3	pna	ical3	pna
012-0101.d	LIQUID	SV	ical2	pna	ical2	pna
013-0101.d	LIQUID	SV	ical1	pna	ical1	pna

Data File	Compound Sublist	Spike List File	Sample Ref #	QC Group Ref #	Init Cal Ref #	Batch Ref #
002-0101.d	OTP.sub	BaP.spk	102348	105993	93238	102360
003-0101.d	OTP.sub	BaP.spk	102349	105993	93238	102360
004-0101.d	OTP.sub	BaP.spk	102350	105993	93238	102360
005-0101.d	OTP.sub	BaP.spk	102351	105993	93238	102360
006-0101.d	OTP.sub	BaP.spk	102352	105993	93238	102360
007-0101.d	OTP.sub	BaP.spk	102353	105993	93238	102360
008-0101.d	benzopyr.sub	BaP.spk	102354	105993	93238	102360
009-0101.d	benzopyr.sub	BaP.spk	102355	105993	93238	102360
010-0101.d	benzopyr.sub	BaP.spk	102356	105993	93238	102360
011-0101.d	benzopyr.sub	BaP.spk	102357	105993	93238	102360
012-0101.d	benzopyr.sub	BaP.spk	102358	105993	93238	102360
013-0101.d	benzopyr.sub	BaP.spk	102359	105993	93238	102360

CT&E Environmental Services Inc. Charleston,WV

INITIAL CALIBRATION DATA

Start Cal Date : 02-AUG-95 21:46
End Cal Date : 03-AUG-1995 06:11
Quant Method : ESTD
Target Version : 3.12
Integrator : HP Genie
Method file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Cal Date : 28-Aug-1995 15:11 smandir
Curve Type : Average

Compound	0.0250 Level 1	0.0500 Level 2	0.1000 Level 3	0.2500 Level 4	0.5000 Level 5	1 Level 6	___ RRF	% RSD
14 Benzo(a)pyrene	349760	301940	346970	318600	395136	339418	341971	9.309
$ 6 OTP	277680	320960	352456	354538	377929	399139	347117	12.388

0217

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/002-0101.d
Lab Smp Id: ical6 Client Smp ID: ical6
Inj Date : 02-AUG-1995 21:46
Operator : atl Inst ID: hplc1.i
Smp Info : OTP 5.0 ug/ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:44 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: OTP.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)		
$ 6 OTP					CAS #:		
16.867	16.866	0.001	1995695	5.00	5.75		(AM)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV 0218

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical6
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: ical6
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	OTP	7.19	E

0219

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/003-0101.d
Lab Smp Id: ical5 Client Smp ID: ical5
Inj Date : 02-AUG-1995 22:32
Operator : atl Inst ID: hplc1.i
Smp Info : OTP 1.0 ug/ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:44 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: OTP.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)		
$ 6 OTP					CAS #:		
16.833	16.866	-0.033	377929	1.00	1.09		(AM)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV 0220

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical5
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: ical5
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
----------	OTP	1.36	E

0221

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/004-0101.d
Lab Smp Id: ical4 Client Smp ID: ical4
Inj Date : 02-AUG-1995 23:18
Operator : atl Inst ID: hplc1.i
Smp Info : OTP 0.5 ug/ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:44 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: OTP.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)		
$ 6 OTP					CAS #:		
16.857	16.866	-0.009	177269	0.500	0.511		(M)

QC Flag Legend

M - Compound response manually integrated.

0222

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical4
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: ical4
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	OTP	0.638	

0223

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/005-0101.d
Lab Smp Id: ical3 Client Smp ID: ical3
Inj Date : 03-AUG-1995 00:04
Operator : atl Inst ID: hplc1.i
Smp Info : OTP 0.25 ug/ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:44 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: OTP.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
$ 6 OTP					CAS #:	
16.760	16.866	-0.106	88114	0.250	0.254	(M)

QC Flag Legend

M - Compound response manually integrated.

0224

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical3
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: ical3
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
----------	OTP	0.317	

0225

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/006-0101.d
Lab Smp Id: ical2 Client Smp ID: ical2
Inj Date : 03-AUG-1995 00:50
Operator : atl Inst ID: hplc1.i
Smp Info : OTP 0.1 ug/ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:44 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: OTP.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
$ 6 OTP					CAS #:	
16.713	16.866	-0.153	32096	0.100	0.0925	(M)

QC Flag Legend

M - Compound response manually integrated.

0226

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical2
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: ical2
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
----------	OTP	0.116	

0227

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/007-0101.d
Lab Smp Id: ical1 Client Smp ID: ical1
Inj Date : 03-AUG-1995 01:35
Operator : atl Inst ID: hplc1.i
Smp Info : OTP 0.05 ug/ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:44 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: OTP.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
$ 6 OTP					CAS #:	
16.690	16.866	-0.176	13884	0.0500	0.0400	(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV 0228

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical1
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: ical1
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	OTP	0.0500	

0229

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/008-0101.d
Lab Smp Id: ical6 Client Smp ID: ical6
Inj Date : 03-AUG-1995 02:21
Operator : atl Inst ID: hplc1.i
Smp Info : PNA Level 1
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:44 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Calibration Sample, Level: 6
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: benzopyr.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
14 Benzo(a)pyrene					CAS #:
26.026	26.026	0.000	339418	1.00	0.992

0230

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical6
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: ical6
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	Benzo(a)pyrene	1.24	

0231

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/009-0101.d
Lab Smp Id: ical5 Client Smp ID: ical5
Inj Date : 03-AUG-1995 03:07
Operator : atl Inst ID: hplc1.i
Smp Info : PNA Level 2
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:44 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Calibration Sample, Level: 5
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: benzopyr.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
14 Benzo(a)pyrene					CAS #:
26.075	26.026	0.049	197568	0.500	0.578

0232

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical5
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: ical5
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	Benzo(a)pyrene	0.722	

0233

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/010-0101.d
Lab Smp Id: ical4 Client Smp ID: ical4
Inj Date : 03-AUG-1995 03:53
Operator : atl Inst ID: hplc1.i
Smp Info : PNA Level 3
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:44 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Calibration Sample, Level: 4
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: benzopyr.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
14 Benzo(a)pyrene					CAS #:
26.086	26.026	0.060	79650	0.250	0.233

0234

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical4
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: ical4
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	Benzo(a)pyrene	0.291	

0235

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/011-0101.d
Lab Smp Id: ical3 Client Smp ID: ical3
Inj Date : 03-AUG-1995 04:39
Operator : atl Inst ID: hplc1.i
Smp Info : PNA Level 4
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:45 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Calibration Sample, Level: 3
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: benzopyr.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)
14 Benzo(a)pyrene					CAS #:
26.038	26.026	0.012	34697	0.100	0.101

0236

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical3
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: ical3
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	Benzo(a)pyrene	0.127	

0237

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/012-0101.d
Lab Smp Id: ical2 Client Smp ID: ical2
Inj Date : 03-AUG-1995 05:25
Operator : atl Inst ID: hplc1.i
Smp Info : PNA Level 5
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:45 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Calibration Sample, Level: 2
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: benzopyr.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
26.027	26.026	0.001	15097	0.0500	0.0441	(M)

QC Flag Legend

M - Compound response manually integrated.

0238

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical2
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: ical2
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	Benzo(a)pyrene	0.0552	

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h02pna-1.b/013-0101.d
Lab Smp Id: ical1 Client Smp ID: ical1
Inj Date : 03-AUG-1995 06:11
Operator : atl Inst ID: hplc1.i
Smp Info : PNA Level 6
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h02pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:45 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 06:11 Cal File: 013-0101.d
Als bottle: 1 Calibration Sample, Level: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: benzopyr.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
26.097	26.026	0.071	8744	0.0250	0.0256	(M)

QC Flag Legend

M - Compound response manually integrated.

0240

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: ical1
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: ical1
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	Benzo(a)pyrene	0.0320	

SAMPLE INFORMATION SUMMARY

BATCH: /disc/draper_aden/07-0230/8310/1h03pna-1.b

Data File	Injection Date	Sample Type	Dil Factor	Inst ID	Method	Method Batch
003-0101.d	03-AUG-1995 19:28	Continuing Cal	1.00	hplc1	8310_chA.m	1h03pna-1.b
004-0101.d	03-AUG-1995 20:14	Continuing Cal	1.00	hplc1	8310_chA.m	1h03pna-1.b
005-0101.d	03-AUG-1995 20:59	BLANK	1.00	hplc1	8310_chA.m	1h03pna-1.b
006-0101.d	03-AUG-1995 21:45	Unknown	1.00	hplc1	8310_chA.m	1h03pna-1.b
007-0101.d	03-AUG-1995 22:31	MS	1.00	hplc1	8310_chA.m	1h03pna-1.b
008-0101.d	03-AUG-1995 23:17	MSD	1.00	hplc1	8310_chA.m	1h03pna-1.b
009-0101.d	04-AUG-1995 00:03	Unknown	1.00	hplc1	8310_chA.m	1h03pna-1.b
010-0101.d	04-AUG-1995 00:49	Unknown	1.00	hplc1	8310_chA.m	1h03pna-1.b
011-0101.d	04-AUG-1995 01:35	Continuing Cal	1.00	hplc1	8310_chA.m	1h03pna-1.b
012-0101.d	04-AUG-1995 02:21	Unknown	1.00	hplc1	8310_chA.m	1h03pna-1.b
013-0101.d	04-AUG-1995 03:07	Unknown	1.00	hplc1	8310_chA.m	1h03pna-1.b
014-0101.d	04-AUG-1995 03:53	Unknown	1.00	hplc1	8310_chA.m	1h03pna-1.b
015-0101.d	04-AUG-1995 04:38	Unknown	1.00	hplc1	8310_chA.m	1h03pna-1.b
016-0101.d	04-AUG-1995 05:24	Unknown	1.00	hplc1	8310_chA.m	1h03pna-1.b

Data File	Matrix	Fraction	Lab Sample ID	Lab Prep Batch	Client Sample ID	Client Sample Group
003-0101.d	LIQUID	SV	ccal	1h03pna-1	ccal	1h03pna-1
004-0101.d	LIQUID	SV	ccal	1h03pna-1	ccal	1h03pna-1
005-0101.d	LIQUID	SV	mb	1h03pna-1	mb	1h03pna-1
006-0101.d	LIQUID	SV	mw1	1h03pna-1	mw1	1h03pna-1
007-0101.d	LIQUID	SV	mw1MS	1h03pna-1	mw1MS	1h03pna-1
008-0101.d	LIQUID	SV	mw1MSD	1h03pna-1	mw1MSD	1h03pna-1
009-0101.d	LIQUID	SV	7-230-4mw6	1h03pna-1	7-230-4mw6	1h03pna-1
010-0101.d	LIQUID	SV	7-230-5mw3	1h03pna-1	7-230-5mw3	1h03pna-1
011-0101.d	LIQUID	SV	ccal	1h03pna-1	ccal	1h03pna-1
012-0101.d	LIQUID	SV	7-230-7mw8	1h03pna-1	7-230-7mw8	1h03pna-1
013-0101.d	LIQUID	SV	7-230-8mw11	1h03pna-1	7-230-8mw11	1h03pna-1
014-0101.d	LIQUID	SV	7-230-9mw10	1h03pna-1	7-230-9mw10	1h03pna-1
015-0101.d	LIQUID	SV	7-230-11mw17	1h03pna-1	7-230-11mw17	1h03pna-1
016-0101.d	LIQUID	SV	tb	1h03pna-1	tb	1h03pna-1

Data File	Compound Sublist	Spike List File	Sample Ref #	QC Group Ref #	Init Cal Ref #	Batch Ref #
003-0101.d	benzopyr.sub	BaP.spk	102390	102424	93238	102388
004-0101.d	OTP.sub	BaP.spk	102391	102424	93238	102388
005-0101.d	DA-8310.sub	BaP.spk	102392	102424	93238	102388
006-0101.d	DA-8310.sub	BaP.spk	102393	102424	93238	102388
007-0101.d	DA-8310.sub	BaP0_8.spk	102394	102424	93238	102388
008-0101.d	DA-8310.sub	BaP0_8.spk	102395	102424	93238	102388
009-0101.d	DA-8310.sub	BaP.spk	102396	102424	93238	102388
010-0101.d	DA-8310.sub	BaP.spk	102397	102424	93238	102388
011-0101.d	benzopyr.sub	BaP.spk	102398	102424	93238	102388
012-0101.d	DA-8310.sub	BaP.spk	102399	102424	93238	102388
013-0101.d	DA-8310.sub	BaP.spk	102400	102424	93238	102388
014-0101.d	DA-8310.sub	BaP.spk	102401	102424	93238	102388
015-0101.d	DA-8310.sub	BaP.spk	102402	102424	93238	102388
016-0101.d	DA-8310.sub	BaP.spk	102403	102424	93238	102388

SAMPLE INFORMATION SUMMARY

0242

BATCH: /disc/draper_aden/07-0230/8310/1h03pna-1.b

Data File	Injection Date	Sample Type	Dil Factor	Inst ID	Method	Method Batch
017-0101.d	04-AUG-1995 06:10	Continuing Cal	1.00	hplc1	8310_chA.m	1h03pna-1.b
018-0101.d	04-AUG-1995 06:56	EXTBLANK	1.00	hplc1	8310_chA.m	1h03pna-1.b

Data File	Matrix	Fraction	Lab Sample ID	Lab Prep Batch	Client Sample ID	Client Sample Group
017-0101.d	LIQUID	SV	ccal	1h03pna-1	ccal	1h03pna-1
018-0101.d	LIQUID	SV	eb	1h03pna-1	eb	1h03pna-1

Data File	Compound Sublist	Spike List File	Sample Ref #	QC Group Ref #	Init Cal Ref #	Batch Ref #
017-0101.d	benzopyr.sub	BaP.spk	102404	102424	93238	102388
018-0101.d	DA-8310.sub	BaP.spk	102405	102424	93238	102388

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

0243

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Instrument ID: HPLC1 Calibration Date: 08/03/95 Time: 1928

Lab File ID: 003-0101 Init. Calib. Date(s): 08/02/95 08/03/95

Init. Calib. Times: 2146 0611

COMPOUND	$\overline{RRF}$	RRF 0.05	MIN RRF	%D	MAX %D
Benzo(a)pyrene	341971	311940		8.8	

All other compounds must meet a minimum RRF of 0.010.

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/003-0101.d
Lab Smp Id: ccal Client Smp ID: ccal
Inj Date : 03-AUG-1995 19:28
Operator : atl Inst ID: hplc1.i
Smp Info : PNA Level 5
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:45 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: benzopyr.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
25.693	25.703	-0.010	15597	0.0500	0.0456	(M)

QC Flag Legend

M - Compound response manually integrated.

0245

CT&E Environmental Services Inc. Charleston,WV

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplc1.i
Lab File ID: 003-0101.d
Analysis Type: WATER
Lab Sample ID: ccal
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m

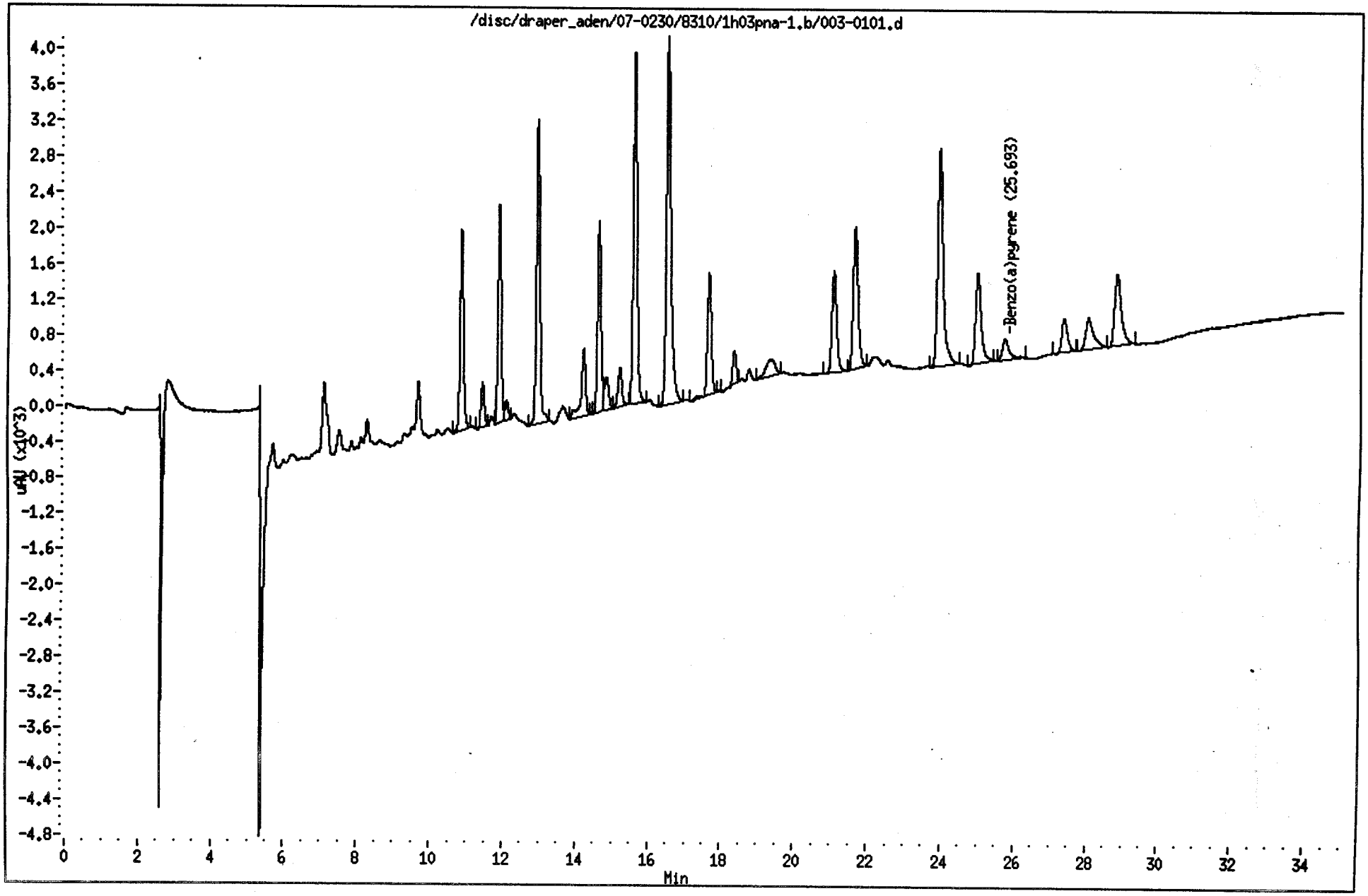
Injection Date: 03-AUG-1995 19:28
Init. Calibration Date(s): 08/02/95 08/03/95
Init. Calibration Times: 21:46 06:11
Quant Type: ESTD

COMPOUND	RRF	RFO	MIN RRF	%D	MAX %D
14 Benzo(a)pyrene	341970.667	311940.000	0.010	8.8	40.0

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/003-0101.d
Date : 03-AUG-1995 19:28
Client ID: ccal
Sample Info: PNA Level 5
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i

Operator: atl
Column diameter: 2.00



7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

0247

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Instrument ID: HPLC1 Calibration Date: 08/03/95 Time: 2014

Lab File ID: 004-0101 Init. Calib. Date(s): 08/02/95 08/03/95

Init. Calib. Times: 2146 0611

COMPOUND	$\overline{RRF}$	RRF0.1	MIN RRF	%D	MAX %D
OTP	347117	390290		12.4	

All other compounds must meet a minimum RRF of 0.010.

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/004-0101.d
Lab Smp Id: ccal Client Smp ID: ccal
Inj Date : 03-AUG-1995 20:14
Operator : atl Inst ID: hplc1.i
Smp Info : OTP 0.1 ug/ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:45 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: OTP.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)		
$ 6 OTP					CAS #:		
16.800	16.802	-0.002	39029	0.100	0.112		(M)

QC Flag Legend

M - Compound response manually integrated.

0249

CT&E Environmental Services Inc. Charleston,WV

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplc1.i
Lab File ID: 004-0101.d
Analysis Type: WATER
Lab Sample ID: ccal
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m

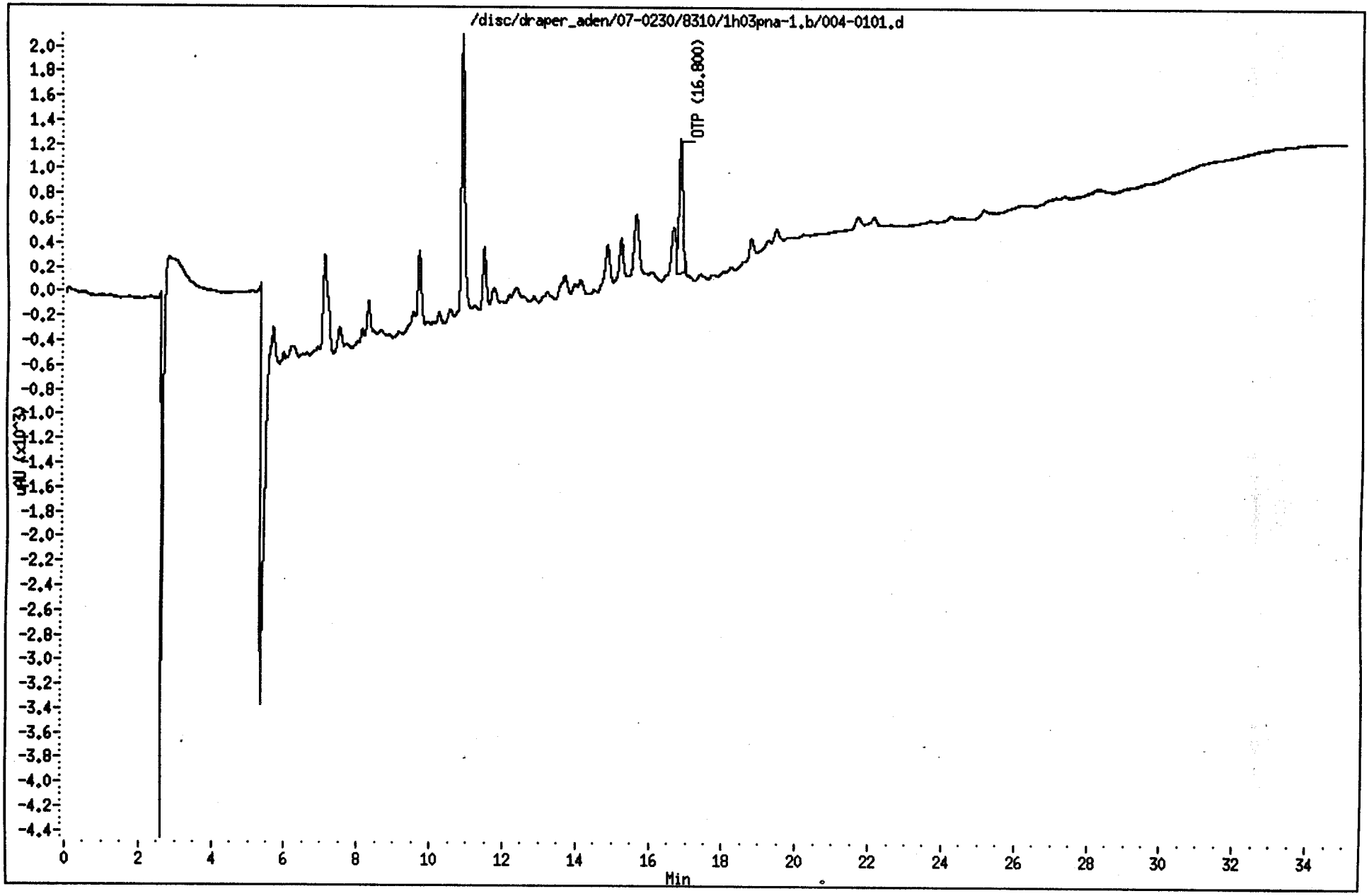
Injection Date: 03-AUG-1995 20:14
Init. Calibration Date(s): 08/02/95 08/03/95
Init. Calibration Times: 21:46 06:11
Quant Type: ESTD

COMPOUND	$\overline{RRF}$	RF0	MIN RRF	%D	MAX %D
$ 6 OTP	347117.000	390290.000	0.010	12.4	40.0

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/004-0101.d
Date : 03-AUG-1995 20:14
Client ID: ccal
Sample Info: OTP 0.1 ug/ml
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i

Operator: atl
Column diameter: 2.00



7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

0251

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Instrument ID: HPLC1 Calibration Date: 08/04/95 Time: 0135

Lab File ID: 011-0101 Init. Calib. Date(s): 08/02/95 08/03/95

Init. Calib. Times: 2146 0611

COMPOUND	$\overline{RRF}$	RRF 0.05	MIN RRF	%D	MAX %D
Benzo(a)pyrene	341971	275840		19.3	

All other compounds must meet a minimum RRF of 0.010.

0252

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/011-0101.d
Lab Smp Id: ccal Client Smp ID: ccal
Inj Date : 04-AUG-1995 01:35
Operator : atl Inst ID: hplc1.i
Smp Info : PNA Level 5
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:46 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: benzopyr.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
26.053	25.703	0.350	13792	0.0500	0.0403	(M)

QC Flag Legend

M - Compound response manually integrated.

0253

CT&E Environmental Services Inc. Charleston,WV

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplc1.i
Lab File ID: 011-0101.d
Analysis Type: WATER
Lab Sample ID: ccal
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m

Injection Date: 04-AUG-1995 01:35
Init. Calibration Date(s): 08/02/95 08/03/95
Init. Calibration Times: 21:46 06:11
Quant Type: ESTD

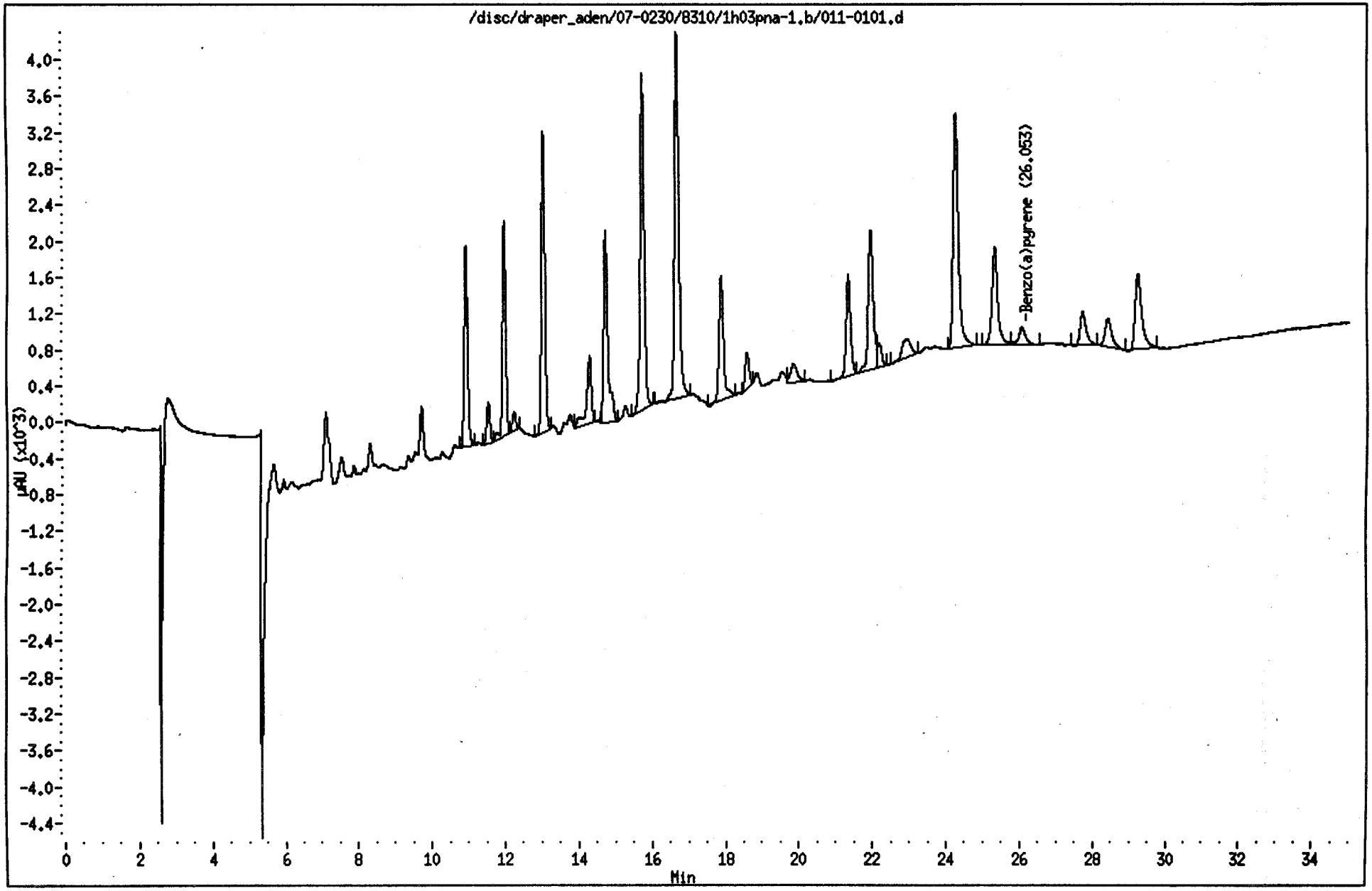
COMPOUND	$\overline{RRF}$	RFO	MIN RRF	%D	MAX %D
14 Benzo(a)pyrene	341970.667	275840.000	0.010	19.3	40.0

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/011-0101.d
Date : 04-AUG-1995 01:35
Client ID: ccal
Sample Info: PNA Level 5
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i

Operator: atl
Column diameter: 2.00

0254



7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CT&E-ELS Contract: DraperAden 0255

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Instrument ID: HPLC1 Calibration Date: 08/04/95 Time: 0610

Lab File ID: 017-0101 Init. Calib. Date(s): 08/02/95 08/03/95

Init. Calib. Times: 2146 0611

COMPOUND	$\overline{RRF}$	RRF 0.05	MIN RRF	%D	MAX %D
Benzo(a)pyrene	341971	274000		19.9	

All other compounds must meet a minimum RRF of 0.010.

0256

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/017-0101.d
Lab Smp Id: ccal Client Smp ID: ccal
Inj Date : 04-AUG-1995 06:10
Operator : atl Inst ID: hplc1.i
Smp Info : PNA Level 5
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:46 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: benzopyr.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
26.110	25.703	0.407	13700	0.0500	0.0401	(TM)

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

0257

CT&E Environmental Services Inc. Charleston,WV

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplc1.i
Lab File ID: 017-0101.d
Analysis Type: WATER
Lab Sample ID: ccal
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m

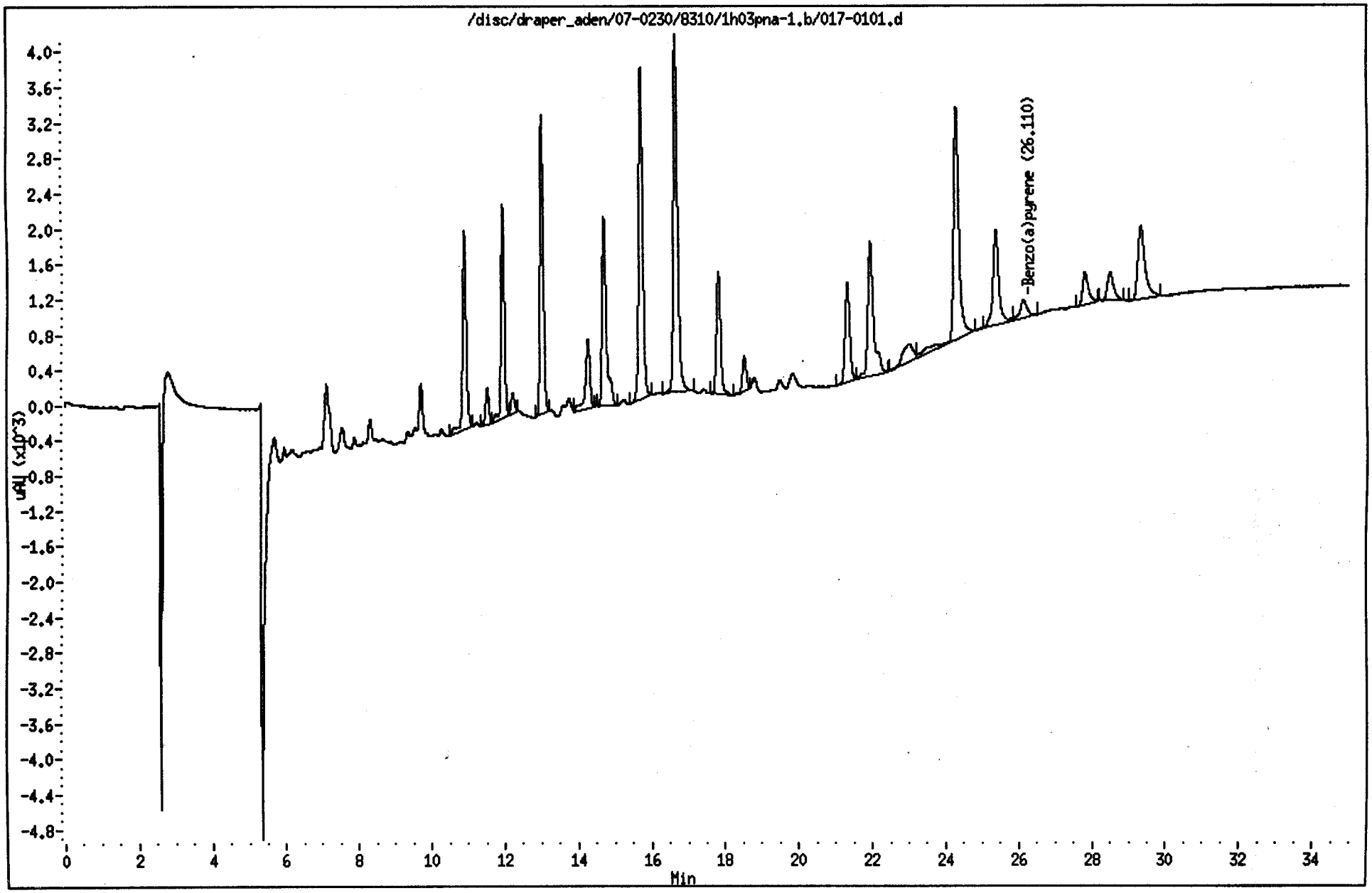
Injection Date: 04-AUG-1995 06:10
Init. Calibration Date(s): 08/02/95 08/03/95
Init. Calibration Times: 21:46 06:11
Quant Type: ESTD

COMPOUND	RRF	RFO	MIN RRF	%D	MAX %D
14 Benzo(a)pyrene	341970.667	274000.000	0.010	19.9	40.0

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/017-0101.d
Date : 04-AUG-1995 06:10
Client ID: ccal
Sample Info: PNA Level 5
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i

Operator: atl
Column diameter: 2.00



1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
0259
eb

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Matrix: (soil/water) WATER Lab Sample ID: eb

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 018-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume: _____(uL) Date Analyzed: 08/04/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0362	U

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/018-0101.d
Lab Smp Id: eb Client Smp ID: eb
Inj Date : 04-AUG-1995 06:56
Operator : atl Inst ID: hplc1.i
Smp Info : Ext.Blk G13 800ml->1.16ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:46 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 QC Sample: EXTBLANK
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.160	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
14 Benzo(a)pyrene					CAS #:
25.703	Compound Not Detected				
$ 6 OTP					CAS #:
16.875	16.802	0.073	295906	0.852	1.24

0261

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: eb
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: 1h03pna-1
Fraction: SV
Client Smp ID: eb
Operator: atl
SampleType: EXTBLANK
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.24	98.89	40-120

0262

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: eb
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: 1h03pna-1
Client Smp ID: eb
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

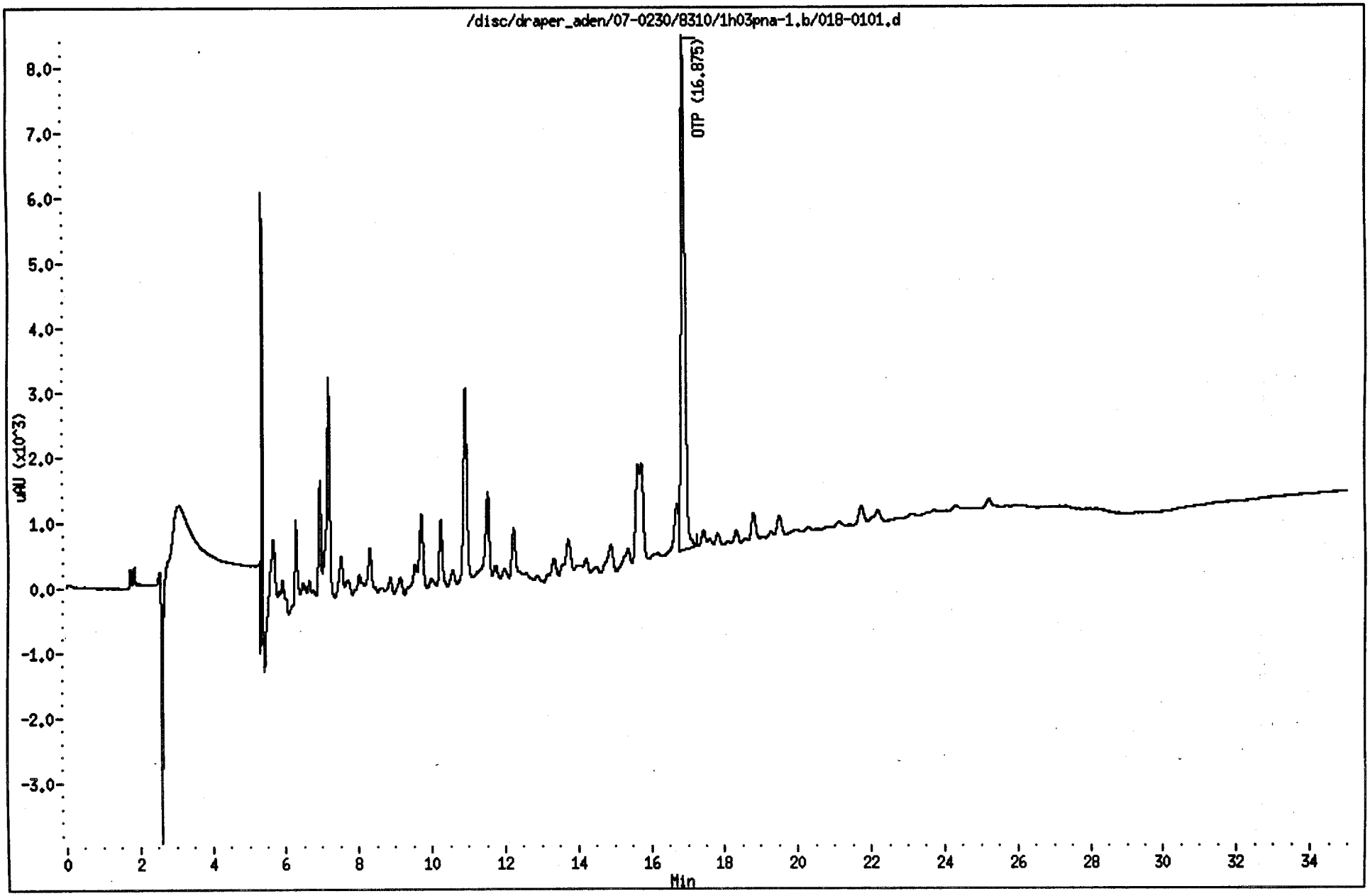
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	OTP	1.24	

0263

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/018-0101.d
Date : 04-AUG-1995 06:56
Client ID: eb
Sample Info: Ext.Blk G13 800ml->1.16ml
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i

Operator: atl
Column diameter: 2.00



4A
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.
0264
mb

Lab Name: CT&E-ELS Contract: Draper Aden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Lab File ID: 005-0101 Lab Sample ID: mb

Date Analyzed: 08/03/95 Time Analyzed: 2059

GC Column: ID: 2 (mm) Heated Purge: (Y/N) N

Instrument ID: HPLC1

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	mw1	mw1	006-0101	2145
02	mw1MS	mw1MS	007-0101	2231
03	mw1MSD	mw1MSD	008-0101	2317
04	7-230-4mw6	7-230-4mw6	009-0101	0003
05	7-230-5mw3	7-230-5mw3	010-0101	0049
06	7-230-7mw8	7-230-7mw8	012-0101	0221
07	7-230-8mw11	7-230-8mw11	013-0101	0307
08	7-230-9mw10	7-230-9mw10	014-0101	0353
09	7-230-11mw17	7-230-11mw17	015-0101	0438
10	tb	tb	016-0101	0524
11	eb	eb	018-0101	0656
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
~~0265~~
mb

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Matrix: (soil/water) WATER Lab Sample ID: mb

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 005-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume:_____(uL) Date Analyzed: 08/03/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0312	U

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/005-0101.d
Lab Smp Id: mb Client Smp ID: mb
Inj Date : 03-AUG-1995 20:59
Operator : atl Inst ID: hplc1.i
Smp Info : Method Blank
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:45 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 QC Sample: BLANK
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
14 Benzo(a)pyrene					CAS #:
	25.703	Compound Not Detected			
$ 6 OTP					CAS #:
	16.802	Compound Not Detected			

0267

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: mb
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: 1h03pna-1
Fraction: SV
Client Smp ID: mb
Operator: atl
SampleType: BLANK
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	0.000	*	40-120

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: mb
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

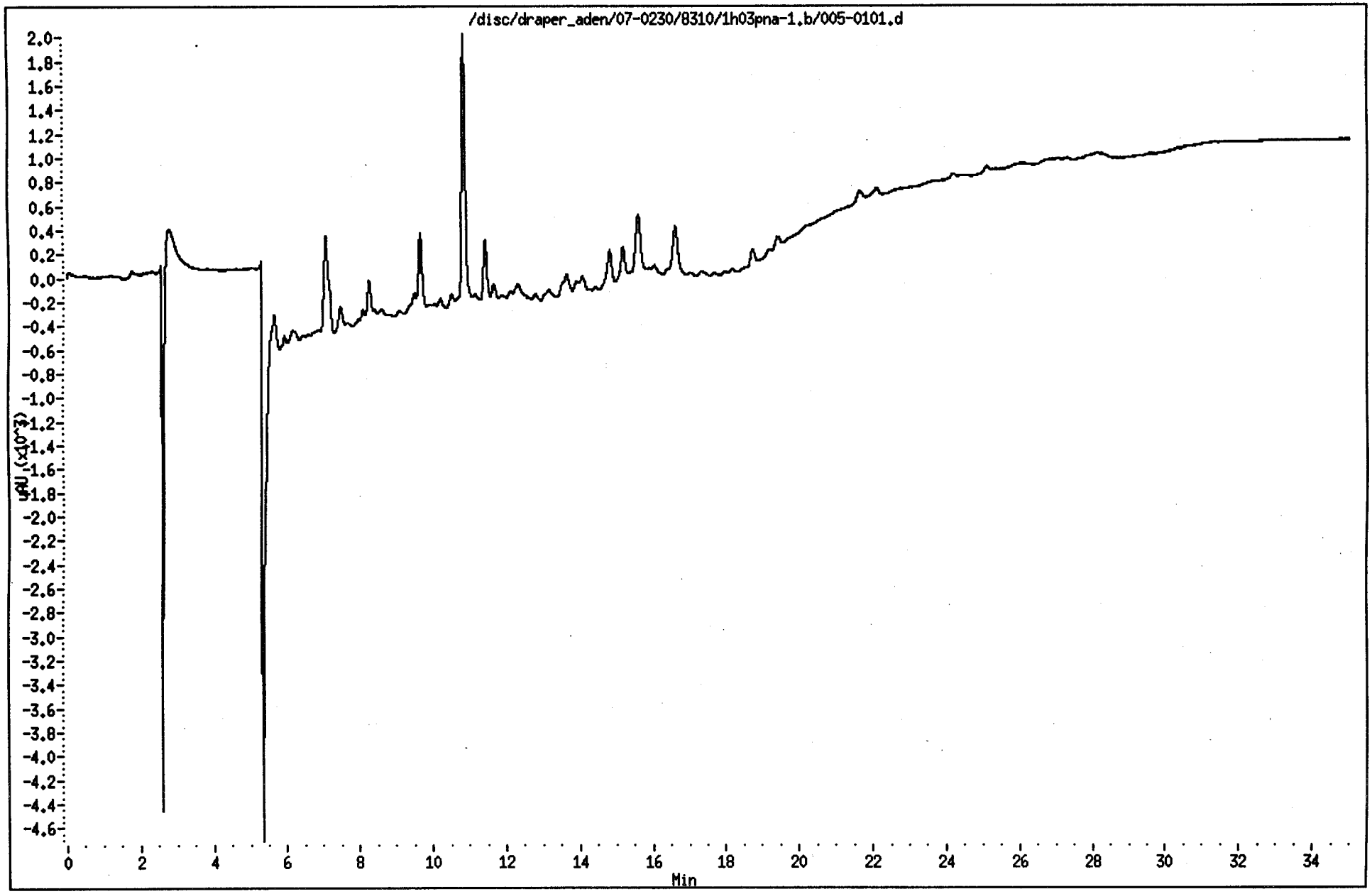
Client SDG: 1h03pna-1
Client Smp ID: mb
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
==========	==========	==========	=====

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/005-0101.d
Date : 03-AUG-1995 20:59
Client ID: mb
Sample Info: Method Blank
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i

Operator: atl
Column diameter: 2.00



3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

0270

Lab Name: CT&E-ELS Contract: Draper-Aden

Lab Code: 07-230 Case No.: SAS No.: SDG No.: 1h03pna-1

Matrix Spike - EPA Sample No.: mw1

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Benzo(a)pyrene	2.00	0.000	1.58	79	40-140

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzo(a)pyrene	2.00	1.13	56	34	40	40-140

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS:

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/007-0101.d
Lab Smp Id: mw1MS Client Smp ID: mw1MS
Inj Date : 03-AUG-1995 22:31
Operator : atl Inst ID: hplc1.i
Smp Info : 7-230-2mw1MS Draper Aden 800ml->1.0ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:45 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 QC Sample: MS
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
25.930	25.703	0.227	432799	1.26	1.58	(AM)
$ 6 OTP					CAS #:	
16.830	16.802	0.028	353249	1.02	1.27	(AM)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: mw1MS
Level: LOW
Data Type: LC DATA
SpikeList File: BaP0_8.spk
Client SDG: 1h03pna-1
Fraction: SV
Client Smp ID: mw1MS
Operator: atl
SampleType: MS
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Misc Info:

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
14 Benzo(a)pyrene	2.00	1.58	79.10	40-140

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.27	101.77	40-120

0273

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: mw1MS
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: 1h03pna-1
Client Smp ID: mw1MS
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

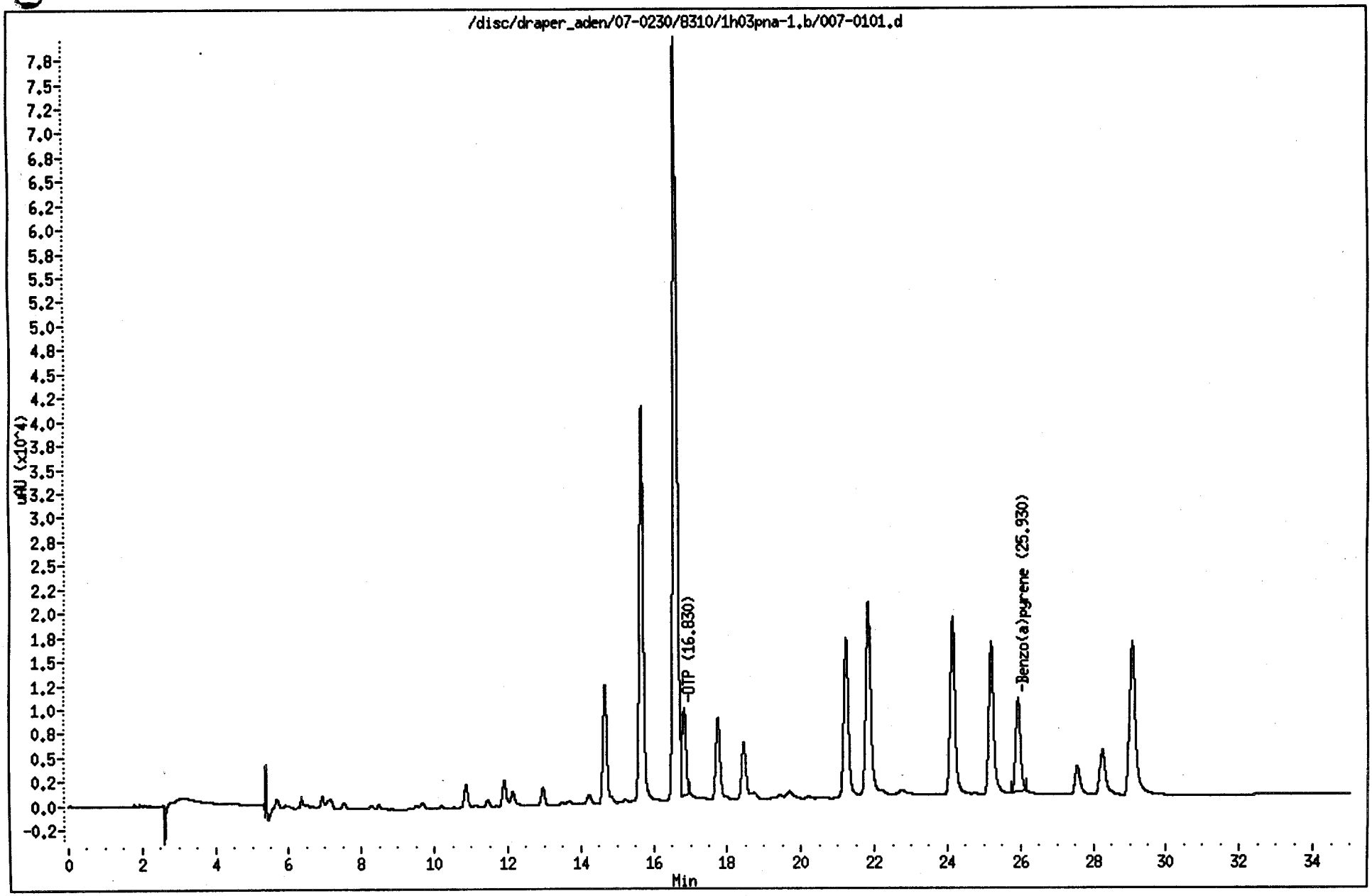
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	Benzo(a)pyrene	1.58	E
	OTP	1.27	E

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/007-0101.d
Date : 03-AUG-1995 22:31
Client ID: mw1MS
Sample Info: 7-230-2mw1MS Draper Aden 800ml->1.0ml
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i

Operator: atl
Column diameter: 2.00

0274



Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/008-0101.d Page 1
Report Date: 11-Sep-1995 08:33

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/008-0101.d
Lab Smp Id: mw1MSD Client Smp ID: mw1MSD
Inj Date : 03-AUG-1995 23:17
Operator : atl Inst ID: hplc1.i
Smp Info : 7-230-3mw1MSD Draper Aden 800ml->0.98ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:46 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 QC Sample: MSD
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	0.980	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
25.970	25.703	0.267	314923	0.921	1.13	(M)
$ 6 OTP					CAS #:	
16.860	16.802	0.058	401678	1.16	1.42	(AM)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: mw1MSD
Level: LOW
Data Type: LC DATA
SpikeList File: BaP0_8.spk

Client SDG: 1h03pna-1
Fraction: SV
Client Smp ID: mw1MSD
Operator: atl
SampleType: MSD
Quant Type: ESTD

Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Misc Info:

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
14 Benzo(a)pyrene	2.00	1.13	56.41	40-140

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.42	113.40	40-120

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: mw1MSD
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: 1h03pna-1
Client Smp ID: mw1MSD
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

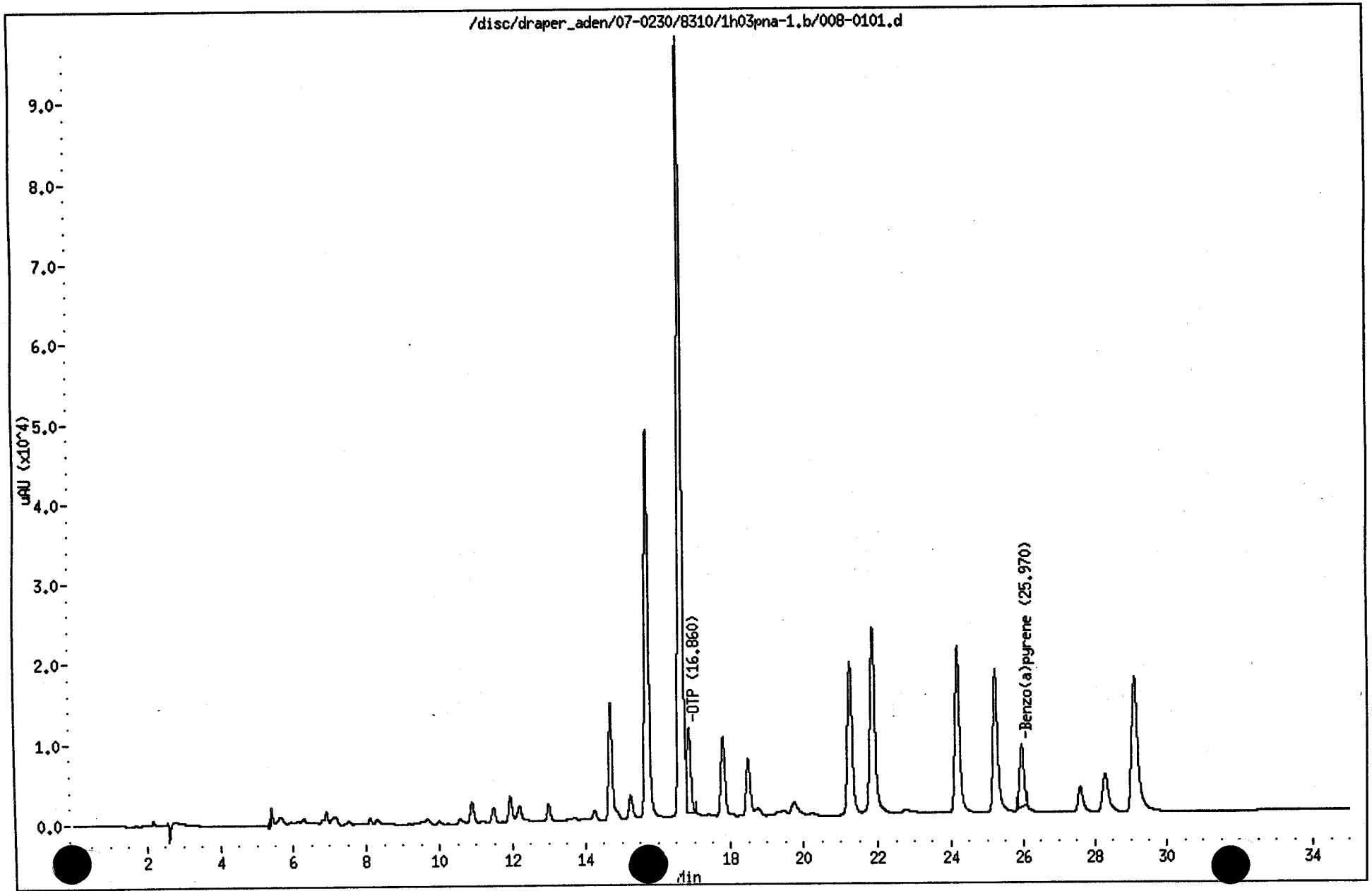
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	Benzo(a)pyrene	1.13	
	OTP	1.42	E

0278

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/008-0101.d
Date : 03-AUG-1995 23:17
Client ID: mw1MSD
Sample Info: 7-230-3mw1MSD Draper Aden 800ml->0.98ml
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i

Operator: atl
Column diameter: 2.00



2C
WATER SEMIVOLATILE SURROGATE RECOVERY

0279

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	mw1	107								0
02	mw1MS	102								0
03	mw1MSD	113								0
04	7-230-4mw6	98								0
05	7-230-5mw3	100								0
06	7-230-7mw8	110								0
07	7-230-8mw11	99								0
08	7-230-9mw10	93								0
09	7-230-11mw17	98								0
10	tb	97								0
11	eb	99								0
14										
15										
14										
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S1 = OTP

QC LIMITS
(40-120)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

CT&E Environmental Services Inc.

0230

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-001

Respectfully Submitted:

MW1 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/10/95 12:30
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/03/95 21:45 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

0281
mw1

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Matrix: (soil/water) WATER Lab Sample ID: mw1

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 006-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume: _____(uL) Date Analyzed: 08/03/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0341	U

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/006-0101.d
Lab Smp Id: mw1 Client Smp ID: mw1
Inj Date : 03-AUG-1995 21:45
Operator : atl Inst ID: hplc1.i
Smp Info : 7-230-1mw1 Draper Aden 800ml->1.09ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:45 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.090	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
25.703	Compound Not Detected					
$ 6 OTP					CAS #:	
16.790	16.802	-0.012	341550	0.984	1.34	(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: mw1
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: 1h03pna-1
Fraction: SV
Client Smp ID: mw1
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.34	107.25	40-120

0284

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

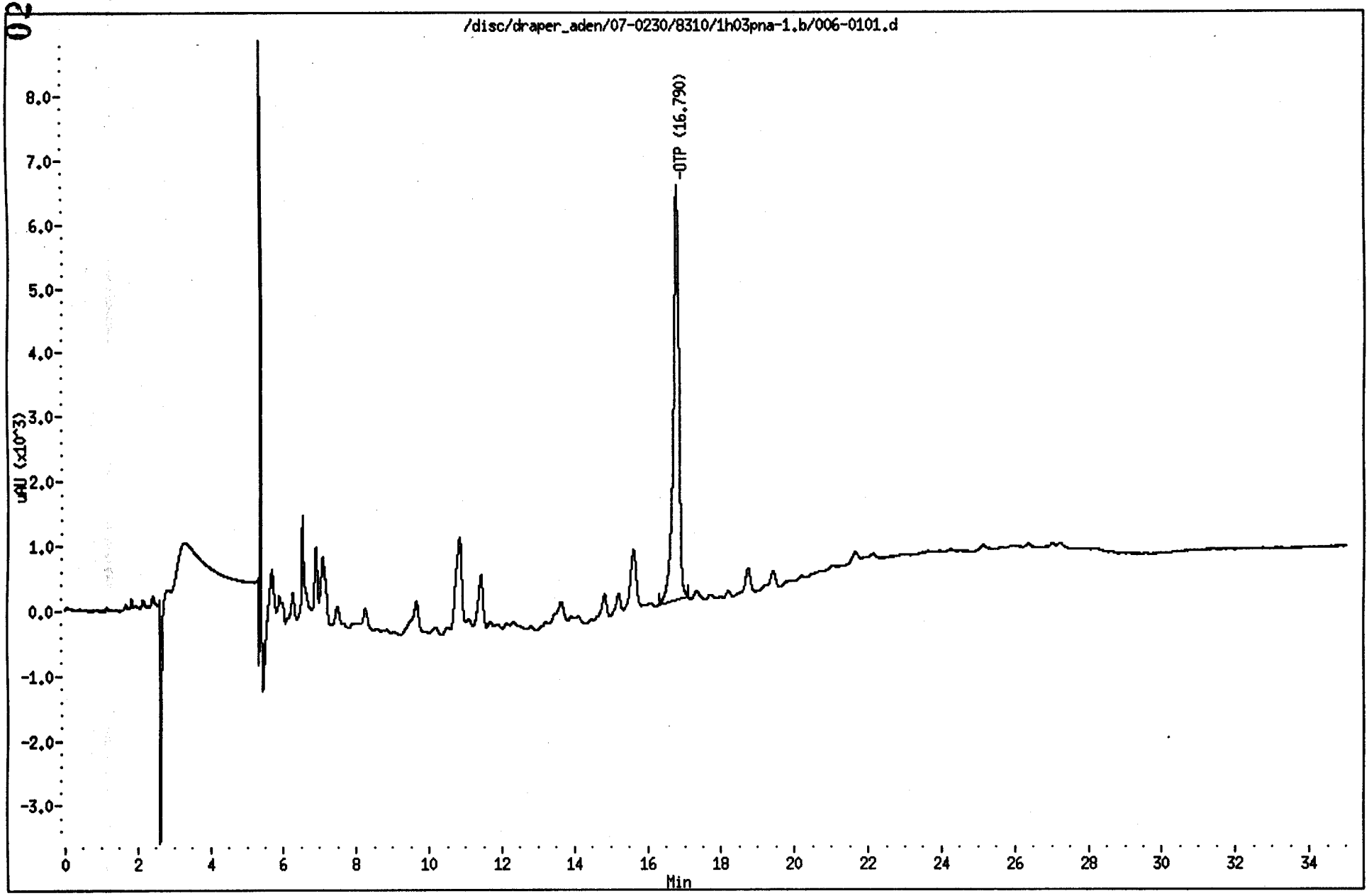
Client Name:
Lab Smp Id: mw1
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: 1h03pna-1
Client Smp ID: mw1
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
----------	OTP	1.34	

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/006-0101.d
Date : 03-AUG-1995 21:45
Client ID: mw1
Sample Info: 7-230-1mw1 Draper Aden 800ml->1.09ml
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i
Operator: atl
Column diameter: 2.00



CT&E Environmental Services Inc.

0286

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-004

Respectfully Submitted:

MW6 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/10/95 14:30
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/04/95 00:03 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

0287
7-230-4mw6

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Matrix: (soil/water) WATER Lab Sample ID: 7-230-4mw6

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 009-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume: _____(uL) Date Analyzed: 08/04/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	Benzo(a)pyrene	0.0338	U

0288

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/009-0101.d
Lab Smp Id: 7-230-4mw6 Client Smp ID: 7-230-4mw6
Inj Date : 04-AUG-1995 00:03
Operator : atl Inst ID: hplc1.i
Smp Info : 7-230-4mw6 Draper Aden 800ml->1.08ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:45 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.080	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
14 Benzo(a)pyrene					CAS #:
25.703	Compound Not Detected				
$ 6 OTP					CAS #:
16.855	16.802	0.053	316207	0.911	1.23

0289

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: 7-230-4mw6
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: 1h03pna-1
Fraction: SV
Client Smp ID: 7-230-4mw6
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.23	98.38	40-120

0290

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 7-230-4mw6
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

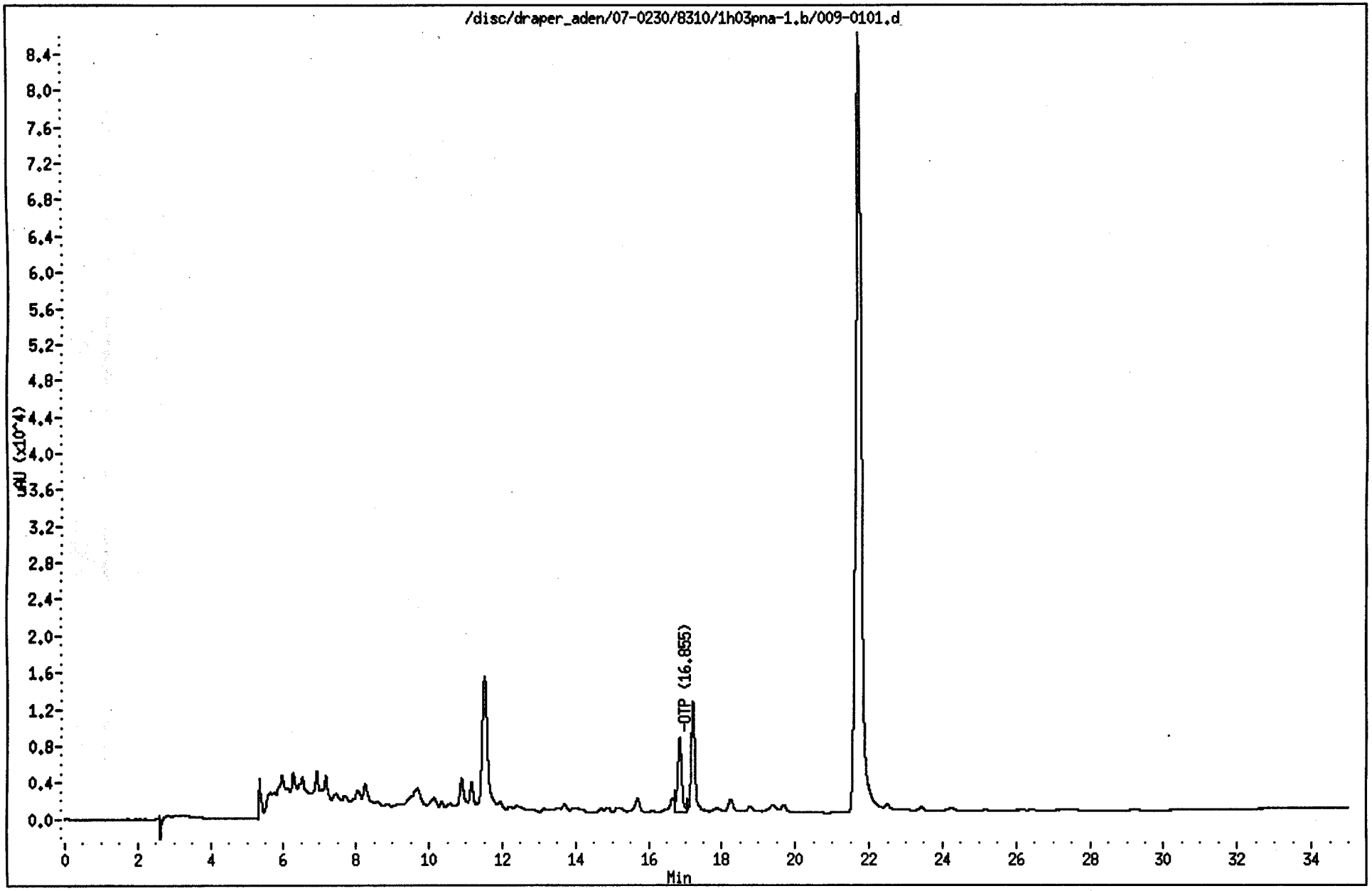
Client SDG: 1h03pna-1
Client Smp ID: 7-230-4mw6
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	OTP	1.23	

0291

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/009-0101.d
Date : 04-AUG-1995 00:03
Client ID: 7-230-4mw6
Sample Info: 7-230-4mw6 Draper Aden 800ml->1.08ml
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i
Operator: atl
Column diameter: 2.00



CT&E Environmental Services Inc.

0292

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-005

Respectfully Submitted: RCM-9

MW3 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/10/95 15:30
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/04/95 00:49 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

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4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
0293
7-230-5mw3

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Matrix: (soil/water) WATER Lab Sample ID: 7-230-5mw3

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 010-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume: _____(uL) Date Analyzed: 08/04/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0344	U

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/010-0101.d
Lab Smp Id: 7-230-5mw3 Client Smp ID: 7-230-5mw3
Inj Date : 04-AUG-1995 00:49
Operator : atl Inst ID: hplc1.i
Smp Info : 7-230-5mw3 Draper Aden 800ml->1.1ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:45 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.100	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
25.703	Compound Not Detected					
$ 6 OTP					CAS #:	
16.860	16.802	0.058	314827	0.907	1.25	(M)

QC Flag Legend

M - Compound response manually integrated.

0295

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: 7-230-5mw3
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: 1h03pna-1
Fraction: SV
Client Smp ID: 7-230-5mw3
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.25	99.77	40-120

0296

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 7-230-5mw3
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: 1h03pna-1
Client Smp ID: 7-230-5mw3
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

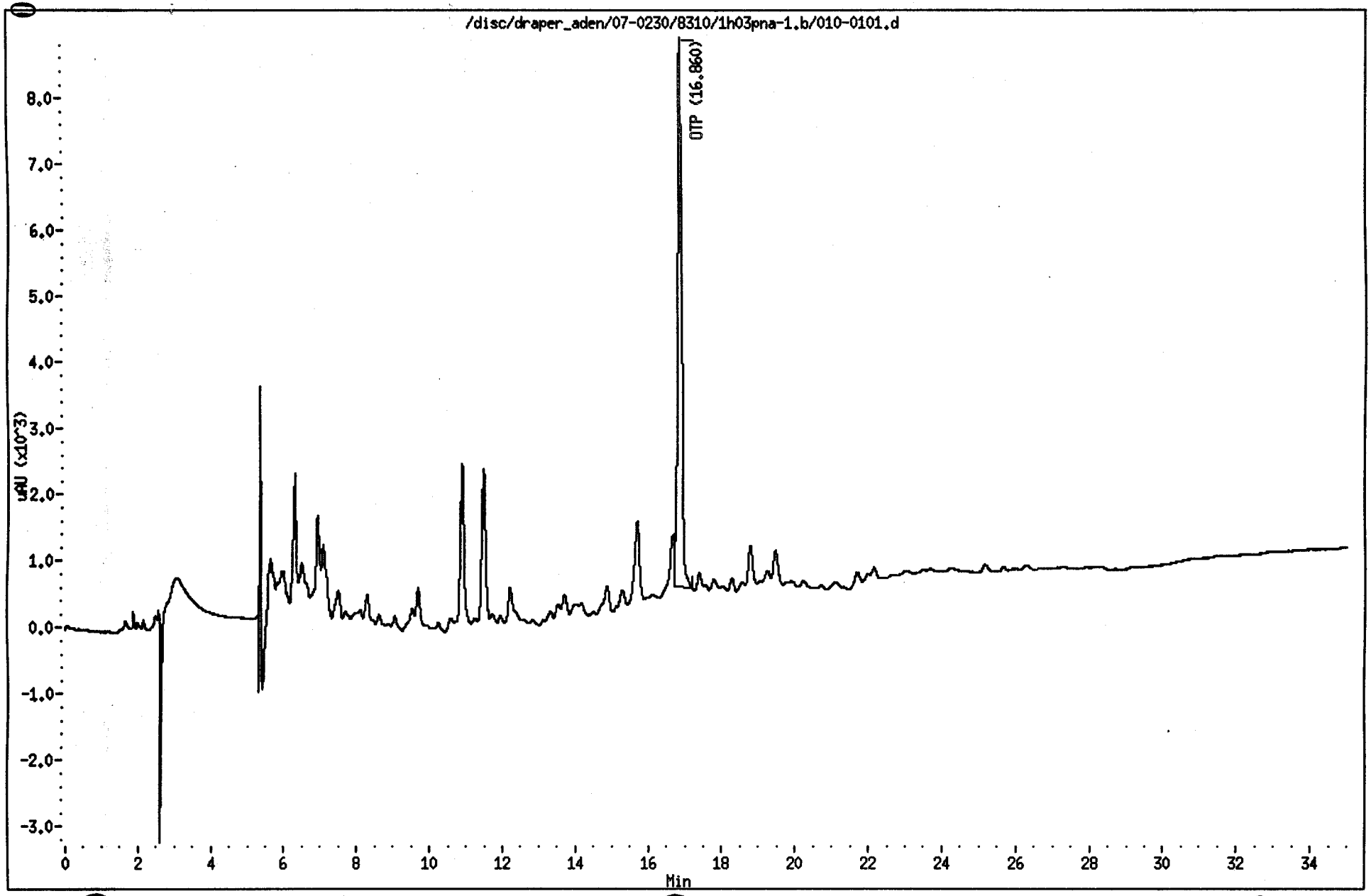
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
----------	OTP	1.25	

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/010-0101.d
Date : 04-AUG-1995 00:49
Client ID: 7-230-5mw3
Sample Info: 7-230-5mw3 Draper Aden 800ml->1.1ml
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i

Operator: atl
Column diameter: 2.00

0297



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-007

Respectfully Submitted:

MW8 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/10/95 16:45
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/04/95 02:21 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

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4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
0299
7-230-7mw8

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Matrix: (soil/water) WATER Lab Sample ID: 7-230-7mw8

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 012-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume:_____(uL) Date Analyzed: 08/04/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0297	U

0300

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/012-0101.d
Lab Smp Id: 7-230-7mw8 Client Smp ID: 7-230-7mw8
Inj Date : 04-AUG-1995 02:21
Operator : atl Inst ID: hplc1.i
Smp Info : 7-230-7mw8 Draper Aden 800ml->0.95ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:46 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	0.950	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
25.703	Compound Not Detected					
$ 6 OTP					CAS #:	
16.870	16.802	0.068	400709	1.15	1.37	(AM)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

0301

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: 7-230-7mw8
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: 1h03pna-1
Fraction: SV
Client Smp ID: 7-230-7mw8
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.37	109.67	40-120

0302

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 7-230-7mw8
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

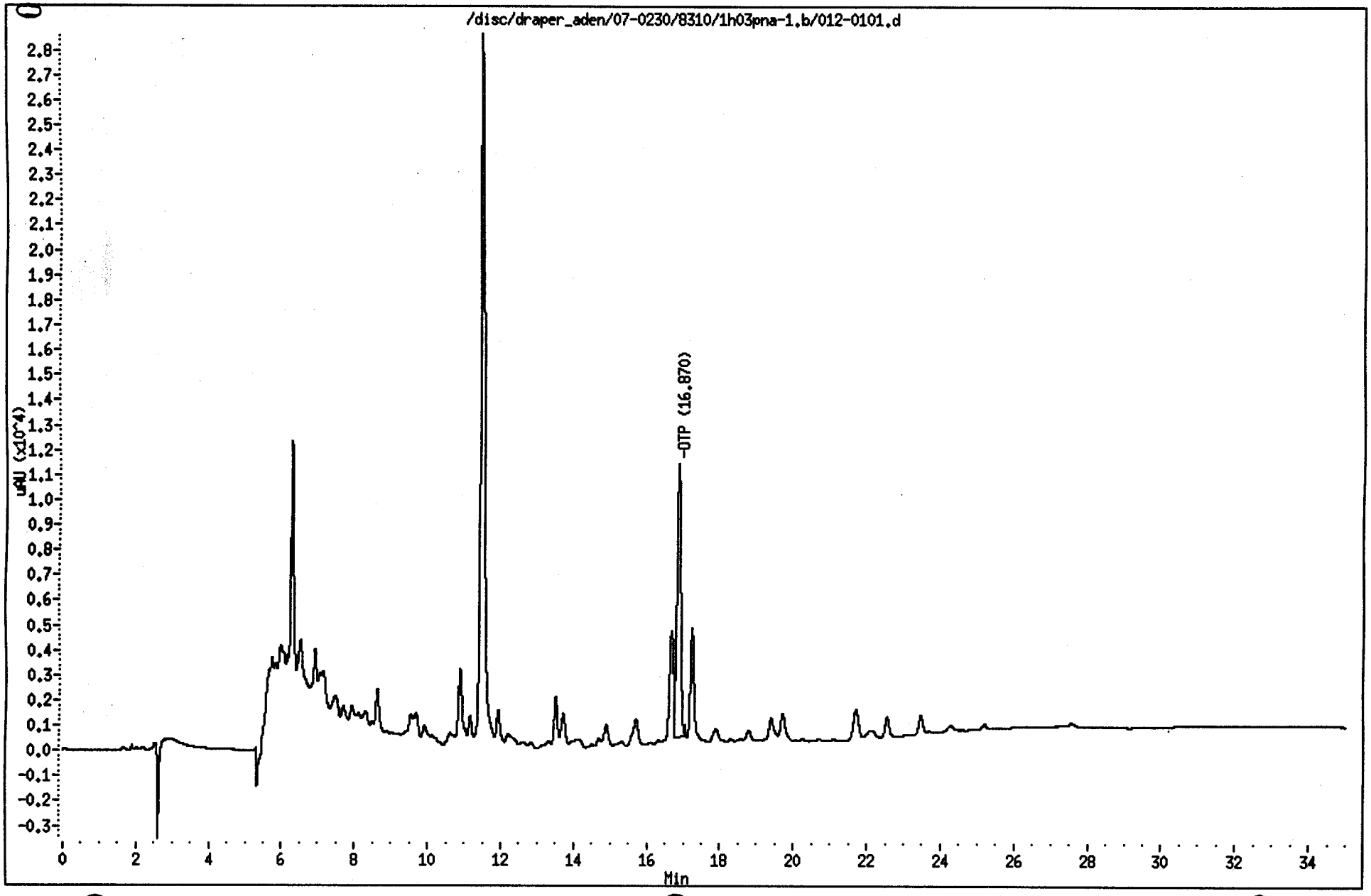
Client SDG: 1h03pna-1
Client Smp ID: 7-230-7mw8
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
----------	OTP	1.37	E

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/012-0101.d
Date : 04-AUG-1995 02:21
Client ID: 7-230-7mw8
Sample Info: 7-230-7mw8 Draper Aden 800ml->0.95ml
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i
Operator: atl
Column diameter: 2.00

0303



CT&E Environmental Services Inc.

Laboratory Division

0304

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-008

Respectfully Submitted: RCM-4

MW11 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/11/95 9:30
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/04/95 03:07 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

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4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
0305
7-230-8mw11

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Matrix: (soil/water) WATER Lab Sample ID: 7-230-8mw11

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 013-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume:_____(uL) Date Analyzed: 08/04/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0297	U

0306

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/013-0101.d
Lab Smp Id: 7-230-8mw11 Client Smp ID: 7-230-8mw11
Inj Date : 04-AUG-1995 03:07
Operator : atl Inst ID: hplc1.i
Smp Info : 7-230-8mw11 Draper Aden 800ml->0.95ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:46 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	0.950	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
25.703	Compound Not Detected					
$ 6 OTP					CAS #:	
16.835	16.802	0.033	360621	1.04	1.23	(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: 7-230-8mw11
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: 1h03pna-1
Fraction: SV
Client Smp ID: 7-230-8mw11
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.23	98.70	40-120

0308

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 7-230-8mw11
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

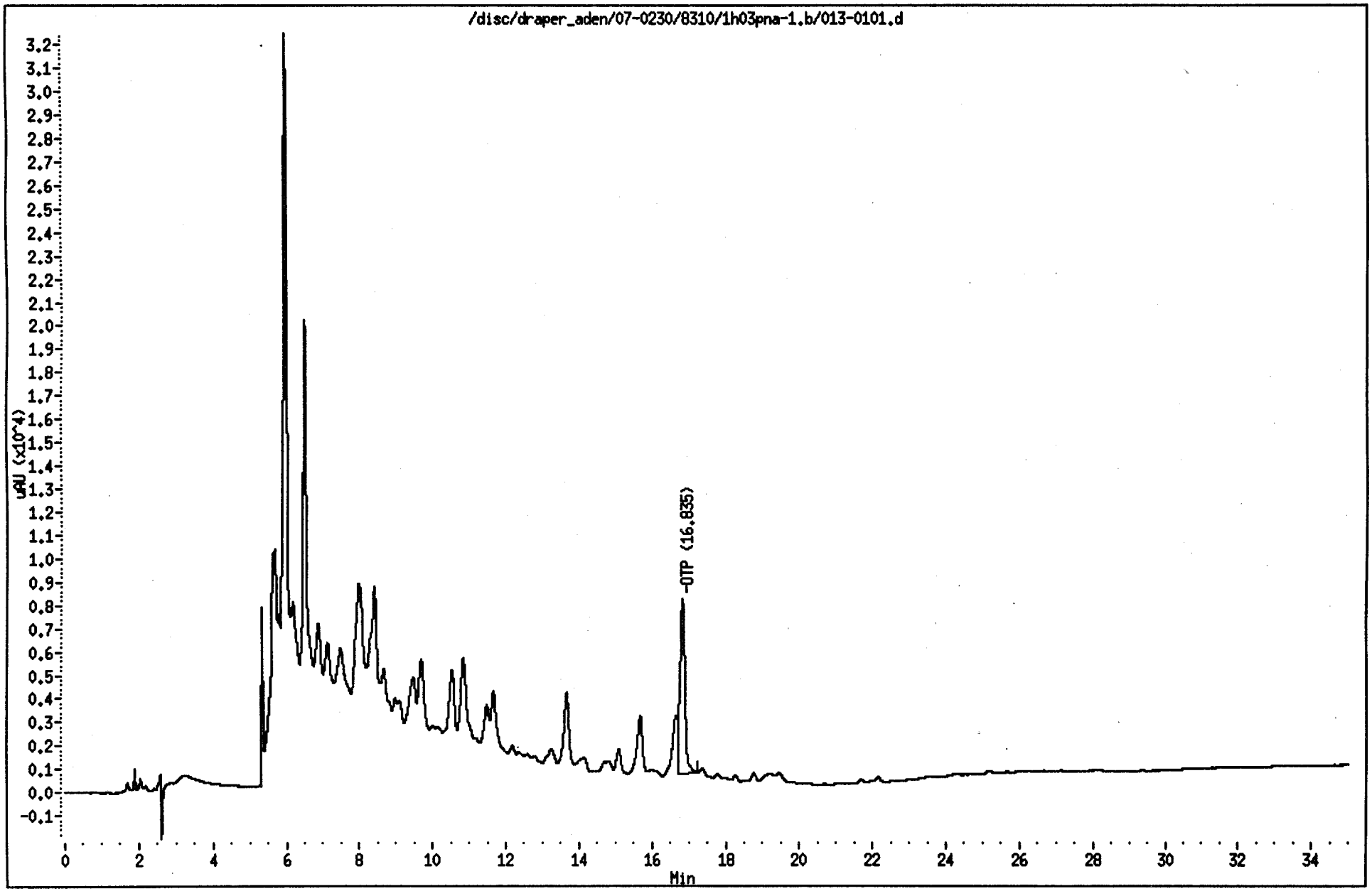
Client SDG: 1h03pna-1
Client Smp ID: 7-230-8mw11
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	OTP	1.23	E

0309

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/013-0101.d
Date : 04-AUG-1995 03:07
Client ID: 7-230-8mw11
Sample Info: 7-230-8mw11 Draper Aden 800ml->0.95ml
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i
Operator: atl
Column diameter: 2.00



CT&E Environmental Services Inc.

0310

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-009 Respectfully Submitted:

RCM-9

MW10 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/11/95 10:30
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/04/95 03:53 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

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4643 Benson Avenue, Baltimore, MD 21227-1410 — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 — Tel: (513) 752-9696 Fax: (513) 752-2614

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
0311
7-230-9mw10

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Matrix: (soil/water) WATER Lab Sample ID: 7-230-9mw10

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 014-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume: _____(uL) Date Analyzed: 08/04/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0325	U

0312

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/014-0101.d
Lab Smp Id: 7-230-9mw10 Client Smp ID: 7-230-9mw10
Inj Date : 04-AUG-1995 03:53
Operator : atl Inst ID: hplc1.i
Smp Info : 7-230-9mw10 Draper Aden 800ml->1.04ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:46 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.040	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
25.703	Compound Not Detected					
$ 6 OTP					CAS #:	
16.847	16.802	0.045	309544	0.892	1.16	(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: 7-230-9mw10
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: 1h03pna-1
Fraction: SV
Client Smp ID: 7-230-9mw10
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.16	92.74	40-120

0314

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 7-230-9mw10
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

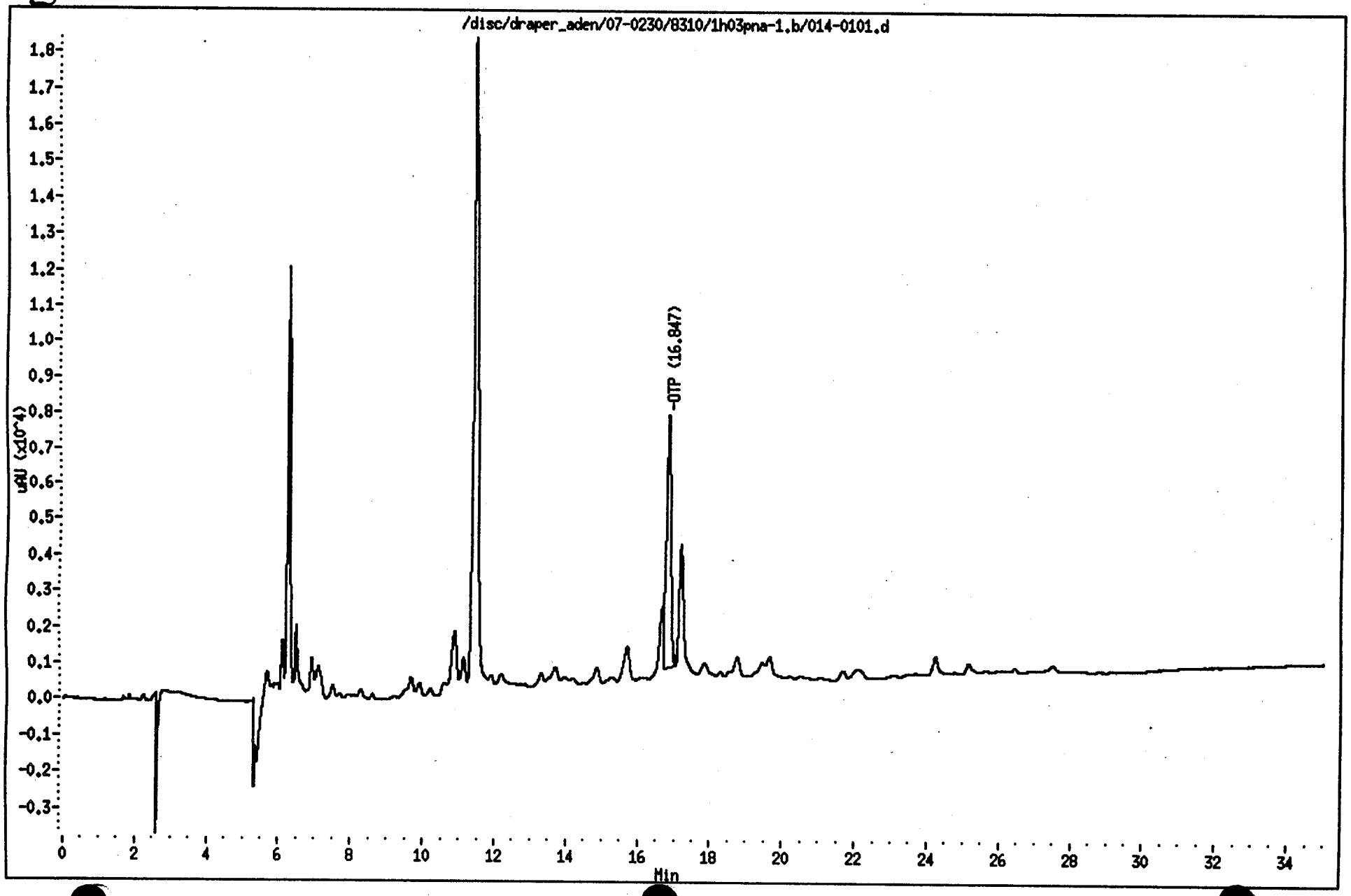
Client SDG: 1h03pna-1
Client Smp ID: 7-230-9mw10
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	OTP	1.16	

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/014-0101.d
Date : 04-AUG-1995 03:53
Client ID: 7-230-9mw10
Sample Info: 7-230-9mw10 Draper Aden 800ml->1.04ml
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i

Operator: atl
Column diameter: 2.00



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-011

Respectfully Submitted: R C M

MW17 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/11/95 12:20
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/04/95 04:38 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

1258 Greenbrier Street, Charleston, WV 25311-1002 — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, Baltimore, MD 21227-1410 — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 — Tel: (513) 752-9696 Fax: (513) 752-2614

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

0317

7-230-11mw17

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Matrix: (soil/water) WATER Lab Sample ID: 7-230-11mw17

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 015-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume: _____(uL) Date Analyzed: 08/04/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0347	U

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/015-0101.d
Lab Smp Id: 7-230-11mw17 Client Smp ID: 7-230-11mw17
Inj Date : 04-AUG-1995 04:38
Operator : atl Inst ID: hplc1.i
Smp Info : 7-230-11mw17 Draper Aden 800ml->1.11ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:46 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.110	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
14 Benzo(a)pyrene					CAS #:
25.703	Compound Not Detected				
$ 6 OTP					CAS #:
16.861	16.802	0.059	306490	0.883	1.22

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: 7-230-11mw17
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: 1h03pna-1
Fraction: SV
Client Smp ID: 7-230-11mw17
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.22	98.01	40-120

0320

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 7-230-11mw17
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: 1h03pna-1
Client Smp ID: 7-230-11mw17
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

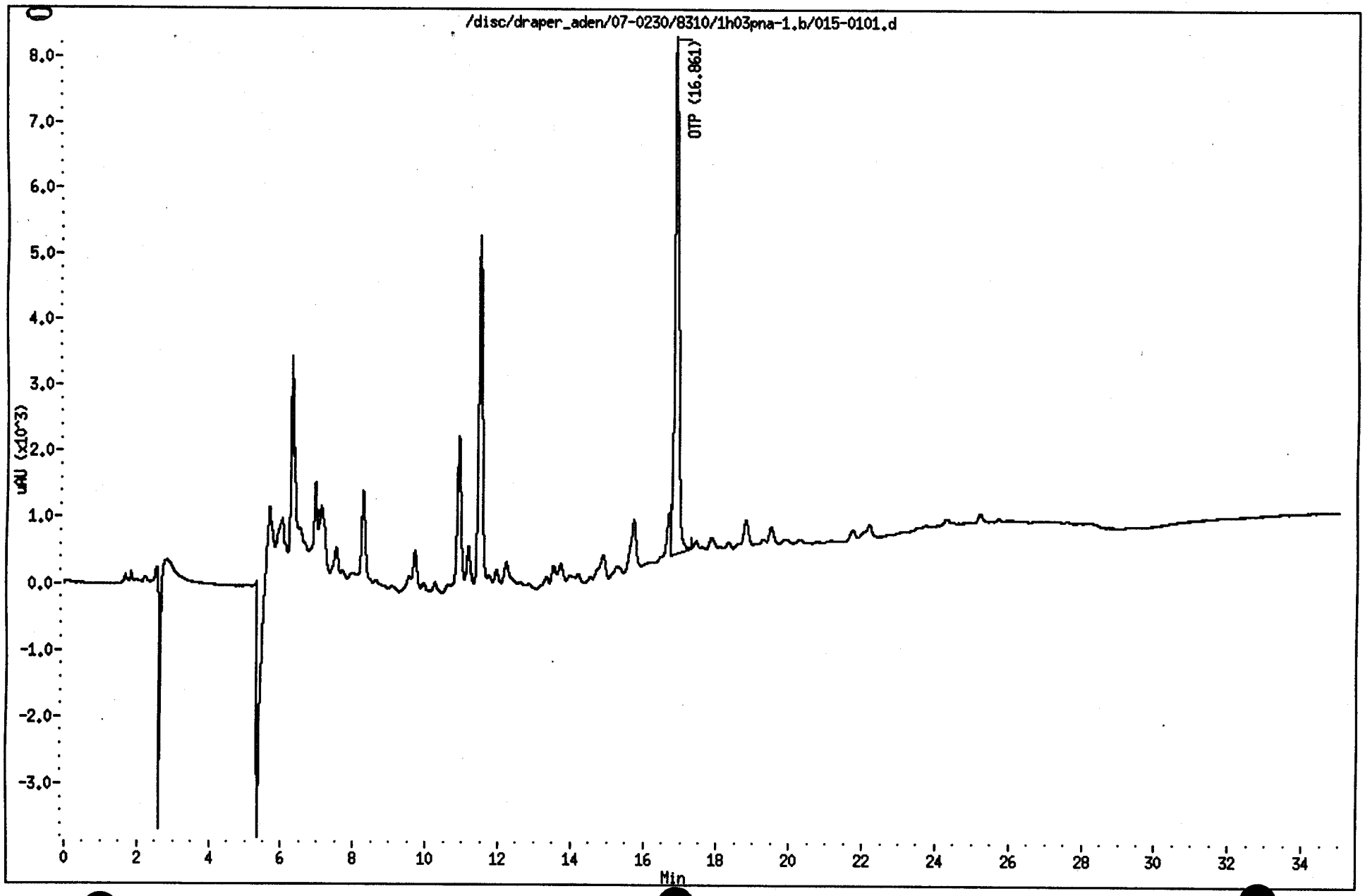
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	OTP	1.22	

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/015-0101.d
Date : 04-AUG-1995 04:38
Client ID: 7-230-11mw17
Sample Info: 7-230-11mw17 Draper Aden 800ml->1.11ml
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i

Operator: atl
Column diameter: 2.00

0321



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0230-014 Respectfully Submitted:

RCM-4

TRIP BLANK 1 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/06/95 8:00
Date Received 07/12/95

Sampled by CLIENT

090895 1143

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/04/95 05:24 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614
ENVIRONMENTAL FACILITIES IN ALASKA, CALIFORNIA, FLORIDA, ILLINOIS, MARYLAND, MICHIGAN, MISSOURI, NEW JERSEY, OHIO, WEST VIRGINIA

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
0323
tb

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0230 Case No.: SAS No.: SDG No.: 1h03pna-1

Matrix: (soil/water) WATER Lab Sample ID: tb

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 016-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume: _____(uL) Date Analyzed: 08/04/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0384	U

0324

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h03pna-1.b/016-0101.d
Lab Smp Id: tb Client Smp ID: tb
Inj Date : 04-AUG-1995 05:24
Operator : atl Inst ID: hplc1.i
Smp Info : 7-230-14tb Draper Aden 800ml->1.23ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Meth Date : 07-Sep-1995 12:46 jcarte Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.230	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
14 Benzo(a)pyrene					CAS #:
25.703	Compound Not Detected				
$ 6 OTP					CAS #:
16.814	16.802	0.012	274557	0.791	1.22

0325

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: tb
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Method File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/8310_chA.m
Misc Info:

Client SDG: 1h03pna-1
Fraction: SV
Client Smp ID: tb
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.22	97.29	40-120

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: tb
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: 1h03pna-1
Client Smp ID: tb
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

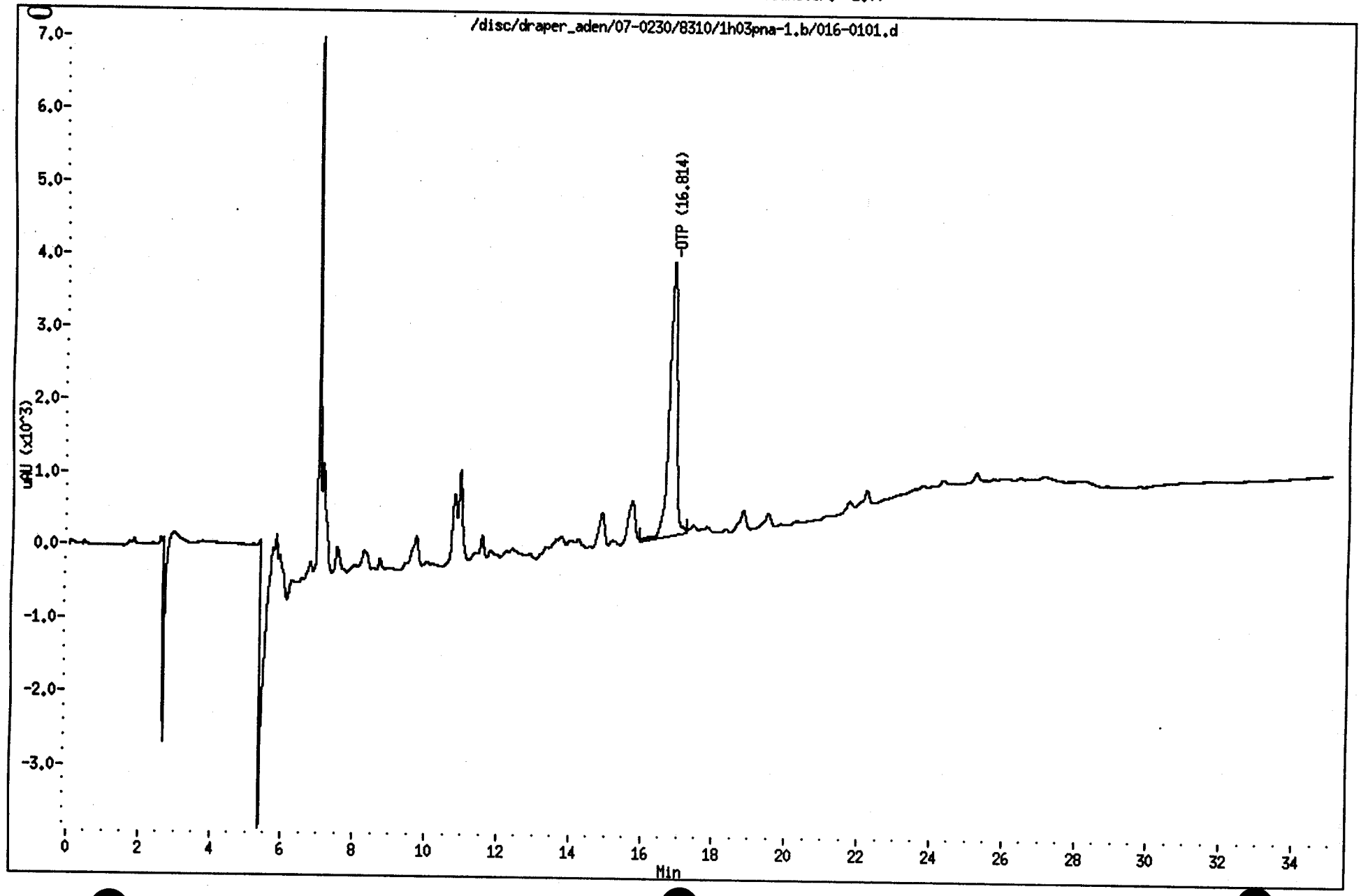
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	OTP	1.22	

Data File: /disc/draper_aden/07-0230/8310/1h03pna-1.b/016-0101.d
Date : 04-AUG-1995 05:24
Client ID: tb
Sample Info: 7-230-14tb Draper Aden 800ml->1.23ml
Purge Volume: 800.0
Column phase:

Instrument: hplc1.i

Operator: atl
Column diameter: 2.00

0327



SAMPLE INFORMATION SUMMARY

BATCH: /disc/draper_aden/07-0276/8310/1h04pna-1.b

0328

Data File	Injection Date	Sample Type	Dil Factor	Inst ID	Method	Method Batch
003-0101.d	04-AUG-1995 18:19	Continuing Cal	1.00	hplc	8310_chA.m	1h04pna-1.b
004-0101.d	04-AUG-1995 19:05	Continuing Cal	1.00	hplc	8310_chA.m	1h04pna-1.b
005-0101.d	04-AUG-1995 19:51	Unknown	1.00	hplc	8310_chA.m	1h04pna-1.b
006-0101.d	04-AUG-1995 20:37	Unknown	1.00	hplc	8310_chA.m	1h04pna-1.b
007-0101.d	04-AUG-1995 21:23	MS	1.00	hplc	8310_chA.m	1h04pna-1.b
008-0101.d	04-AUG-1995 22:09	MSD	1.00	hplc	8310_chA.m	1h04pna-1.b
009-0101.d	04-AUG-1995 22:55	Unknown	1.00	hplc	8310_chA.m	1h04pna-1.b
010-0101.d	04-AUG-1995 23:40	Unknown	1.00	hplc	8310_chA.m	1h04pna-1.b
011-0101.d	05-AUG-1995 00:26	Continuing Cal	1.00	hplc	8310_chA.m	1h04pna-1.b
012-0101.d	05-AUG-1995 01:12	Unknown	1.00	hplc	8310_chA.m	1h04pna-1.b
013-0101.d	05-AUG-1995 01:58	Unknown	1.00	hplc	8310_chA.m	1h04pna-1.b
014-0101.d	05-AUG-1995 02:44	EXTBLANK	1.00	hplc	8310_chA.m	1h04pna-1.b
015-0101.d	05-AUG-1995 03:30	LCS	1.00	hplc	8310_chA.m	1h04pna-1.b

Data File	Matrix	Fraction	Lab Sample ID	Lab Prep Batch	Client Sample ID	Client Sample Group
003-0101.d	LIQUID	SV	ccal	pna	ccal	pna
004-0101.d	LIQUID	SV	ccal	pna	ccal	pna
005-0101.d	LIQUID	SV	mb	pna	mb	pna
006-0101.d	LIQUID	SV	mw9	pna	mw9	pna
007-0101.d	LIQUID	SV	mw9MS	pna	mw9MS	pna
008-0101.d	LIQUID	SV	mw9MSD	pna	mw9MSD	pna
009-0101.d	LIQUID	SV	7-276-4mw12	pna	7-276-4mw12	pna
010-0101.d	LIQUID	SV	7-276-5mw2	pna	7-276-5mw2	pna
011-0101.d	LIQUID	SV	ccal	pna	ccal	pna
012-0101.d	LIQUID	SV	7-276-6mw4	pna	7-276-6mw4	pna
013-0101.d	LIQUID	SV	tb	pna	tb	pna
014-0101.d	LIQUID	SV	eb	pna	eb	pna
015-0101.d	LIQUID	SV	lcs	pna	lcs	pna

Data File	Compound Sublist	Spike List File	Sample Ref #	QC Group Ref #	Init Cal Ref #	Batch Ref #
003-0101.d	benzopyr.sub	BaP.spk	111674	102450	93238	111687
004-0101.d	OTP.sub	BaP.spk	111675	102450	93238	111687
005-0101.d	DA-8310.sub	BaP.spk	111676	102450	93238	111687
006-0101.d	DA-8310.sub	BaP.spk	111677	102450	93238	111687
007-0101.d	DA-8310.sub	BaP0_8.spk	111678	102450	93238	111687
008-0101.d	DA-8310.sub	BaP0_8.spk	111679	102450	93238	111687
009-0101.d	DA-8310.sub	BaP.spk	111680	102450	93238	111687
010-0101.d	DA-8310.sub	BaP.spk	111681	102450	93238	111687
011-0101.d	benzopyr.sub	BaP.spk	111682	102450	93238	111687
012-0101.d	DA-8310.sub	BaP.spk	111683	102450	93238	111687
013-0101.d	DA-8310.sub	BaP.spk	111684	102450	93238	111687
014-0101.d	DA-8310.sub	BaP.spk	111685	102450	93238	111687
015-0101.d	DA-8310.sub	BaP0_8.spk	111686	102450	93238	111687

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

0329

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna

Instrument ID: HPLC Calibration Date: 08/04/95 Time: 1819

Lab File ID: 003-0101 Init. Calib. Date(s): 08/02/95 08/03/95

Init. Calib. Times: 2146 0611

COMPOUND	$\overline{RRF}$	RRF 0.05	MIN RRF	%D	MAX %D
Benzo(a)pyrene	341971	285060		16.6	

All other compounds must meet a minimum RRF of 0.010.

0330

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h04pna-1.b/003-0101.d
Lab Smp Id: ccal Client Smp ID: ccal
Inj Date : 04-AUG-1995 18:19
Operator : atl Inst ID: hplc.i
Smp Info : PNA Level 5
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Meth Date : 08-Sep-1995 10:00 rmurphy Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: benzopyr.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
25.360	26.026	-0.666	14253	0.0500	0.0417	(TM)

QC Flag Legend

T - Target compound detected outside RT window.
M - Compound response manually integrated.

0331

CT&E Environmental Services Inc. Charleston,WV

CONTINUING CALIBRATION COMPOUNDS

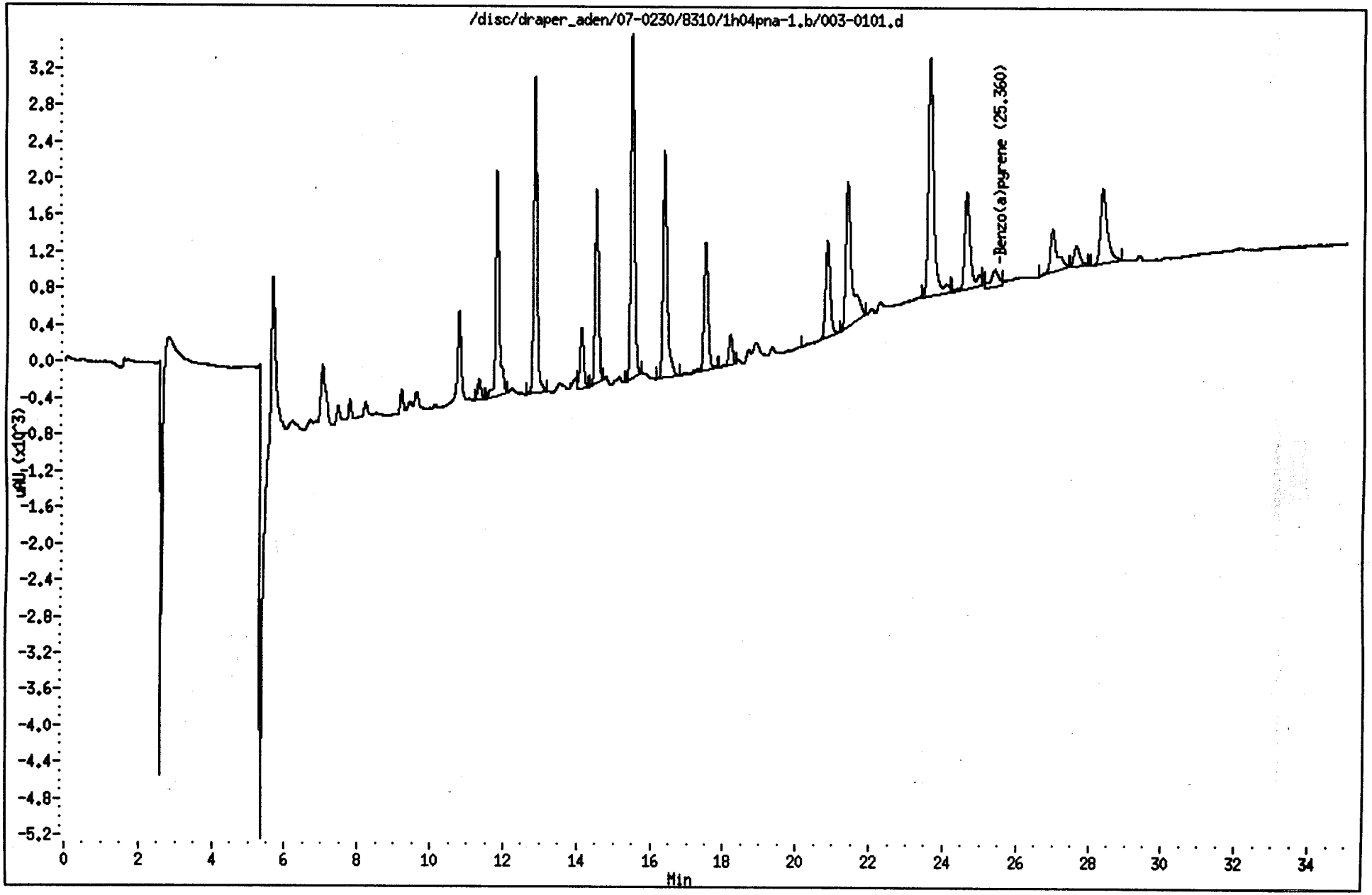
Instrument ID: hplc.i
Lab File ID: 003-0101.d
Analysis Type: WATER
Lab Sample ID: ccal
Injection Date: 04-AUG-1995 18:19
Init. Calibration Date(s): 08/02/95 08/03/95
Init. Calibration Times: 21:46 06:11
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m

COMPOUND	RRF	RFO	MIN RRF	%D	MAX %D
14 Benzo(a)pyrene	341970.667	285060.000	0.010	16.6	40.0

Data File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/003-0101.d
Date : 04-AUG-1995 18:19
Client ID: ccal
Sample Info: PNA Level 5
Purge Volume: 800.0
Column phase:

Instrument: hplc.i

Operator: atl
Column diameter: 2.00



7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna

Instrument ID: HPLC Calibration Date: 08/04/95 Time: 1905

Lab File ID: 004-0101 Init. Calib. Date(s): 08/02/95 08/03/95

Init. Calib. Times: 2146 0611

COMPOUND	$\overline{RRF}$	RRF0.1	MIN RRF	%D	MAX %D
OTP	347117	356290		2.6	

All other compounds must meet a minimum RRF of 0.010.

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h04pna-1.b/004-0101.d
Lab Smp Id: ccal Client Smp ID: ccal
Inj Date : 04-AUG-1995 19:05
Operator : atl Inst ID: hplc.i
Smp Info : OTP 0.1 ug/ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Meth Date : 08-Sep-1995 10:01 rmurphy Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: OTP.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
$ 6 OTP					CAS #:	
16.743	16.866	-0.123	35629	0.100	0.103	(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplc.i
Lab File ID: 004-0101.d
Analysis Type: WATER
Lab Sample ID: ccal
Method File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m

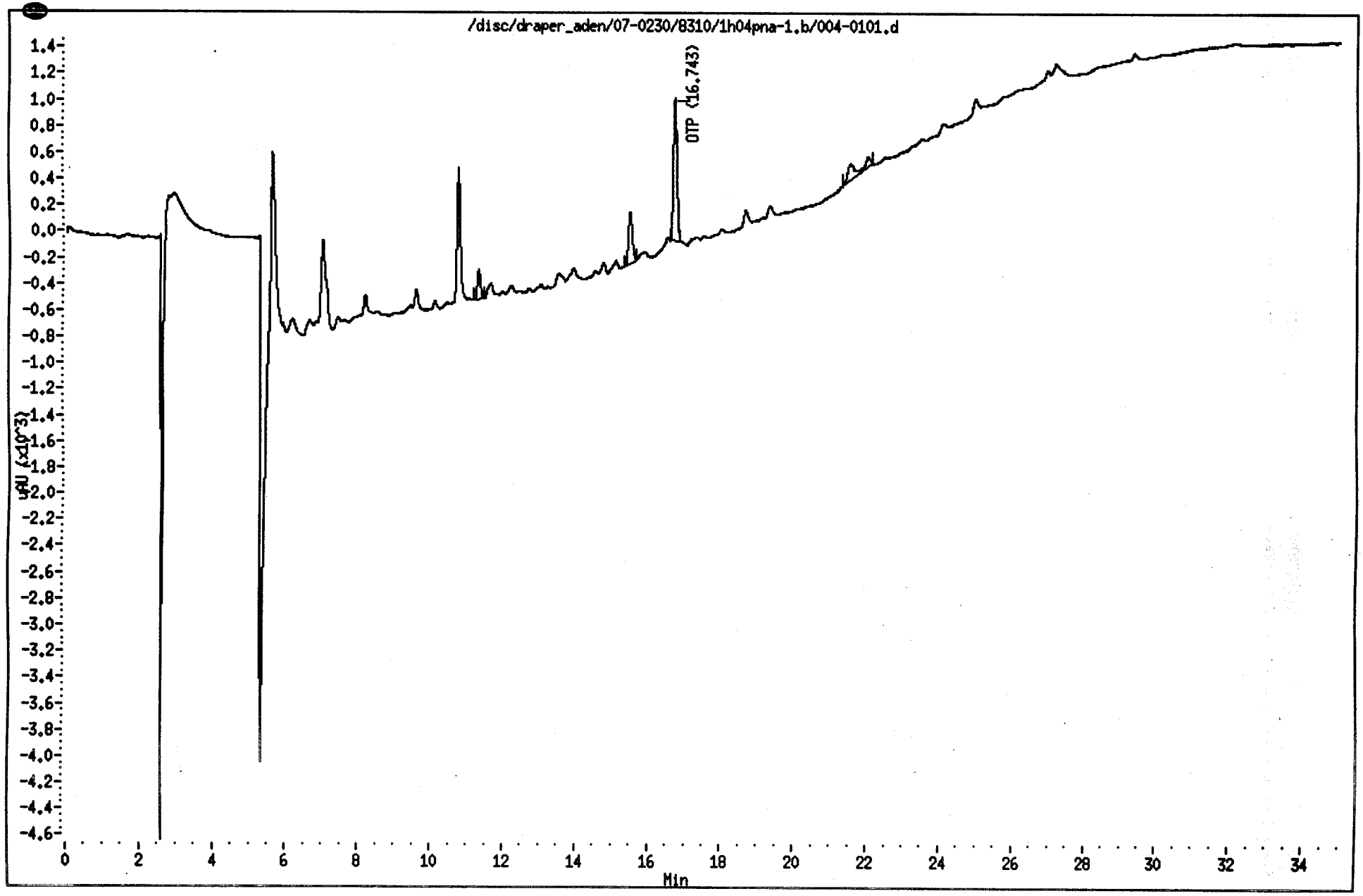
Injection Date: 04-AUG-1995 19:05
Init. Calibration Date(s): 08/02/95 08/03/95
Init. Calibration Times: 21:46 06:11
Quant Type: ESTD

COMPOUND	$\overline{RRF}$	RFO	MIN RRF	%D	MAX %D
$ 6 OTP	347117.000	356290.000	0.010	2.6	40.0

Data File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/004-0101.d
Date : 04-AUG-1995 19:05
Client ID: ccal
Sample Info: OTP 0.1 ug/ml
Purge Volume: 800.0
Column phase:

Instrument: hplc.i

Operator: atl
Column diameter: 2.00



7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

0337

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna

Instrument ID: HPLC Calibration Date: 08/05/95 Time: 0026

Lab File ID: 011-0101 Init. Calib. Date(s): 08/02/95 08/03/95

Init. Calib. Times: 2146 0611

COMPOUND	$\overline{RRF}$	RRF 0.05	MIN RRF	%D	MAX %D
Benzo(a)pyrene	341971	306440		10.4	

All other compounds must meet a minimum RRF of 0.010.

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h04pna-1.b/011-0101.d
Lab Smp Id: ccal Client Smp ID: ccal
Inj Date : 05-AUG-1995 00:26
Operator : atl Inst ID: hplc.i
Smp Info : PNA Level 5
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Meth Date : 08-Sep-1995 10:01 rmurphy Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 Continuing Calibration Sample
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: benzopyr.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	AMOUNTS CAL-AMT (ug/L)	AMOUNTS ON-COL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
26.083	26.026	0.057	15322	0.0500	0.0448	(M)

QC Flag Legend

M - Compound response manually integrated.

0339

CT&E Environmental Services Inc. Charleston,WV

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: hplc.i
Lab File ID: 011-0101.d
Analysis Type: WATER
Lab Sample ID: ccal
Method File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m

Injection Date: 05-AUG-1995 00:26
Init. Calibration Date(s): 08/02/95 08/03/95
Init. Calibration Times: 21:46 06:11
Quant Type: ESTD

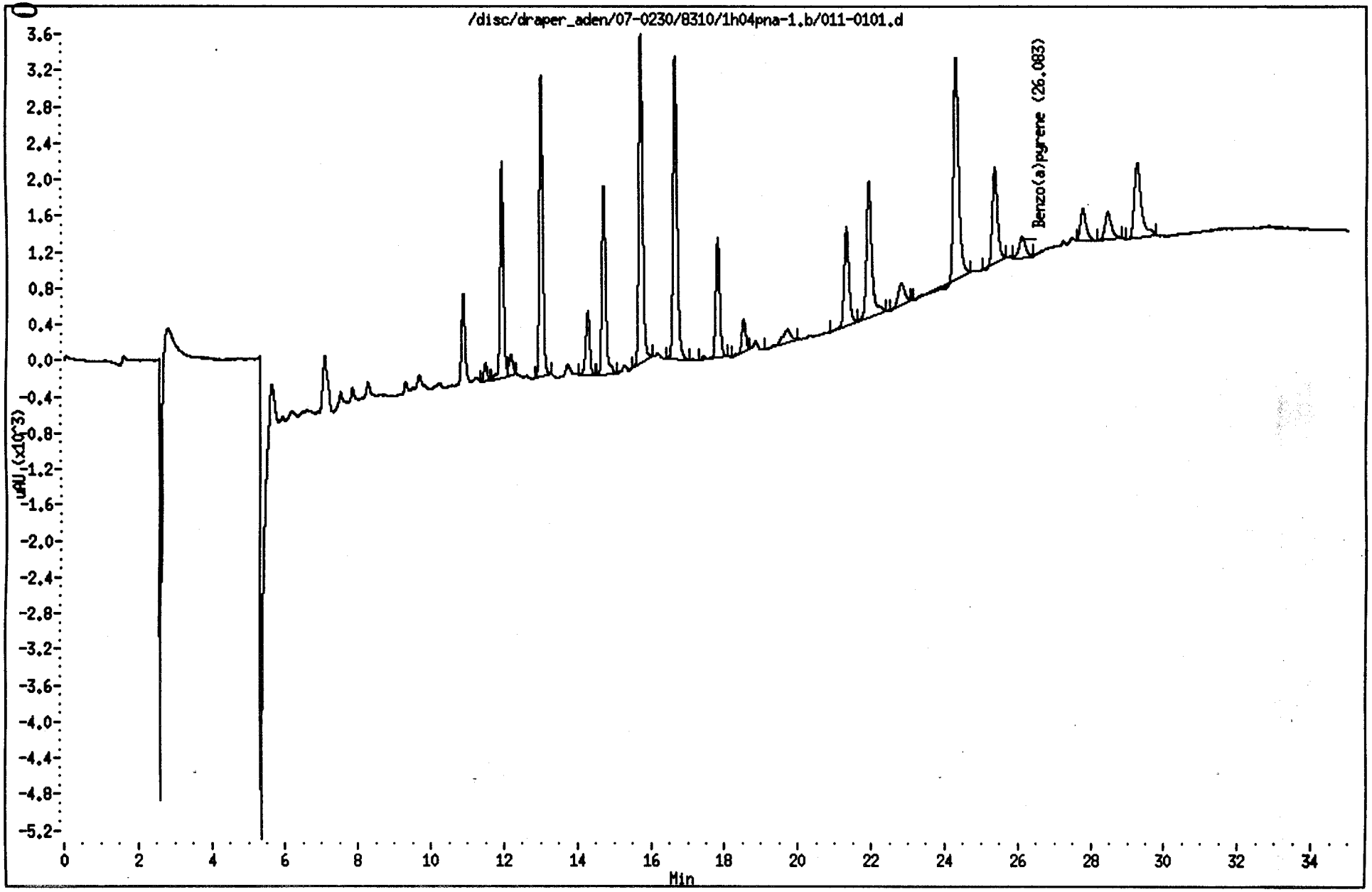
COMPOUND	RRF	RFO	MIN RRF	%D	MAX %D
14 Benzo(a)pyrene	341970.667	306440.000	0.010	10.4	40.0

Data File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/011-0101.d
Date : 05-AUG-1995 00:26
Client ID: ccal
Sample Info: PNA Level 5
Purge Volume: 800.0
Column phase:

Instrument: hplc.i

Operator: atl
Column diameter: 2.00

0340



CT&E Environmental Services Inc.

Laboratory Division

0341

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0276-012

Respectfully Submitted:

LAB BLANK-2 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/13/95
Date Received 07/13/95

Sampled by CLIENT

090895 1411

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/05/95 02:44 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

150/510/9

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

eb 0342

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna

Matrix: (soil/water) WATER Lab Sample ID: eb

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 014-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume: _____(uL) Date Analyzed: 08/05/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0309	U

0343

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h04pna-1.b/014-0101.d
Lab Smp Id: eb Client Smp ID: eb
Inj Date : 05-AUG-1995 02:44
Operator : atl Inst ID: hplc.i
Smp Info : Ext.Blk G14 800ml->0.99ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Meth Date : 08-Sep-1995 10:01 rmurphy Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 QC Sample: EXTBLANK
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	0.990	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
26.026	Compound Not Detected					
$ 6 OTP					CAS #:	
16.793	16.866	-0.073	355122	1.02	1.27	(AM)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: eb
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: pna
Fraction: SV
Client Smp ID: eb
Operator: atl
SampleType: EXTBLANK
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.27	101.28	40-120

0345

CT&E Environmental Services Inc. Charleston, WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: eb
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

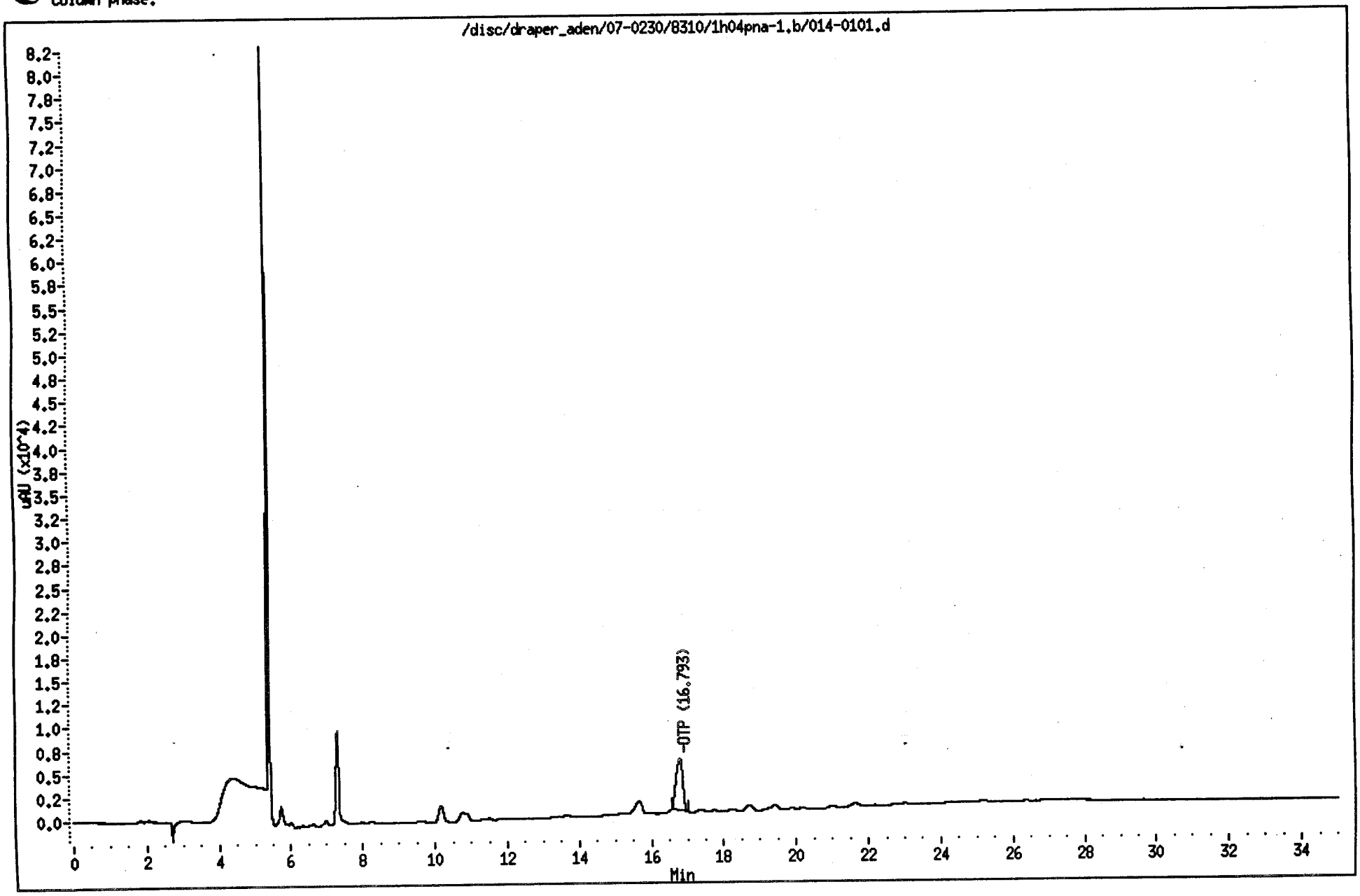
Client SDG: pna
Client Smp ID: eb
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	OTP	1.27	E

Data File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/014-0101.d
Date : 05-AUG-1995 02:44
Client ID: eb
Sample Info: Ext.Blk G14 800ml->0.99ml
Purge Volume: 800.0
Column phase:

Instrument: hplc.i

Operator: atl
Column diameter: 2.00



4B
SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

mb

Lab Name: CT&E-ELS Contract: Draper Aden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna 0347

Lab File ID: 005-0101 Lab Sample ID: mb

Instrument ID: HPLC Date Extracted: 05/12/93

Matrix: (soil/water) WATER Date Analyzed: 08/04/95

Level: (low/med) LOW Time Analyzed: 1951

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	mw9	mw9	006-0101	08/04/95
02	mw9MS	mw9MS	007-0101	08/04/95
03	mw9MSD	mw9MSD	008-0101	08/04/95
04	7-276-4mw12	7-276-4mw12	009-0101	08/04/95
05	7-276-5mw2	7-276-5mw2	010-0101	08/04/95
06	7-276-6mw4	7-276-6mw4	012-0101	08/05/95
07	tb	tb	013-0101	08/05/95
08	eb	eb	014-0101	08/05/95
09				
10				
11				
12				
13				
14				
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16				
17				
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19				
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22				
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25				
26				
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28				
29				
30				

COMMENTS:

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

mb

0348

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna

Matrix: (soil/water) WATER Lab Sample ID: mb

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 005-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume: _____(uL) Date Analyzed: 08/04/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	Benzo(a)pyrene	0.0312	U

0349

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h04pna-1.b/005-0101.d
Lab Smp Id: mb Client Smp ID: mb
Inj Date : 04-AUG-1995 19:51
Operator : atl Inst ID: hplc.i
Smp Info : Method Blank
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Meth Date : 08-Sep-1995 10:01 rmurphy Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.000	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
14 Benzo(a)pyrene					CAS #:
26.026	Compound Not Detected				
$ 6 OTP					CAS #:
16.866	Compound Not Detected				

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: mb
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: pna
Fraction: SV
Client Smp ID: mb
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Misc Info:

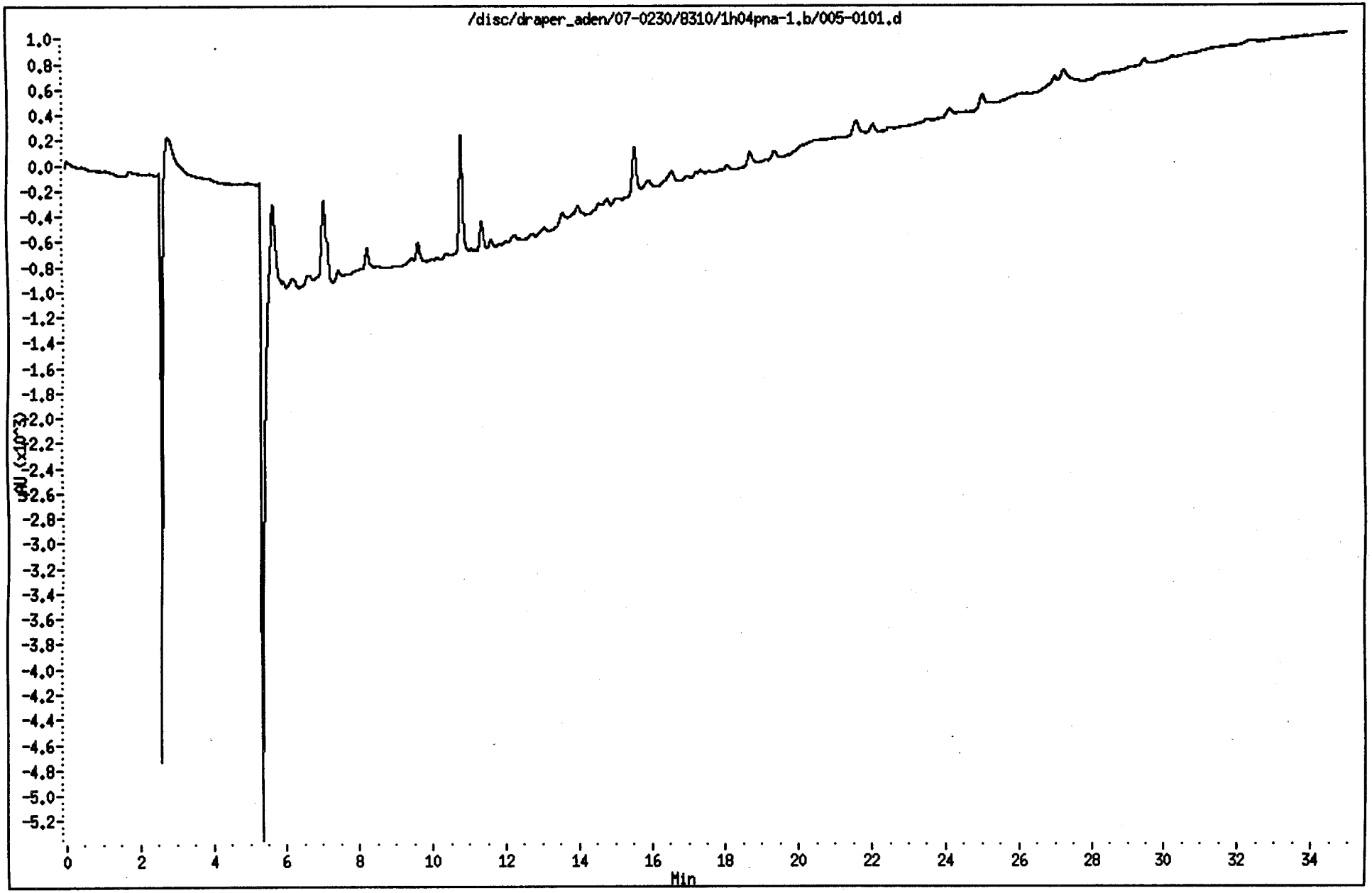
SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	0.000	*	40-120

Data File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/005-0101.d
Date : 04-AUG-1995 19:51
Client ID: mb
Sample Info: Method Blank
Purge Volume: 800.0
Column phase:

Instrument: hplc.i

Operator: atl
Column diameter: 2.00

0351



WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna

Matrix Spike - EPA Sample No.: mw9

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
Benzo(a)pyrene	2.00	0.000	2.42	121	40-140

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Benzo(a)pyrene	2.00	2.35	118	2	40	40-140

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS:

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h04pna-1.b/007-0101.d
Lab Smp Id: mw9MS Client Smp ID: mw9MS
Inj Date : 04-AUG-1995 21:23
Operator : atl Inst ID: hplc.i
Smp Info : 7-276-2mw9MS Draper Aden 800ml->0.97ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Meth Date : 08-Sep-1995 10:01 rmurphy Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 QC Sample: MS
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	0.970	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
25.813	26.026	-0.213	683929	2.00	2.42	(AM)
$ 6 OTP					CAS #:	
16.825	16.866	-0.041	378544	1.09	1.32	(A)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

0354

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: mw9MS
Level: LOW
Data Type: LC DATA
SpikeList File: BaP0_8.spk
Client SDG: pna
Fraction: SV
Client Smp ID: mw9MS
Operator: atl
SampleType: MS
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Misc Info:

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
14 Benzo(a)pyrene	2.00	2.42	121.25	40-140

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.32	105.78	40-120

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: mw9MS
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: mw9MS
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

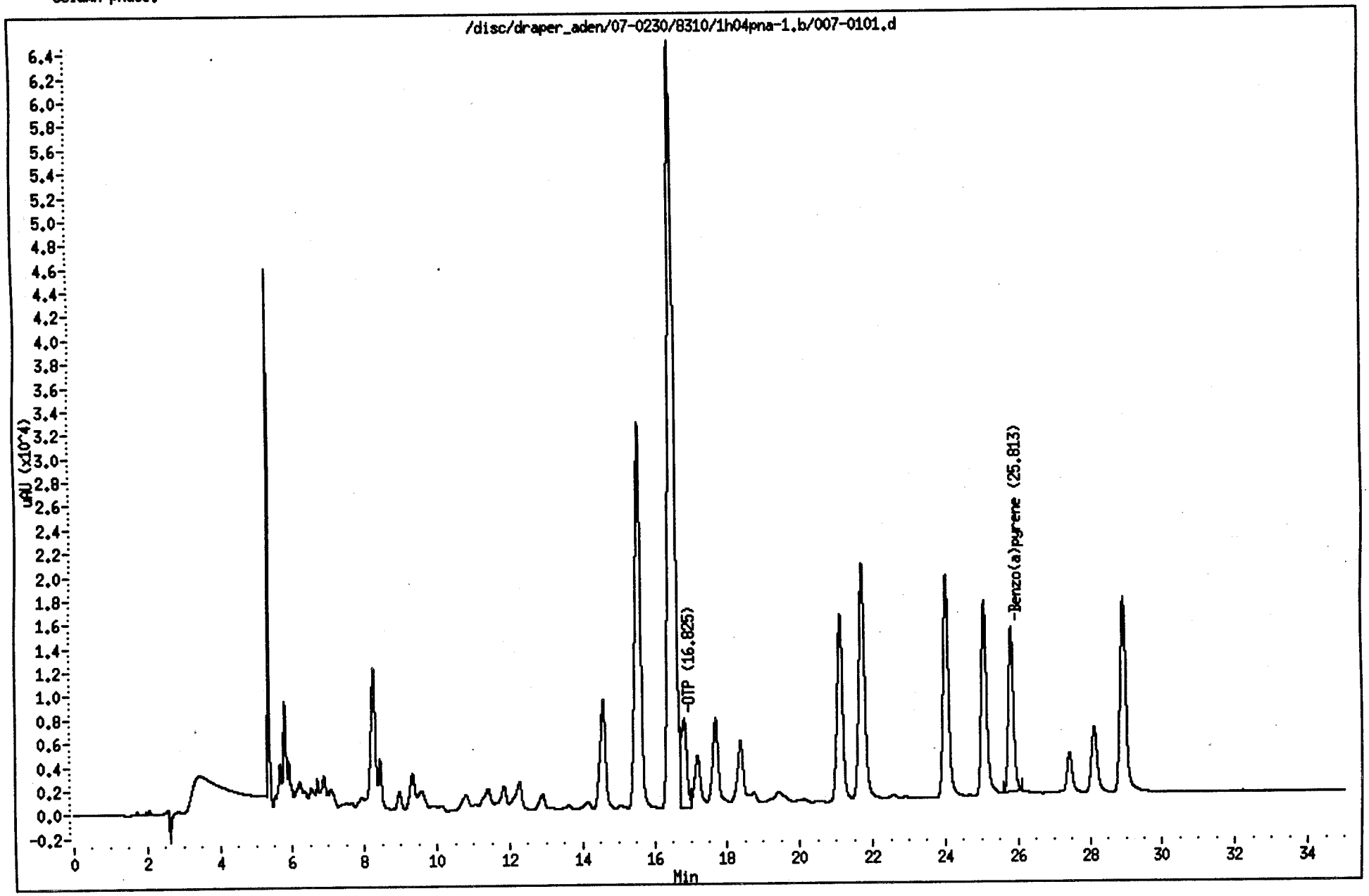
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	Benzo(a)pyrene	2.42	E
	OTP	1.32	E

0356

Data File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/007-0101.d
Date : 04-AUG-1995 21:23
Client ID: mw9MS
Sample Info: 7-276-2mw9MS Draper Aden 800ml->0.97ml
Purge Volume: 800.0
Column phase:

Instrument: hplc.i

Operator: atl
Column diameter: 2.00



CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h04pna-1.b/008-0101.d
Lab Smp Id: mw9MSD Client Smp ID: mw9MSD
Inj Date : 04-AUG-1995 22:09
Operator : atl Inst ID: hplc.i
Smp Info : 7-276-3mw9MSD Draper Aden 800ml->1.08ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Meth Date : 08-Sep-1995 10:01 rmurphy Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1 QC Sample: MSD
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.080	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
25.807	26.026	-0.219	594898	1.74	2.35	(AM)
$ 6 OTP					CAS #:	
16.690	16.866	-0.176	218999	0.631	0.852	(M)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: mw9MSD
Level: LOW
Data Type: LC DATA
SpikeList File: BaP0_8.spk
Client SDG: pna
Fraction: SV
Client Smp ID: mw9MSD
Operator: atl
SampleType: MSD
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Misc Info:

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
14 Benzo(a)pyrene	2.00	2.35	117.42	40-140

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	0.852	68.14	40-120

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: mw9MSD
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: mw9MSD
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

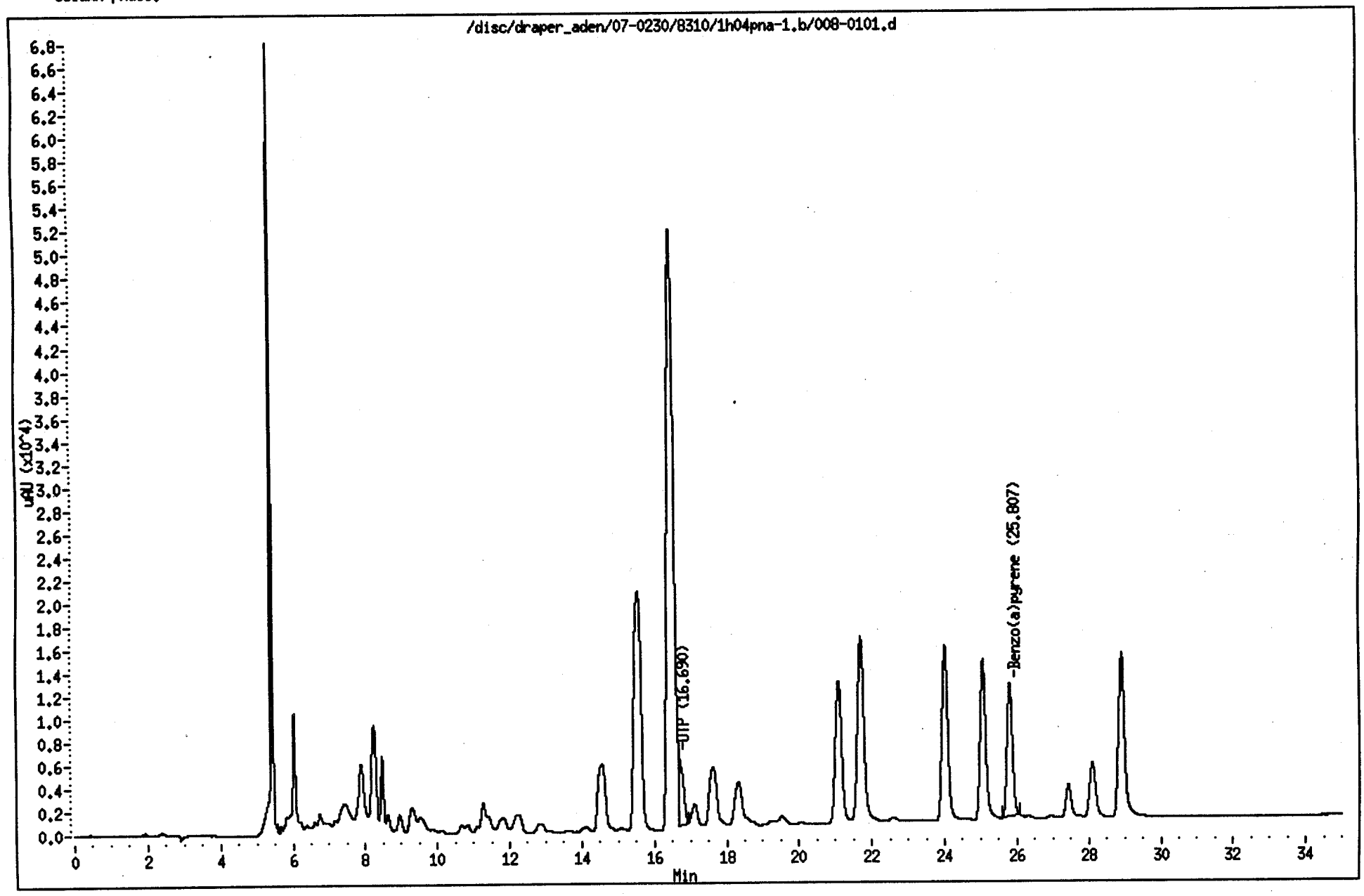
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	Benzo(a)pyrene	2.35	E
	OTP	0.852	

0360

Data File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/008-0101.d
Date : 04-AUG-1995 22:09
Client ID: mw9MSD
Sample Info: 7-276-3mw9MSD Draper Aden 800ml->1.08ml
Purge Volume: 800.0
Column phase:

Instrument: hplc.i

Operator: atl
Column diameter: 2.00



2C
WATER SEMIVOLATILE SURROGATE RECOVERY

0361

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna

	EPA SAMPLE NO.	S1 #	S2 #	S3 #	S4 #	S5 #	S6 #	S7 #	S8 #	TOT OUT
01	mb	0*								1
02	mw9	100								0
03	mw9MS	106								0
04	mw9MSD	68								0
05	7-276-4mw12	104								0
06	7-276-5mw2	105								0
07	7-276-6mw4	100								0
08	tb	101								0
09	eb	101								
10										
11										
12										
13										
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30										

QC LIMITS
(40-120)

S1 = OTP

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

CT&E Environmental Services Inc.

Laboratory Division

0362

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0276-001

Respectfully Submitted:

R C M

MW9 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/12/95 8:45
Date Received 07/13/95

Sampled by CLIENT

090895 1411

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/04/95 20:37 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402
4440 Glen Este-Withamsville Road, Suite 900, **Cincinnati, OH 45245-1331** — Tel: (513) 752-9696 Fax: (513) 752-2614

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

mw9
~~0363~~

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna

Matrix: (soil/water) WATER Lab Sample ID: mw9

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 006-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume:_____(uL) Date Analyzed: 08/04/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0303	U

0364

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h04pna-1.b/006-0101.d
Lab Smp Id: mw9 Client Smp ID: mw9
Inj Date : 04-AUG-1995 20:37
Operator : atl Inst ID: hplc.i
Smp Info : 7-276-1mw9 Draper Aden 800ml->0.97ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Meth Date : 08-Sep-1995 10:01 rmurphy Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	0.970	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
26.026	Compound Not Detected					
$ 6 OTP					CAS #:	
16.743	16.866	-0.123	358743	1.03	1.25	(AM)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: mw9
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: pna
Fraction: SV
Client Smp ID: mw9
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.25	100.25	40-120

0366

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: mw9
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: mw9
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
----------	OTP	1.25	E

0367

Data File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/006-0101.d

Date : 04-AUG-1995 20:37

Client ID: mw9

Instrument: hplc.i

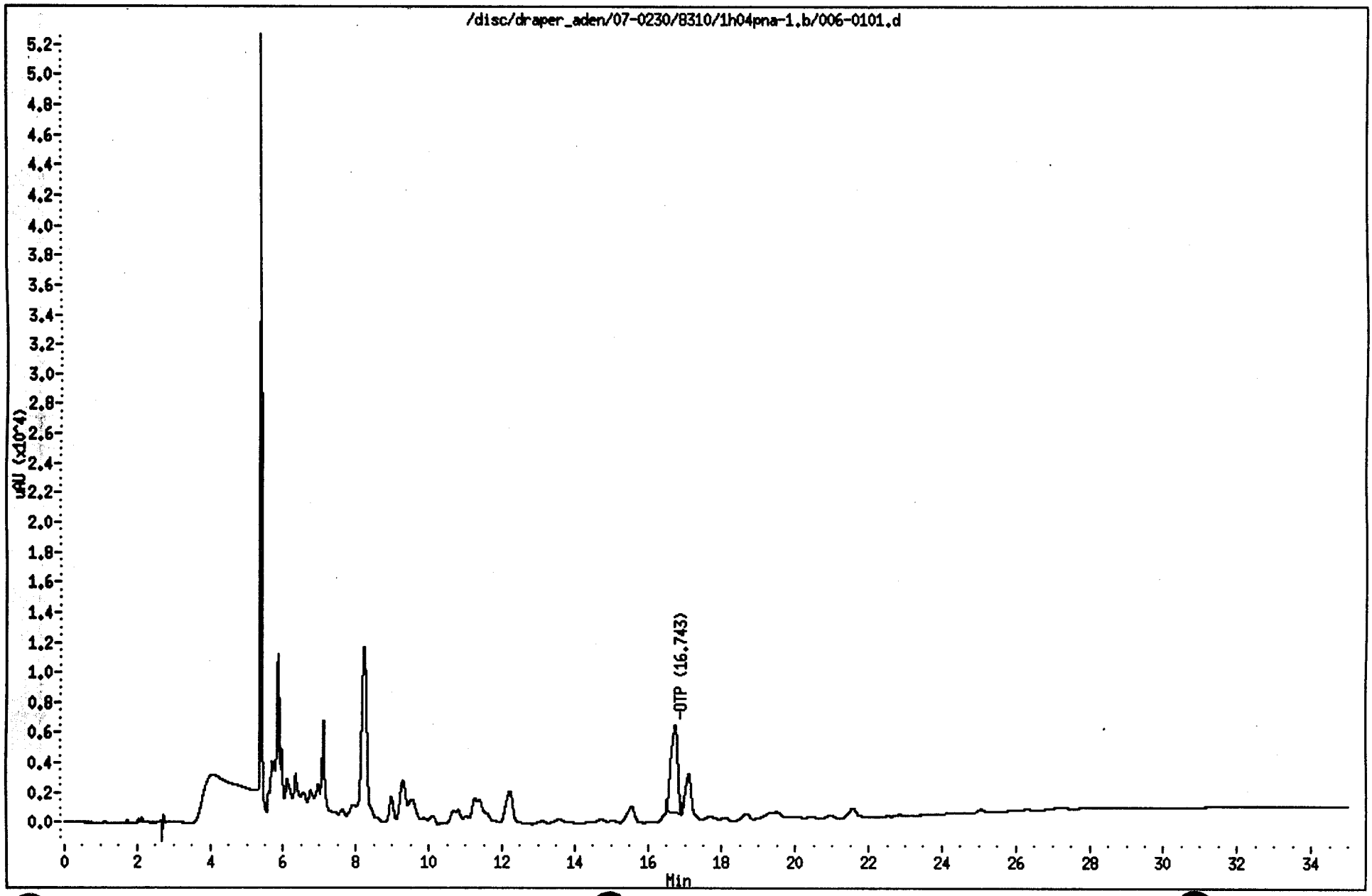
Sample Info: 7-276-1mw9 Draper Aden 800ml->0.97ml

Purge Volume: 800.0

Operator: atl

Column phase:

Column diameter: 2.00



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0276-004

Respectfully Submitted:

MW12 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/12/95 10:00
Date Received 07/13/95

Sampled by CLIENT

090895 1411

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/04/95 22:55

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-276-4mw12

0369

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna

Matrix: (soil/water) WATER Lab Sample ID: 7-276-4mw12

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 009-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume:_____(uL) Date Analyzed: 08/04/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
	----------Benzo(a)pyrene_____	0.0344	U

0370

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h04pna-1.b/009-0101.d
Lab Smp Id: 7-276-4mw12 Client Smp ID: 7-276-4mw12
Inj Date : 04-AUG-1995 22:55
Operator : atl Inst ID: hplc.i
Smp Info : 7-276-4mw12 Draper Aden 800ml->1.10ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Meth Date : 08-Sep-1995 10:01 rmurphy Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.100	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
26.026	Compound Not Detected					
$ 6 OTP					CAS #:	
16.777	16.866	-0.089	329345	0.949	1.30	(M)

QC Flag Legend

M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: 7-276-4mw12
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: pna
Fraction: SV
Client Smp ID: 7-276-4mw12
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.30	104.37	40-120

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 7-276-4mw12
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: 7-276-4mw12
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

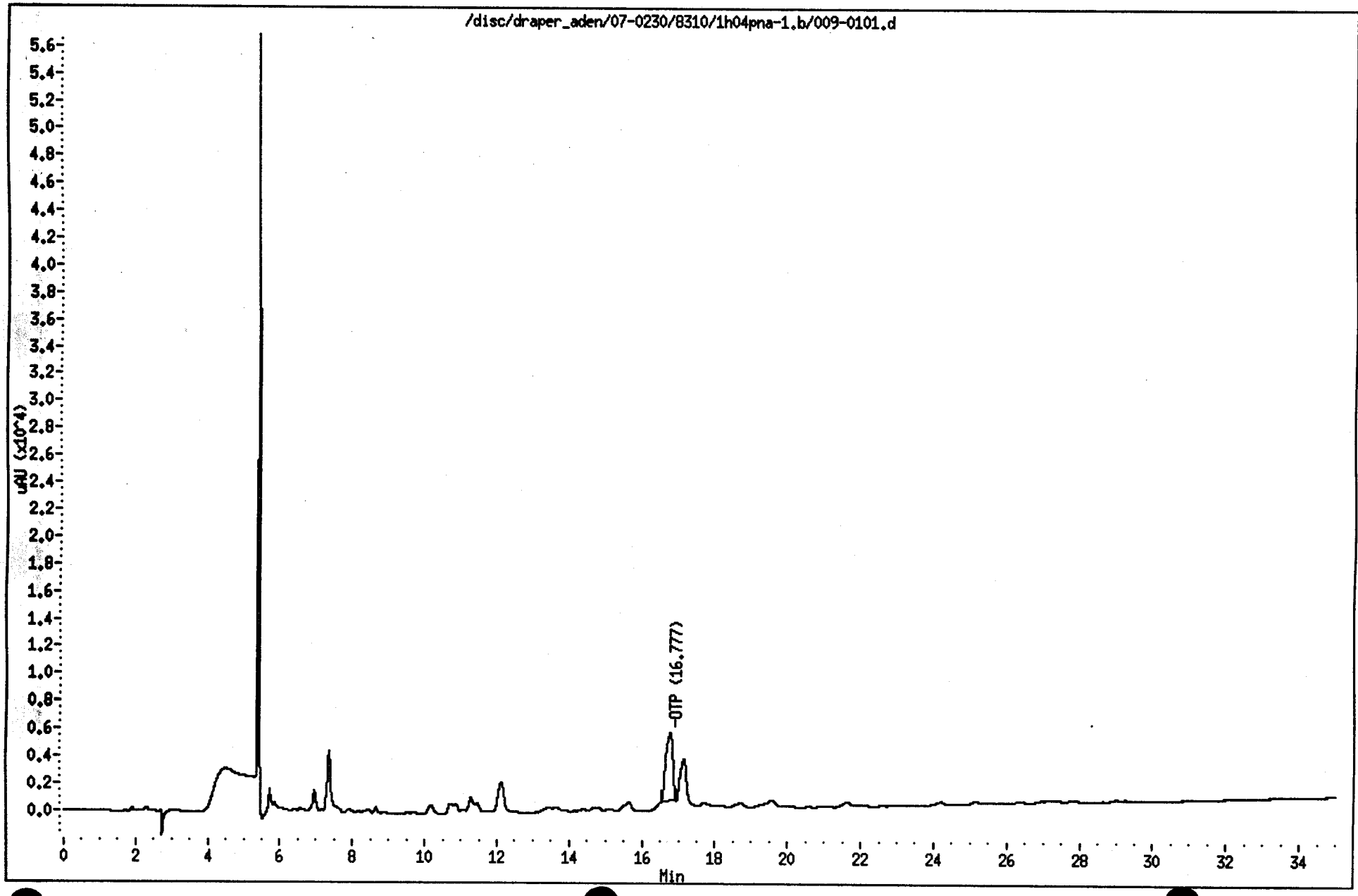
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
----------	OTP	1.30	

0373

Data File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/009-0101.d
Date : 04-AUG-1995 22:55
Client ID: 7-276-4mw12
Sample Info: 7-276-4mw12 Draper Aden 800ml->1.10ml
Purge Volume: 800.0
Column phase:

Instrument: hplc.i

Operator: atl
Column diameter: 2.00



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0276-005

Respectfully Submitted:

MW2 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/12/95 17:30
Date Received 07/13/95

Sampled by CLIENT

090895 1411

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/04/95 23:40 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

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4643 Benson Avenue, **Baltimore, MD 21227-1410** — Tel: (410) 247-7400 Fax: (410) 247-7402

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-276-5mw2

0375

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna

Matrix: (soil/water) WATER Lab Sample ID: 7-276-5mw2

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 010-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume: _____(uL) Date Analyzed: 08/04/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0353	U

0376

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h04pna-1.b/010-0101.d
Lab Smp Id: 7-276-5mw2 Client Smp ID: 7-276-5mw2
Inj Date : 04-AUG-1995 23:40
Operator : atl Inst ID: hplc.i
Smp Info : 7-276-5mw2 Draper Aden 800ml->1.13ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Meth Date : 08-Sep-1995 10:01 rmurphy Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.130	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
	26.026	Compound Not Detected				
$ 6 OTP					CAS #:	
16.777	16.866	-0.089	321632	0.926	1.31	(M)

QC Flag Legend

M - Compound response manually integrated.

0377

CT&E Environmental Services Inc. Charleston,WV

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: 7-276-5mw2
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: pna
Fraction: SV
Client Smp ID: 7-276-5mw2
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.31	104.70	40-120

0378

CT&E Environmental Services Inc. Charleston,WV

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 7-276-5mw2
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: 7-276-5mw2
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

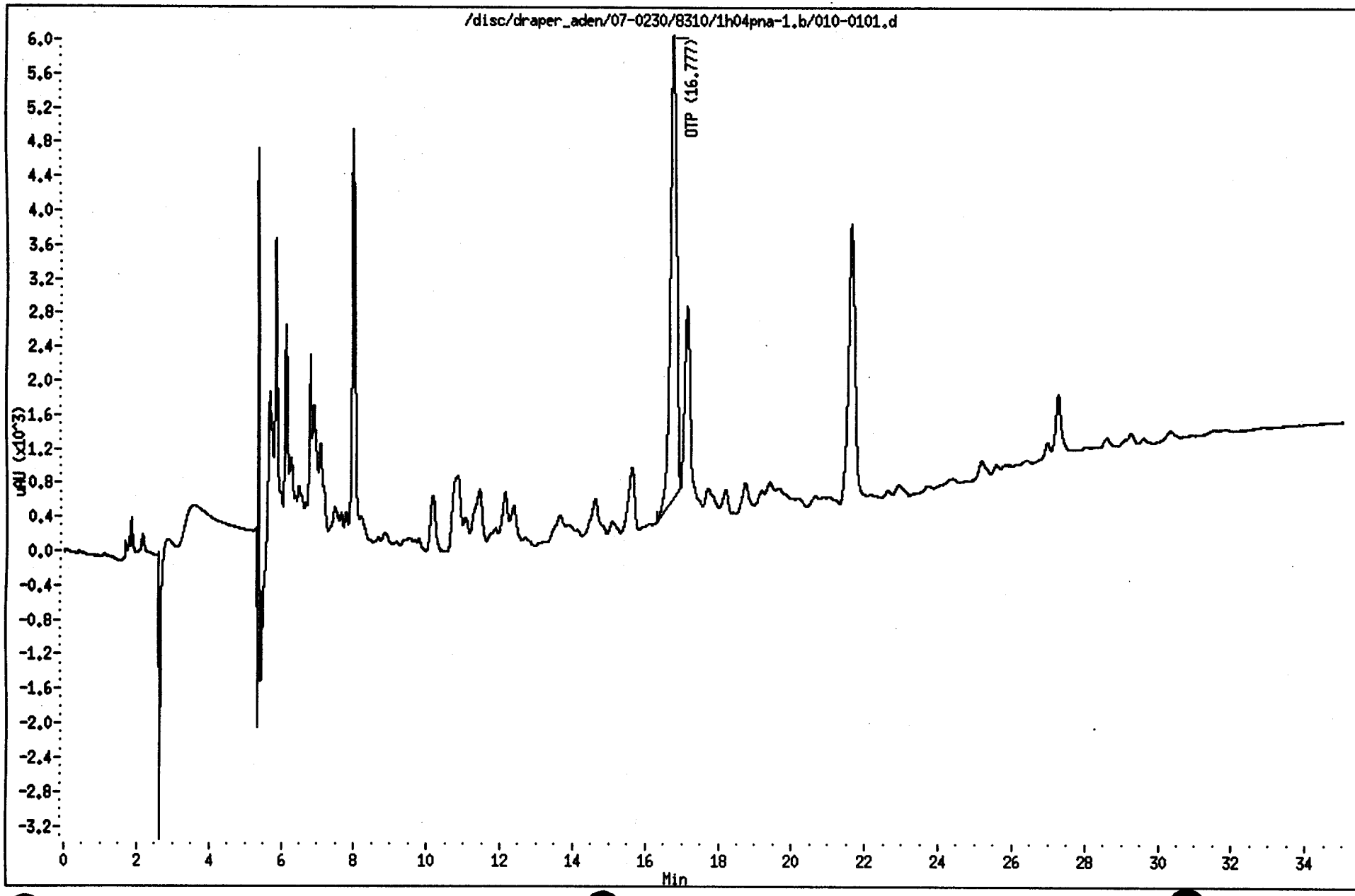
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	OTP	1.31	

Data File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/010-0101.d
Date : 04-AUG-1995 23:40
Client ID: 7-276-5mw2
Sample Info: 7-276-5mw2 Draper Aden 800ml->1.13ml
Purge Volume: 800.0
Column phase:

Instrument: hplc.i

Operator: atl
Column diameter: 2.00

0379



CT&E Environmental Services Inc.

Laboratory Division

0380

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0276-006

Respectfully Submitted:

R C M

MW4 GRAB 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/12/95 18:15
Date Received 07/13/95

Sampled by CLIENT

090895 1411

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/05/95 01:12 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

1258 Greenbrier Street, **Charleston, WV 25311-1002** — Tel: (304) 346-0725 Fax: (304) 346-0761
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

7-276-6mw4
0381

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna

Matrix: (soil/water) WATER Lab Sample ID: 7-276-6mw4

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 012-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume:_____(uL) Date Analyzed: 08/05/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0366	U

0382

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h04pna-1.b/012-0101.d
Lab Smp Id: 7-276-6mw4 Client Smp ID: 7-276-6mw4
Inj Date : 05-AUG-1995 01:12
Operator : atl Inst ID: hplc.i
Smp Info : 7-276-6mw4 Draper Aden 800ml->1.17ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Meth Date : 08-Sep-1995 10:01 rmurphy Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.170	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)	
14 Benzo(a)pyrene					CAS #:	
26.026	Compound Not Detected					
$ 6 OTP					CAS #:	
16.767	16.866	-0.099	596236	1.72	2.51	(AM)

QC Flag Legend

A - Target compound detected but, quantitated amount exceeded maximum amount.
M - Compound response manually integrated.

CT&E Environmental Services Inc. Charleston,WV 0383

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: 7-276-6mw4
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: pna
Fraction: SV
Client Smp ID: 7-276-6mw4
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	2.50	2.51	100.48	40-120

CT&E Environmental Services Inc. Charleston,WV 0384

TARGET COMPOUNDS

Client Name:
Lab Smp Id: 7-276-6mw4
Sample Location:
Sample Date:
Sample Matrix: WATER
Analysis Type: SV
Data Type: LC DATA
Misc Info:

Client SDG: pna
Client Smp ID: 7-276-6mw4
Sample Point:
Date Received: 05/10/93
Quant Type: ESTD
Level: LOW
Operator: atl

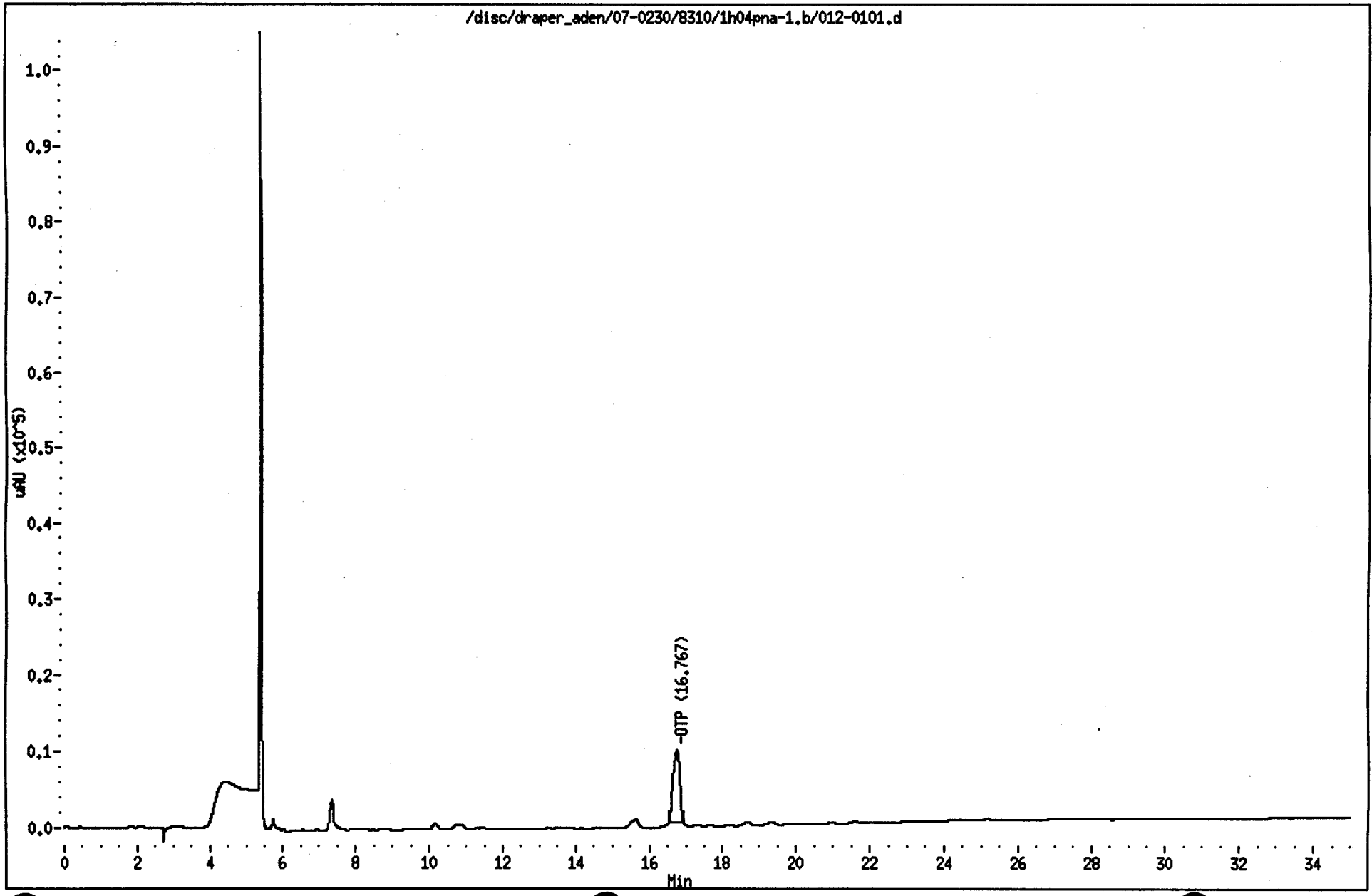
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/KG) ug/L	Q
	OTP	2.51	E

Data File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/012-0101.d
Date : 05-AUG-1995 01:12
Client ID: 7-276-6mw4
Sample Info: 7-276-6mw4 Draper Aden 800ml->1.17ml
Purge Volume: 800.0
Column phase:

Instrument: hplc.i

Operator: atl
Column diameter: 2.00

0385



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Janet M. Cleary
DRAPER ADEN ASSOCIATES

Laboratory Number 295-07-0276-011

Respectfully Submitted:

TRIP BLANK-2 1ST SEMI-ANNUAL ASSESSMENT
WATAUGA CO. LANDFILL

Date Sampled 07/06/95 8:00
Date Received 07/13/95

Sampled by CLIENT

090895 1411

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

PARAMETER	RESULT	LOQ	UNITS	METHOD	ANALYZED DATE/TIME/ANALYST
Benzo(a)pyrene[50-32-8]	ND	0.2	ug/L	SW8310	08/05/95 01:58 ATL

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

1258 Greenbrier Street, Charleston, WV 25311-1002 — Tel: (304) 346-0725 Fax: (304) 346-0761
4643 Benson Avenue, Baltimore, MD 21227-1410 — Tel: (410) 247-7400 Fax: (410) 247-7402

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

tb
0337

Lab Name: CT&E-ELS Contract: DraperAden

Lab Code: 07-0276 Case No.: SAS No.: SDG No.: pna

Matrix: (soil/water) WATER Lab Sample ID: tb

Sample wt/vol: 0.0 (g/mL) mL Lab File ID: 013-0101

Level: (low/med) LOW Date Received: 05/10/93

% Moisture: _____ decanted: (Y/N)___ Date Extracted: 05/12/93

Concentrated Extract Volume: _____(uL) Date Analyzed: 08/05/95

Injection Volume: _____(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
----------	Benzo(a)pyrene	0.0375	U

0388

CT&E Environmental Services Inc. Charleston,WV

PNA Analysis by UV

Data file : /disc/draper_aden/07-0230/8310/1h04pna-1.b/013-0101.d
Lab Smp Id: tb Client Smp ID: tb
Inj Date : 05-AUG-1995 01:58
Operator : atl Inst ID: hplc.i
Smp Info : 7-276-11tb Draper Aden 800ml->1.20ml
Misc Info :
Comment :
Method : /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Meth Date : 08-Sep-1995 10:01 rmurphy Quant Type: ESTD
Cal Date : 03-AUG-1995 01:35 Cal File: 007-0101.d
Als bottle: 1
Dil Factor: 1.000
Integrator: HP Genie Compound Sublist: DA-8310.sub
Target Version: 3.12 Sample Matrix: WATER
Concentration Formula: (Uf*Vt)/Vo

Name	Value	Description
Uf	1000.000	conv. ml->L
Vt	1.200	final volume (ml)
Vo	800.000	initial volume (ml)

RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS ON-COL (ug/L)	FINAL (ug/L)
14 Benzo(a)pyrene					CAS #:
26.026	Compound Not Detected				
$ 6 OTP					CAS #:
16.804	16.866	-0.062	292574	0.843	1.26

CT&E Environmental Services Inc. Charleston,WV 0389

RECOVERY REPORT

Client Name:
Sample Matrix: LIQUID
Lab Smp Id: tb
Level: LOW
Data Type: LC DATA
SpikeList File: BaP.spk
Client SDG: pna
Fraction: SV
Client Smp ID: tb
Operator: atl
SampleType: SAMPLE
Quant Type: ESTD
Method File: /disc/draper_aden/07-0230/8310/1h04pna-1.b/8310_chA.m
Misc Info:

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 6 OTP	1.25	1.26	101.14	40-120