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FULL SCALE BIOREMEDIATION WINDROW S-001 BATCH REPORT NSWC CRANE IN
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MORRISON KNUDSEN CORPORATION

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Full-Scale Bioremediation
Windrow S-001, Batch Report

NSWC Crane
Crane, Indiana

Unit Identification Code: N00164
Contract No. N62467-93-D-1106

December 1999

Revison 0

Southern Division
Naval Facilities Engineering Command
North Charleston, South Carolina
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December 17, 1999

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EXECUTIVE SUMMARY

On-site bioremediation of explosive-contaminated soil utilizing a windrow composting process began at Naval Surface Warfare Center Crane as the preferred interim measures treatment alternative. Activities associated with the construction and monitoring of the first windrow have been summarized in this document to demonstrate acceptable performance of full-scale operations per recommendations made during pilot-scale activities.

The first windrow of full-scale operations, Windrow S-001, was created on April 15, 1998 using amendment recipe identified as Mix 7B in the pilot-scale operations. The amendments of chicken manure and straw were mixed with explosive contaminated soil from Mine Fill A, at a soil loading of 25%, to form a windrow. By turning the windrow each day, proper aeration, temperature, oxygen, pH and moisture were maintained to provide optimal conditions for contaminant degradation. The information for Mix 7B has been obtained from pilot-scale operations.

Process monitoring of temperature, water holding capacity, oxygen, and pH were performed according to the frequency specified in the *Full-Scale Operational Plan for Soils Bioremediation Facility* [MK, 1998b]. In addition, field screening of explosives was performed to monitor the progress of Windrow S-001. The results of the field screening were used to identify when confirmation samples could be collected for analysis at an off-site laboratory. Laboratory analysis of compost samples on the last day of composting (i.e., Day 26) was performed at Southwest Laboratories of Oklahoma, Inc. The values of these results demonstrate that performance and remedial goals established for this process were met. All data were evaluated to verify that data quality objectives described in the *Quality Assurance Project Plan for Full-Scale Operations* [MK, 1998c] have been met.

The results of this initial batch confirm the predictions and recommendations of pilot-scale activities. All performance goals and remedial goals established for this process have been achieved. It is recommended that full-scale operations continue using the technology developed in pilot-scale activities and the windrow size developed for full-scale operations. Subsequent pilot-scale testing of windrows with increased percentages (i.e., 30% vs. 25%) of contaminated soil should be pursued. Such testing will involve pilot-scale size windrows. This testing will examine the possibility of increasing the volume of soil treated while maintaining a 28 day windrow cycle.

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ACRONYMS AND ABBREVIATIONS

°C	Degrees Centigrade
2A46DT	2-Amino-4,6-dinitrotoluene
4A26DT	4-Amino-2,6-dinitrotoluene
CAAA	Crane Army Ammunition Activity
DQO	Data Quality Objectives
EPA	U.S. Environmental Protection Agency
FS-OP	Full-Scale Operational Plan for Soils Bioremediation Facility
FS-QAPP	Full-Scale Quality Assurance Project Plan
HMX	cyclotetremethylenetetranitramine
IM	Interim Measures
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MFA	Mine Fill A
MK	Morrison Knudsen Corporation
MRLs	Method Reporting Limits
MS	Matrix Spike
MSD	Matrix Spike Duplicate
nd	not detected
NSWC	Naval Surface Warfare Center
ppm	parts per million
PS-TTR	Pilot-Scale Treatability Test Report
QAPP	Quality Assurance Project Plan
QC	Quality Control
RDX	cyclotrimethylenetrinitramine
RPD	relative percent difference
RSD	relative standard deviation
SOP	Standard Operating Procedure

SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
su	standard units
SWMU	Solid Waste Management Unit
TNT	2,4,6-trinitrotoluene
WHC	Water Holding Capacity

1.0
INTRODUCTION

1.1 OBJECTIVES

This report summarizes the operational activities for the first windrow constructed during full-scale operations at Naval Surface Warfare Center (NSWC) Crane. The purpose of this report is to demonstrate that the Windrow S-001 construction and composting techniques derived as a result of the *Pilot-Scale Treatability Test Report* (PS-TTR) [MK, 1998a] are capable of meeting project objectives during full-scale operations.

1.2 BACKGROUND

NSWC Crane, located in southwestern Indiana, provides support for equipment, shipboard weapons systems, and ordnance. This site also supports Crane Army Ammunition Activity (CAAA) which includes production and renovation, storage, shipment, demilitarization and disposal of conventional ammunition. Explosive-contaminated soils resulting from the above operations have been identified at four Solid Waste Management Units (SWMUs): Ammunition Burning Ground (SWMU-03/10); Rockeye Munitions Facility (SWMU-10/15); Mine Fill A (SWMU-12/14); and Mine Fill B (SWMU-13/14).

On site bioremediation of the contaminated soil utilizing a windrow composting process has been selected as the preferred treatment alternative for the Interim Measures (IM) at these four SWMUs. In this process, microbial degradation of explosive compounds is performed by mixing contaminated soil with organic material. By optimizing the availability of organic material, temperature, moisture content, pH, and oxygen availability, the microbial activity can be stimulated. The result is the production of residual organic and inorganic material with significantly reduced explosives compounds contamination.

A pilot-scale test was completed at NSWC Crane to determine the compost mix which provided the optimum environment for microorganism growth and degradation of explosive compounds in contaminated soil. The recommended mix from pilot-scale operations was the Mix 7B, which consisted of 15% chicken manure, 25% soil, and 60% straw. The results of pilot testing are presented in the PS-TTR [MK, 1998a]. Recommendations from this report were incorporated in the *Full-Scale Operational Plan for Soils Bioremediation Facility* (FS-OP) [MK, 1998b] approved by the U.S. Environmental Protection Agency, Region V (EPA). The work is being undertaken by Morrison Knudsen Corporation (MK) for Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), under Contract Number N62467-93-D-1106,

Delivery Order 009, Statement of Work 007.

1.3 WINDROW DEVELOPMENT

The first compost windrow under full-scale operations, Windrow S-001, was created on April 15, 1998 in the south building consisting of 211 cubic yards of screened contaminated soil excavated from Mine Fill A (MFA) and the remaining pilot-scale Mix #1 compost which did not degrade the explosive compounds during the pilot-scale treatability demonstration. The 151 cubic yards of soil from MFA comprised of mixed clay, silt, and silty clay and contaminants, primarily included 2,4,6-trinitrotoluene (TNT), cyclotrimethylenetrinitramine (RDX), and cyclotetremethylenetetranitramine (HMX). Of the 211 cubic yards, 60 cubic yards was obtained from the partially treated material from pilot-scale Mix #1, a mix tested and not selected for full-scale operations. Mix # 1 consisted of 15 cubic yards of contaminated soil from MFA and 45 cubic yards of various amendments (POTW sludge, alfalfa, sawdust, and woodchips) which did not sufficiently degrade the explosive compounds, and therefore required re-treatment. Mix #1 was considered soil in the Windrow S-001 mix ratio because it was to be re-treated.

The amendments to Windrow S-001 were loaded on a volume basis into a grinder/mixer unit to homogenize each mix. The amendments included 124 cubic yards of chicken manure and 495 cubic yards of straw. This resulted in a compost windrow consisting of 15% chicken manure, 60% straw, and 25% contaminated soil by volume as specified in the FS-OP [MK, 1998b]. A record of the compost recipe and suppliers of amendments is provided in Appendix A.

2.0
PROCESS MONITORING

After the contaminated soil was loaded into the windrows, the windrow turning machine (SCARAB®) mixed and reformed the windrows. The windrows were turned once a day to maintain proper aeration, temperature, oxygen, pH and moisture. In addition, water was added as needed to maintain optimal moisture content. These process parameters were monitored to evaluate and provide optimal conditions for contaminant degradation. The values of these process parameters were compared to the performance goals established in the FS-OP [MK, 1998b]. A summary of the process parameters and significance of each parameter is described below. Daily logs of the windrow processing raw data is provided in Appendix J.

2.1 TEMPERATURE

Temperature is a primary indicator of successful thermophilic composting. The process goal is to maintain an average windrow temperature near 55 Degrees Centigrade (°C) for approximately two weeks. The average windrow temperature should rise from 25 to 40°C within the first few days of formation, and continue rising to within the temperature range of 40 to 60°C, and maintain that temperature range for at least two weeks. This temperature profile indicates a healthy, metabolically active windrow. Temperature decrease over time below 50°C is viewed as an indicator that the windrow is nearing the end of its thermophylic cycle.

Windrow temperature was monitored twice daily, before and after each windrow turning according to the Field Standard Operating Procedure (SOP) 4 Section 3 of the *Quality Assurance Project Plan for Full-Scale Operations* (FS-QAPP) [MK, 1998c]. Temperature readings were taken using a hand-held temperature probe at six sampling/monitoring locations at each of the five cross sections, for a total of 30 monitoring locations. These locations were selected to provide representative temperature profiles for the inner core and outer near-surface conditions. Ambient air temperature inside the buildings was monitored daily using an alcohol thermometer to determine any correlation between ambient temperature and windrow temperature of Windrow S-001. A clear correlation did not exist between these variables. Summaries of the average daily Windrow S-001 temperature, average daily ambient temperature, and graphs are presented in Appendix B. The average ambient temperatures ranged between 4 and 18°C, as shown in the graph provided in Appendix B.

Pre-turn temperatures have been determined to be more useful for evaluation and comparison because they represent heat development over time. Average temperature is defined as the average of the 30 monitoring locations in each windrow. Windrow S-001 exhibited a rapid temperature increase to 40°C within two days. Temperatures continued to rise above 55°C and were maintained for approximately two weeks. In

some cases, average temperature exceeded 65°C but was readily reduced with aeration and/or moisture addition to within the optimum operating range. This temperature pattern mimics conditions shown in the PS-TTR [MK, 1998a] generated from Mix 7B. Based on the results of temperature monitoring, Windrow S-001 was able to maintain optimum temperatures for enhancing biodegradation.

2.2 MOISTURE

Water holding capacity (WHC) is monitored to ensure optimum operating conditions for microbial growth and contamination degradation. WHC is the ratio of the percent moisture of the compost to the percent moisture of the compost at the point of saturation. The calculation for this value is show in Section 4.5 of Field SOP 4.0 of the FS-QAPP [MK, 1998c].

The humidity inside the building was monitored daily using a hygrometer to determine any correlation between percent humidity and WHC of the windrow. The average daily relative humidity ranged from 61 to 100% for Windrow S-001. No correlation was found to exist between percent humidity and water holding capacity. Daily humidity data is presented in Appendix C.

The operating goal for composting moisture content is 40 to 60% maximum WHC. If WHC levels are excessively low or high, proper composting and explosives degradation may be affected. Too little moisture content inhibits microbial movement and nutrient availability in the compost windrow. Excessive moisture fills the void spaces needed for proper aeration, thus reducing oxygen levels and retarding aerobic microbial growth. Water was generally added to the point of saturation when WHC levels fell below 45%. Potable water from an on-site source was generally added when WHC levels fell below 45%.

WHC monitoring was performed three times a week according to the operations schedule prior to windrow turning, unless moisture was added on that day, in which case WHC was monitored after the addition of water and subsequent turning. Moisture level samples were collected from each of the five cross sections. At each cross section, sample locations 1, 2, and 3 were composited for a total of five composited samples per windrow. Average WHC data are provided in Appendix C.

Due to high levels of evaporation during the composting cycle, water was added at three times during the composting activities to maintain moisture content at approximately 50% maximum WHC. Table 2-1 summarizes the moisture additions for Windrow S-001.

Overall, Windrow S-001 exhibited excellent moisture holding capacity which enhanced biodegradation. Additional water was added to Windrow S-001 in comparison to pilot-scale due to the increased size of the windrow, however WHC values remained

TABLE 2-1 SUMMARY OF MOISTURE ADDITIONS TO WINDROW # S-001		
DATE OF ADDITION	WINDROW AGE (DAYS)	VOLUME ADDED (GALLONS)
4/19/98	4	2000
5/1/98	16	1500
5/8/98	23	1500

the process was leachate observed from Windrow S-001. The average daily WHC ranged between 42% and 51% during the twenty-six day cycle of Windrow S-001.

2.3 OXYGEN

Oxygen levels of up to ambient atmospheric or about 20% are preferred in a compost windrow, and 5% is considered the minimum for rapid compost degradation. Oxygen levels below 1% indicate anaerobic conditions. If sufficient oxygen levels are not maintained, proper microbial degradation may not occur, thermophilic temperatures may not be maintained, and putrefaction of organic matter may occur. However, anaerobic conditions commonly exist in a compost windrow throughout most of each day, and depending on the density of the compost, aerobic conditions may occur for only for one to two hours following turning.

The oxygen available to microbes in a windrow is the result of aeration by turning. Therefore, oxygen availability is a function of the air-filled pore volume within the windrow, which is in turn a function of porosity and moisture content. As the compost windrow is turned and degrades, the porosity is reduced which in turn reduces available oxygen. Similarly, increasing the moisture content also reduces available oxygen.

Oxygen levels were monitored twice daily, before turning and within 15 minutes after turning. The oxygen monitoring data for Windrow S-001 are provided in Appendix B. Oxygen level measurements were collected using a hand-held probe at the same locations as the temperature measurements according to SOP 4 Section 3 of the FS-QAPP [MK, 1998c]. The oxygen monitoring data are provided in Appendix D. Windrow S-001 exhibited excellent oxygenation levels. Levels of oxygen greater than 12% occurred on most days after turning. Operations were able to maintain Windrow S-001 within the optimum oxygen conditions during initial activities. The graph demonstrates the progressive reduction in oxygen levels both pre and post-turn. After Day 14 the pre-turn oxygen levels are less than 6.6% which are suggestive of the decreased porosity as the compost degrades.

2.4 pH

The pH of the compost windrow is measured to ensure that the pH neutral environment is obtained during operations. Five composite samples were collected on a weekly basis to monitor pH prior to windrow turning according to the sampling specifications identified in Field SOP 4.0 of the FS-QAPP [MK, 1998c]. The pH of the compost windrows in pilot-scale operations normally remained within the range of 5.5 to 9 standard units (su). Values obtained for Windrow S-001 were between 8.44 and 8.66 su which are consistent with the pilot scale operations. The pH of the Windrow S-001 during full-scale operations was not adjusted during composting activities. The data for pH monitoring is presented in Appendix E.

3.0
FIELD SCREENING FOR EXPLOSIVE COMPOUNDS

RDX, TNT, and HMX are the major explosive compounds present at Mine Fill A based upon previous sampling results. Field test kits provide a cost effective method of determining approximate concentrations and minimize the number of samples submitted for off-site analysis. There is currently no field test kit available for the analysis of HMX, however field test kits were used for RDX and TNT analysis. RDX and TNT are representative of the explosive compounds present and give a good indication of the degradation of the other explosive compounds.

Process monitoring of the RDX and TNT concentrations within Windrow S-001 for analysis was performed on operational days 7, 14, and 21 to monitor the reduction process. One composite sample was collected per cross-section and analyzed for RDX and TNT using the Strategic Diagnostic, Incorporated (SDI) Ensys® Field Test Kits. SOPs for the field test kits is presented in the FS-QAPP [MK, 1998c]. When field screening indicated non-detectable RDX and TNT levels, confirmation samples were collected and submitted to an off-site laboratory for analysis of all target constituents. The purpose of the field test kits is to dictate when samples will sent for off-site analysis. Table 3-1 provides a summary of the field test kit data results. The associated worksheets (raw data) are contained in Appendix F.

The field data demonstrates a progressively decreasing concentration of RDX and TNT during composting operations. On day 21 all TNT and RDX levels were below detectable levels using the field test kits. Confirmation samples were collected and submitted to Southwest Laboratories of Oklahoma for analysis by EPA Method 8330 on day 26. Day Last sampling was delayed five days due to scheduling conflicts with Aqua Survey, Incorporated, the laboratory utilized for toxicity analysis. SOPs for toxicity analysis are presented in *Appendix G, Toxicity Testing and Leaching Procedures,* of the FS-QAPP [MK, 1998c]. Toxicity analysis of this Windrow S-001 was performed on Day Last, and the results of this study will be provided under a separate report.

TABLE 3-1 SUMMARY OF FIELD TEST KIT RESULTS						
Cross Section	DAY 7		DAY 14		DAY 21	
	RDX (ppm)	TNT (ppm)	RDX (ppm)	TNT (ppm)	RDX (ppm)	TNT (ppm)
3	28.8	nd	8.7	nd	nd	nd
5	33.2	nd	8.0	nd	nd	nd
7	59.8	nd	10.5	nd	nd	nd
9	36.9	nd	11.3	nd	nd	nd
11	21.2	2.5	6.2	nd	nd	nd

Notes: ppm: parts per million
nd: not detected

4.0
LABORATORY ANALYSIS

The constituents of concern for MFA include explosives, metals and volatile organics. Analysis of the SWMU specific contaminants listed in Section 1.4.2.1 of the FS-QAPP [MK, 1998c] was performed for all pre-excavated soil by Southwest Laboratory of Oklahoma, Inc.

4.1 METALS AND VOLATILES ANALYSIS

Samples of contaminated soil from MFA were collected analyzed for metals (EPA Methods 6010 and 7470) and volatiles (EPA Method 8240) prior to excavation. Levels of site-specific total metals and volatiles contamination did not exceed any of the established Industrial Use Cleanup Goals (Table 1-2 of the FS-QAPP [MK, 1998c]) and therefore, further metal and volatile analysis were not required during composting activities. Analytical data associated with pre-excavation characterization samples are available at the Bioremediation Facility Office.

4.2 EXPLOSIVES ANALYSIS

Samples collected for explosives analysis by EPA Method 8330 prior to excavation showed levels which exceeded Industrial Use Cleanup Goals (Table 1-2 of the FS-QAPP [MK, 1998c]). Soil exceeding the Industrial Use Cleanup Goals was screened, composted and submitted for analysis on the day of Windrow S-001 formation (Day 0). Field screening was performed weekly to monitor the RDX and TNT levels. A final compost sample was collected 26 days after Windrow S-001 formation (Day Last) once the field test kits indicated RDX and TNT levels were below detectable levels. Samples for explosive analysis were collected from each of the five cross sections. At each cross section, locations 1, 2, and 3 grab samples were collected for a total of fifteen samples per windrow as outlined in the FS-OP [MK, 1998b]. The fifteen samples were averaged to obtain a single Day 0 average concentration for each explosive compound, and a single Day Last average concentration for each explosive compound. The average concentration was calculated by using the result when concentrations were above the reporting limits. Reporting limit is defined as the threshold value below which the laboratory cannot accurately quantify, although it is possible to detect analytes below this threshold value. For those results which fell below the reporting limit, the value of the reporting limit was used in the calculation. Calculation of the average concentration in this manner presents a worst case scenario in calculation of the average concentration and percent reduction of the target constituents. Analytical raw data is provided in Appendix K for Day 0 and Appendix L for Day 26 and a summary of the these results is located in Appendix G.

Degradation of the explosives compounds was evaluated for each compound in order to ensure that the Industrial clean-up levels were achieved and that the criteria of 90-

99% reduction range between the Day 0 and Day Last explosive compound concentrations was obtained. HMX, RDX, TNT, 2A46DT, and 4A26DT were the only compounds found in the initial Day 0 characterization. Most of the Day 0 samples contained very high levels of RDX, HMX and TNT which required sample dilutions in order to bring them into the calibration range of the instrument. Due to the high levels of RDX, HMX and TNT and the subsequent dilutions, the reporting limits of other target analytes were elevated to reflect this dilution. By evaluating the average concentration of each explosive contaminant from Day 0 to Day Last, the percent reduction was calculated. Appendix H contains the reduction values for each contaminant. Percent reduction is only applicable to those compounds found to be present above the reporting limits during the Day 0 characterization.

5.0
DATA QUALITY CONTROL

All data associated with Windrow S-001 monitoring were verified, and at least 10% of the samples were validated by MK personnel following the procedures outlined in Section 9.0 of the FS-QAPP [MK, 1998c]. Data was compared with field and laboratory quality control (QC) sample data to assess the data's usability for supporting operational decisions. The results of this data verification and validation are presented in this section.

Data associated with the monitoring of Windrow S-001 were verified by reviewing chain-of-custody forms, sample preservation records, analytical holding times, requested turnaround times, and sample data in comparison to analytical quality assurance objectives. Data quality objectives (DQOs) were established to ensure the quality of the analytical data produced by the laboratory. These quality objectives were evaluated by monitoring the precision, accuracy, representativeness, completeness, and comparability of the measured data which are outlined in Table 3-1 through Table 3-8 of the FS-QAPP [MK, 1998c]

5.1 PRECISION

Precision is a measure of the reproducibility of measurements under a given set of conditions. Precision is usually stated in terms of relative standard deviation (RSD) or relative percent difference (RPD). Field duplicates and replicate samples were used to determine the precision of the sampling process. Laboratory matrix spikes (MS) and matrix spike duplicates (MSD) as well as laboratory control samples (LCS) and lab control sample duplicates (LCSD) were used to determine the precision of the analytical process.

Field duplicates were collected at a frequency of 10% of the total number of samples collected. Two field duplicates were collected, one each on Day 0 and Day 26. A summary of the relative percent difference is shown in Appendix I. RDX, TNT, and HMX showed RPD levels less than 25% in both field duplicates collected during Windrow S-001 monitoring. One explosive contaminant, 4-Amino-2,6-dinitrotoluene (4A26DT), had an elevated RPD value of 72% in the Day 0 field duplicate. This high RPD can be attributed to the non-homogeneous matrix type of Day 0 composting material.

Precision in the laboratory is assessed through the calculation of RPD and limits are established by EPA SW 846 methods. Laboratory duplicates consisting of MS/MSD were performed on each analytical batch of samples processed. Several matrix spike recoveries exceeded acceptable RPD values in the Day 0 analysis. In these cases, non-homogeneity of the sample matrix contributed to the increased variability seen in

the recovery of the matrix spike analytes. All analytes in Day 26 analysis had acceptable RPD values less than 40%. In all cases, acceptable RPD values were obtained in the analysis of the LCS/LCSD.

Precision of the field test kits was also evaluated using sample duplicates. Sample duplicates were analyzed with the Field Test Kits for explosive analysis to assess the precision of these test kits. Analysis of sample duplicates for the test kits was performed at a frequency of 5%. Sample duplicate analysis showed RPD values less than 45% for all replicate field analysis performed.

5.2 ACCURACY

Accuracy is a measure of the bias in a measurement system, and is defined as the closeness of the reported value to the true value. The accuracy of a measurement system was assessed by evaluating the results of quality control samples such as matrix spikes, analytical surrogates and the use of field blanks and equipment rinsate blanks. Accuracy is expressed as a percent recovery of a compound from a sample spiked with known concentrations of target compounds. Accuracy for laboratory samples is also assessed through adherence to all sample handling, preservation and holding times. All samples were handled properly, preserved correctly, and adhered to the holding times established for this project.

Field blanks and equipment rinsate blank data are used to identify potential sources of error introduced during sampling or any source of contamination in the rinse water. Equipment rinse blanks were collected for each batch of samples submitted to the laboratory. A field blank was also collected from each source of dionized water every month representing the water source used for equipment decontamination. Explosive contamination was not found in any rinse blank or field blank. Based on these results it is clear that no explosive cross-contamination has occurred during collection, shipping, or storage.

Laboratory accuracy was assessed against the criteria established in Table 3-2 of the FS-QAPP [MK, 1998c] through the analysis of surrogates, laboratory control standards, sample matrix spikes, or standard reference materials and the determination of percent recoveries. Surrogate spikes are known amounts of non-target compounds which are introduced into all samples prior to extraction in order to evaluate the efficiency of the sample preparation and analysis. Surrogate recoveries were acceptable for all samples analyzed.

The LCS and LCSD are samples prepared in the laboratory and consist of clean soil or water spiked with known amounts of target analytes which is processed through the same preparation as field samples. Evaluation of the spike recoveries gives an indication of analysis accuracy in a clean matrix. Recoveries of all standard matrix spikes (lab control samples) were acceptable based on project DQO.

Sample MS and MSD are field samples which have been spiked with a known amount of target analytes and processed through the preparation and analysis with the field samples. Two spiked aliquots (MS/MSD) were processed and the results compared to known concentrations of the spiking solution to determine recoveries. The recoveries of the matrix spike samples were varied. In some of situations, elevated recoveries are likely due to low spiking concentrations used in the laboratory relative to the concentration of the analyte found initially in the sample. This was seen primarily of HMX, TNT, and RDX due to the high sample concentrations of these compounds. In the remaining situation two explosive contaminants, 4-ADNT, and 2-ADNT had elevated recoveries in the matrix spike of 150% and 145% respectively. This elevated recovery is attributed to the dilution required for analysis based on levels of other explosive contaminants in the sample.

Laboratory method blanks can also be used to evaluate bias in the measurement. Method blanks were prepared and analyzed with the samples in order to evaluate potential target compounds or interferences from laboratory glassware, reagents and/or solvents used in the preparation and analysis of samples. Laboratory method blanks did not show the presence of any target analytes above the reporting limits. Results of the method blanks were acceptable for all analytes.

Accuracy of the field test kits were evaluated through the analysis of a field check standard. This standard was analyzed with each batch of samples processed at a frequency of 10%. The results of all field checks standards are recorded on the field test sheets in Appendix F. Recoveries of these standards are within acceptable limits established for this project.

5.3 REPRESENTATIVENESS

The representativeness of the data is the degree to which data represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter which is controlled through sampling in accordance the sampling program outlined in the FS-QAPP [MK, 1998c]. All documentation from sampling and analysis demonstrates that the requirements of the QAPP have been adhered to and proper sampling techniques and sample preservation procedures have been followed.

5.4 COMPLETENESS

Completeness is a measure of the amount of valid data obtained from an analytical data set compared to the amount that was expected to be obtained under normal sampling and analytical conditions. Completeness is based on only those samples collected and submitted for laboratory analysis. All results were obtained and determined valid for samples collected from Windrow S-001 for monitoring purposes. This indicates a 100% completeness for Windrow S-001.

5.5 COMPARABILITY

Comparability expresses the confidence with which one data set can be compared to another. Samples from Windrow S-001 were considered comparable because they were collected following the same sample collection procedures throughout windrow monitoring. Field SOPs were established to collect representative samples in a consistant manner. In addition, all samples were analyzed by the same analytical methods throughout this project as established by the laboratory SOPs. Minor changes in analysis did not occur throughout the analysis of Windrow S-001 which is demonstrated by the low variability seen in the data. The analytical laboratory's QC program was designed to establish consistency in the performance of the analytical process.

6.0
CONCLUSIONS

During full-scale operations, remedial goals will be the industrial level remediation goals for all SWMU specific contaminants. These goals are presented in Table 1-2 of the FS-QAPP [MK, 1998c]. The compost mix, identified as Mix 7B tested to be successful in pilot-scale activities was utilized to create Windrow S-001 in full scale operations. This mix, consisting of 15% chicken manure, 60% straw, and 25% contaminated soil, was successful at meeting remediation goals for all SWMU specific contaminants at levels below the industrial clean-up levels by Day 26. The results of Windrow S-001, the first windrow of full-scale operations favorably compare to pilot-scale operational predictions. Further, residential clean-up goals presented in Table 1-1 of the FS-QAPP [MK, 1998c] were obtained for all explosive contaminants by Day 26.

Windrow S-001 has also reached its performance goals by demonstrating at least 90% reduction of all contaminants as required by the Full-Scale Operations Plan. The average degradation was 98%. The lowest degredation was seen with 2A46DT with 97% reduction, and the highest degredation occurred with TNT and RDX, both with 99% reduction. The observations presented here indicate that bioremediation by composting utilizing the amendment recipe selected has met the performance and remedial goals of this project. Based on the success of the first windrow, full-scale operations will continue with this composting amendment mixture for contaminated soil in MFA. Increase in soil loading may be performed based on results of the pilot-scale size windrow testing using 30% soil.

7.0
REFERENCES

MK, 1998a. *Pilot Scale Treatability Test Report, Soils Bioremediation Facility - NSWC Crane, Crane, Indiana.* Delivery Order Number 0009, Contract Number N62467-93-D-1106. Prepared by Morrison Knudsen Corporation, Environmental Services Group. Revision #1, September 02, 1998.

MK, 1998b. *Full-Scale Operational Plan for Soils Bioremediation Facility, NSWC Crane, Crane, Indiana.* Delivery Order Number 0009, Contract Number N62467-93-D-1106. Prepared by Morrison Knudsen Corporation, Environmental Services Group. Revision 2, March 12, 1998.

MK, 1998c. *Quality Assurance Project Plan for Full-Scale Operations, Soils Bioremediation Facility, NSWC Crane, Crane, Indiana.* Delivery Order Number 0009, Contract Number N62467-93-D-1106. Prepared by Morrison Knudsen Corporation, Environmental Services Group. Revision 2, March 12, 1998.

APPENDIX A
WINDROW RECORD OF RECIPE

TABLE OF CONTENTS

DESCRIPTION **PAGES**

Record of Recipe . . . . . 4 pages

(SOUTH)

RECORD OF RECIPE (MIX NO. 7B)

Building # 3 **Windrow #** 1 **PERFORMED BY:** R Dayhoff

DATE: 4/1/1998 PAGE 1 OF 4 **INSPECTED BY:** Tom Boyd

Design Quantity: (PER BATCH) **Chicken Manure** 3 **CY** 4350 **Pounds**
Straw 12 **CY** 2200 **Pounds**
Soil 5 **CY** 11000 **Pounds**

Bales	Batch Number	CHICKEN MANURE Supplier: WABASH VALLEY FARM		STRAW Supplier: DAYHOFF FARM		SOIL Location: MINE FILL 'A' & MIX #1-PS		TOTAL ACTUAL QUANTITY	
		cubic yards	pounds	cubic yards	pounds	cubic yards	pounds	cubic yards	pounds
2 RD 1.5 WS	1	3.5	7700	12.25	3600	5	11,000	20.75	22360
2 RD 1 DS	2	3.	6250	12.	3000	5	11000	20	20250
2.25	3	3.25	7900	12	3100	5	11,000	20.25	22000
2	4	3.00	6100	12.	3200	5	11,000	20	20300
	5	3.00	6300	11.75	2800	5	11,000	19.75	20100
1.5	6	3.10	7000	12.	3300	5	11,000	20.1	21300
2.5	7	3.00	6400	12.50	3600	5	11,000	20.5	21000
2.25	8	3.00	6600	12.00	3000	6	13,200	21.0	22800
2.25	9	3.00	6690	12.00	3460	5	11,000	20	21150
2.25	10	3.25	7440	12.00	3280	5	11,000	20.25	21720
2.00	11	3.00	7000	11.75	3100	5	11,000	19.75	21100
2.25	12	3.00	6700	12.00	3500	5	11,000	20	21200
2.25	13	3.00	6800	12.25	3700	5	11,000	20.25	21500
2.25	14	3.	6400	12.00	3400	5	11,000	20	20800
2.	15	3.25	6900	12.00	3300	5	11,000	20.25	21200
2.	16	3.25	7200	12.00	3200	6	13200	21.25	23600
2	17	3.00	6400	12.00	3100	5	11,000	20	20500
2.5	18	3.5	7800	12.25	3800	5	11,000	21.25	22600
	—	—	—	—	—	—	—	—	—
Total THIS PG.		56.1	123640	217.25	59440	92	202400	365.35	385480

Comments: SOIL WAS LOADED ON BATCH 1 TO 28 ON 4/14/98 AND ON BATCH 29 TO 41 ON 4/15/98. SOIL BLENDED W/ AMENDMENTS ON 4/15/98

RECORD OF RECIPE (MIX NO. 7B)

Building # SOUTH 3 Windrow # 1 PERFORMED BY: OP Dayhoff

DATE: 4/13/98 PAGE 2 of 4 INSPECTED BY: Tom Dayhoff

Design Quantity: (PER BATCH) Chicken Manure 3 CY 4350 Pounds
Straw 12 CY 2200 Pounds
Soil 5 CY 11000 Pounds

Batch Number	CHICKEN MANURE Supplier: WABASH VALLEY FARM		STRAW Supplier: DAYHOFF FARM		SOIL Location: MINE FILL A & MIX #1-PS		TOTAL ACTUAL QUANTITY	
	cubic yards	pounds	cubic yards	pounds	cubic yards	pounds	cubic yards	pounds
2.5	19	3.5	7700	12.5	3600	5	11,000	21	22300
2.0	20	2.75	6000	11.25	5000	5	11,000	19.5	20000
2.25	21	3.00	6900	12.00	3150	6	13200	21	23250
						35200 ~~18,100~~		
Total THIS PG	9.25	20600	36.25	9750	16	~~26,100~~	61.5	65550

Comments:

RECORD OF RECIPE (MIX NO. 7B)

Building # (3) South Windrow # 1 PERFORMED BY: OP Dayhoff

DATE: 4/1/98 PAGE 3 of 4 INSPECTED BY: [illegible]

Design Quantity: (PER BATCH) Chicken Manure 3 CY 4350 Pounds
Straw 12 CY 2200 Pounds
Soil 5 CY 11,000 Pounds

Bales	Batch Number	CHICKEN MANURE Supplier: WABASH VALLEY FARM		STRAW Supplier: DAYHOFF FARM		SOIL Location: MINE FILL A & MIX #1-PS		TOTAL ACTUAL QUANTITY	
		cubic yards	pounds	cubic yards	pounds	cubic yards	pounds	cubic yards	pounds
2	22	3.00	6800	12.25	3200	5	11,000	20.25	21000
2.25	23	3.00	6400	12.25	3500	5	11,000	20.25	20900
2.25	24	2.75	6000	12.25	3600	5	11,000	20	20600
2.00	25	2.70	5850	11.75	2900	5	11000	19.45	19750
2.00	26	3.00	6300	11.75	3000	5	11000	19.75	20300
2.5	27	2.75	5900	12.00	3400	5	11000	19.75	20300
2.25	28	3.00	6200	12.00	3400	5	11000	20	20600
2.25	29	2.70	5600	12.00	3600	6	13200	20.7	22400
2.00	30	2.90	5900	12.00	3200	5	11000	19.9	20100
2.5	31	3.00	6000	12.50	4050	5	11000	20.5	21050
2.0	32	3.00	6680	12.00	3380	5	11000	20	21060
2.6	33	3.00	6250	12.50	4400	5	11000	20.5	21650
2.0	34	2.75	5500	12.00	3500	6	13200	20.75	22200
2.25	35	2.75	5400	12.00	3600	5	11000	19.75	20000
2.5	36	3.25	6640	12.00	3800	5	11000	20.25	21440
2.5	37	2.75	5400	12.00	3700	5	11000	19.75	20100
2.25	38	3.25	6700	12.00	3100	5	11000	20.25	20800
2.25	39	3.25	6500	12.00	3200	5	11000	20.25	20700
	Total THIS PG	52.8	110020	217.25	62530	92	202400	362.05	374950

Comments:

RECORD OF RECIPE (MIX NO. 7B)

(3)

Building # South Windrow # 1 PERFORMED BY: P Dayhoff

DATE: 4/14/98 PAGE 4 OF 4 INSPECTED BY: [illegible]

Design Quantity: (PER BATCH) Chicken Manure 3 CY 4350 Pounds
Straw 12 CY 2200 Pounds
Soil ~~1~~ 5 CY 11,000 Pounds
TDD

Batch Number	CHICKEN MANURE Supplier: WABASH VALLEY FARM		STRAW Supplier: DAYHOFF FARM		SOIL Location: MINE FILL A & MIX #1-P5		TOTAL ACTUAL QUANTITY	
	cubic yards	pounds	cubic yards	pounds	cubic yards	pounds	cubic yards	pounds
2.5 40	2.85	5600	12.25	3900	6	13200	21.1	22700
2.25 41	3.00	5800	12.00	3600	5	11000	20	20400
TOTAL THIS PG	5.85	11400	24.25	7500	11	24200	41.1	43100
Total ALL PGS	124	265060	495	139~~775~~ 2200 TDD	211	~~455100~~ 464200 TDD	830	869080

Comments:

TOTAL P.10

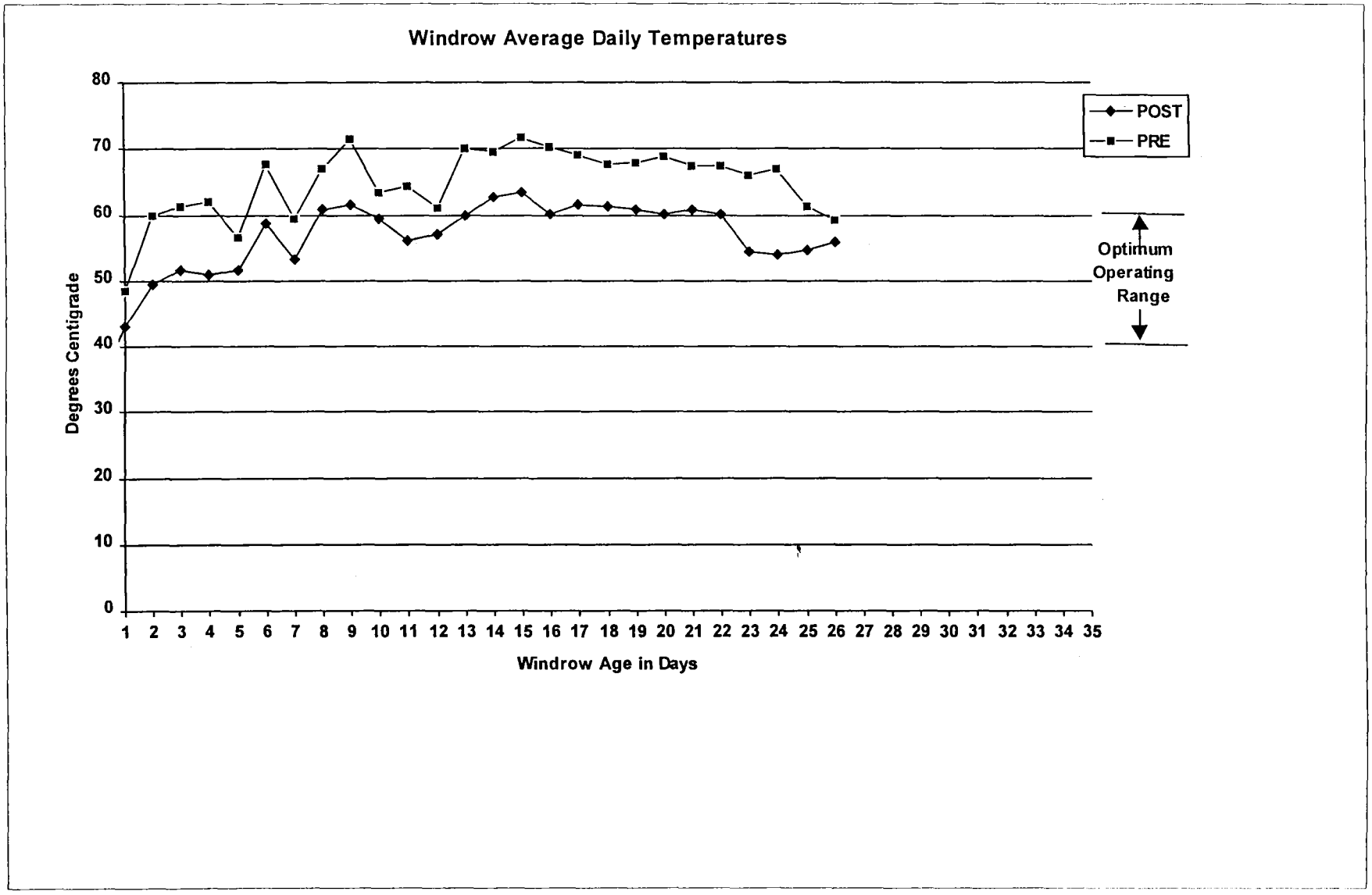
APPENDIX B
TEMPERATURE SUMMARY RECORDS

TABLE OF CONTENTS

DESCRIPTION	PAGES
Windrow Average Daily Temperature Chart	1 page
Windrow Average Daily Temperature Data	1 page
Average Ambient Daily Temperature Chart	1 page
Average Ambient Daily Temperature Data	1 page

NSWC Crane BioFacility Full Scale Windrow S001

Constructed April 15, 1998



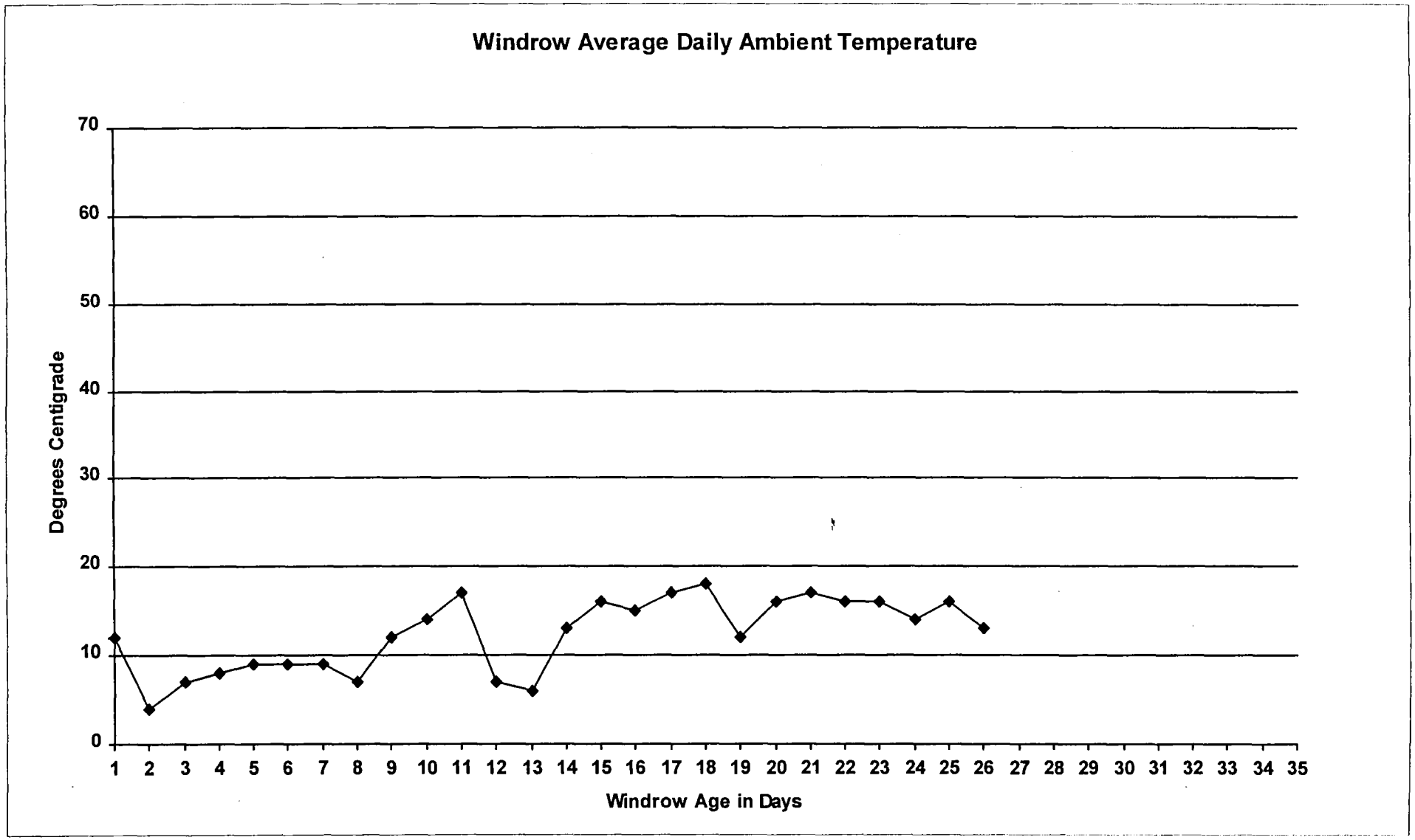
Morrison Knudsen Corporation

Average Daily Windrow Temperature Summary Report

Windrow Number	*Construction Date*	*Date Monitored*	*Age (Days)*	*PRE-Turn (Deg C)*	*POST-Turn (Deg C)*
001	4/15/98	4/15/98	0		33.53
		4/16/98	1	48.57	43.07
		4/17/98	2	59.90	49.70
		4/18/98	3	61.20	51.67
		4/19/98	4	62.30	50.87
		4/20/98	5	56.83	51.53
		4/21/98	6	67.70	58.60
		4/22/98	7	59.40	53.30
		4/23/98	8	67.03	60.73
		4/24/98	9	71.37	61.50
		4/25/98	10	63.50	59.47
		4/26/98	11	64.37	56.10
		4/27/98	12	61.13	56.93
		4/28/98	13	70.00	59.83
		4/29/98	14	69.60	62.83
		4/30/98	15	71.77	63.50
		5/1/98	16	70.33	60.20
		5/2/98	17	69.20	61.43
		5/3/98	18	67.70	61.40
		5/4/98	19	67.83	60.80
		5/5/98	20	68.90	60.07
		5/6/98	21	67.43	60.87
		5/7/98	22	67.50	60.07
		5/8/98	23	66.07	54.33
		5/9/98	24	67.10	53.87
		5/10/98	25	61.30	54.77
		5/11/98	26	59.17	55.80

All average temperatures are in degrees centigrade

NSWC Crane BioFacility Full Scale Windrow Monitoring Activity



Morrison Knudsen Corporation

Daily Ambient Temperature Summary Report

Windrow Number	*Construction Date*	*Date Monitored*	*Age (Days)*	*Temperature (Deg C)*
01	4/15/98	4/15/98	0	12.00
		4/16/98	1	12.00
		4/17/98	2	4.00
		4/18/98	3	7.00
		4/19/98	4	8.00
		4/20/98	5	9.00
		4/21/98	6	9.00
		4/22/98	7	9.00
		4/23/98	8	7.00
		4/24/98	9	12.00
		4/25/98	10	14.00
		4/26/98	11	17.00
		4/27/98	12	7.00
		4/28/98	13	6.00
		4/29/98	14	13.00
		4/30/98	15	16.00
		5/1/98	16	15.00
		5/2/98	17	17.00
		5/3/98	18	18.00
		5/4/98	19	12.00
		5/5/98	20	16.00
		5/6/98	21	17.00
		5/7/98	22	16.00
		5/8/98	23	16.00
		5/9/98	24	14.00
		5/10/98	25	16.00
		5/11/98	26	13.00

All temperatures are in degrees centigrade
Tuesday, September 29, 1998

APPENDIX C
MOISTURE SUMMARY RECORDS

TABLE OF CONTENTS

DESCRIPTION	PAGES
Windrow Daily WHC Summary Data	1 page
Windrow WHC and Moisture Addition Chart	1 page
Average Daily Percent Humidity Chart	1 page

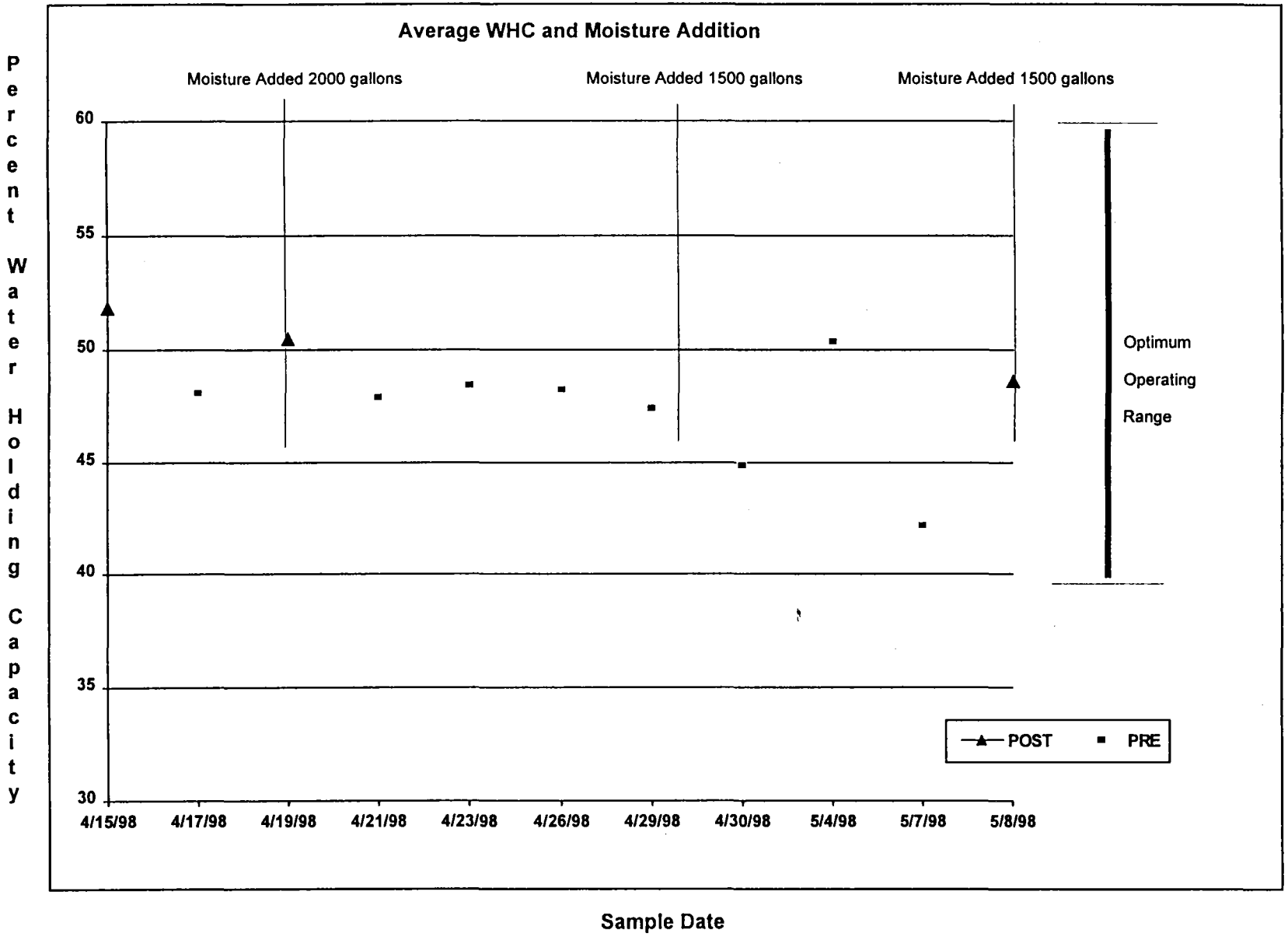
Average Daily Windrow WHC Summary Report

Windrow Number	*Construction Date*	*Date Monitored*	*Age (Days)*	*PRE-Turn (%)*	*POST-Turn (%)*
S001	4/15/98	4/15/98	0		51.86
		4/17/98	2	48.08	
		4/19/98	4		50.48
		4/21/98	6	47.88	
		4/23/98	8	48.40	
		4/26/98	11	48.22	
		4/29/98	14	47.40	
		4/30/98	15	44.86	
		5/4/98	19	50.30	
		5/7/98	22	42.14	
		5/8/98	23		48.60

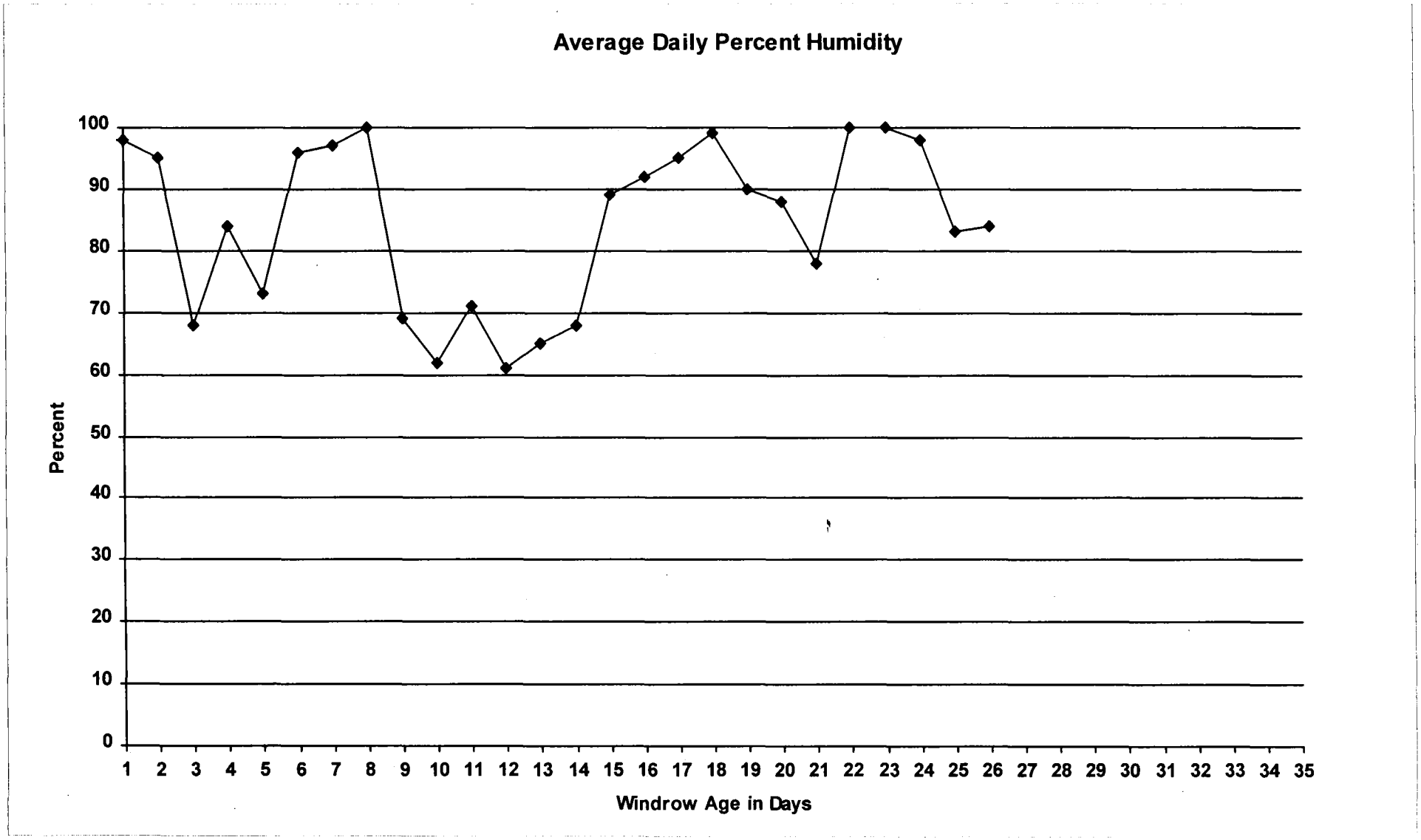
All average MWHC values are expressed in percent

Generated: *29-Sep-98*

NSWC Crane BioFacility Full Scale Windrow Monitoring Activity



NSWC Crane Full Scale Windrow Monitoring Activity



Morrison Knudsen Corporation

APPENDIX D
OXYGEN SUMMARY RECORDS

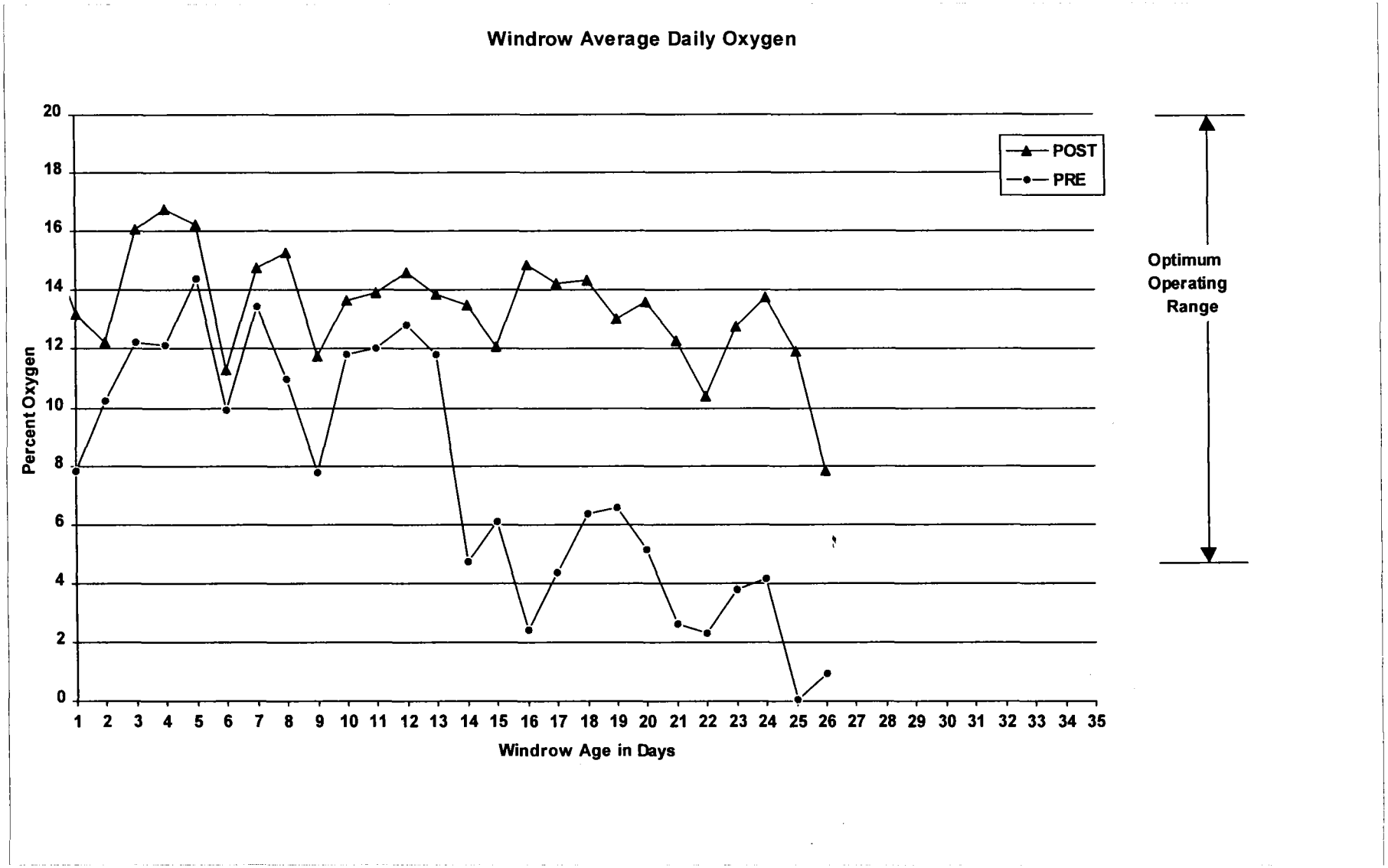
TABLE OF CONTENTS

DESCRIPTION **PAGES**

Windrow Daily Oxygen Summary Chart . . . . . 1 page
Windrow Daily Oxygen Summary Data . . . . . 1 page

NSWC Crane BioFacility Full Scale Windrow S-001

Constructed April 15, 1998



Morrison Knudsen Corporation

Average Daily Windrow Oxygen Summary Report

Windrow Number	*Construction Date*	*Date Monitored*	*Age (Days)*	*PRE-Turn (%)*	*POST-Turn (%)*
S001	4/15/98	4/15/98	0		16.00
		4/16/98	1	7.83	13.17
		4/17/98	2	10.23	12.23
		4/18/98	3	12.23	16.07
		4/19/98	4	12.13	16.73
		4/20/98	5	14.37	16.20
		4/21/98	6	9.93	11.27
		4/22/98	7	13.43	14.77
		4/23/98	8	10.97	15.27
		4/24/98	9	7.77	11.77
		4/25/98	10	11.83	13.67
		4/26/98	11	12.03	13.93
		4/27/98	12	12.83	14.60
		4/28/98	13	11.80	13.87
		4/29/98	14	4.70	13.50
		4/30/98	15	6.07	12.07
		5/1/98	16	2.40	14.87
		5/2/98	17	4.37	14.23
		5/3/98	18	6.37	14.33
		5/4/98	19	6.57	13.00
		5/5/98	20	5.17	13.60
		5/6/98	21	2.60	12.27
		5/7/98	22	2.30	10.40
		5/8/98	23	3.77	12.77
		5/9/98	24	4.13	13.73
		5/10/98	25	0.07	11.90
		5/11/98	26	0.97	7.83

All average Oxygen values are expressed as a percent

Generated: *29-Sep-98*

APPENDIX E
PH SUMMARY RECORDS

TABLE OF CONTENTS

DESCRIPTION **PAGES**

Windrow Daily pH Summary Data . . . . . 1 page

Average Daily Windrow PH Summary Report

Windrow Number	*Construction Date*	*Date Monitored*	*Age (Days)*	*PRE-Turn (STD Units)*
S001	4/15/98	4/15/98	0	
		4/23/98	8	8.44
		4/29/98	14	8.56
		5/8/98	23	8.66

All average PH values are expressed in standard units

Generated: *08-Jul-98*

APPENDIX F
FIELD TEST KIT DATA

TABLE OF CONTENTS

DESCRIPTION	PAGES
TNT/RDX Field Test Kit Data	6 pages

RDX SOIL TEST KIT WORKSHEET

SAMPLE # Cross Section	ABSORBANCE	RDX CONC., PPM $\frac{RDX_{abs} - 0.014}{0.0225} \times 1.1$
~~3 100%~~	~~0.433~~	~~18.6 × 1.1 = 20.5~~
~~5 100%~~	~~0.588~~	~~25.5 × 1.1 = 28.1~~
7 100%	0.83	36.3 × 1.1 = 39.9
9 100%	0.875	38.3 × 1.1 = 42.1
11 100%	0.447	19.2 × 1.1 = 21.2
3 100%	0.602	26.1 × 1.1 = 28.8
7 1/2	0.626	27.2 × 1.1 = ~~30~~ 29.9 × 2 = 59.8
5 100%	0.715	31.2 × 1.1 = 34.3
9 1/2	0.308	13.1 × 1.1 = 14.4 × 2 = 28.8 do over
5 1/2	0.354	15.1 × 1.1 = 16.6 = 33.2
9 1/5	0.165	6.7 × 1.1 = 7.4 × 5 = 36.9
9 1/2	0.299	12.7 × 1.1 = 13.9 × 2 = 27.9
4/28/97		

Post-it® Fax Note 7671

Date 7/6/98	# of pages ▶ 10
To Valarie	From Peter
Co./Dept.	Co.
Phone #	Phone #
Fax #	Fax #

7/-/98 1) Abs "background" ~~0.000~~ 0.000

2) Abs "control" 0.19 0.138

3) Abs "Nitrate/Nitrite" _____

1/27/10

TNT SOIL TEST KIT WORKSHEET

Abs background 0.000 am & pm Abs control 0.341 a.m, 0.335 pm

1	2	3	4	5	6
SAMPLE #	Abs initial	Abs sample	Abs initial x #2	Abs final (Column 3 - Column 4)	TNT CONC ppm (Column 5/0.0323) x 5
Method	0.007	0.005	—	—	—
3 100%	0.020	0.026	0.04	—	—
5 100%	0.020	0.023	0.04	—	—
7 100%	0.017	0.024	0.034	—	—
9 100%	0.016	0.027	0.032	—	—
11 100%	0.016	0.048	0.032	0.016	0.5x5=2.5
3 100%	0.002	0.009	0.004	0.005	0.16x5=0.8
5 100%	0.003	0.084	0.006	0.078	2.4x5=12
7 100%	0.002	0.007	0.004	0.003	<1
9 100%	0.003	0.011	0.006	0.005	<1
11 100%	0.002	0.008	0.006	0.002	<1

P. Mk 2 0007

Maddox
5/1/98

RDX SOIL TEST KIT WORKSHEET

SAMPLE #	ABSORBANCE	RDX CONC., PPM $\frac{RDX_{abs} - 0.014}{0.0225} \times 1.1$
B10-S-001-14-3	0.191	7.9 x 1.1 = 8.7
B10-S-001-14-5	0.178	7.3 x 1.1 = 8.0
B10-S-001-14-7	0.228	9.5 x 1.1 = 10.5
B10-S-001-14-9	0.246	10.3 x 1.1 = 11.3
B10-S-001-14-11	0.139	5.6 x 1.1 = 6.2
method	0.01	—

1) Abs "background" 0.000 2) Abs "control" 0.244 3) Abs "Nitrate/Nitrite" _____

11/30/70

TNT SOIL TEST KIT WORKSHEET

Abs background 0.002 am / 0.000 pm Abs control 0.33

	1	2	3	4	5	6
	SAMPLE #	Abs initial	Abs sample	Abs initial x 2	Abs final (Column 3 - Column 4)	TNT CONC ppm (Column 5/0.0323) x 5
phillips	S001 DAY 14 3	0.021	0.032	0.042	–	–
	S001 DAY 14 5	0.021	0.033	0.042	–	–
A.M	S001 DAY 14 7	0.022	0.038	0.044	–	–
	S001 DAY 14 9	0.023	0.035	0.046	–	–
	S001 DAY 14 11	0.023	0.030	0.046	–	–
chemtier	Method	0.003	0.004	0.006	–	–
	S001 Day 14 7 dup	0.011	0.023	0.022	0.001	nd
	S001 Day 0 R2 3-1	0.018	0.412	0.036	0.376	11.6 x 5 = 58.2
	S001 Day 0 R2 5-2					
	S001 Day 0 R2 7-3					
	S001 Day 0 R2 9-1					
	S001 Day 0 R2 11-2					
	S001 Day 14 9 dup	0.003	0.014	0.006	.008	0.25 x 5 = 1.25

Chev.

RDX SOIL TEST KIT WORKSHEET

SAMPLE #	ABSORBANCE	RDX CONC., PPM $\frac{RDX_{abs} - 0.014}{0.0225}$
S001-21-3	0.014	
S001-21-5	0.012	
S001-21-7	0.016	
S001-21-9	0.013	
S001-21-11	0.010	

1) Abs "background" 0.001 2) Abs "control" 0.187 3) Abs "Nitrate/Nitrite" _____

Chevalier

TNT SOIL TEST KIT WORKSHEET

Abs background 0.010 Abs control 0.335

1	2	3	4	5	6
SAMPLE #	Abs initial	Abs sample	Abs initial x 4/3	Abs final (Column 3 - Column 4)	TNT CONC ppm (Column 5/0.0323) x 5
M004-13-3	0.005	0.021	0.01	0.011	0.3x5=1.7 nd
M004-13-5	0.005	0.021	0.		nd
M004-13-7	0.005	0.019			nd
M004-13-9	0.004	0.038	0.008	~~0.95~~ 0.03	0.93x5=4.6 nd
M004-13-11	0.009	0.023			nd
method	0.001	0.003			nd
M002-20-3	0.006	0.021			nd
M002-20-5	0.012	0.021			nd
M002-20-7	0.014	0.032			nd
M002-20-9	0.013	0.03			nd
M002-20-11	0.01	0.023			nd
S001-21-3	0.006	0.023			nd
S001-21-5	0.005	0.038			nd
S001-21-7	0.004	0.016			nd
S001-21-9	0.005	0.022			nd
S001-21-11	0.004	0.015			nd
dup	0.007	0.023			nd

APPENDIX G
LABORATORY ANALYTICAL DATA

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Average Windrow Explosive Summary Report

Windrow	*Compound*	*Construction Date*	*Date Monitored*	*Age (Days)*	*Avg. Conc. (UG/KG)*
S001	135TNB	4/15/98	4/15/98	0	12500
	13DNB	4/15/98	4/15/98	0	12500
	246TNT	4/15/98	4/15/98	0	122547
	24DNT	4/15/98	4/15/98	0	12500
	26DNT	4/15/98	4/15/98	0	13000
	2A46DT	4/15/98	4/15/98	0	8648
	2NT	4/15/98	4/15/98	0	12500
	3NT	4/15/98	4/15/98	0	12500
	4A26DT	4/15/98	4/15/98	0	15273
	4NT	4/15/98	4/15/98	0	12500
	HMX	4/15/98	4/15/98	0	155725
	NB	4/15/98	4/15/98	0	13000
	PETN	4/15/98	4/15/98	0	12500
	RDX	4/15/98	4/15/98	0	1215500
	TETRYL	4/15/98	4/15/98	0	32500

Average Windrow Explosive Summary Report

Windrow	*Compound*	*Construction Date*	*Date Monitored*	*Age (Days)*	*Avg. Conc. (UG/KG)*
S001	135TNB	4/15/98	5/11/98	26	250
	13DNB	4/15/98	5/11/98	26	250
	246TNT	4/15/98	5/11/98	26	377
	24DNT	4/15/98	5/11/98	26	250
	26DNT	4/15/98	5/11/98	26	260
	2A46DT	4/15/98	5/11/98	26	250
	2NT	4/15/98	5/11/98	26	250
	3NT	4/15/98	5/11/98	26	250
	4A26DT	4/15/98	5/11/98	26	250
	4NT	4/15/98	5/11/98	26	250
	HMX	4/15/98	5/11/98	26	2098
	NB	4/15/98	5/11/98	26	260
	PETN	4/15/98	5/11/98	26	250
	RDX	4/15/98	5/11/98	26	993
	TETRYL	4/15/98	5/11/98	26	650

Windrow Explosive Concentrations Summary Report

Windrow Number S001

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
135TNB	4/15/98	4/15/98	0	03	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			03	12500
135TNB	4/15/98	4/15/98	0	05	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			05	12500
135TNB	4/15/98	4/15/98	0	07	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			07	12500
135TNB	4/15/98	4/15/98	0	09	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			09	12500
135TNB	4/15/98	4/15/98	0	11	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			11	12500
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	12500
					Standard Deviation		0
135TNB	4/15/98	5/11/98	26	03	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			03	250
135TNB	4/15/98	5/11/98	26	05	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			05	250
135TNB	4/15/98	5/11/98	26	07	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			07	250
135TNB	4/15/98	5/11/98	26	09	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			09	250
135TNB	4/15/98	5/11/98	26	11	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			11	250
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	250
					Standard Deviation		0
					Precent Reduction		98.00

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
13DNB	4/15/98	4/15/98	0	03	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			03	12500
13DNB	4/15/98	4/15/98	0	05	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			05	12500
13DNB	4/15/98	4/15/98	0	07	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			07	12500
13DNB	4/15/98	4/15/98	0	09	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			09	12500
13DNB	4/15/98	4/15/98	0	11	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			11	12500
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	12500
					Standard Deviation		0
13DNB	4/15/98	5/11/98	26	03	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			03	250
13DNB	4/15/98	5/11/98	26	05	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			05	250
13DNB	4/15/98	5/11/98	26	07	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			07	250
13DNB	4/15/98	5/11/98	26	09	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			09	250
13DNB	4/15/98	5/11/98	26	11	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			11	250
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	250
					Standard Deviation		0
					Precent Reduction		98.00

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
246TNT	4/15/98	4/15/98	0	03	1	25000	
	4/15/98	4/15/98			2	86300	
	4/15/98	4/15/98			3	79800	
			Average Concentration for Cross Section			03	63700
246TNT	4/15/98	4/15/98	0	05	1	216000	
	4/15/98	4/15/98			2	3050	
	4/15/98	4/15/98			3	77000	
			Average Concentration for Cross Section			05	98683
246TNT	4/15/98	4/15/98	0	07	1	281000	
	4/15/98	4/15/98			2	104000	
	4/15/98	4/15/98			3	296000	
			Average Concentration for Cross Section			07	227000
246TNT	4/15/98	4/15/98	0	09	1	178000	
	4/15/98	4/15/98			2	152000	
	4/15/98	4/15/98			3	157000	
			Average Concentration for Cross Section			09	162333
246TNT	4/15/98	4/15/98	0	11	1	42400	
	4/15/98	4/15/98			2	15400	
	4/15/98	4/15/98			3	37800	
			Average Concentration for Cross Section			11	31867
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	116717
					Standard Deviation		93727
246TNT	4/15/98	5/11/98	26	03	1	523	
	4/15/98	5/11/98			2	744	
	4/15/98	5/11/98			3	375	
			Average Concentration for Cross Section			03	547
246TNT	4/15/98	5/11/98	26	05	1	592	
	4/15/98	5/11/98			2	274	
	4/15/98	5/11/98			3	457	
			Average Concentration for Cross Section			05	441
246TNT	4/15/98	5/11/98	26	07	1	LT 250	
	4/15/98	5/11/98			2	434	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			07	311
246TNT	4/15/98	5/11/98	26	09	1	241	
	4/15/98	5/11/98			2	310	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			09	267
246TNT	4/15/98	5/11/98	26	11	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	259	
			Average Concentration for Cross Section			11	253
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	364
					Standard Deviation		155
					Precent Reduction		99.69

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
24DNT	4/15/98	4/15/98	0	03	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			03	12500
24DNT	4/15/98	4/15/98	0	05	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			05	12500
24DNT	4/15/98	4/15/98	0	07	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			07	12500
24DNT	4/15/98	4/15/98	0	09	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			09	12500
24DNT	4/15/98	4/15/98	0	11	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			11	12500
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	12500
					Standard Deviation		0
24DNT	4/15/98	5/11/98	26	03	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			03	250
24DNT	4/15/98	5/11/98	26	05	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			05	250
24DNT	4/15/98	5/11/98	26	07	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			07	250
24DNT	4/15/98	5/11/98	26	09	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			09	250
24DNT	4/15/98	5/11/98	26	11	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			11	250
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	250
					Standard Deviation		0
					Precent Reduction		98.00

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
26DNT	4/15/98	4/15/98	0	03	1	LT 13000	
	4/15/98	4/15/98			2	LT 13000	
	4/15/98	4/15/98			3	LT 13000	
			Average Concentration for Cross Section			03	13000
26DNT	4/15/98	4/15/98	0	05	1	LT 13000	
	4/15/98	4/15/98			2	LT 13000	
	4/15/98	4/15/98			3	LT 13000	
			Average Concentration for Cross Section			05	13000
26DNT	4/15/98	4/15/98	0	07	1	LT 13000	
	4/15/98	4/15/98			2	LT 13000	
	4/15/98	4/15/98			3	LT 13000	
			Average Concentration for Cross Section			07	13000
26DNT	4/15/98	4/15/98	0	09	1	LT 13000	
	4/15/98	4/15/98			2	LT 13000	
	4/15/98	4/15/98			3	LT 13000	
			Average Concentration for Cross Section			09	13000
26DNT	4/15/98	4/15/98	0	11	1	LT 13000	
	4/15/98	4/15/98			2	LT 13000	
	4/15/98	4/15/98			3	LT 13000	
			Average Concentration for Cross Section			11	13000
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	13000
					Standard Deviation		0
26DNT	4/15/98	5/11/98	26	03	1	LT 260	
	4/15/98	5/11/98			2	LT 260	
	4/15/98	5/11/98			3	LT 260	
			Average Concentration for Cross Section			03	260
26DNT	4/15/98	5/11/98	26	05	1	LT 260	
	4/15/98	5/11/98			2	LT 260	
	4/15/98	5/11/98			3	LT 260	
			Average Concentration for Cross Section			05	260
26DNT	4/15/98	5/11/98	26	07	1	LT 260	
	4/15/98	5/11/98			2	LT 260	
	4/15/98	5/11/98			3	LT 260	
			Average Concentration for Cross Section			07	260
26DNT	4/15/98	5/11/98	26	09	1	LT 260	
	4/15/98	5/11/98			2	LT 260	
	4/15/98	5/11/98			3	LT 260	
			Average Concentration for Cross Section			09	260
26DNT	4/15/98	5/11/98	26	11	1	LT 260	
	4/15/98	5/11/98			2	LT 260	
	4/15/98	5/11/98			3	LT 260	
			Average Concentration for Cross Section			11	260
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	260
					Standard Deviation		0
					Precent Reduction		98.00

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
2A46DT	4/15/98	4/15/98	0	03	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	3660	
			Average Concentration for Cross Section			03	9553
2A46DT	4/15/98	4/15/98	0	05	1	6110	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			05	10370
2A46DT	4/15/98	4/15/98	0	07	1	7690	
	4/15/98	4/15/98			2	6550	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			07	8913
2A46DT	4/15/98	4/15/98	0	09	1	9010	
	4/15/98	4/15/98			2	6960	
	4/15/98	4/15/98			3	2750	
			Average Concentration for Cross Section			09	6240
2A46DT	4/15/98	4/15/98	0	11	1	1460	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			11	8820
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	8779
					Standard Deviation		4050
2A46DT	4/15/98	5/11/98	26	03	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			03	250
2A46DT	4/15/98	5/11/98	26	05	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			05	250
2A46DT	4/15/98	5/11/98	26	07	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			07	250
2A46DT	4/15/98	5/11/98	26	09	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			09	250
2A46DT	4/15/98	5/11/98	26	11	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			11	250
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	250
					Standard Deviation		0
					Precent Reduction		97.15

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
2NT	4/15/98	4/15/98	0	03	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			03	12500
2NT	4/15/98	4/15/98	0	05	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			05	12500
2NT	4/15/98	4/15/98	0	07	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			07	12500
2NT	4/15/98	4/15/98	0	09	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			09	12500
2NT	4/15/98	4/15/98	0	11	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			11	12500
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	12500
					Standard Deviation		0
2NT	4/15/98	5/11/98	26	03	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			03	250
2NT	4/15/98	5/11/98	26	05	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			05	250
2NT	4/15/98	5/11/98	26	07	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			07	250
2NT	4/15/98	5/11/98	26	09	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			09	250
2NT	4/15/98	5/11/98	26	11	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			11	250
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	250
					Standard Deviation		0
					Precent Reduction		98.00

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
3NT	4/15/98	4/15/98	0	03	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			03	12500
3NT	4/15/98	4/15/98	0	05	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			05	12500
3NT	4/15/98	4/15/98	0	07	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			07	12500
3NT	4/15/98	4/15/98	0	09	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			09	12500
3NT	4/15/98	4/15/98	0	11	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			11	12500
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	12500
					Standard Deviation		0
3NT	4/15/98	5/11/98	26	03	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			03	250
3NT	4/15/98	5/11/98	26	05	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			05	250
3NT	4/15/98	5/11/98	26	07	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			07	250
3NT	4/15/98	5/11/98	26	09	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			09	250
3NT	4/15/98	5/11/98	26	11	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			11	250
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	250
					Standard Deviation		0
					Precent Reduction		98.00

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
4A26DT	4/15/98	4/15/98	0	03	1	5610	
	4/15/98	4/15/98			2	10900	
	4/15/98	4/15/98			3	20000	
			Average Concentration for Cross Section			03	12170
4A26DT	4/15/98	4/15/98	0	05	1	21100	
	4/15/98	4/15/98			2	2620	
	4/15/98	4/15/98			3	6700	
			Average Concentration for Cross Section			05	10140
4A26DT	4/15/98	4/15/98	0	07	1	23800	
	4/15/98	4/15/98			2	29100	
	4/15/98	4/15/98			3	10100	
			Average Concentration for Cross Section			07	21000
4A26DT	4/15/98	4/15/98	0	09	1	28500	
	4/15/98	4/15/98			2	30100	
	4/15/98	4/15/98			3	10400	
			Average Concentration for Cross Section			09	23000
4A26DT	4/15/98	4/15/98	0	11	1	7030	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			11	10677
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	15397
					Standard Deviation		9238
4A26DT	4/15/98	5/11/98	26	03	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			03	250
4A26DT	4/15/98	5/11/98	26	05	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			05	250
4A26DT	4/15/98	5/11/98	26	07	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			07	250
4A26DT	4/15/98	5/11/98	26	09	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			09	250
4A26DT	4/15/98	5/11/98	26	11	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			11	250
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	250
					Standard Deviation		0
					Precent Reduction		98.38

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
4NT	4/15/98	4/15/98	0	03	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			03	12500
4NT	4/15/98	4/15/98	0	05	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			05	12500
4NT	4/15/98	4/15/98	0	07	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			07	12500
4NT	4/15/98	4/15/98	0	09	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			09	12500
4NT	4/15/98	4/15/98	0	11	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			11	12500
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	12500
					Standard Deviation		0
4NT	4/15/98	5/11/98	26	03	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			03	250
4NT	4/15/98	5/11/98	26	05	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			05	250
4NT	4/15/98	5/11/98	26	07	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			07	250
4NT	4/15/98	5/11/98	26	09	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			09	250
4NT	4/15/98	5/11/98	26	11	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			11	250
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	250
					Standard Deviation		0
					Precent Reduction		98.00

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
HMX	4/15/98	4/15/98	0	03	1	76600	
	4/15/98	4/15/98			2	181000	
	4/15/98	4/15/98			3	157000	
			Average Concentration for Cross Section			03	138200
HMX	4/15/98	4/15/98	0	05	1	178000	
	4/15/98	4/15/98			2	28800	
	4/15/98	4/15/98			3	97200	
			Average Concentration for Cross Section			05	101333
HMX	4/15/98	4/15/98	0	07	1	290000	
	4/15/98	4/15/98			2	157000	
	4/15/98	4/15/98			3	224000	
			Average Concentration for Cross Section			07	223667
HMX	4/15/98	4/15/98	0	09	1	247000	
	4/15/98	4/15/98			2	236000	
	4/15/98	4/15/98			3	177000	
			Average Concentration for Cross Section			09	220000
HMX	4/15/98	4/15/98	0	11	1	103000	
	4/15/98	4/15/98			2	27800	
	4/15/98	4/15/98			3	86200	
			Average Concentration for Cross Section			11	72333
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	151107
					Standard Deviation		79513
HMX	4/15/98	5/11/98	26	03	1	LT 2200	
	4/15/98	5/11/98			2	LT 2200	
	4/15/98	5/11/98			3	LT 2200	
			Average Concentration for Cross Section			03	2200
HMX	4/15/98	5/11/98	26	05	1	LT 2200	
	4/15/98	5/11/98			2	LT 2200	
	4/15/98	5/11/98			3	LT 2200	
			Average Concentration for Cross Section			05	2200
HMX	4/15/98	5/11/98	26	07	1	LT 2200	
	4/15/98	5/11/98			2	LT 2200	
	4/15/98	5/11/98			3	571	
			Average Concentration for Cross Section			07	1657
HMX	4/15/98	5/11/98	26	09	1	LT 2200	
	4/15/98	5/11/98			2	LT 2200	
	4/15/98	5/11/98			3	LT 2200	
			Average Concentration for Cross Section			09	2200
HMX	4/15/98	5/11/98	26	11	1	LT 2200	
	4/15/98	5/11/98			2	LT 2200	
	4/15/98	5/11/98			3	LT 2200	
			Average Concentration for Cross Section			11	2200
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	2091
					Standard Deviation		421
					Precent Reduction		98.62

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
NB	4/15/98	4/15/98	0	03	1	LT 13000	
	4/15/98	4/15/98			2	LT 13000	
	4/15/98	4/15/98			3	LT 13000	
			Average Concentration for Cross Section			03	13000
NB	4/15/98	4/15/98	0	05	1	LT 13000	
	4/15/98	4/15/98			2	LT 13000	
	4/15/98	4/15/98			3	LT 13000	
			Average Concentration for Cross Section			05	13000
NB	4/15/98	4/15/98	0	07	1	LT 13000	
	4/15/98	4/15/98			2	LT 13000	
	4/15/98	4/15/98			3	LT 13000	
			Average Concentration for Cross Section			07	13000
NB	4/15/98	4/15/98	0	09	1	LT 13000	
	4/15/98	4/15/98			2	LT 13000	
	4/15/98	4/15/98			3	LT 13000	
			Average Concentration for Cross Section			09	13000
NB	4/15/98	4/15/98	0	11	1	LT 13000	
	4/15/98	4/15/98			2	LT 13000	
	4/15/98	4/15/98			3	LT 13000	
			Average Concentration for Cross Section			11	13000
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	13000
					Standard Deviation		0
NB	4/15/98	5/11/98	26	03	1	LT 260	
	4/15/98	5/11/98			2	LT 260	
	4/15/98	5/11/98			3	LT 260	
			Average Concentration for Cross Section			03	260
NB	4/15/98	5/11/98	26	05	1	LT 260	
	4/15/98	5/11/98			2	LT 260	
	4/15/98	5/11/98			3	LT 260	
			Average Concentration for Cross Section			05	260
NB	4/15/98	5/11/98	26	07	1	LT 260	
	4/15/98	5/11/98			2	LT 260	
	4/15/98	5/11/98			3	LT 260	
			Average Concentration for Cross Section			07	260
NB	4/15/98	5/11/98	26	09	1	LT 260	
	4/15/98	5/11/98			2	LT 260	
	4/15/98	5/11/98			3	LT 260	
			Average Concentration for Cross Section			09	260
NB	4/15/98	5/11/98	26	11	1	LT 260	
	4/15/98	5/11/98			2	LT 260	
	4/15/98	5/11/98			3	LT 260	
			Average Concentration for Cross Section			11	260
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	260
					Standard Deviation		0
					Precent Reduction		98.00

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
PETN	4/15/98	4/15/98	0	03	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			03	12500
PETN	4/15/98	4/15/98	0	05	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			05	12500
PETN	4/15/98	4/15/98	0	07	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			07	12500
PETN	4/15/98	4/15/98	0	09	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			09	12500
PETN	4/15/98	4/15/98	0	11	1	LT 12500	
	4/15/98	4/15/98			2	LT 12500	
	4/15/98	4/15/98			3	LT 12500	
			Average Concentration for Cross Section			11	12500
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	12500
					Standard Deviation		0
PETN	4/15/98	5/11/98	26	03	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			03	250
PETN	4/15/98	5/11/98	26	05	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			05	250
PETN	4/15/98	5/11/98	26	07	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			07	250
PETN	4/15/98	5/11/98	26	09	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			09	250
PETN	4/15/98	5/11/98	26	11	1	LT 250	
	4/15/98	5/11/98			2	LT 250	
	4/15/98	5/11/98			3	LT 250	
			Average Concentration for Cross Section			11	250
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	250
					Standard Deviation		0
					Precent Reduction		98.00

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
RDX	4/15/98	4/15/98	0	03	1	616000	
	4/15/98	4/15/98			2	1490000	
	4/15/98	4/15/98			3	1140000	
			Average Concentration for Cross Section			03	1082000
RDX	4/15/98	4/15/98	0	05	1	1470000	
	4/15/98	4/15/98			2	163000	
	4/15/98	4/15/98			3	691000	
			Average Concentration for Cross Section			05	774667
RDX	4/15/98	4/15/98	0	07	1	2400000	
	4/15/98	4/15/98			2	1370000	
	4/15/98	4/15/98			3	1750000	
			Average Concentration for Cross Section			07	1840000
RDX	4/15/98	4/15/98	0	09	1	1840000	
	4/15/98	4/15/98			2	1800000	
	4/15/98	4/15/98			3	1450000	
			Average Concentration for Cross Section			09	1696667
RDX	4/15/98	4/15/98	0	11	1	786000	
	4/15/98	4/15/98			2	156000	
	4/15/98	4/15/98			3	536000	
			Average Concentration for Cross Section			11	492667
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	1177200
					Standard Deviation		661926
RDX	4/15/98	5/11/98	26	03	1	LT 1000	
	4/15/98	5/11/98			2	LT 1000	
	4/15/98	5/11/98			3	LT 1000	
			Average Concentration for Cross Section			03	1000
RDX	4/15/98	5/11/98	26	05	1	LT 1000	
	4/15/98	5/11/98			2	LT 1000	
	4/15/98	5/11/98			3	LT 1000	
			Average Concentration for Cross Section			05	1000
RDX	4/15/98	5/11/98	26	07	1	LT 1000	
	4/15/98	5/11/98			2	LT 1000	
	4/15/98	5/11/98			3	LT 1000	
			Average Concentration for Cross Section			07	1000
RDX	4/15/98	5/11/98	26	09	1	LT 1000	
	4/15/98	5/11/98			2	LT 1000	
	4/15/98	5/11/98			3	LT 1000	
			Average Concentration for Cross Section			09	1000
RDX	4/15/98	5/11/98	26	11	1	LT 1000	
	4/15/98	5/11/98			2	LT 1000	
	4/15/98	5/11/98			3	LT 1000	
			Average Concentration for Cross Section			11	1000
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	1000
					Standard Deviation		0
					Precent Reduction		99.92

Compound	Construction Date	SampleDate	DaysOld	CrossSection	Location	Concentration	
TETRYL	4/15/98	4/15/98	0	03	1	LT 32500	
	4/15/98	4/15/98			2	LT 32500	
	4/15/98	4/15/98			3	LT 32500	
			Average Concentration for Cross Section			03	32500
TETRYL	4/15/98	4/15/98	0	05	1	LT 32500	
	4/15/98	4/15/98			2	LT 32500	
	4/15/98	4/15/98			3	LT 32500	
			Average Concentration for Cross Section			05	32500
TETRYL	4/15/98	4/15/98	0	07	1	LT 32500	
	4/15/98	4/15/98			2	LT 32500	
	4/15/98	4/15/98			3	LT 32500	
			Average Concentration for Cross Section			07	32500
TETRYL	4/15/98	4/15/98	0	09	1	LT 32500	
	4/15/98	4/15/98			2	LT 32500	
	4/15/98	4/15/98			3	LT 32500	
			Average Concentration for Cross Section			09	32500
TETRYL	4/15/98	4/15/98	0	11	1	LT 32500	
	4/15/98	4/15/98			2	LT 32500	
	4/15/98	4/15/98			3	LT 32500	
			Average Concentration for Cross Section			11	32500
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					0	32500
					Standard Deviation		0
TETRYL	4/15/98	5/11/98	26	03	1	LT 650	
	4/15/98	5/11/98			2	LT 650	
	4/15/98	5/11/98			3	LT 650	
			Average Concentration for Cross Section			03	650
TETRYL	4/15/98	5/11/98	26	05	1	LT 650	
	4/15/98	5/11/98			2	LT 650	
	4/15/98	5/11/98			3	LT 650	
			Average Concentration for Cross Section			05	650
TETRYL	4/15/98	5/11/98	26	07	1	LT 650	
	4/15/98	5/11/98			2	LT 650	
	4/15/98	5/11/98			3	LT 650	
			Average Concentration for Cross Section			07	650
TETRYL	4/15/98	5/11/98	26	09	1	LT 650	
	4/15/98	5/11/98			2	LT 650	
	4/15/98	5/11/98			3	LT 650	
			Average Concentration for Cross Section			09	650
TETRYL	4/15/98	5/11/98	26	11	1	LT 650	
	4/15/98	5/11/98			2	LT 650	
	4/15/98	5/11/98			3	LT 650	
			Average Concentration for Cross Section			11	650
	AVERAGE CONCENTRATION FOR WINDROW ON DAY					26	650
					Standard Deviation		0
					Precent Reduction		98.00

APPENDIX H
EXPLOSIVE REDUCTION SUMMARY

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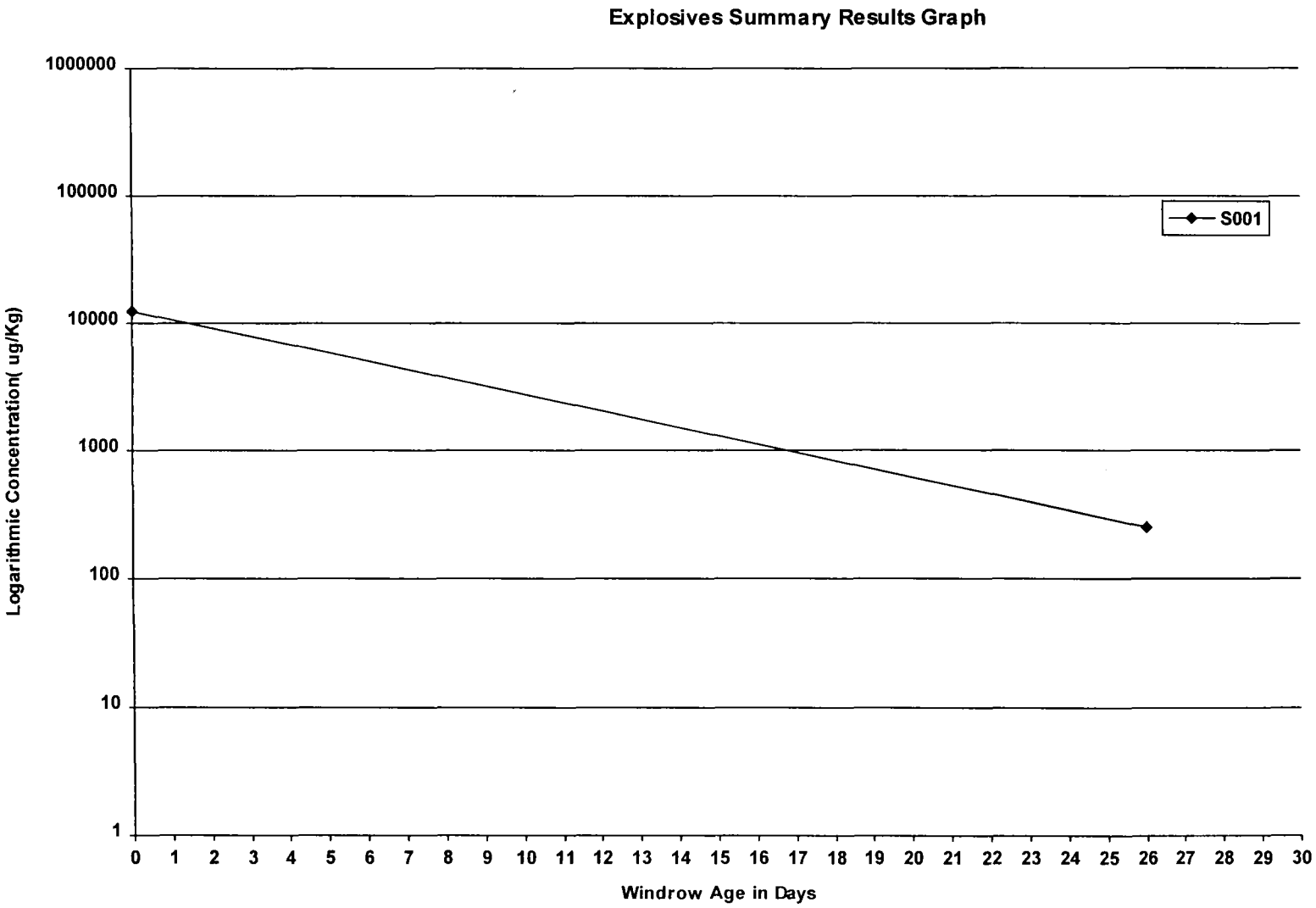
RDX, TNT, and HMX Scatter Diagram of All Explosive Results	3 pages

Average Windrow Explosive Summary Report

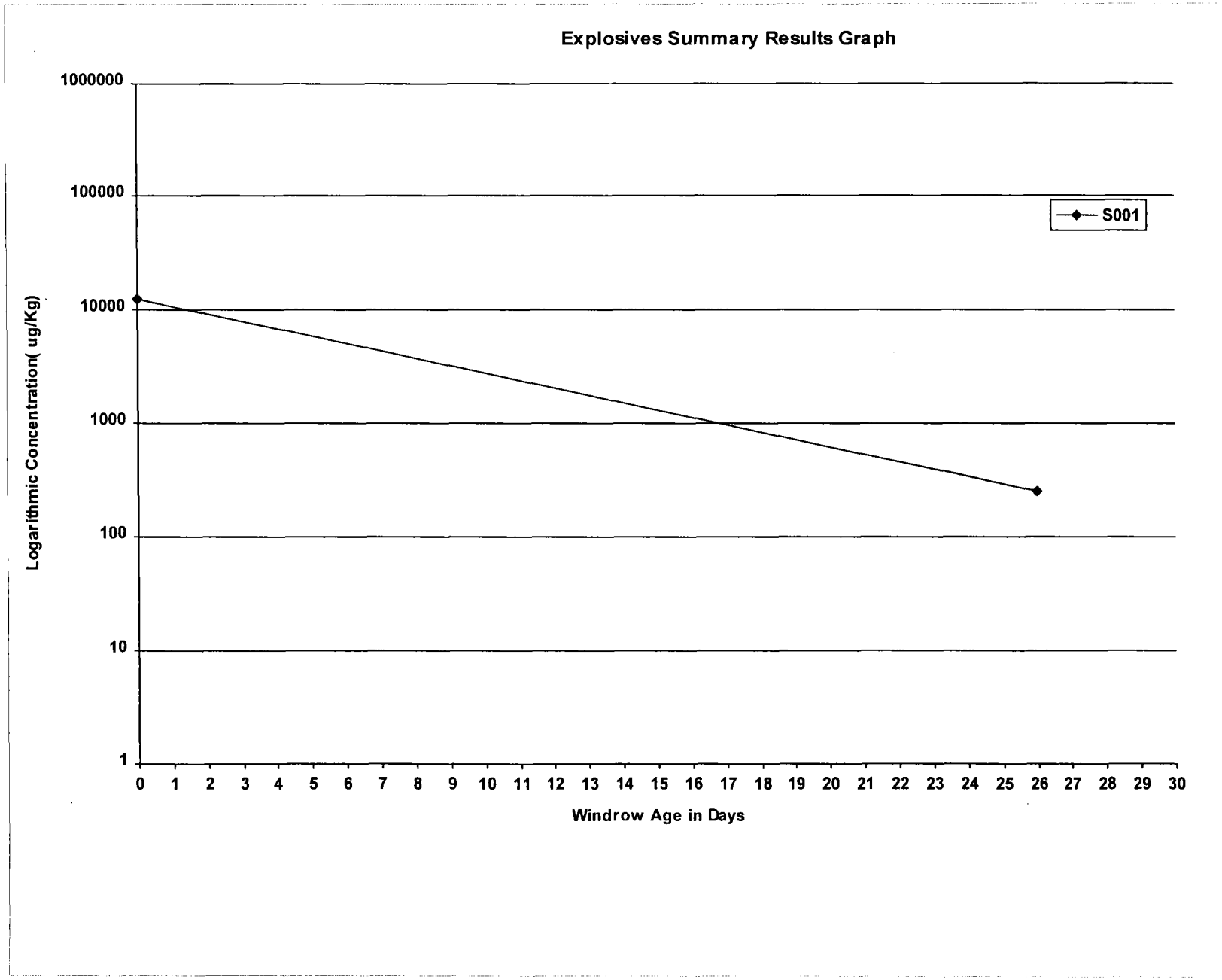
Windrow	*Compound*	*Construction Date*	*Date Monitored*	*Age (Days)*	*Avg. Conc. (UG/KG)*	
S001	135TNB	4/15/98	4/15/98	0	12500	
S001	135TNB	4/15/98	5/11/98	26	250	
			135TNB	*Percent Reduction*		98
S001	13DNB	4/15/98	4/15/98	0	12500	
S001	13DNB	4/15/98	5/11/98	26	250	
			13DNB	*Percent Reduction*		98
S001	246TNT	4/15/98	4/15/98	0	122547	
S001	246TNT	4/15/98	5/11/98	26	377	
			246TNT	*Percent Reduction*		99
S001	24DNT	4/15/98	4/15/98	0	12500	
S001	24DNT	4/15/98	5/11/98	26	250	
			24DNT	*Percent Reduction*		98
S001	26DNT	4/15/98	4/15/98	0	13000	
S001	26DNT	4/15/98	5/11/98	26	260	
			26DNT	*Percent Reduction*		98
S001	2A46DT	4/15/98	4/15/98	0	8648	
S001	2A46DT	4/15/98	5/11/98	26	250	
			2A46DT	*Percent Reduction*		97
S001	2NT	4/15/98	4/15/98	0	12500	
S001	2NT	4/15/98	5/11/98	26	250	
			2NT	*Percent Reduction*		98
S001	3NT	4/15/98	4/15/98	0	12500	
S001	3NT	4/15/98	5/11/98	26	250	
			3NT	*Percent Reduction*		98
S001	4A26DT	4/15/98	4/15/98	0	15273	
S001	4A26DT	4/15/98	5/11/98	26	250	
			4A26DT	*Percent Reduction*		98
S001	4NT	4/15/98	4/15/98	0	12500	
S001	4NT	4/15/98	5/11/98	26	250	
			4NT	*Percent Reduction*		98
S001	HMX	4/15/98	4/15/98	0	155725	

Windrow	*Compound*	*Construction Date*	*Date Monitored*	*Age (Days)*	*Avg. Conc. (UG/KG)*	
S001	HMX	4/15/98	5/11/98	26	2098	
			HMX	*Percent Reduction*		98
S001	NB	4/15/98	4/15/98	0	13000	
S001	NB	4/15/98	5/11/98	26	260	
			NB	*Percent Reduction*		98
S001	PETN	4/15/98	4/15/98	0	12500	
S001	PETN	4/15/98	5/11/98	26	250	
			PETN	*Percent Reduction*		98
S001	RDX	4/15/98	4/15/98	0	1215500	
S001	RDX	4/15/98	5/11/98	26	993	
			RDX	*Percent Reduction*		99
S001	TETRYL	4/15/98	4/15/98	0	32500	
S001	TETRYL	4/15/98	5/11/98	26	650	
			TETRYL	*Percent Reduction*		98

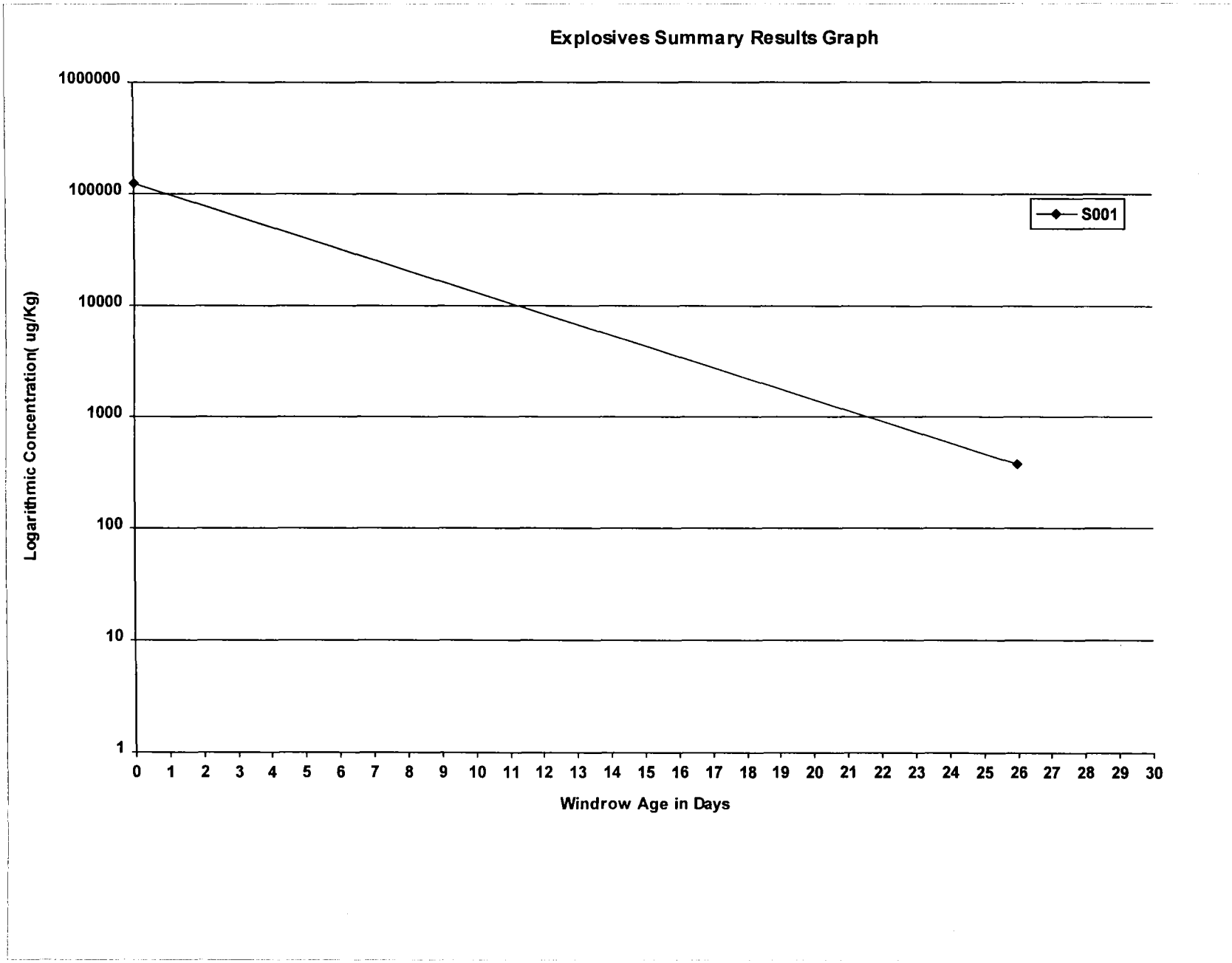
NSWC Crane BioFacility Full Scale Operations
Average 135TNB Concentrations (UG/KG)



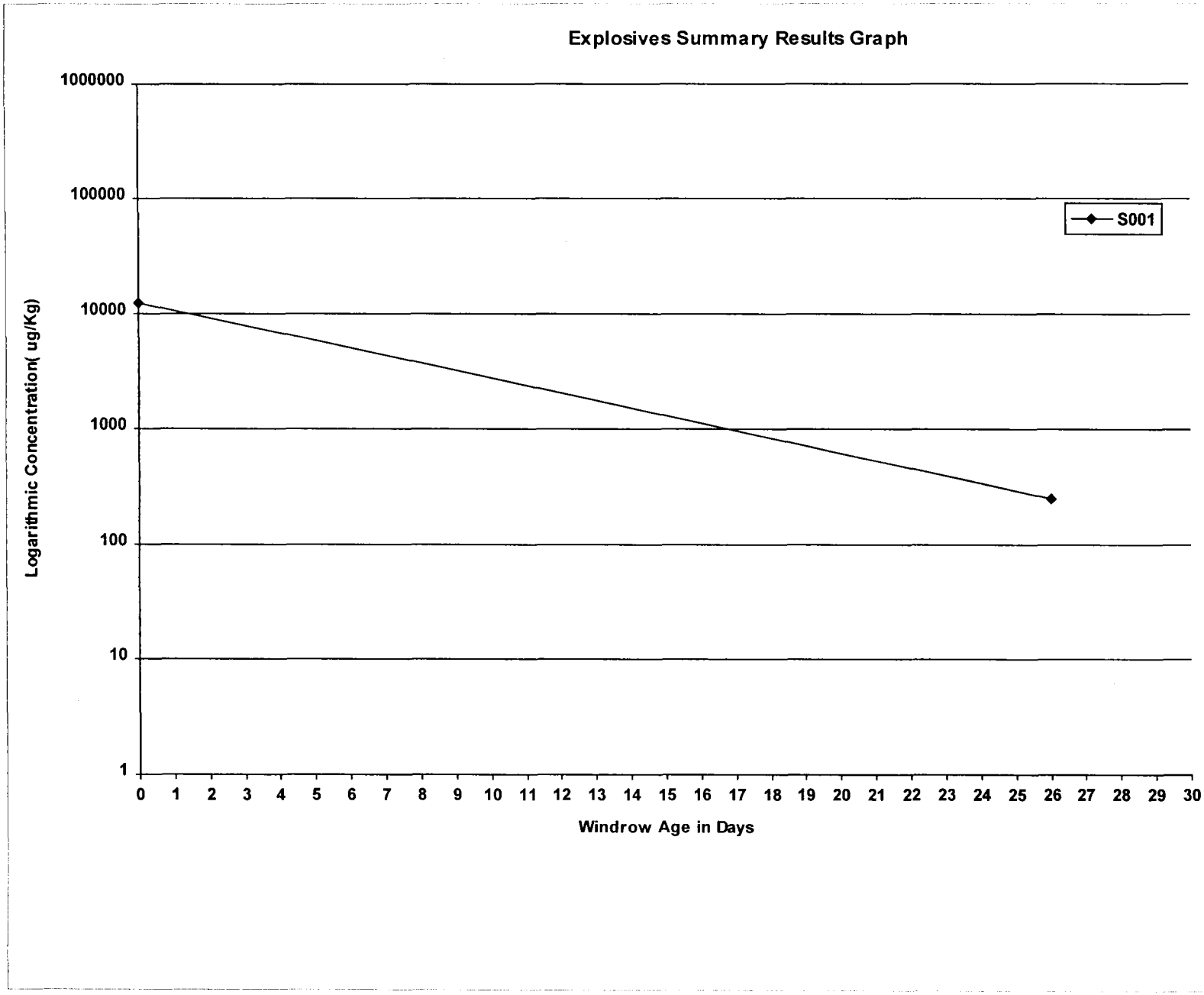
NSWC Crane BioFacility Full Scale Operations
Average 13DNB Concentrations (UG/KG)



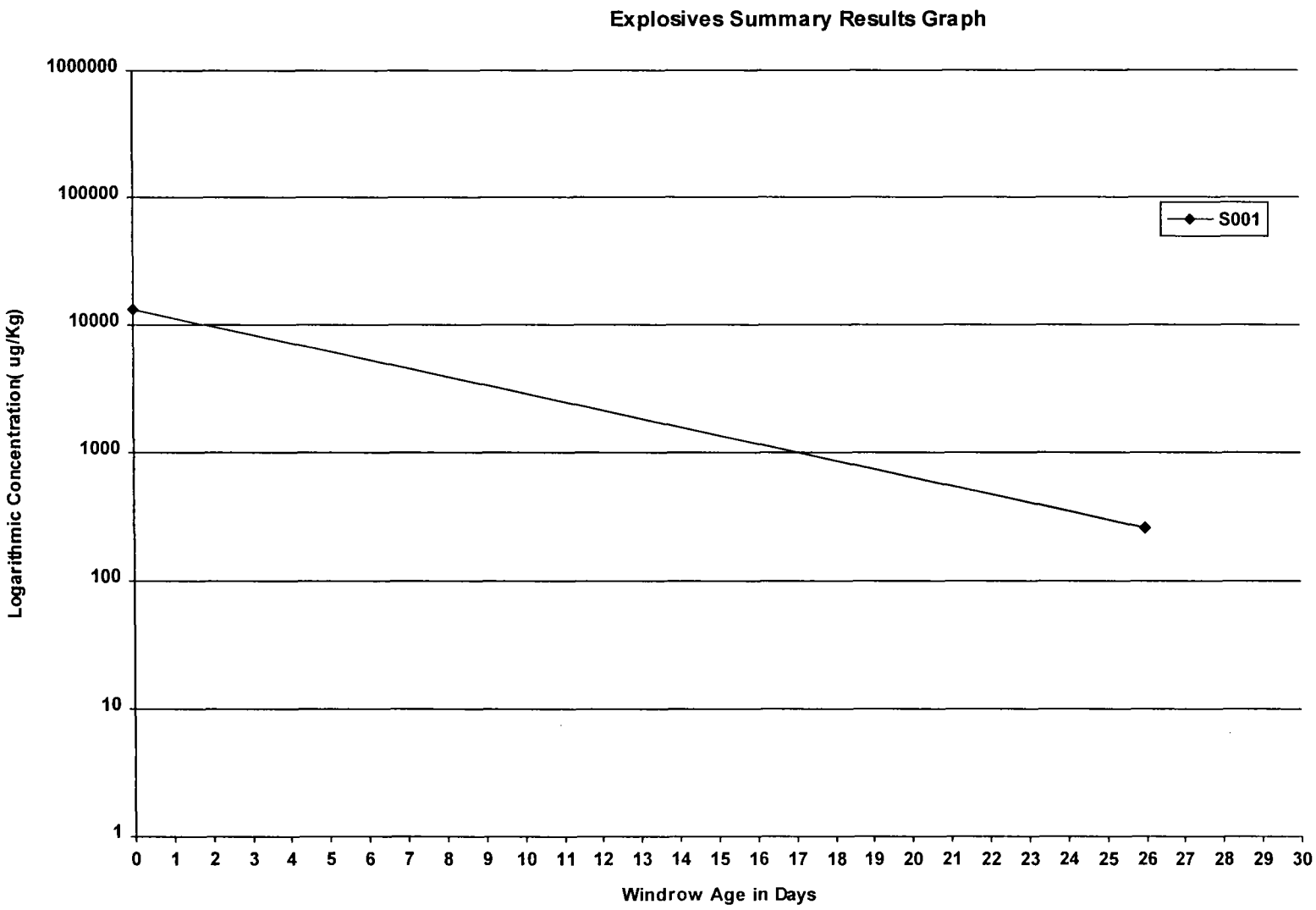
NSWC Crane BioFacility Full Scale Operations
Average 246TNT Concentrations (UG/KG)



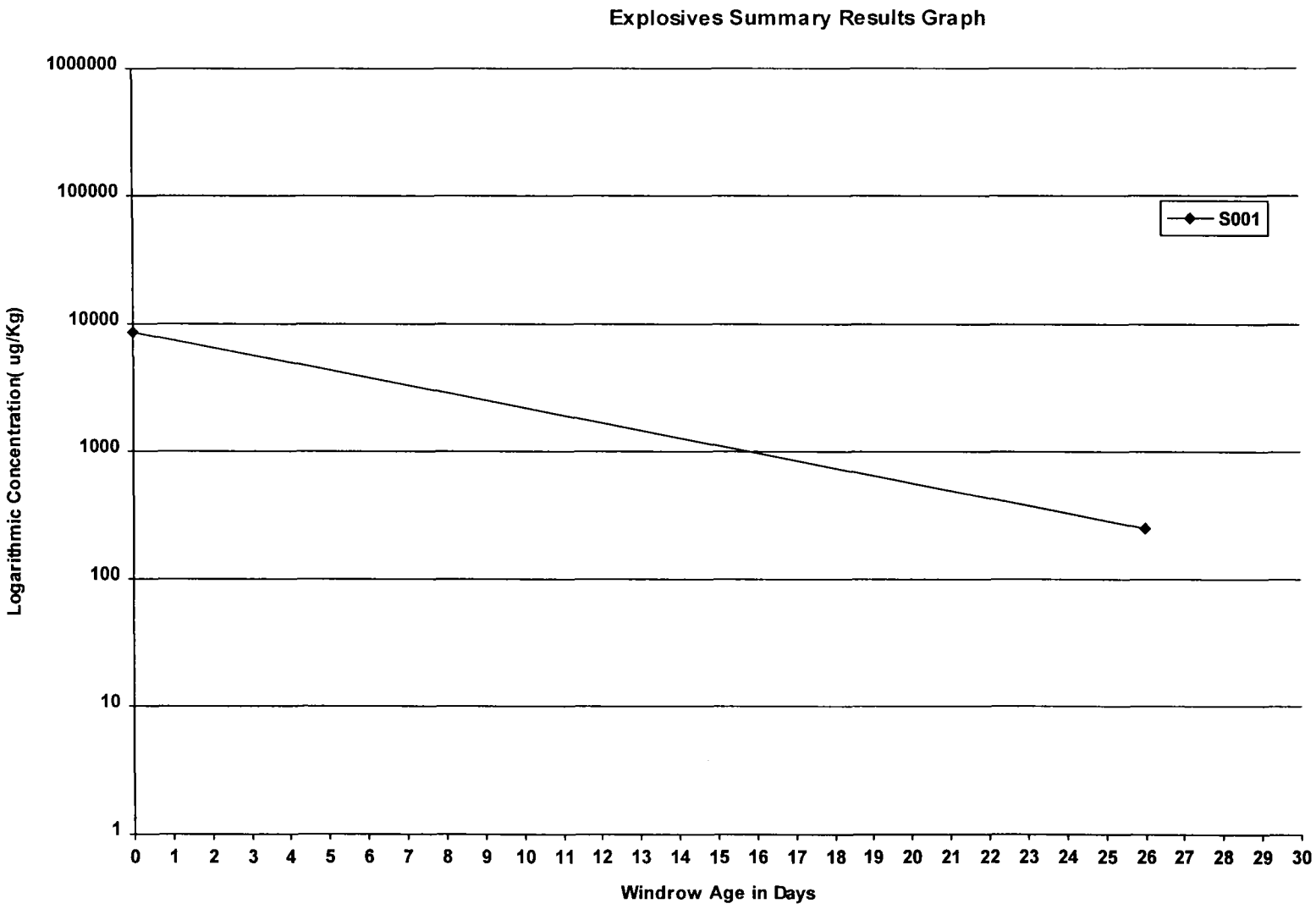
NSWC Crane BioFacility Full Scale Operations
Average 24DNT Concentrations (UG/KG)



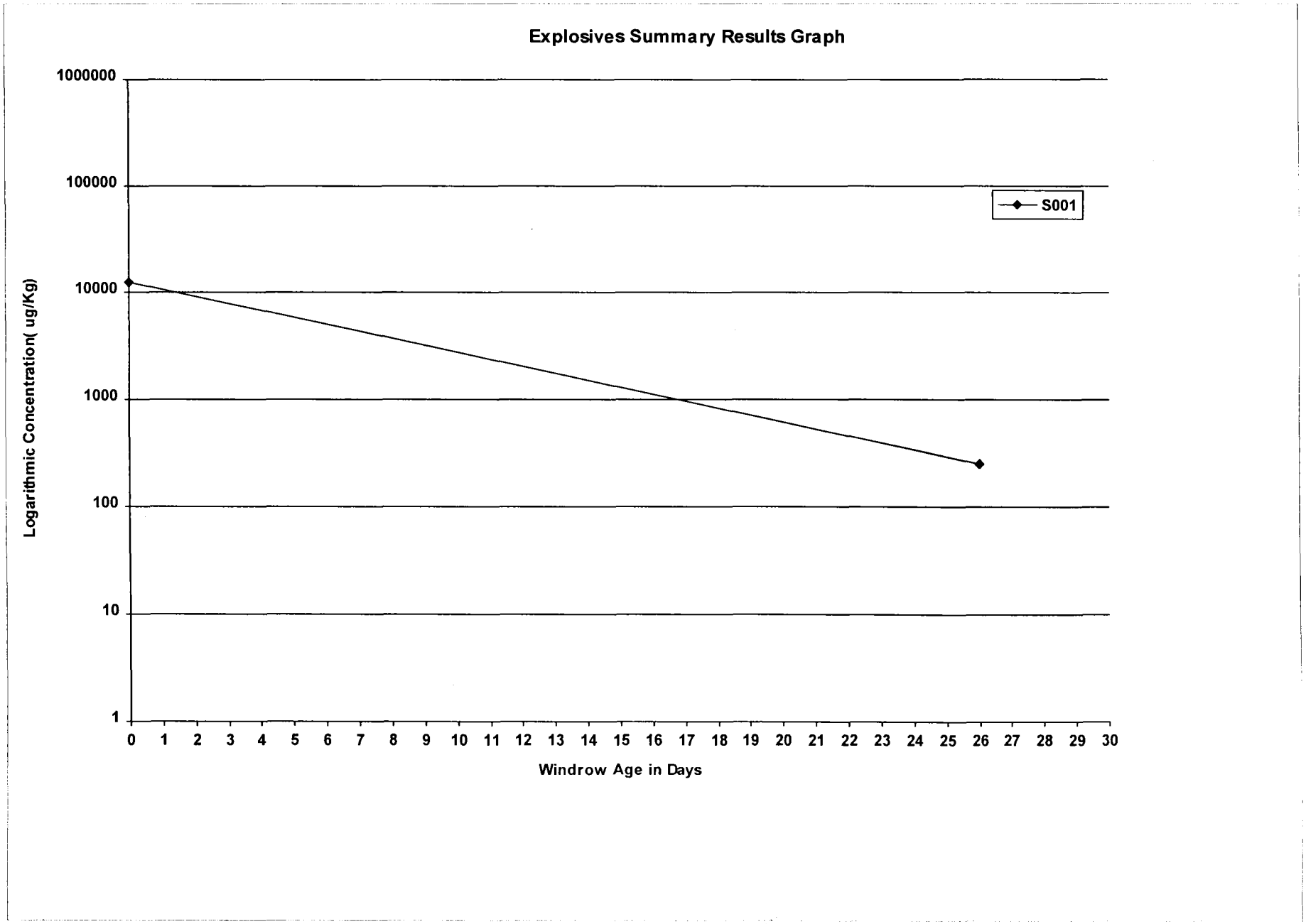
NSWC Crane BioFacility Full Scale Operations
Average 26DNT Concentrations (UG/KG)



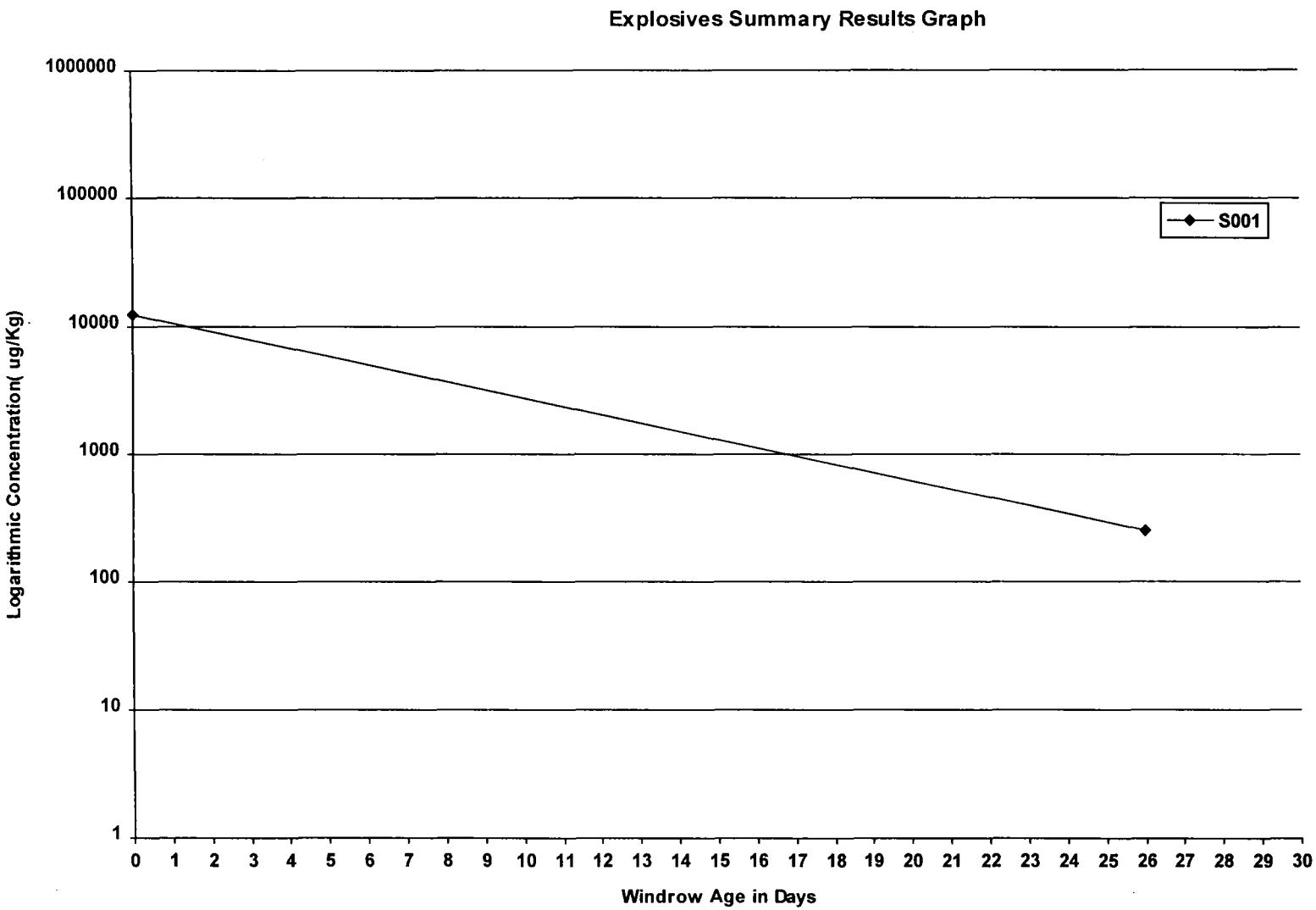
NSWC Crane BioFacility Full Scale Operations
Average 2A46DT Concentrations (UG/KG)



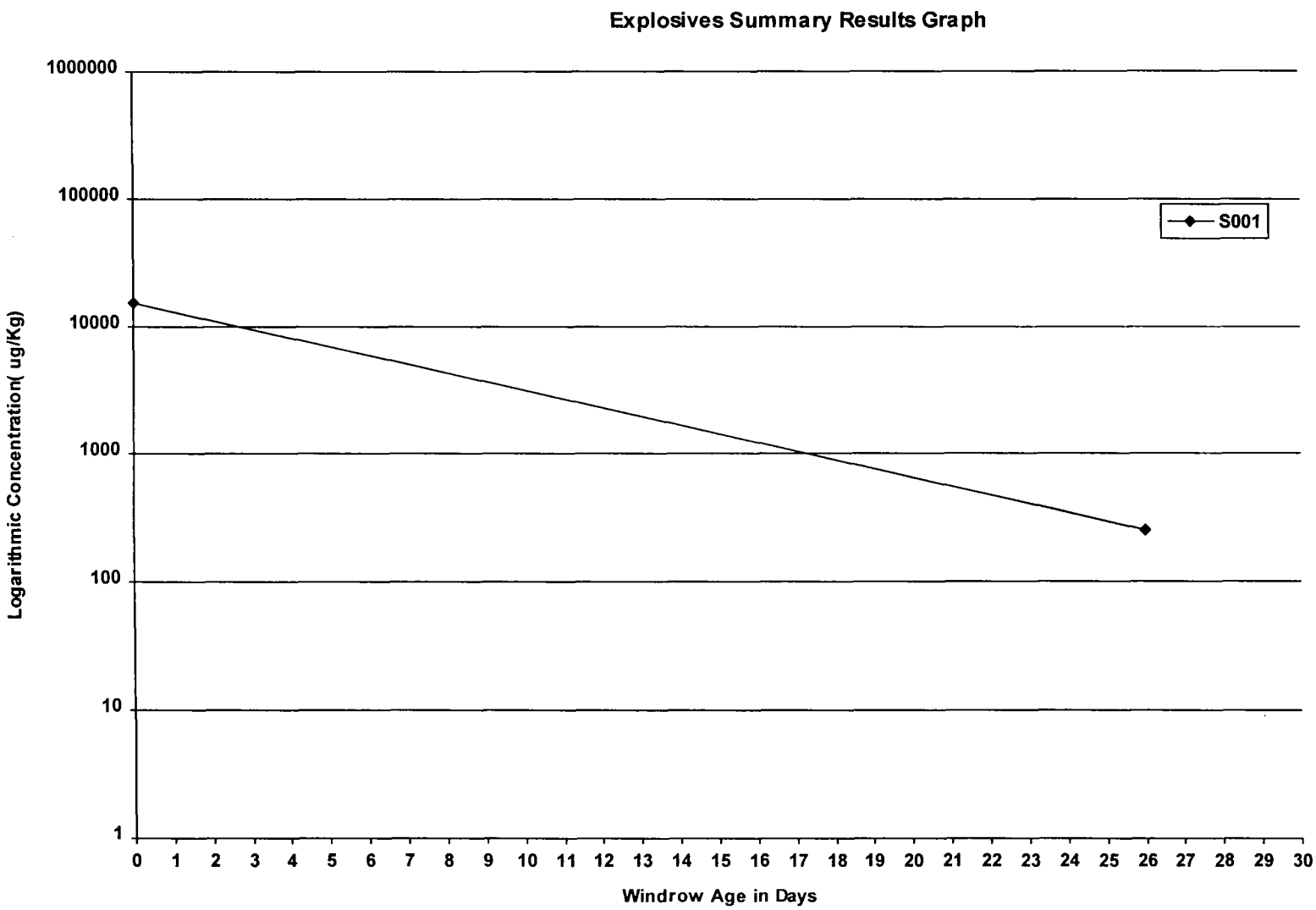
NSWC Crane BioFacility Full Scale Operations
Average 2NT Concentrations (UG/KG)



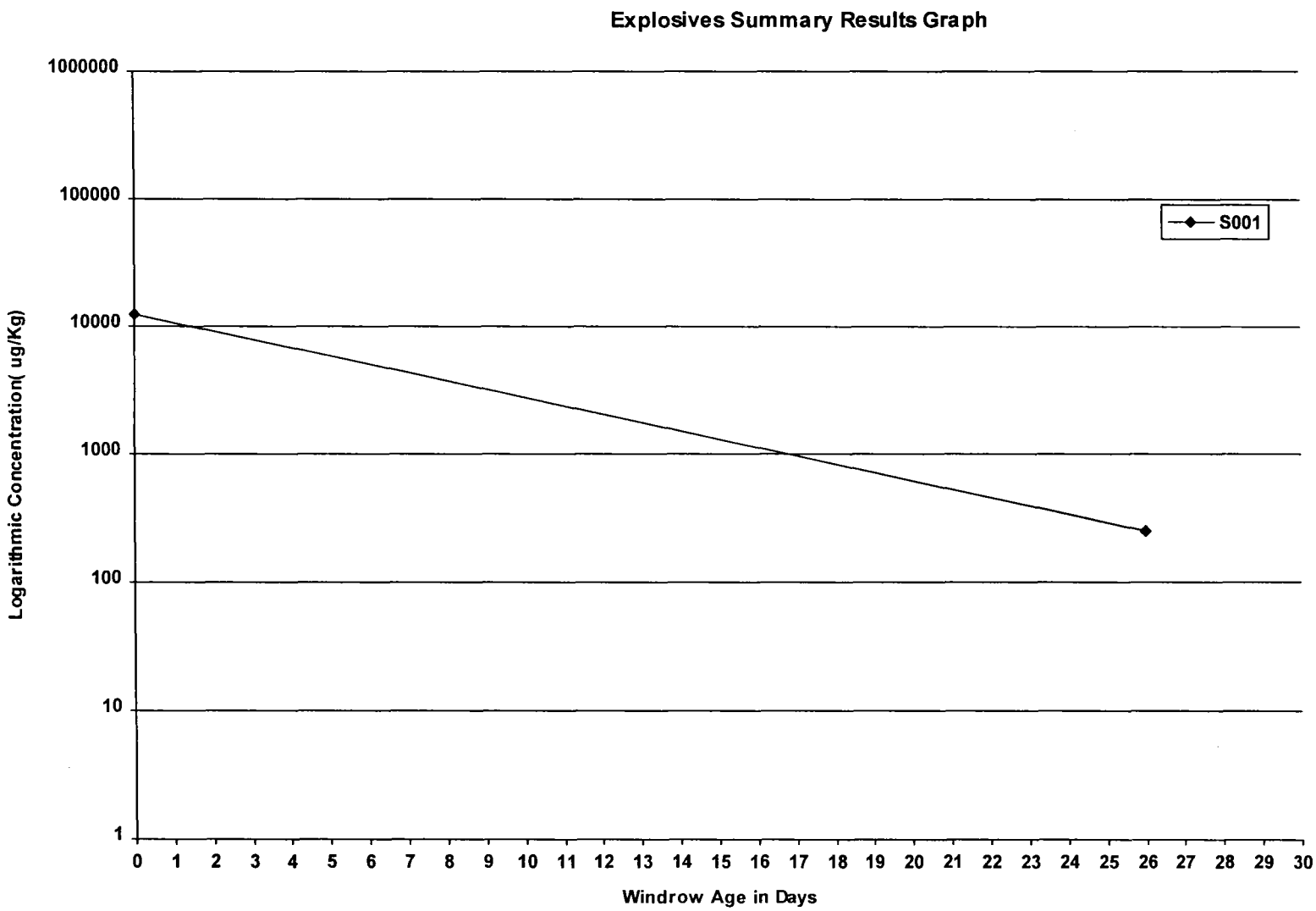
NSWC Crane BioFacility Full Scale Operations
Average 3NT Concentrations (UG/KG)



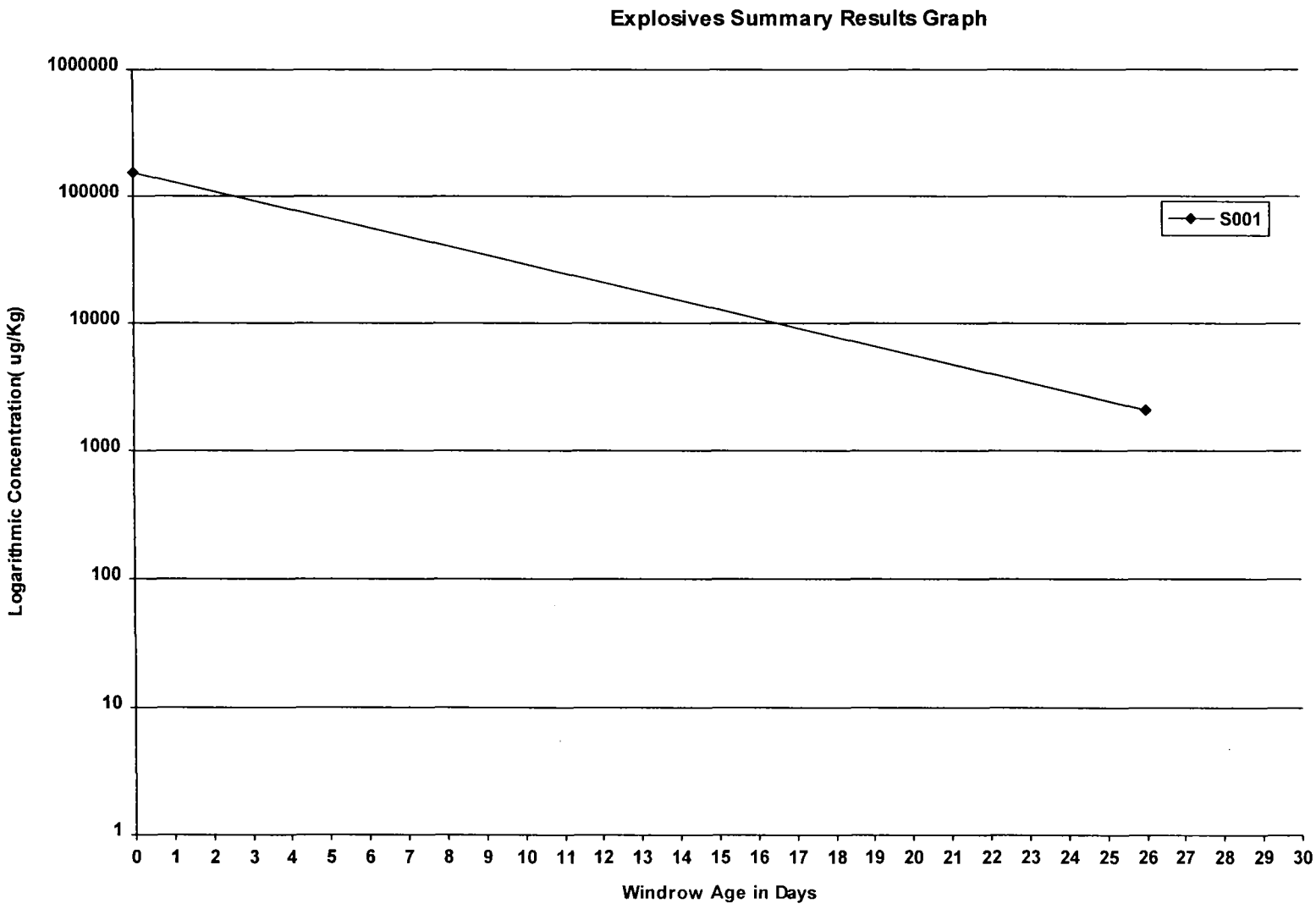
NSWC Crane BioFacility Full Scale Operations
Average 4A26DT Concentrations (UG/KG)



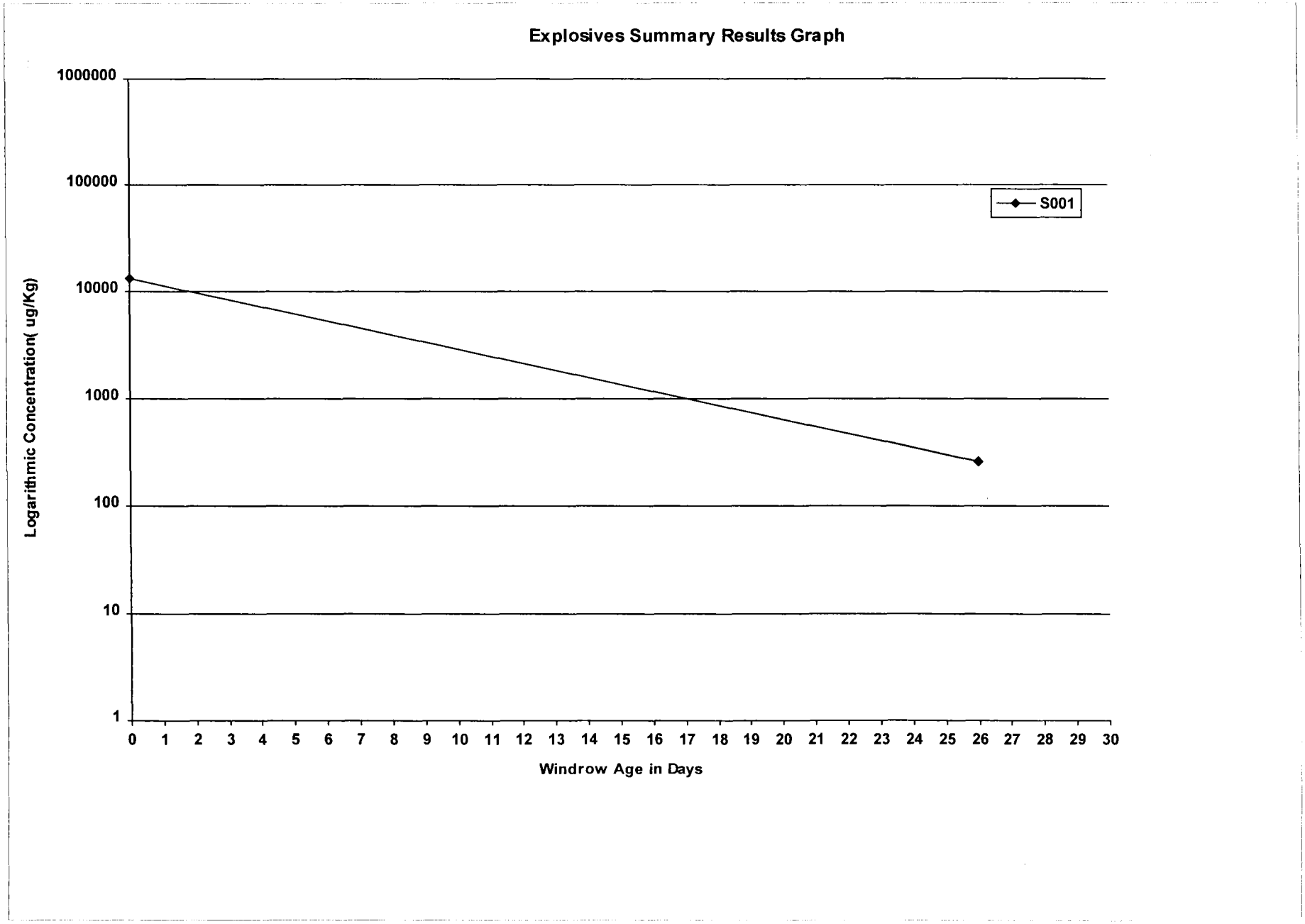
NSWC Crane BioFacility Full Scale Operations
Average 4NT Concentrations (UG/KG)



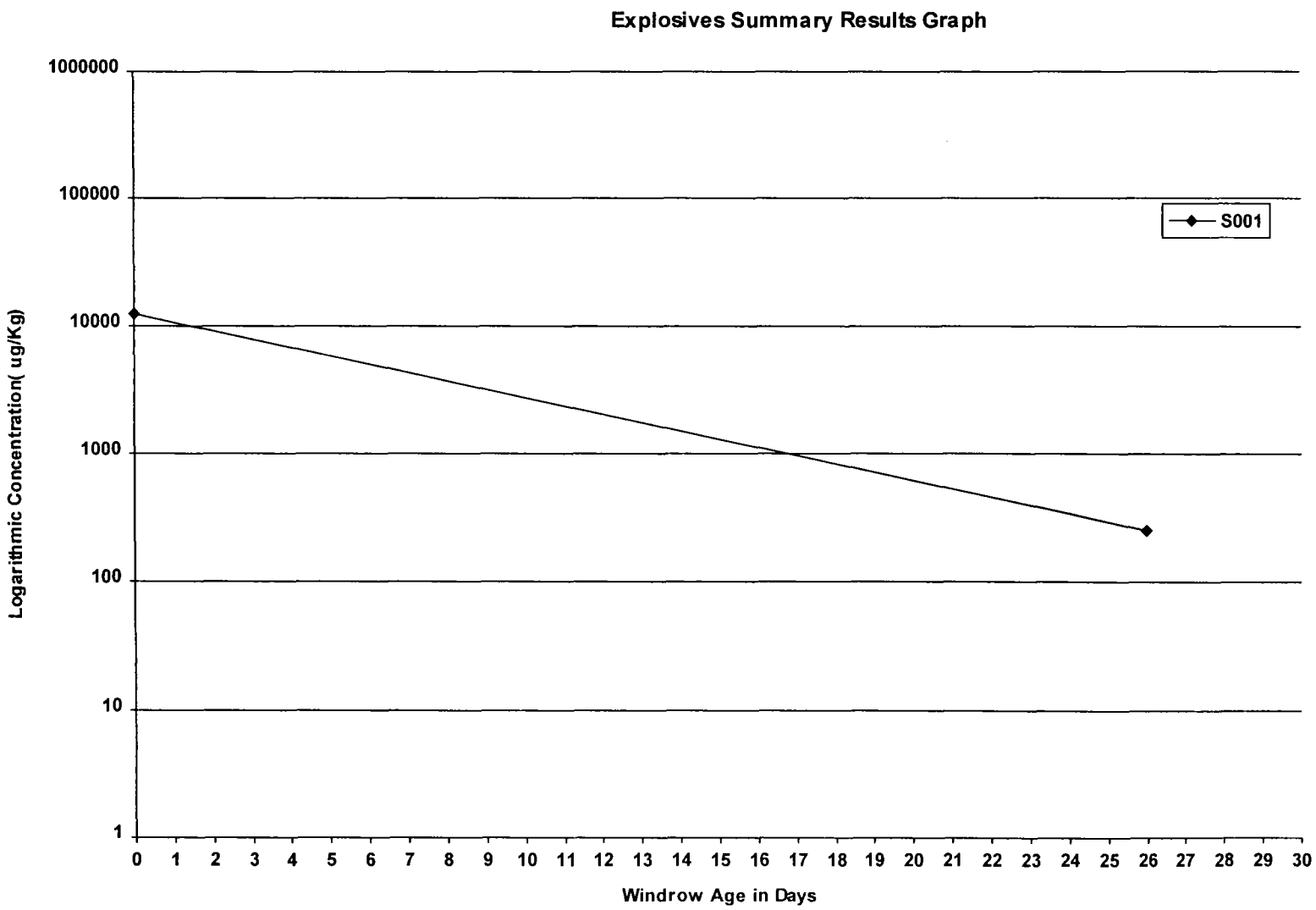
NSWC Crane BioFacility Full Scale Operations
Average HMX Concentrations (UG/KG)



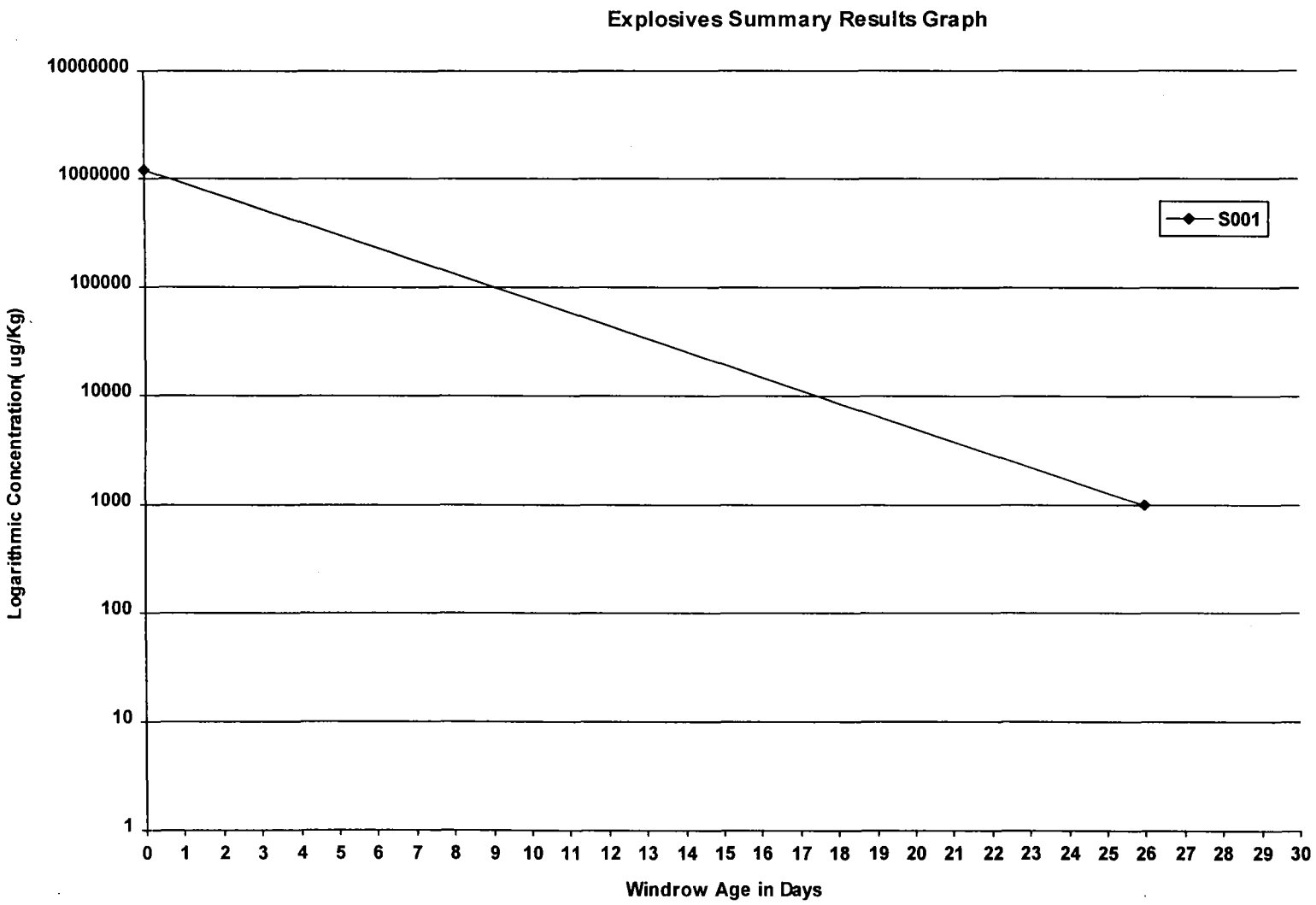
NSWC Crane BioFacility Full Scale Operations
Average NB Concentrations (UG/KG)



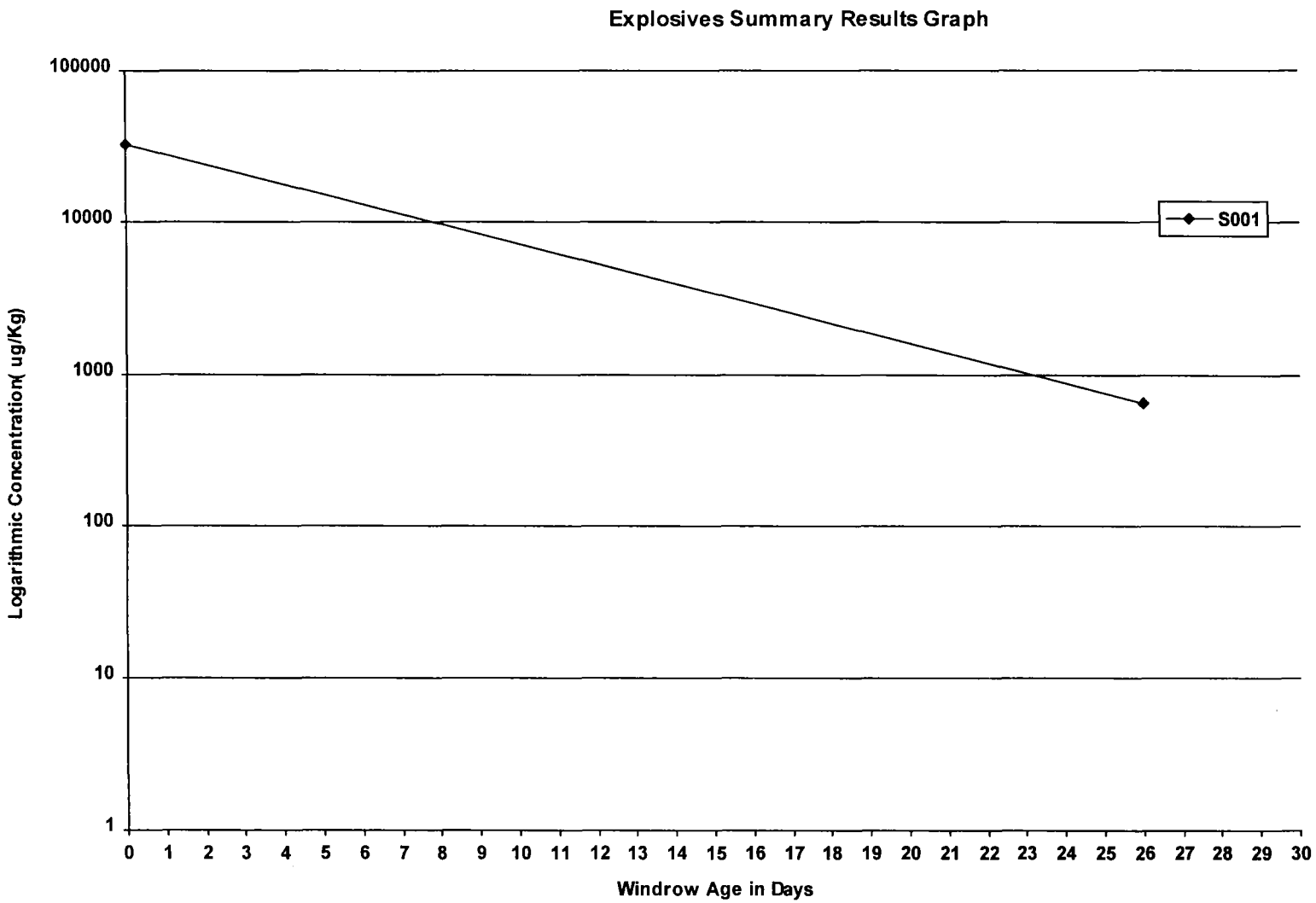
NSWC Crane BioFacility Full Scale Operations
Average PETN Concentrations (UG/KG)



NSWC Crane BioFacility Full Scale Operations
Average RDX Concentrations (UG/KG)

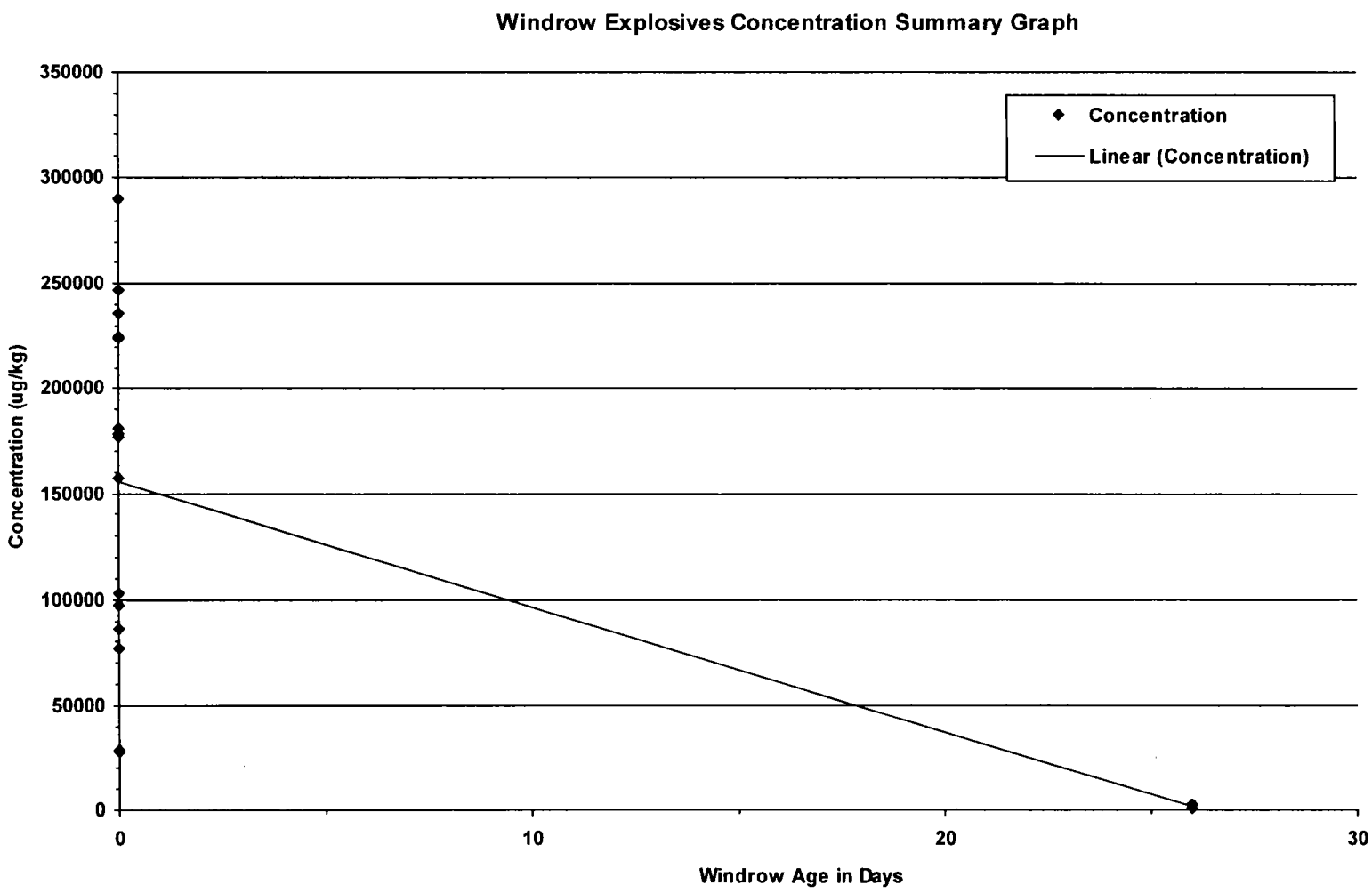


NSWC Crane BioFacility Full Scale Operations
Average Tetryl Concentrations (UG/KG)



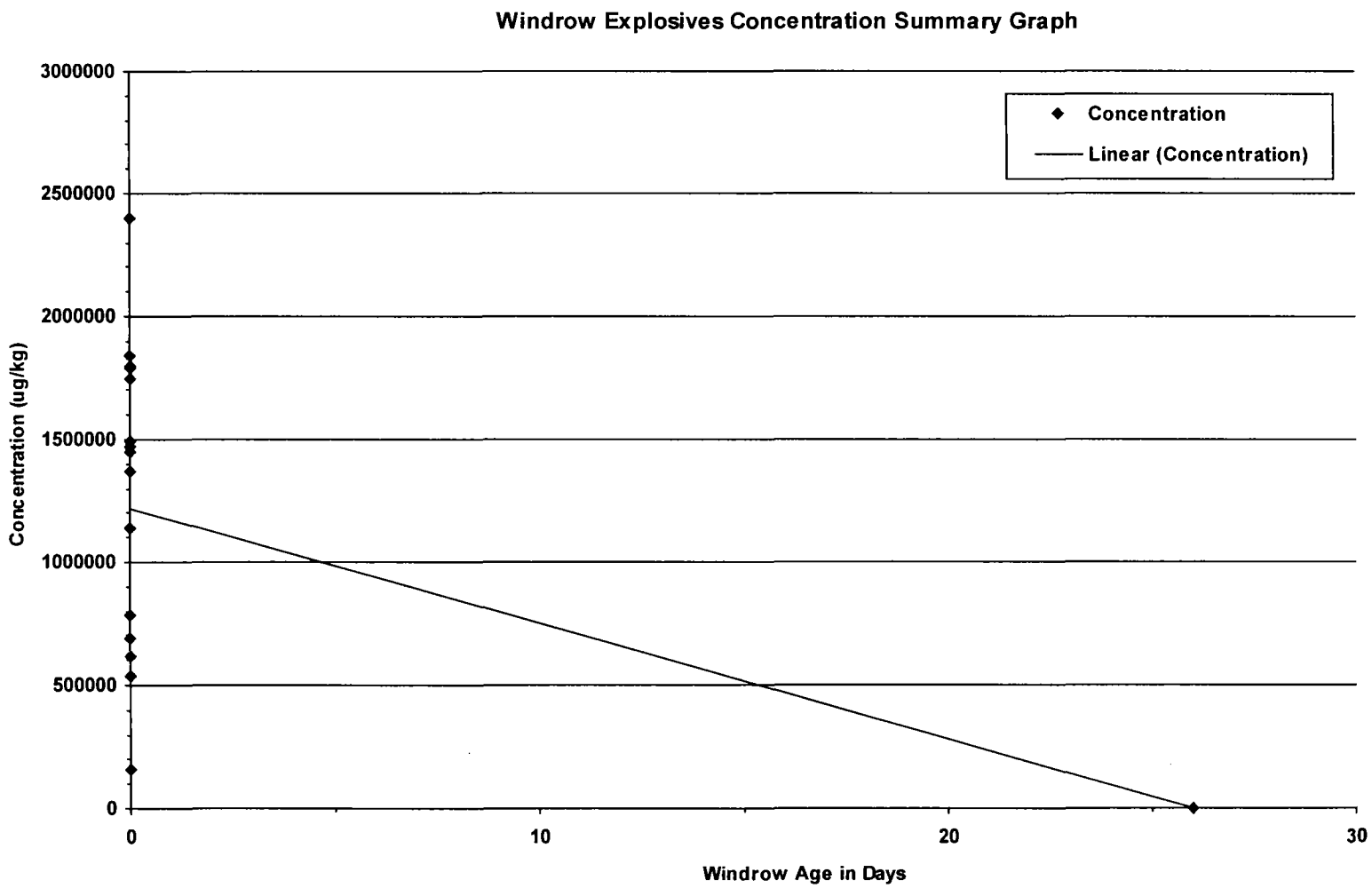
NSWC Crane BioFacility Full Scale Operations

Scatter Diagram of all Concentrations of HMX(UG/KG)



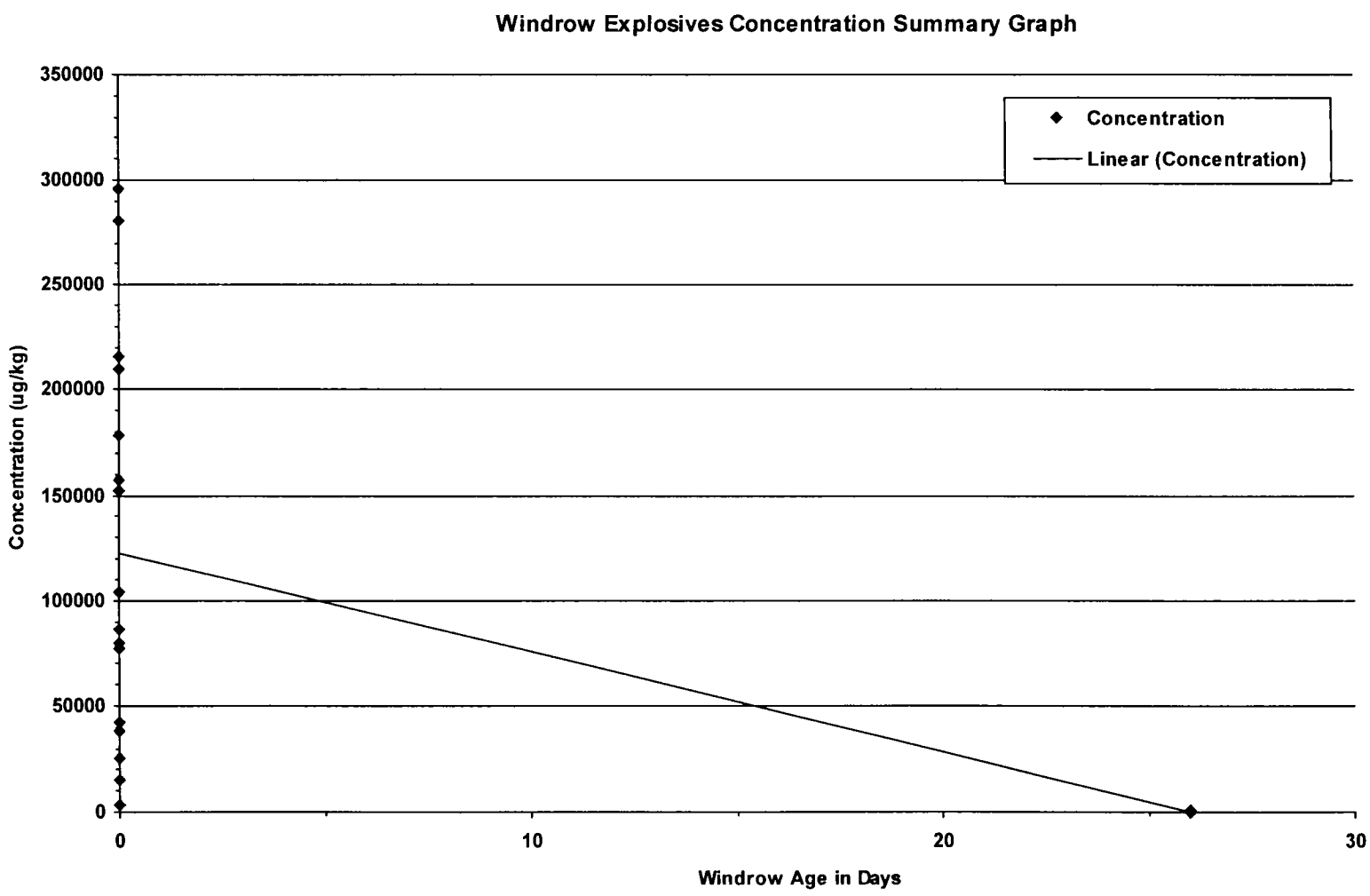
NSWC Crane BioFacility Full Scale Operations

Scatter Diagram of all Concentrations of RDX(UG/KG)



NSWC Crane BioFacility Full Scale Operations

Scatter Diagram of all Concentrations of TNT(UG/KG)



APPENDIX I
FIELD PRECISION SUMMARY

TABLE OF CONTENTS

DESCRIPTION **PAGES**

Table of RPD of Field Duplicates . . . . . 1 page

RELATIVE PERCENT DIFFERENCE OF FIELD DUPLICATES

Site ID	BIO-S001-00-09-1					BIO-S001-26-05-3				
Units	UG/KG				%	UG/KG				%
Compound	Sample		Duplicate		RPD	Sample		Duplicate		RPD
135TNB	12500.000	U	12500.000	U	0.00	250.000	U	250.000	U	0.00
13DNB	12500.000	U	12500.000	U	0.00	250.000	U	250.000	U	0.00
246TNT	178000.000		210000.000		16.49	457.000	P	575.000		22.87
24DNT	12500.000	U	12500.000	U	0.00	250.000	U	250.000	U	0.00
26DNT	13000.000	U	13000.000	U	0.00	260.000	U	260.000	U	0.00
2A46DT	9010.000	J	6680.000	J	29.70	250.000	U	250.000	U	0.00
2NT	12500.000	U	12500.000	U	0.00	250.000	U	250.000	U	0.00
3NT	12500.000	U	12500.000	U	0.00	250.000	U	250.000	U	0.00
4A26DT	28500.000	P	13400.000	P	72.08	250.000	U	250.000	U	0.00
4NT	12500.000	U	12500.000	U	0.00	250.000	U	250.000	U	0.00
HMX	247000.000		225000.000		9.32	2200.000	U	2200.000	U	0.00
NB	13000.000	U	13000.000	U	0.00	260.000	U	260.000	U	0.00
PETN	12500.000	U	12500.000	U	0.00	250.000	U	250.000	U	0.00
RDX	1840000.000		1790000.000		2.75	1000.000	U	887.000	PJ	11.98
TETRYL	32500.000	U	32500.000	U	0.00	650.000	U	650.000	U	0.00

Data Qualifiers:
- U = Not Detected
- J = Estimated value below quantitation limit
- P = Greather than 25% difference on secondary confirmation column

UG/KG = Micrograms/Kilogram

APPENDIX J
WINDROW PROCESS DATA - FIELD DATA DAILY LOG

TABLE OF CONTENTS

DESCRIPTION **PAGES**

Field Data Daily Log . . . . . 27 pages

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 4/15/98

0 **Relative Humidity:** 98.0% **Inspected By:** KAP

Windrow Height: 6.5 **Ambient Temperature:** 12 **Performed By:** RAE RAE

Windrow Length: 250

Windrow Width: 19

Texture: COARSE

	Start Time	Finish Time
Time Turned: 11:50		
Pre-Turn:		
Moisture Added: 0	**Post-Turn:** 12:00	12:18

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
POST	A	1	17	22	20	20			
		2	28	33	15	13		47.7	8.5
		3	34	35	15	16			
	B	1	35	35	15	15			
		2	34	37	15	15		51.7	8.6
		3	29	27	17	17			
	C	1	26	28	15	15			
		2	30	31	16	16		54.5	8.4
		3	23	22	18	19			
	D	1	43	42	15	14			
		2	42	45	15	15		55.4	8.4
		3	37	35	15	16			
	E	1	39	40	16	16			
		2	41	46	15	16		50	8.6
		3	34	36	17	18			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 4/16/98

1 **Relative Humidity:** 98.0% **Inspected By:** PAC

Windrow Height: 6.5 **Ambient Temperature:** 12 **Performed By:** MAM MAM

Windrow Length: 250

Windrow Width: 19

Texture: COARSE

	Start Time	Finish Time
Pre-Turn:	8:11	8:37
Post-Turn:	11:20	11:37

Time Turned: 11:10

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	51	52	2	1			
		2	54	58	14	13			
		3	58	56	18	3			
	B	1	47	46	10	3			
		2	48	59	12	4			
		3	42	41	13	3			
	C	1	46	44	7	4			
		2	51	49	17	7			
		3	41	36	11	0			
	D	1	48	51	1	0			
		2	44	54	19	13			
		3	46	44	4	2			
	E	1	54	53	2	1			
		2	45	51	15	17			
		3	39	49	13	6			
POST	A	1	43	44	17	11			
		2	41	46	15	10			
		3	41	46	18	14			
	B	1	41	43	14	10			
		2	41	44	17	12			
		3	39	43	18	11			
	C	1	39	39	13	12			
		2	40	44	16	11			
		3	33	36	14	11			
	D	1	44	48	11	9			
		2	48	52	16	10			
		3	36	42	16	11			
	E	1	43	47	10	8			
		2	47	52	17	12			
		3	44	46	17	14			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 4/17/98

2 **Relative Humidity:** 95.0% **Inspected By:** KAP

Windrow Height: 6 **Ambient Temperature:** 4 **Performed By:** RAE RAE

Windrow Length: 225

Windrow Width: 17

Texture: COARSE

	Start Time	Finish Time
Pre-Turn:	7:50	8:15
Post-Turn:	9:20	9:40

Time Turned: 9:10

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	50	54	17	15			
		2	42	49	18	18		48.2	
		3	48	54	15	17			
	B	1	60	56	2	0			
		2	67	70	15	12		46.7	
		3	66	60	2	2			
	C	1	66	61	3	3			
		2	63	63	12	13		50	
		3	65	65	10	6			
	D	1	64	64	16	9			
		2	64	60	16	16		50	
		3	64	69	11	9			
	E	1	65	58	6	1			
		2	49	52	1	16		45.5	
		3	61	68	12	14			
POST	A	1	53	51	6	3			
		2	51	52	13	14			
		3	43	49	16	15			
	B	1	52	51	9	7			
		2	46	49	17	16			
		3	51	51	12	10			
	C	1	49	50	8	7			
		2	49	50	13	12			
		3	46	49	15	12			
	D	1	54	55	7	9			
		2	46	52	16	15			
		3	51	52	15	16			
	E	1	48	51	12	10			
		2	46	48	15	15			
		3	48	48	16	16			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 | **Date Monitored:** 4/18/98

3 | **Relative Humidity:** 68.0% | **Inspected By:** PAC

Windrow Height: 7 | **Ambient Temperature:** 7 | **Performed By:** PAC PAC

Windrow Length: 275

Windrow Width: 18

Texture: COARSE

Time Turned: 9:25

Moisture Added: 0

	Start Time	Finish Time
Pre-Turn:	8:35	8:57
Post-Turn:	9:32	10:03

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	67	60	2	1			
		2	53	66	17	17			
		3	43	59	20	18			
	B	1	67	60	3	1			
		2	58	66	18	17			
		3	60	71	18	14			
	C	1	63	59	2	1			
		2	59	67	18	17			
		3	61	67	16	16			
	D	1	68	62	3	1			
		2	54	63	18	18			
		3	60	68	17	16			
	E	1	65	61	5	1			
		2	53	64	18	17			
		3	56	56	19	18			
POST	A	1	55	57	16	14			
		2	50	51	18	18			
		3	41	48	20	19			
	B	1	54	55	11	9			
		2	45	52	19	18			
		3	50	54	18	13			
	C	1	53	54	15	13			
		2	52	54	19	17			
		3	50	53	18	17			
	D	1	57	59	10	10			
		2	49	50	18	15			
		3	46	50	19	17			
	E	1	56	56	14	13			
		2	48	57	19	16			
		3	44	50	20	19			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 | **Date Monitored:** 4/19/98

4 | **Relative Humidity:** 84.0% | **Inspected By:**

Windrow Height: 6 | **Ambient Temperature:** 8 | **Performed By:** PAC PAC

Windrow Length: 275

Windrow Width: 18

Texture: COARSE

	Start Time	Finish Time
Pre-Turn:	8:31	8:50
Post-Turn:	10:46	11:10

Time Turned: 10:35

Moisture Added: 2000

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	69	64	4	1			
		2	61	69	17	15			
		3	48	59	20	18			
	B	1	68	67	6	3			
		2	51	61	19	18			
		3	60	73	18	10			
	C	1	66	60	1	1			
		2	54	67	18	16			
		3	66	73	14	12			
	D	1	55	61	12	3			
		2	57	66	18	17			
		3	65	72	13	12			
	E	1	69	66	5	2			
		2	44	62	20	16			
		3	57	59	17	18			
POST	A	1	53	57	17	13			
		2	45	50	19	18		49	
		3	44	49	19	18			
	B	1	52	55	17	14			
		2	48	48	18	18		54.6	
		3	50	55	16	15			
	C	1	55	55	17	13			
		2	47	51	19	17		47.8	
		3	49	54	18	16			
	D	1	51	56	17	14			
		2	42	48	19	17		54.3	
		3	52	57	17	15			
	E	1	52	56	16	15			
		2	51	53	18	17		46.7	
		3	44	47	18	17			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001

Date Monitored: 4/20/98

5

Relative Humidity: 73.0%

Inspected By: KAP

Windrow Height: 5

Ambient Temperature: 9

Performed By: MAM MAM

Windrow Length: 250

Windrow Width: 20

Texture: COARSE

Time Turned: 9:50

Moisture Added: 0

	Start Time	Finish Time
Pre-Turn:	8:30	9:02
Post-Turn:	10:00	10:28

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	70	65	10	1			
		2	50	64	19	15			
		3	20	63	20	16			
	B	1	67	64	8	1			
		2	53	65	18	17			
		3	52	70	19	14			
	C	1	52	58	19	1			
		2	45	60	20	18			
		3	57	71	18	14			
	D	1	45	56	20	1			
		2	52	65	19	18			
		3	51	70	18	15			
	E	1	54	59	17	2			
		2	43	61	20	18			
		3	39	64	18	17			
POST	A	1	55	59	15	13			
		2	40	50	20	17			
		3	36	44	20	19			
	B	1	55	57	16	13			
		2	49	49	18	17			
		3	46	54	19	14			
	C	1	57	58	13	11			
		2	49	53	18	15			
		3	52	56	19	16			
	D	1	58	57	13	12			
		2	46	52	20	18			
		3	52	57	19	14			
	E	1	58	60	12	10			
		2	45	51	20	17			
		3	43	48	20	18			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 | **Date Monitored:** 4/21/98

6 | **Relative Humidity:** 96.0% | **Inspected By:** MAM

Windrow Height: 5.5 | **Ambient Temperature:** 9 | **Performed By:** KAP KAP

Windrow Length: 250

Windrow Width: 19.5

Texture: COARSE

Time Turned: 9:35

Moisture Added: 0

	Start Time	Finish Time
Pre-Turn:	8:22	8:45
Post-Turn:	9:48	10:15

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	69	63	1	1			
		2	69	74	19	10		45.7	
		3	64	70	15	14			
	B	1	72	70	4	3			
		2	64	69	16	14		48.4	
		3	70	74	13	14			
	C	1	65	63	2	1			
		2	68	73	14	8		48.6	
		3	67	74	12	9			
	D	1	69	64	1	1			
		2	66	72	15	11		47.2	
		3	69	73	16	15			
	E	1	65	68	2	3			
		2	47	67	19	19		49.5	
		3	64	69	16	10			
POST	A	1	59	59	11	10			
		2	59	62	14	8			
		3	54	60	15	15			
	B	1	61	60	11	10			
		2	56	59	16	11			
		3	58	62	15	14			
	C	1	60	58	11	10			
		2	56	60	11	12			
		3	59	62	15	15			
	D	1	61	61	7	5			
		2	55	58	16	15			
		3	54	57	10	8			
	E	1	59	60	9	6			
		2	57	59	9	9			
		3	55	58	10	10			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 | **Date Monitored:** 4/22/98

7 | **Relative Humidity:** 97.0% | **Inspected By:**

Windrow Height: 5.5 | **Ambient Temperature:** 9 | **Performed By:** MAM MAM

Windrow Length: 250

Windrow Width: 19.5

Texture: COARSE

	Start Time	Finish Time
Time Turned: 9:46	**Pre-Turn:** 8:41	9:15
Moisture Added: 0	**Post-Turn:** 9:56	10:25

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	41	67	20	2			
		2	56	69	18	16			
		3	62	70	15	15			
	B	1	53	63	15	1			
		2	56	71	19	14			
		3	64	71	14	14			
	C	1	63	68	13	1			
		2	49	68	20	15			
		3	51	69	19	17			
	D	1	40	62	20	1			
		2	52	66	13	11			
		3	52	70	20	12			
	E	1	54	64	15	1			
		2	37	54	14	14			
		3	53	67	19	15			
POST	A	1	57	60	15	12			
		2	37	50	20	18			
		3	51	56	19	16			
	B	1	58	60	13	10			
		2	48	51	19	16			
		3	50	55	18	16			
	C	1	57	60	10	8			
		2	51	59	19	14			
		3	51	54	18	14			
	D	1	57	59	9	7			
		2	49	57	19	15			
		3	50	57	19	14			
	E	1	53	58	8	6			
		2	44	45	20	17			
		3	50	55	19	15			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 4/23/98

8 **Relative Humidity:** 100.0% **Inspected By:** PAC

Windrow Height: 6 **Ambient Temperature:** 7 **Performed By:** RAE RAE

Windrow Length: 250

Windrow Width: 16

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	8:45	9:05
Post-Turn:	11:20	11:45

Time Turned: 11:10

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	71	67	1	1			
		2	60	69	14	16		47.6	8.3
		3	64	72	18	14			
	B	1	70	66	6	2			
		2	64	69	10	16		50.8	8.4
		3	70	74	15	13			
	C	1	70	67	6	1			
		2	62	69	18	17		45.5	8.5
		3	65	69	10	15			
	D	1	69	67	1	1			
		2	68	69	17	16		45.9	8.5
		3	68	72	16	11			
	E	1	66	67	2	3			
		2	57	62	18	19		52.2	8.5
		3	61	67	16	16			
POST	A	1	62	63	17	14			
		2	57	59	17	17			
		3	60	61	16	15			
	B	1	62	64	13	12			
		2	60	60	18	17			
		3	58	61	16	16			
	C	1	64	64	12	13			
		2	57	63	18	17			
		3	61	60	16	15			
	D	1	64	65	13	4			
		2	61	56	18	18			
		3	60	63	16	15			
	E	1	64	65	13	12			
		2	51	58	19	18			
		3	60	59	17	16			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 | **Date Monitored:** 4/24/98

9 | **Relative Humidity:** 69.0% | **Inspected By:** PAC

Windrow Height: 5 | **Ambient Temperature:** 12 | **Performed By:** KAP KAP

Windrow Length: 250

Windrow Width: 18

Texture: COARSE

Time Turned: 11:14

Moisture Added: 0

	Start Time	Finish Time
Pre-Turn:	8:33	8:59
Post-Turn:	11:04	11:35

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	69	68	0	0			
		2	73	73	11	2			
		3	68	75	17	7			
	B	1	72	68	4	0			
		2	71	75	15	7			
		3	74	74	11	2			
	C	1	66	67	17	1			
		2	70	75	12	5			
		3	71	74	14	4			
	D	1	68	69	15	1			
		2	71	75	14	4			
		3	73	72	9	1			
	E	1	71	70	16	2			
		2	71	75	14	6			
		3	69	74	14	8			
POST	A	1	61	61	9	8			
		2	61	61	12	11			
		3	57	61	14	12			
	B	1	61	62	10	9			
		2	58	61	15	14			
		3	58	69	14	13			
	C	1	62	62	9	7			
		2	60	62	13	13			
		3	61	62	14	13			
	D	1	61	63	9	7			
		2	59	61	16	15			
		3	62	64	13	10			
	E	1	61	63	10	7			
		2	64	66	15	14			
		3	57	64	15	12			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 4/25/98

10 **Relative Humidity:** 62.0% **Inspected By:** PAC

Windrow Height: 5 **Ambient Temperature:** 14 **Performed By:** MAM MAM

Windrow Length: 250

Windrow Width: 19.5

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	9:07	9:34
Post-Turn:	13:43	14:05

Time Turned: 13:33

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	67	64	14	0			
		2	53	72	17	7			
		3	57	71	18	12			
	B	1	59	63	18	0			
		2	57	72	18	13			
		3	67	75	16	7			
	C	1	70	64	5	0			
		2	60	73	18	10			
		3	62	75	18	10			
	D	1	69	65	6	0			
		2	55	70	19	11			
		3	46	73	19	9			
	E	1	45	62	20	0			
		2	45	68	20	15			
		3	54	72	20	15			
POST	A	1	59	61	16	7			
		2	57	58	16	12			
		3	56	60	17	13			
	B	1	60	63	9	7			
		2	60	61	18	13			
		3	55	60	16	14			
	C	1	60	63	12	7			
		2	53	58	17	14			
		3	56	58	17	13			
	D	1	62	63	11	8			
		2	59	60	17	14			
		3	58	62	18	15			
	E	1	60	63	13	10			
		2	59	63	17	16			
		3	57	60	18	15			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 4/26/98

11 **Relative Humidity:** 71.0% **Inspected By:** PAC

Windrow Height: 5 **Ambient Temperature:** 17 **Performed By:** MAM MAM

Windrow Length: 250

Windrow Width: 19

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	8:41	9:04
Post-Turn:	10:38	10:56

Time Turned: 10:28

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	54	65	18	1			
		2	60	73	17	9		48.8	
		3	55	71	18	6			
	B	1	57	64	19	1			
		2	64	73	17	12		51.4	
		3	62	74	17	10			
	C	1	55	64	18	1			
		2	62	74	18	6		40	
		3	59	72	18	9			
	D	1	52	62	18	1			
		2	54	71	18	12		47.7	
		3	62	73	17	7			
	E	1	69	67	11	1			
		2	59	70	19	14		53.2	
		3	61	73	17	11			
POST	A	1	56	59	12	6			
		2	54	57	16	13			
		3	52	49	16	15			
	B	1	57	60	17	6			
		2	53	57	18	14			
		3	50	58	18	15			
	C	1	58	60	19	6			
		2	56	59	18	10			
		3	53	56	18	14			
	D	1	57	61	16	6			
		2	53	58	17	14			
		3	53	58	19	12			
	E	1	54	59	17	6			
		2	55	58	17	12			
		3	55	58	18	13			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 4/27/98

12 **Relative Humidity:** 61.0% **Inspected By:**

Windrow Height: 5 **Ambient Temperature:** 7 **Performed By:** MAM MAM

Windrow Length: 250

Windrow Width: 19

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	8:24	8:45
Post-Turn:	9:36	9:55

Time Turned: 9:26

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	49	65	12	7			
		2	50	72	11	8			
		3	60	68	7	16			
	B	1	52	61	14	11			
		2	64	72	14	16			
		3	61	70	12	15			
	C	1	58	66	9	10			
		2	58	68	10	17			
		3	57	68	13	15			
	D	1	48	56	13	10			
		2	63	69	11	17			
		3	56	69	16	17			
	E	1	45	63	10	11			
		2	61	68	13	18			
		3	53	64	13	19			
POST	A	1	55	57	11	7			
		2	45	56	19	17			
		3	55	61	17	16			
	B	1	58	62	10	13			
		2	53	59	17	17			
		3	56	63	18	16			
	C	1	59	61	7	11			
		2	55	61	18	17			
		3	54	61	18	16			
	D	1	59	61	6	5			
		2	53	56	18	19			
		3	53	59	19	17			
	E	1	54	58	12	11			
		2	54	58	15	17			
		3	54	58	17	17			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 4/28/98

13 **Relative Humidity:** 65.0% **Inspected By:** MAM

Windrow Height: 5 **Ambient Temperature:** 6 **Performed By:** KAP KAP

Windrow Length: 250

Windrow Width: 18

Texture: COARSE

Time Turned: 12:40

Moisture Added: 0

	Start Time	Finish Time
Pre-Turn:	7:43	8:17
Post-Turn:	12:50	1:01

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	68	68	10	3			
		2	70	74	11	10			
		3	72	74	16	15			
	B	1	61	69	12	19			
		2	72	74	12	3			
		3	70	73	14	13			
	C	1	58	67	20	4			
		2	73	74	16	8			
		3	68	72	15	15			
	D	1	67	66	12	10			
		2	69	74	17	14			
		3	70	74	15	10			
	E	1	68	66	1	5			
		2	72	74	14	15			
		3	69	74	13	12			
POST	A	1	57	58	12	11			
		2	56	60	16	15			
		3	54	51	16	18			
	B	1	57	62	12	10			
		2	59	63	15	17			
		3	60	60	17	16			
	C	1	59	63	10	8			
		2	63	64	14	17			
		3	61	60	17	16			
	D	1	60	61	9	11			
		2	61	60	15	17			
		3	57	61	17	16			
	E	1	62	63	9	8			
		2	61	59	8	17			
		3	57	66	17	15			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 4/29/98

14 **Relative Humidity:** 68.0% **Inspected By:** RAE

Windrow Height: 4.5 **Ambient Temperature:** 13 **Performed By:** KAP KAP

Windrow Length: 250

Windrow Width: 18

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	9:11	9:21
Post-Turn:	2:10	2:30

Time Turned: 2:00

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	67	63	0	0			
		2	72	73	4	1		42.3	8.6
		3	58	74	12	2			
	B	1	67	65	3	0			
		2	68	74	5	6		50	8.6
		3	73	72	6	6			
	C	1	65	65	0	0			
		2	70	72	5	6		40.9	8.4
		3	71	71	9	3			
	D	1	69	66	0	0			
		2	68	72	6	8		44.6	8.5
		3	74	70	7	1			
	E	1	70	70	2	7			
		2	69	73	13	13		59.2	8.7
		3	73	74	12	4			
POST	A	1	63	64	12	11			
		2	63	63	15	14			
		3	57	62	17	15			
	B	1	62	64	12	10			
		2	63	65	15	15			
		3	62	62	15	14			
	C	1	63	65	17	10			
		2	64	65	15	14			
		3	62	62	15	14			
	D	1	63	65	13	11			
		2	62	62	15	15			
		3	61	62	14	14			
	E	1	62	65	10	9			
		2	63	61	14	15			
		3	63	65	13	12			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 4/30/98

15 **Relative Humidity:** 89.0% **Inspected By:** MAM

Windrow Height: 4.5 **Ambient Temperature:** 16 **Performed By:** RAE RAE

Windrow Length: 250

Windrow Width: 12

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	9:25	9:40
Post-Turn:	12:17	12:35

Time Turned: 12:07

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	72	70	1	2			
		2	63	73	14	8		45.9	
		3	74	74	4	5			
	B	1	68	67	3	5			
		2	74	73	6	4		39.8	
		3	73	72	3	3			
	C	1	67	68	0	0			
		2	74	75	7	8		48.1	
		3	72	72	5	5			
	D	1	70	68	4	3			
		2	74	76	11	9		46.2	
		3	72	75	5	3			
	E	1	71	70	13	7			
		2	73	75	11	13		44.3	
		3	73	75	11	9			
POST	A	1	60	63	14	14			
		2	42	58	17	17			
		3	63	64	14	15			
	B	1	64	66	12	9			
		2	64	66	14	13			
		3	61	64	15	13			
	C	1	65	65	10	9			
		2	63	65	16	14			
		3	63	67	9	10			
	D	1	65	67	8	6			
		2	65	66	12	12			
		3	64	65	12	11			
	E	1	65	67	8	6			
		2	64	66	15	12			
		3	64	64	12	13			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 5/1/98

16 **Relative Humidity:** 92.0% **Inspected By:** RAE

Windrow Height: 5 **Ambient Temperature:** 15 **Performed By:** KAP KAP

Windrow Length: 250

Windrow Width: 18

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	8:40	8:55
Post-Turn:	9:55	10:01

Time Turned: 9:45

Moisture Added: 1500

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	68	66	1	0			
		2	70	72	4	3			
		3	73	71	2	1			
	B	1	68	67	1	1			
		2	71	71	5	2			
		3	69	69	1	0			
	C	1	68	67	0	0			
		2	73	70	3	1			
		3	71	69	1	1			
	D	1	67	67	1	0			
		2	73	71	6	3			
		3	73	72	6	4			
	E	1	71	67	3	2			
		2	73	74	4	7			
		3	76	73	6	3			
POST	A	1	63	64	13	13			
		2	63	62	15	16			
		3	56	60	16	14			
	B	1	61	63	13	13			
		2	62	62	15	16			
		3	60	59	16	15			
	C	1	55	60	13	12			
		2	61	62	13	15			
		3	60	60	15	15			
	D	1	56	61	14	13			
		2	60	60	15	17			
		3	56	61	17	16			
	E	1	57	61	15	14			
		2	60	61	17	17			
		3	60	60	17	16			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 5/2/98

17 **Relative Humidity:** 95.0% **Inspected By:** RAE

Windrow Height: 4.5 **Ambient Temperature:** 17 **Performed By:** JAD JAD

Windrow Length: 270

Windrow Width: 18

Texture: COARSE

	Start Time	Finish Time
Pre-Turn:	8:56	9:11
Post-Turn:	10:36	10:48

Time Turned: 10:27

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	67	69	1	3			
		2	73	73	7	4			
		3	72	73	9	7			
	B	1	64	65	5	2			
		2	71	70	2	2			
		3	71	70	4	4			
	C	1	63	64	1	1			
		2	71	70	7	4			
		3	73	69	3	2			
	D	1	65	65	3	2			
		2	73	73	4	2			
		3	71	71	12	6			
	E	1	63	64	3	1			
		2	68	71	9	1			
		3	71	73	10	10			
POST	A	1	63	63	13	12			
		2	62	64	15	15			
		3	61	62	14	14			
	B	1	61	63	13	11			
		2	63	63	15	15			
		3	57	59	13	15			
	C	1	61	62	13	11			
		2	62	62	15	16			
		3	60	60	14	14			
	D	1	63	64	15	13			
		2	63	64	14	14			
		3	63	63	16	16			
	E	1	62	64	14	12			
		2	62	63	15	15			
		3	48	56	18	17			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 5/3/98

18 **Relative Humidity:** 99.0% **Inspected By:** RAE

Windrow Height: 4 **Ambient Temperature:** 18 **Performed By:** JAD JAD

Windrow Length: 270

Windrow Width: 16

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	7:41	7:55
Post-Turn:	9:30	9:41

Time Turned: 9:25

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	71	66	5	2			
		2	72	72	5	1			
		3	66	72	0	13			
	B	1	69	68	8	10			
		2	70	71	6	5			
		3	57	58	4	4			
	C	1	65	65	9	6			
		2	74	73	11	2			
		3	71	70	2	4			
	D	1	62	66	1	7			
		2	59	67	19	15			
		3	68	67	1	7			
	E	1	63	66	2	4			
		2	71	73	10	13			
		3	68	71	14	1			
POST	A	1	63	64	12	11			
		2	65	65	14	14			
		3	62	64	13	14			
	B	1	62	62	12	12			
		2	62	62	16	15			
		3	59	62	16	12			
	C	1	62	60	11	14			
		2	58	63	16	15			
		3	57	60	16	15			
	D	1	64	64	13	10			
		2	59	62	18	15			
		3	56	60	17	17			
	E	1	64	62	13	13			
		2	59	62	16	16			
		3	56	62	18	16			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 5/4/98

19 **Relative Humidity:** 90.0% **Inspected By:** RAE

Windrow Height: 5 **Ambient Temperature:** 12 **Performed By:** KAP KAP

Windrow Length: 250

Windrow Width: 17

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	8:55	9:10
Post-Turn:	10:28	10:40

Time Turned: 10:18

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	66	66	0	0			
		2	68	70	9	8		51.4	
		3	71	71	9	7			
	B	1	67	65	1	0			
		2	71	73	6	9		44.4	
		3	73	66	4	0			
	C	1	68	65	3	1			
		2	67	72	8	5		55.7	
		3	71	72	7	10			
	D	1	66	66	10	5			
		2	68	69	8	5		47.5	
		3	69	69	10	7			
	E	1	51	61	18	12			
		2	65	70	8	10		52.5	
		3	69	70	10	7			
POST	A	1	59	61	9	10			
		2	59	57	15	16			
		3	59	60	16	16			
	B	1	60	62	8	10			
		2	61	60	12	16			
		3	61	62	13	12			
	C	1	60	62	11	8			
		2	61	61	14	16			
		3	61	62	14	14			
	D	1	60	61	12	12			
		2	60	60	16	12			
		3	60	60	16	16			
	E	1	62	62	10	11			
		2	62	63	16	16			
		3	61	65	13	10			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 5/5/98

20 **Relative Humidity:** 88.0% **Inspected By:** PAC

Windrow Height: 5 **Ambient Temperature:** 16 **Performed By:** KAP KAP

Windrow Length: 250

Windrow Width: 17

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	9:14	9:25
Post-Turn:	9:35	9:48

Time Turned: 9:25

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	69	67	1	1			
		2	69	71	4	9			
		3	74	71	2	2			
	B	1	67	66	1	1			
		2	68	71	6	10			
		3	72	71	7	7			
	C	1	66	66	3	2			
		2	67	70	5	9			
		3	70	68	6	5			
	D	1	65	66	2	3			
		2	67	69	5	10			
		3	70	71	5	10			
	E	1	66	67	2	2			
		2	68	71	5	12			
		3	72	72	7	11			
POST	A	1	61	62	9	12			
		2	62	62	14	16			
		3	57	61	13	11			
	B	1	58	60	11	9			
		2	61	60	12	16			
		3	59	60	16	14			
	C	1	55	59	13	10			
		2	61	62	13	16			
		3	61	60	16	16			
	D	1	56	59	15	11			
		2	60	59	12	17			
		3	59	59	17	17			
	E	1	56	60	13	10			
		2	62	67	11	17			
		3	62	62	16	15			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 5/6/98

21 **Relative Humidity:** 78.0% **Inspected By:** PAC

Windrow Height: 5 **Ambient Temperature:** 17 **Performed By:** KAP KAP

Windrow Length: 250

Windrow Width: 18

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	7:58	8:12
Post-Turn:	1:31	1:43

Time Turned: 1:21

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	67	66	1	0			
		2	68	67	8	5			
		3	71	69	6	2			
	B	1	64	64	0	0			
		2	69	69	2	1			
		3	67	65	1	1			
	C	1	64	66	1	1			
		2	70	69	4	2			
		3	69	66	4	2			
	D	1	65	65	0	0			
		2	68	67	9	3			
		3	68	67	6	4			
	E	1	66	67	1	0			
		2	70	71	7	3			
		3	71	68	3	1			
POST	A	1	57	61	7	9			
		2	61	61	12	14			
		3	60	62	14	12			
	B	1	57	61	8	9			
		2	60	60	14	16			
		3	60	60	13	12			
	C	1	59	61	9	8			
		2	61	63	14	15			
		3	62	60	14	13			
	D	1	58	61	11	9			
		2	63	64	13	15			
		3	63	63	14	13			
	E	1	62	62	10	9			
		2	62	62	15	17			
		3	58	62	15	14			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 5/7/98

22 **Relative Humidity:** 100.0% **Inspected By:** KAP

Windrow Height: 4 **Ambient Temperature:** 16 **Performed By:** RAE RAE

Windrow Length: 230

Windrow Width: 16

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	8:58	9:08
Post-Turn:	2:08	2:20

Time Turned: 1:56

Moisture Added: 0

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	64	64	0	0			
		2	68	69	1	2		41.5	
		3	69	70	8	4			
	B	1	66	67	0	0			
		2	69	71	3	0		40.3	
		3	68	65	1	1			
	C	1	65	66	0	0			
		2	69	70	2	5		44.1	
		3	64	63	0	0			
	D	1	68	67	0	0			
		2	69	70	6	8		37.4	
		3	66	69	7	6			
	E	1	67	66	0	0			
		2	71	72	5	2		47.4	
		3	66	67	3	5			
POST	A	1	61	63	9	8			
		2	62	62	10	12			
		3	55	59	10	9			
	B	1	57	59	8	10			
		2	61	63	8	9			
		3	61	61	9	10			
	C	1	58	61	10	9			
		2	61	61	11	14			
		3	59	59	11	11			
	D	1	57	60	9	10			
		2	60	58	12	16			
		3	58	60	12	11			
	E	1	58	61	9	10			
		2	61	61	11	15			
		3	62	63	9	10			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001 **Date Monitored:** 5/8/98

23 **Relative Humidity:** 100.0% **Inspected By:** KAP

Windrow Height: 4 **Ambient Temperature:** 16 **Performed By:** RAE RAE

Windrow Length: 230

Windrow Width: 17

Texture: MEDIUM

	Start Time	Finish Time
Pre-Turn:	8:10	8:26
Post-Turn:	9:55	10:08

Time Turned: 9:45

Moisture Added: 1500

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	65	66	1	5			
		2	69	70	2	2			8.6
		3	63	67	11	5			
	B	1	65	67	0	0			
		2	67	69	1	2			8.6
		3	65	64	1	1			
	C	1	62	62	6	10			
		2	67	69	1	5			8.6
		3	64	65	0	2			
	D	1	62	64	1	3			
		2	70	72	6	11			8.8
		3	62	64	0	2			
	E	1	68	68	0	1			
		2	64	69	17	12			8.7
		3	66	67	3	2			
POST	A	1	53	56	13	11			
		2	55	57	16	14		42.2	
		3	45	49	18	16			
	B	1	51	58	11	10			
		2	51	55	16	13		51.7	
		3	57	57	10	10			
	C	1	55	56	15	11			
		2	57	58	10	10		50.8	
		3	50	53	14	14			
	D	1	57	58	12	12			
		2	54	58	16	14		54.8	
		3	54	56	12	12			
	E	1	49	49	12	12			
		2	58	60	12	14		43.5	
		3	48	56	12	11			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001

Date Monitored: 5/9/98

24

Relative Humidity: 98.0%

Inspected By: PAC

Windrow Height: 4

Ambient Temperature: 14

Performed By: KAP KAP

Windrow Length: 250

Windrow Width: 19

Texture: MEDIUM

Time Turned: 9:16

Moisture Added: 0

	Start Time	Finish Time
Pre-Turn:	7:18	7:38
Post-Turn:	9:26	9:34

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	62	71	7	1			
		2	54	55	13	12			
		3	55	67	19	19			
	B	1	70	69	0	2			
		2	65	66	4	2			
		3	73	65	0	0			
	C	1	70	72	4	0			
		2	69	67	0	0			
		3	71	67	3	2			
	D	1	68	68	0	0			
		2	69	68	4	5			
		3	68	70	4	0			
	E	1	67	72	4	1			
		2	72	69	5	4			
		3	66	68	4	5			
POST	A	1	47	51	16	15			
		2	53	55	14	13			
		3	56	57	13	14			
	B	1	54	54	15	15			
		2	54	54	14	14			
		3	52	50	16	16			
	C	1	49	53	14	13			
		2	57	54	13	13			
		3	53	51	15	14			
	D	1	51	59	14	14			
		2	55	56	13	13			
		3	55	54	13	15			
	E	1	53	56	13	12			
		2	56	56	13	14			
		3	55	56	11	10			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001

Date Monitored: 5/10/98

25

Relative Humidity: 83.0%

Inspected By: PAC

Windrow Height: 4

Ambient Temperature: 16

Performed By: KAP KAP

Windrow Length: 250

Windrow Width: 18

Texture: MEDIUM

Time Turned: 8:04

Moisture Added: 0

	Start Time	Finish Time
Pre-Turn:	7:19	7:33
Post-Turn:	8:14	8:22

Pre or Post	Cross Section	Location	Temperature (C) 1 Foot	Temperature (C) 2/3 Feet	Oxygen (%) 1 Foot	Oxygen (%) 2/3 Feet	MWHC (%) 1 Foot	MWHC (%) 2/3 Feet	pH
PRE	A	1	62	62	0	0			
		2	64	64	0	0			
		3	62	63	1	1			
	B	1	59	59	0	0			
		2	61	62	0	0			
		3	61	59	0	0			
	C	1	58	59	0	0			
		2	62	62	0	0			
		3	61	59	0	0			
	D	1	59	61	0	0			
		2	64	65	0	0			
		3	64	62	0	0			
	E	1	57	60	0	0			
		2	62	63	0	0			
		3	62	61	0	0			
POST	A	1	52	55	11	10			
		2	56	56	10	12			
		3	54	55	10	9			
	B	1	52	55	11	10			
		2	56	56	11	12			
		3	56	55	11	12			
	C	1	52	55	12	11			
		2	55	55	12	11			
		3	54	53	13	12			
	D	1	54	56	12	11			
		2	55	55	14	15			
		3	54	53	15	15			
	E	1	56	58	11	10			
		2	58	58	13	12			
		3	51	53	15	14			

NSWC CRANE
WINDROW PROCESS DATA - DAILY LOG

Windrow Number: S001

Date Monitored: 5/11/98

26

Relative Humidity: 84.0%

Inspected By: MAM

Windrow Height: 4

Ambient Temperature: 13

Performed By: KAP KAP

Windrow Length: 250

Windrow Width: 17

Texture: MEDIUM

Time Turned: 13:50

Moisture Added: 0

	Start Time	Finish Time
Pre-Turn:	7:49	7:59
Post-Turn:	14:00	14:16

			Temperature (C)		Oxygen (%)		MWHC (%)		
Pre or Post	**Cross Section**	**Location**	**1 Foot**	**2/3 Feet**	**1 Foot**	**2/3 Feet**	**1 Foot**	**2/3 Feet**	**pH**
PRE	A	1	57	59	0	0			
		2	58	57	0	0			
		3	58	59	0	0			
	B	1	55	58	0	0			
		2	61	60	0	0			
		3	57	56	0	0			
	C	1	58	58	0	0			
		2	59	59	0	0			
		3	55	55	0	0			
	D	1	58	58	12	6			
		2	64	62	1	0			
		3	63	62	7	3			
	E	1	60	61	0	0			
		2	63	63	0	0			
		3	61	61	0	0			
POST	A	1	55	59	6	6			
		2	56	58	7	6			
		3	55	53	7	6			
	B	1	54	56	8	6			
		2	56	58	8	6			
		3	50	56	10	8			
	C	1	52	56	10	8			
		2	56	58	8	6			
		3	52	56	8	6			
	D	1	53	58	11	9			
		2	59	61	8	6			
		3	52	56	10	7			
	E	1	53	58	10	9			
		2	57	59	12	8			
		3	55	57	8	7			

2E

EXPLOSIVE SURROGATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No: MKF-OH SDG No: ~~33579~~ 33609 DD 5/8/98

	SAMPLE NUMBER	S1 #	OTHER
1	BIO-S-001-00-03-1 10		0
2	BIO-S-001-00-03-2 10		0
3	BIO-S-001-00-03-3 10		0
4	BIO-S-001-00-05-1 10	138	0
5	BIO-S-001-00-05-2 10		0
6	BIO-S-001-00-05-3 10		0
7	BIO-S-001-05-3 MS 10	51.7*	0
8	BIO-S-001-00-05-3 MS	112	0
9	BIO-S-001-00-07-1 10		0
10	BIO-S-001-00-07-2 10		0
11	BIO-S-001-00-07-3 10		0
12	BIO-S-001-00-09-1 10		0
13	BIO-S-001-00-09-1FD		0
14	BIO-S-001-00-09-2 10		0
15	BIO-S-001-00-09-3 10		0
16	BIO-S-001-00-11-1 10	90.3	0
17	BIO-S-001-00-11-2 10		0
18	BIO-S-001-00-11-3 10	66.3	0
19	BIO-RB-041598	119	0
20	BL0416SB	108	0
21	BL0416WH	117	0
22	LC0416SB	124	0
23	LC0416WH	142*	0
24	LD0416SB	114	0
25	LD0416WH	148*	0
26			
27			
28			
29			
30			

S1 = 3,4-DNT (60-140)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

page _ 1

FORM II

3F

SOIL EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33609

Client Sample No: BIO-S-001-00-05-3 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
HMX	9500	97200	63500	355*	54-128
RDX	9500	691000	422000	2830*	66-109
TNB	9500		8440	89	57-130
DNB	9500		12300	129*	74-122
TETRYL	9500		1280	14*	32-119
NB	9500		8780	92	70-135
TNT	9500	77000	34300	449*	44-124
4ADNT	9500	6700	17400	113	60-140
2ADNT	9500		11700	123	60-140
26DNT	9500		10800	114	58-125
24DNT	9500		10300	108	59-120
2NT	9500		10400	109	79-124
4NT	9500		8110	85	74-128
3NT	9500		9430	99	79-121

of Analyte recoveries out of QC Advisory Limits = 5

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD#	QC LIMITS RPD	QC LIMITS REC.
HMX	9500	103000	61	141*	30	54-128
RDX	9500	669000	232*	170*	30	66-109
TNB	9500	10600	112	23	30	57-130
DNB	9500	12800	135*	5	45	74-122
TETRYL	9500	5760	61	127*	30	32-119
NB	9500	10600	112	19	35	70-135
TNT	9500	64900	127*	112*	30	44-124
4ADNT	9500	21000	150*	28	40	60-140
2ADNT	9500	13800	145*	16	40	60-140
26DNT	9500	11000	116	2	35	58-125
24DNT	9500	11300	119	10	35	59-120
2NT	9500	9230	97	11	35	79-124
4NT	9500	10000	105	21	35	74-128
3NT	9500	8650	91	9	35	79-121

No of Analyte recoveries out of QC Advisory Limits = 5
No of RPD's out of QC Limits 4

3F

SOIL MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No: MKF-OH SDG No:33609

Client Sample ID: BIO-S-001-00-05-3

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
PETN	25000	0.0	30400	122	70-130

No of MS analyte recoveries out of QC Limits = 0

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD#	QC LIMITS RPD	REC.
PETN	25000	27770	111	9	30	70-130

of MSD analyte recoveries out of QC Limits = 0
of RPD's out of QC Limits = 0

FORM III

3G

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33609

Client Sample No: LC0416SB

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
HMX	9500		11600	122	57-137
RDX	9500		9880	104	77-113
TNB	9500		10500	110	64-125
DNB	9500		11300	119*	82-118
TETRYL	9500		10600	112	23-124
NB	9500		11000	116	69-143
TNT	9500		10700	113	75-118
4ADNT	9500		10600	112	60-140
2ADNT	9500		10900	115	60-140
26DNT	9500		10500	110	78-117
24DNT	9500		10900	115	74-126
2NT	9500		10800	114	78-123
4NT	9500		10600	112	79-125
3NT	9500		10900	115	78-121

. of Analyte recoveries out of QC Advisory Limits = 1

3G

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33609

Client Sample No: LD0416SB

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	QC LIMITS REC.
HMX	9500		11500	121	57-137
RDX	9500		9820	103	77-113
TNB	9500		10200	107	64-125
DNB	9500		11200	118	82-118
TETRYL	9500		8170	86	23-124
NB	9500		11000	116	69-143
TNT	9500		10400	109	75-118
4ADNT	9500		10700	113	60-140
2ADNT	9500		10700	113	60-140
26DNT	9500		10400	109	78-117
24DNT	9500		10800	114	74-126
2NT	9500		10900	115	78-123
4NT	9500		10600	112	79-125
3NT	9500		11000	116	78-121

of Analyte recoveries out of QC Advisory Limits = 0

3G

EXPLOSIVES SOIL LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No:MKF-OH SDG No: 33609

Client Sample ID: LC0417SG

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
PETN	25000	0.0	27600	110	70-130

No of Analyte recoveries out of QC Advisory Limits= 0

FORM III

3G

EXPLOSIVES SOIL LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No:MKF-OH SDG No: 33609

Client Sample ID: LD0417SG

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	QC LIMITS REC.
PETN	25000	0.0	27290	109	70-130

No of Analyte recoveries out of QC Advisory Limits= 0

FORM III

3G

EXPLOSIVES WATER LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No: MKF-OH SDG No: 33609

Client Sample ID: LC0416WH

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC LIMITS REC.
PETN	5000	0.0	5180	104	70-130

No of analyte recoveries out of QC Limits = 11

FORM III

3G

EXPLOSIVES WATER LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No: MKF-OH SDG No: 33609

Client Sample ID: LD0416WH

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC LIMITS REC.
PETN	5000	0.0	5190	104	70-130

No of analyte recoveries out of QC Limits = 11

FORM III

WATER EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33609

Client Sample No: LD0416WH

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	QC LIMITS REC.
HMX	400		384	96	46-151
RDX	150		130	87	72-129
TNB	225		210	93	74-118
DNB	125		115	92	79-132
TETRYL	413		272	66	58-120
NB	213		205	96	68-135
TNT	188		272	145	61-145
4ADNT	313		338	108	60-140
2ADNT	313		342	109	60-140
26DNT	288		321	111	77-125
24DNT	175		180	103	70-134
2NT	363		323	89	73-131
4NT	250		235	94	73-116
3NT	238		284	119	71- 127

f Analyte recoveries out of QC Advisory Limits = 0

3G

WATER EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33609

Client Sample No: LC0416WH

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC LIMITS REC.
HMX	400		383	96	46-151
RDX	150		141	94	72-129
TNB	225		208	92	74-118
DNB	125		117	94	79-132
TETRYL	413		258	63	58-120
NB	213		215	101	68-135
TNT	188		254	135	61-145
4ADNT	313		300	96	60-140
2ADNT	313		308	98	60-140
26DNT	288		283	98	77-125
24DNT	175		178	102	70-134
2NT	363		318	88	73-131
4NT	250		235	94	73-116
3NT	238		281	118	71- 127

of Analyte recoveries out of QC Advisory Limits = 0

4C

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0416SB

Lab Code: SWOK Case No: MKF-OH SDG No:33609

Matrix: (soil/water) Soil

Date Extracted: 04/16/98 Extn. Method: SONC

Date Analyzed (1): 04/20/98 Date Analyzed(2):

Time Analyzed (1): 01:40:27 Time Analyzed(2):

Instrument ID (1): IN12 Instrument ID(2):

LC Column ID (1): CARB-06 LC Column ID (2):

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC'S.

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	LC0416SB	LC0416SB	04/20/98	
2	LD0416SB	LD0416SB	04/20/98	
3	BIO-S-001-00-03-1 10	33609.01	04/20/98	04/21/98
4	BIO-S-001-00-03-2 10	33609.02	04/20/98	04/21/98
	BIO-S-001-00-03-3 10	33609.03	04/20/98	04/21/98
	BIO-S-001-00-05-1 10	33609.04	04/20/98	04/23/98
7	BIO-S-001-00-05-2 10	33609.05	04/20/98	04/23/98
8	BIO-S-001-00-05-3 10	33609.06	04/20/98	04/23/98
9	BIO-S-001-00-05-3 MS	33609.08MSD	04/20/98	
10	BIO-S-001-00-07-1 10	33609.09	04/20/98	04/23/98
11	BIO-S-001-00-07-2 10	33609.10	04/20/98	04/23/98
12	BIO-S-001-00-07-3 10	33609.11	04/20/98	04/23/98
13	BIO-S-001-00-09-1 10	33609.12	04/20/98	04/23/98
14	BIO-S-001-00-09-1FD	33609.13	04/20/98	04/23/98
15	BIO-S-001-00-09-2 10	33609.14	04/20/98	04/23/98
16	BIO-S-001-00-09-3 10	33609.15	04/20/98	04/23/98
17	BIO-S-001-00-11-1 10	33609.16	04/20/98	04/23/98
18	BIO-S-001-00-11-2 10	33609.17	04/20/98	04/25/98
19	BIO-S-001-00-11-3 10	33609.18	04/20/98	04/23/98
20	BIO-S-001-05-3 MS 10	33609.07MS	04/20/98	
21				
22				
23				
24				
25				

FORM IV

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0416WH

Lab Code: SWOK Case No: MKF-OH SDG No:33609

Matrix: (soil/water) Water

Date Extracted: Extn. Method: DIRECT

Date Analyzed (1): 04/18/98 Date Analyzed(2): 04/21/98

Time Analyzed (1): 02:45:42 Time Analyzed(2): 05:45:15

Instrument ID (1): IN13 Instrument ID(2): IN10

LC Column ID (1): CARB-06 LC Column ID (2): LC-CN-10

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC'S.

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	LC0416WH	LC0416WH	04/18/98	
2	LD0416WH	LD0416WH	04/18/98	
3	BIO-RB-041598	33609.19	04/18/98	
4				
5				
7				
8				
9				
10				
11				
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23				
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25				

page 1

FORM IV

4C

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0417SG

Lab Code: SWOK Case No: MKF-OH SDG No:33609

Matrix: (soil/water) Soil

Date Extracted: 04/17/98 Extn. Method:

Date Analyzed (1): 04/25/98 Date Analyzed(2):

Time Analyzed (1): 00:28:34 Time Analyzed(2):

Instrument ID (1): LC4 Instrument ID(2):

LC Column ID (1): LC Column ID (2):

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC'S.

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	LC0417SG	LC0417SG	04/25/98	
2	LD0417SG	LD0417SG	04/25/98	
3	BIO-S-001-00-03-1	33609.01	04/25/98	
4	BIO-S-001-00-03-2	33609.02	04/25/98	
5	BIO-S-001-00-03-3	33609.03	04/25/98	
	BIO-S-001-00-05-1	33609.04	04/25/98	
7	BIO-S-001-00-05-2	33609.05	04/25/98	
8	BIO-S-001-00-05-3	33609.06	04/25/98	
9	BIO-S-001-00-05-3	33609.07MS	04/25/98	
10	BIO-S-001-00-05-3	33609.08MSD	04/25/98	
11	BIO-S-001-00-07-1	33609.09	04/25/98	
12	BIO-S-001-00-07-2	33609.10	04/25/98	
13	BIO-S-001-00-07-3	33609.11	04/25/98	
14	BIO-S-001-00-09-1	33609.12	04/25/98	
15	BIO-S-001-00-09-1FD	33609.13	04/25/98	
16	BIO-S-001-00-09-2	33609.14	04/25/98	
17	BIO-S-001-00-09-3	33609.15	04/25/98	
18	BIO-S-001-00-11-1	33609.16	04/25/98	
19	BIO-S-001-00-11-2	33609.17	04/25/98	
20	BIO-S-001-00-11-3	33609.18	04/25/98	
21				
22				
23				
24				
25				

FORM IV

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0416WH

Lab Code: SWOK Case No: MKF-OH SDG No:33609

Matrix: (soil/water) Water

Date Extracted: 04/15/98 Extn. Method:

Date Analyzed (1): 04/21/98 Date Analyzed(2):

Time Analyzed (1): 00:00:03 Time Analyzed(2):

Instrument ID (1): LC4 Instrument ID(2):

LC Column ID (1): 1 LC Column ID (2):

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC'S.

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	LC0416WH	LC0416WH	04/21/98	
2	LD0416WH	LD0416WH	04/21/98	
3	BIO-RB-041598	33609.19	04/21/98	
4				
5				
7				
8				
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25				

FORM IV

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-03
-1 100X

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.01

Sample Amt: 2g % Moisture 40.68 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	76600	J
121-82-4	RDX	616000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	25000	
1946-51-0	4ADNT	5610	JP
35572-78-2	2ADNT	12500	U
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

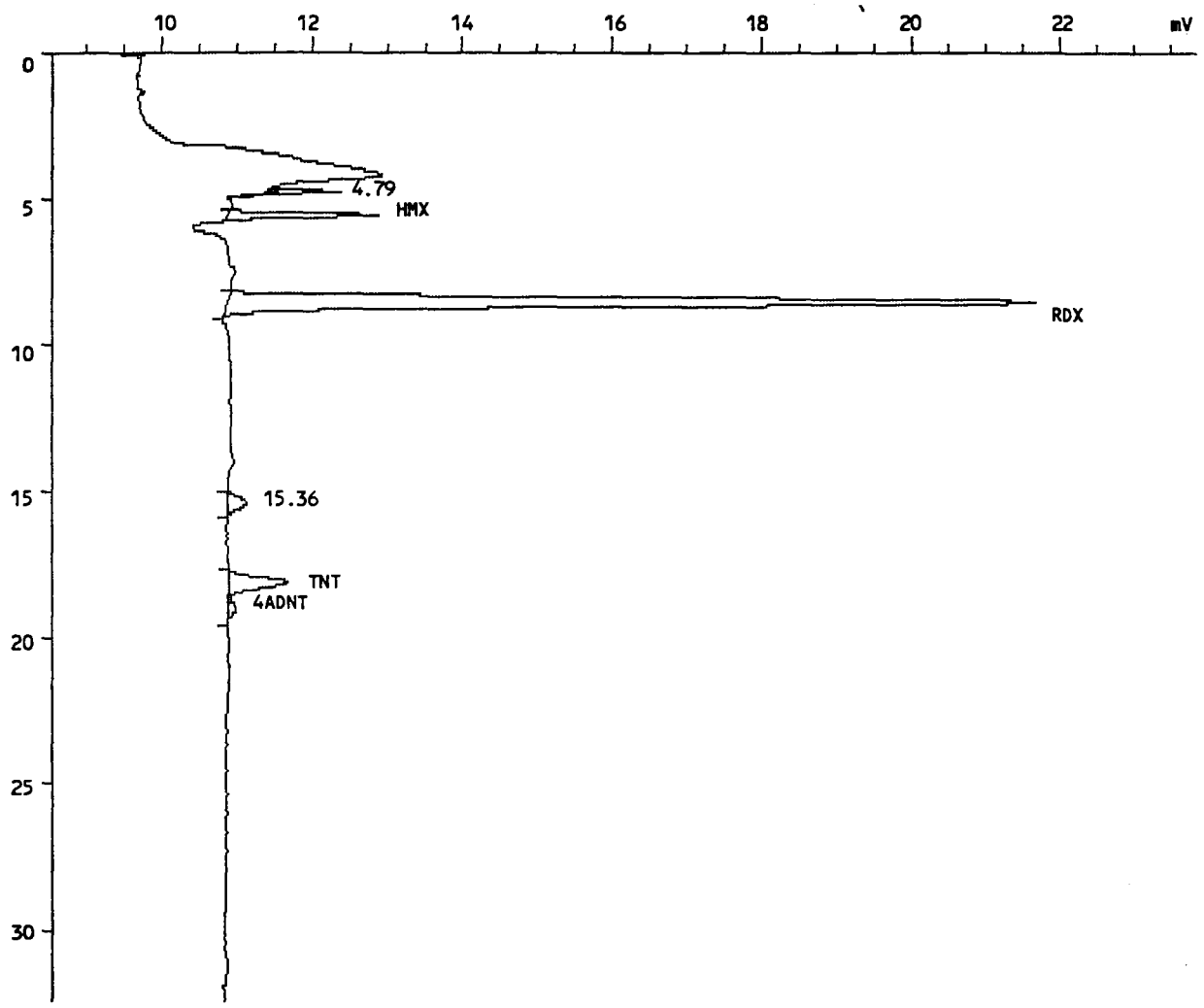
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,13,1

Sample name.....: BIO-S-001-00-03-1 100X
Sample ID.....: 33609.01
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 04:38:57
Reported on 08-May-98 at 12:55:44



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,13,1

Acquired on 20-Apr-98 at 04:38:57
Modified on 08-May-82 at 12:54:38
Reported on 08-May-98 at 12:54:50

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 07-May-82 at 09:10:22
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-03-1 100X
Sample ID.....: 33609.01
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

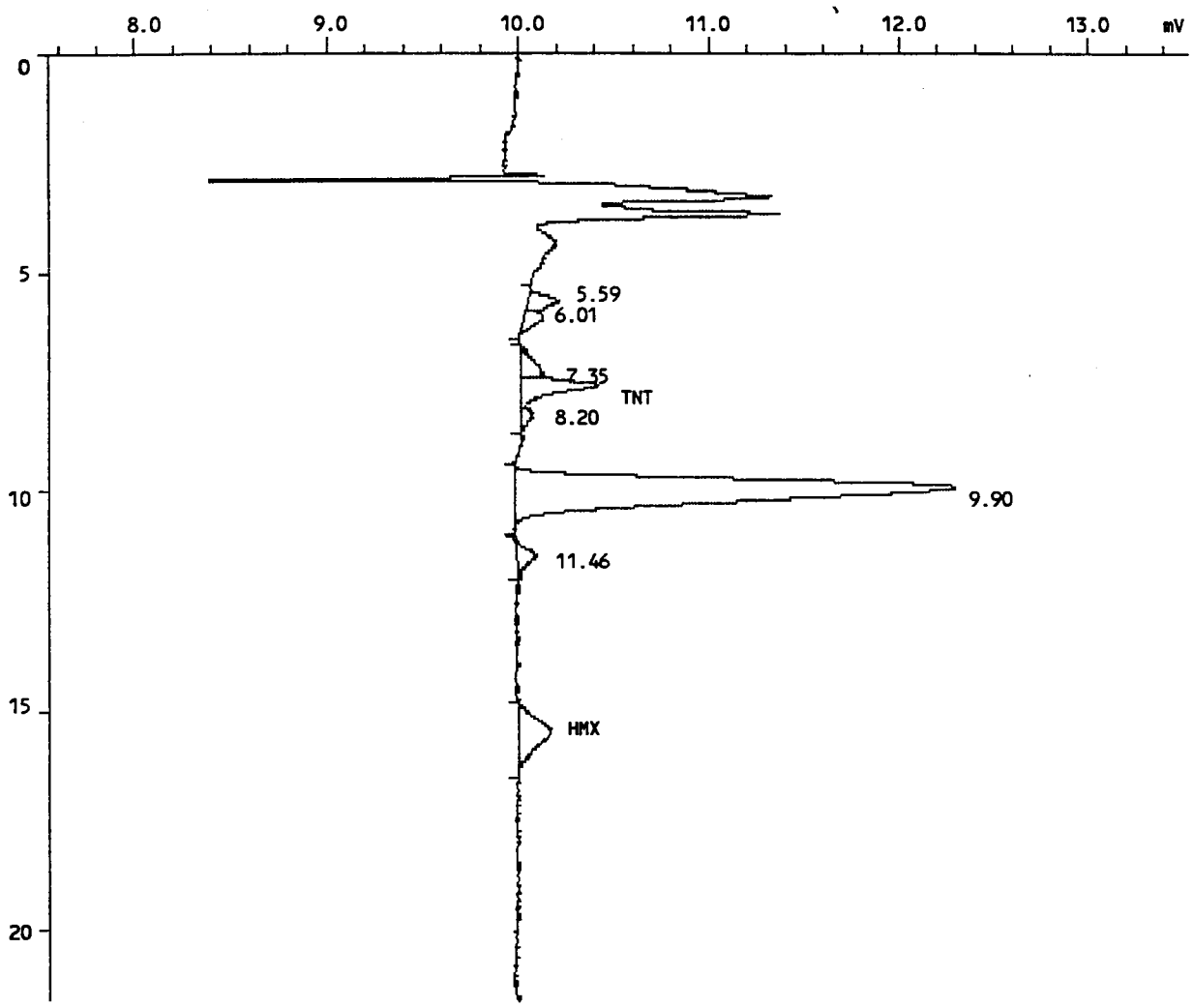
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.584	2021	19900	76595.961	HMX *
3	8.501	10817	229772	615680.063	RDX *
5	18.123	782	20146	25020.201	TNT *
6	18.933	104	3254	5611.982	4ADNT * P
Total		13724	273072	722908.188	
Residual		1345	14731	48711.621	

LONG PLOT

Injection F: <MC3> 3 3CN0420A,8,1

Sample name.....: BIO-S-001-00-03-1 100X
Sample ID.....: 33609.01
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 21-Apr-98 at 10:11:22
Reported on 28-Apr-98 at 11:36:10



INJECTION REPORT

Injection F: <MC3> 3 3CN0420A,8,1

Acquired on 21-Apr-98 at 10:11:22
Modified on 28-Apr-82 at 11:35:40
Reported on 28-Apr-98 at 11:35:46

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 29
Calibration file..: 3CN0420A Last modified on 23-Apr-82 at 20:38:30
Method file.....: LCCN Last modified on 28-Apr-82 at 11:21:18
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-03-1 100X
Sample ID.....: 33609.01
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

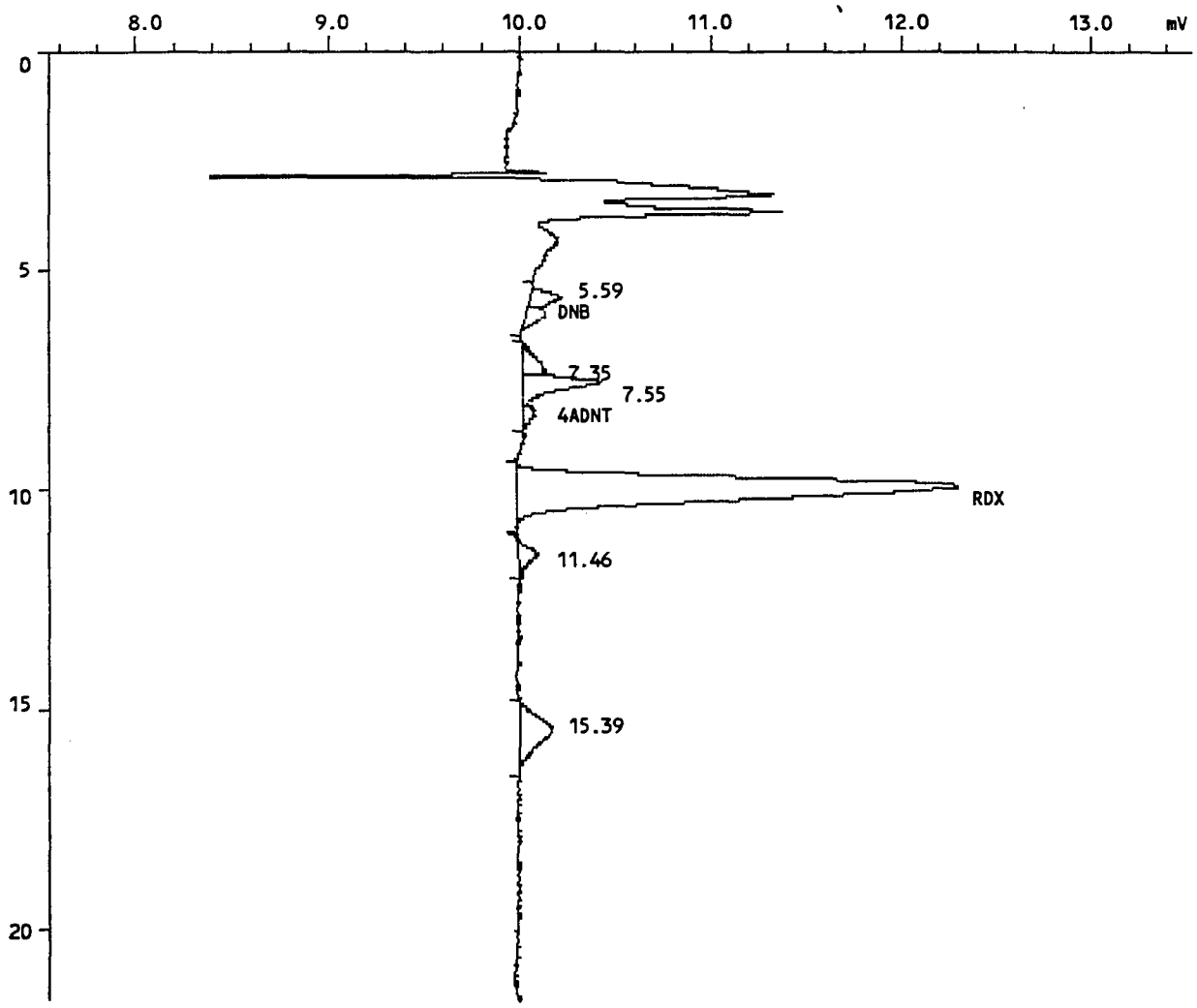
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
4	7.547	414	7929	31919.674	TNT
8	15.392	170	7729	76294.922	HMX
Total		584	15658	108214.594	
Residual		2893	87847	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0420A,8,1

Sample name.....: BIO-S-001-00-03-1 100X
Sample ID.....: 33609.01
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 21-Apr-98 at 10:11:22
Reported on 28-Apr-98 at 11:36:55



INJECTION REPORT

Injection F: <MC3> 3 3CN0420A,8,1

Acquired on 21-Apr-98 at 10:11:22
Modified on 28-Apr-82 at 11:36:38
Reported on 28-Apr-98 at 11:36:40

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 29
Calibration file..: 3CN0420B Last modified on 22-Apr-82 at 12:17:16
Method file.....: LCCN Last modified on 28-Apr-82 at 11:21:18
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-03-1 100X
Sample ID.....: 33609.01
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.005	108	2324	6650.398	DNB
5	8.203	66	1258	8002.864	4ADNT
6	9.904	2327	76134	610048.313	RDX
Total		2501	79716	624701.563	
Residual		976	23788	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-03-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.01

Sample Amt: 2g % Moisture 40.68 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

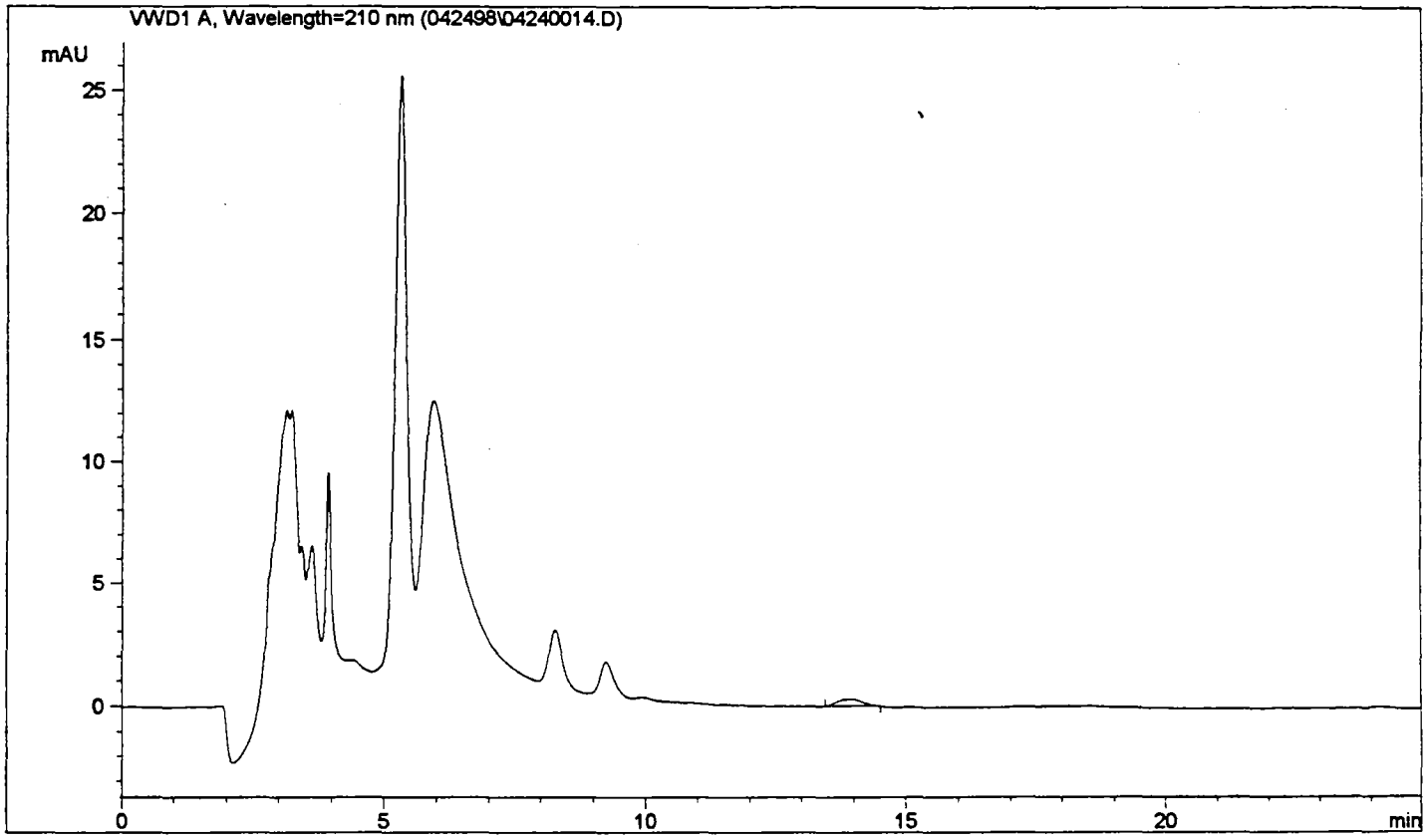
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 14
Sample Name	: 33609.01	Vial No.	: 14
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



==========

Customized Report: extstd.frp

==========

Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
13.921	BBA	10.13047	0.00000	0.00000	
Totals:				0.00000	

28

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-03-2 100X

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.02

Sample Amt: 2g % Moisture 34.38 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	181000	
121-82-4	RDX	1490000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	86300	
1946-51-0	4ADNT	10900	J
35572-78-2	2ADNT	12500	U
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

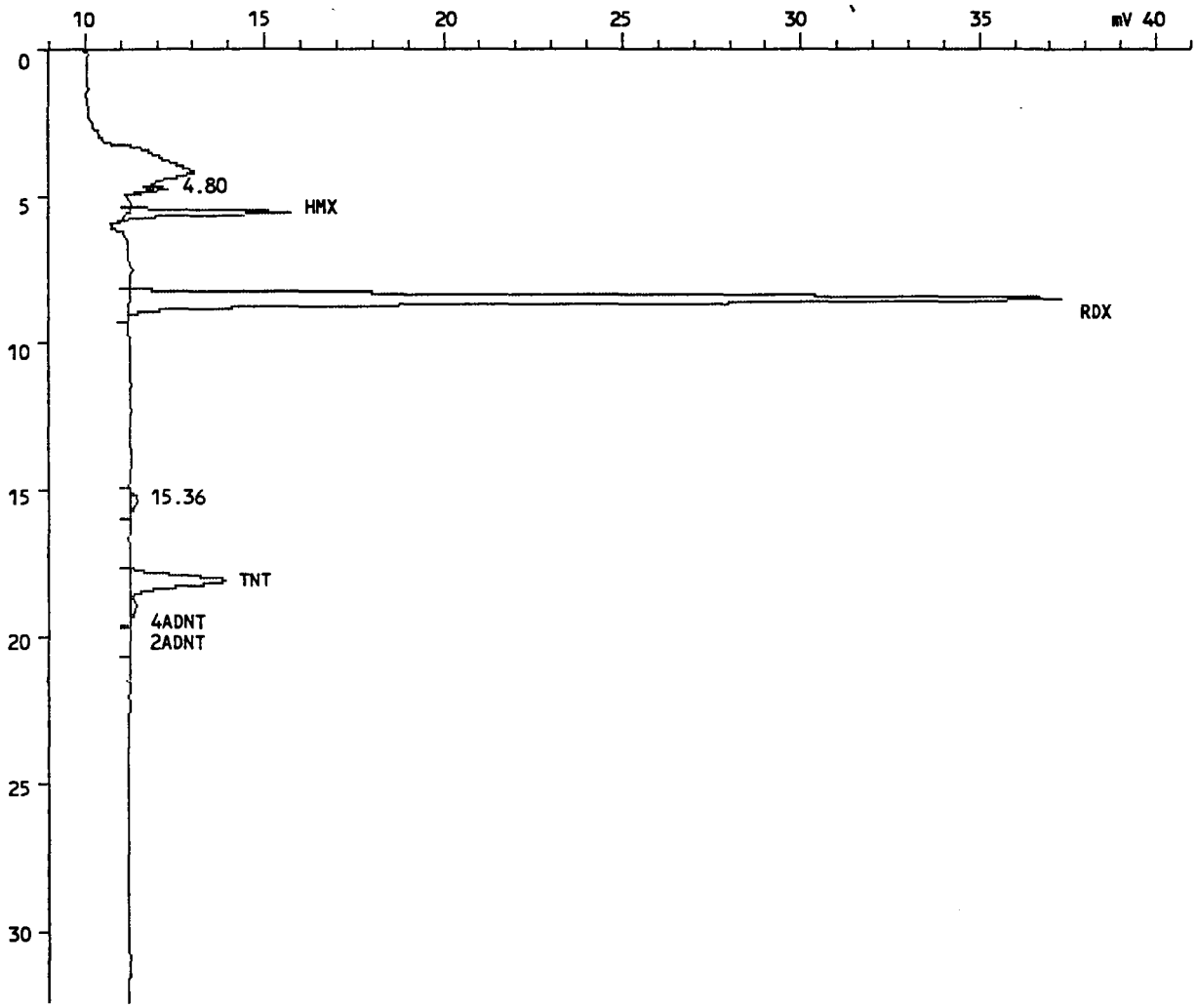
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,14,1

Sample name.....: BIO-S-001-00-03-2 100X
Sample ID.....: 33609.02
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 05:23:34
Reported on 08-May-98 at 12:56:25



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,14,1

Acquired on 20-Apr-98 at 05:23:34
Modified on 08-May-82 at 12:56:06
Reported on 08-May-98 at 12:56:07

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 12:55:40
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-03-2 100X
Sample ID.....: 33609.02
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

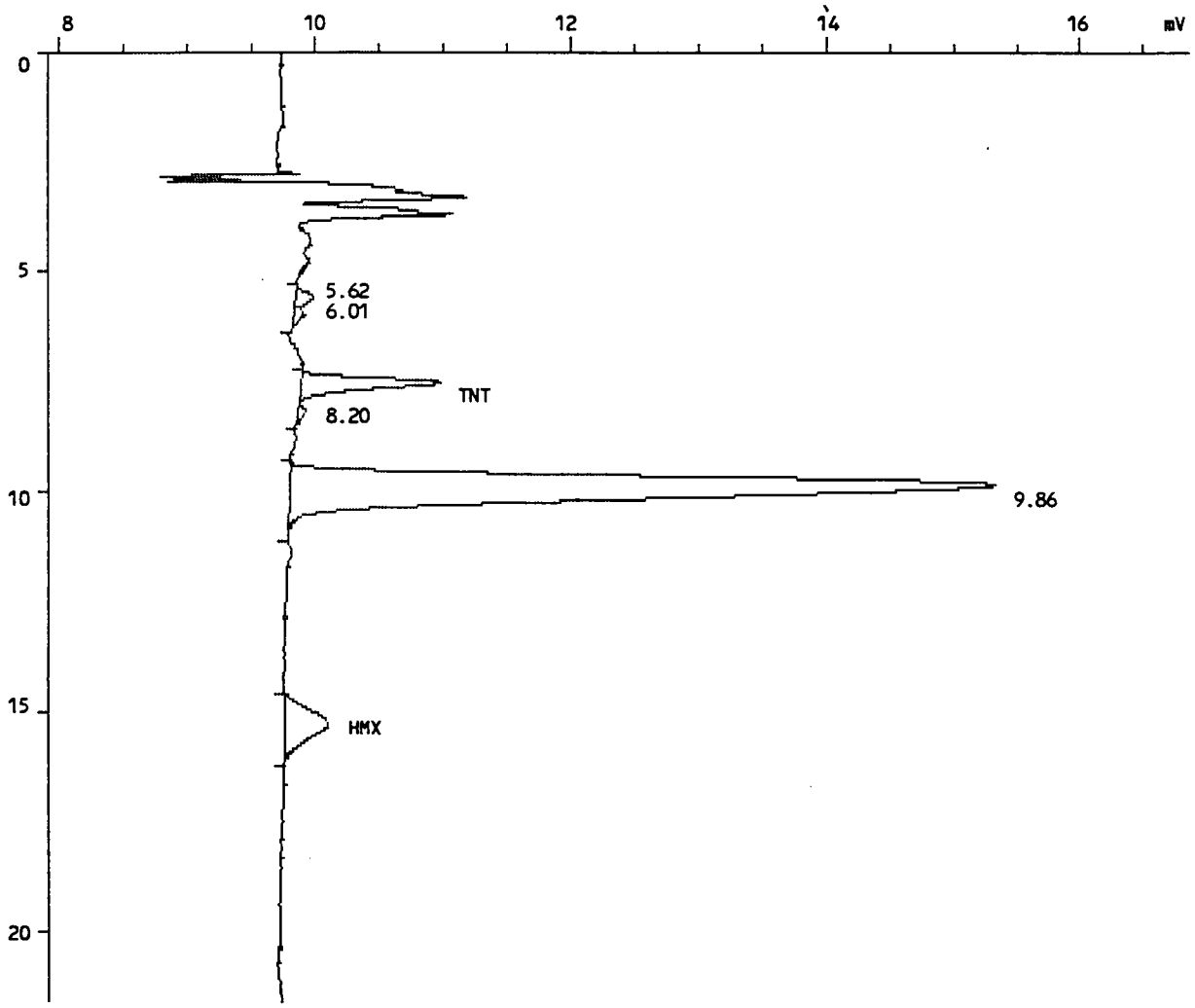
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.584	4520	47101	181297.234	HMX *
3	8.496	26066	555140	1487513.125	RDX *
5	18.112	2665	69499	86312.820	TNT *
6	19.072	198	6302	10870.038	4ADNT *
7	19.968	55	1394	1715.812	2ADNT
Total		33505	679437	1767709.000	
Residual		914	11176	35061.477	

LONG PLOT

Injection F: <MC3> 3 3CN0420A,9,1

Sample name.....: BIO-S-001-00-03-2 100X
Sample ID.....: 33609.02
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 21-Apr-98 at 10:55:43
Reported on 25-Apr-98 at 20:03:49



INJECTION REPORT

Injection F: <MC3> 3 3CN0420A,9,1

Acquired on 21-Apr-98 at 10:55:43
Modified on 24-Apr-82 at 16:47:28
Reported on 24-Apr-98 at 16:47:30

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 29
Calibration file..: 3CN0420A Last modified on 23-Apr-82 at 20:38:30
Method file.....: LCCN Last modified on 24-Apr-82 at 16:46:58
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-03-2 100X
Sample ID.....: 33609.02
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

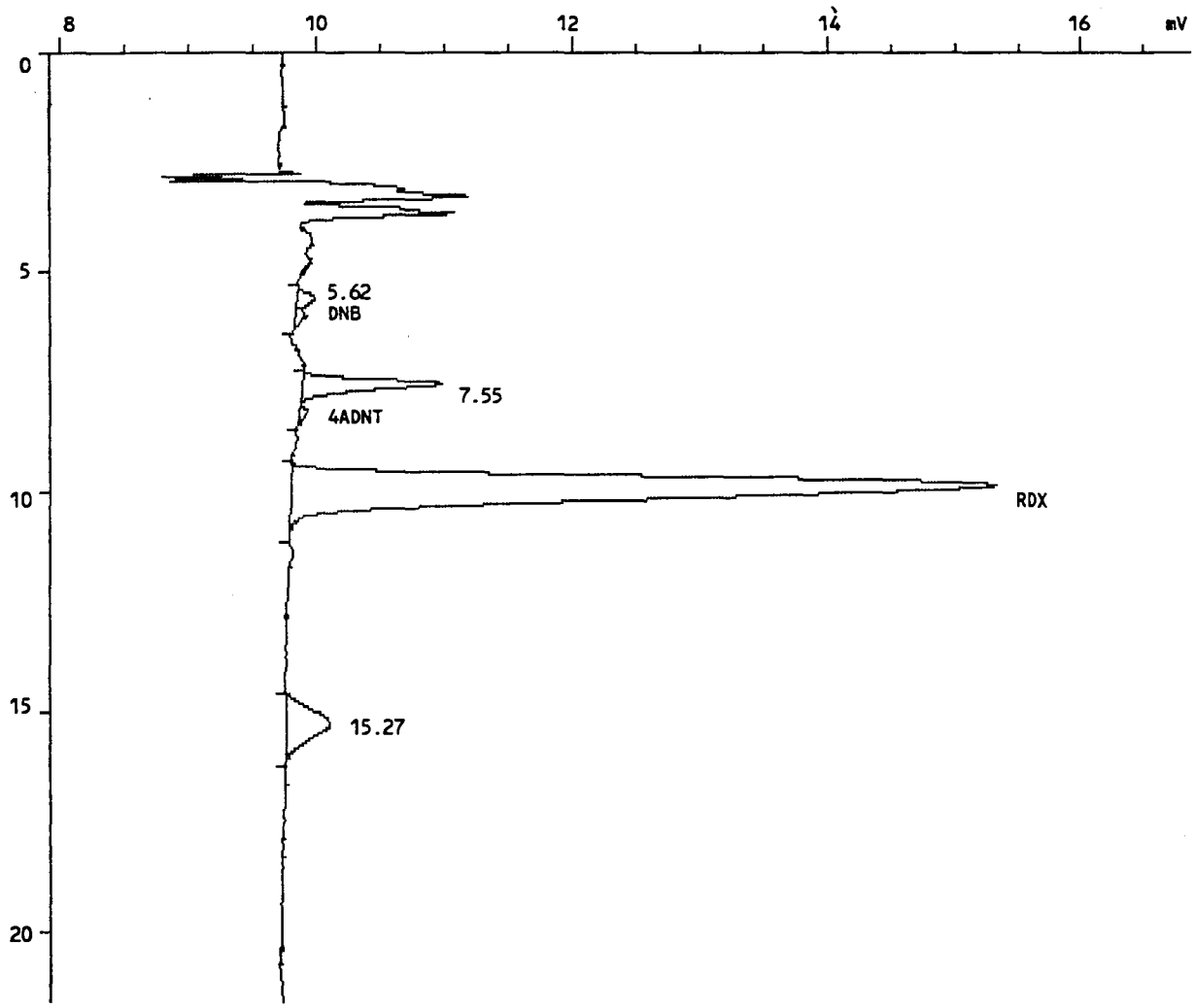
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	7.547	1098	18769	75560.633	TNT
6	15.275	345	15663	154622.516	HMX
Total		1444	34433	230183.156	
Residual		5843	186395	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0420A,9,1

Sample name.....: BIO-S-001-00-03-2 100X
Sample ID.....: 33609.02
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 21-Apr-98 at 10:55:43
Reported on 27-Apr-98 at 20:29:10



INJECTION REPORT

Injection F: <MC3> 3 3CN0420A,9,1

Acquired on 21-Apr-98 at 10:55:43
Modified on 27-Apr-82 at 20:27:40
Reported on 27-Apr-98 at 20:27:41

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 29
Calibration file..: 3CN0420B Last modified on 22-Apr-82 at 12:17:16
Method file.....: LCCN Last modified on 27-Apr-82 at 20:26:40
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-03-2 100X
Sample ID.....: 33609.02
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.011	90	1715	4907.957	DNB
4	8.203	72	1225	7789.812	4ADNT
5	9.856	5535	180807	1448777.500	RDX
Total		5697	183747	1461475.250	
Residual		1590	37080	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-03-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.02

Sample Amt: 2g % Moisture 34.38 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

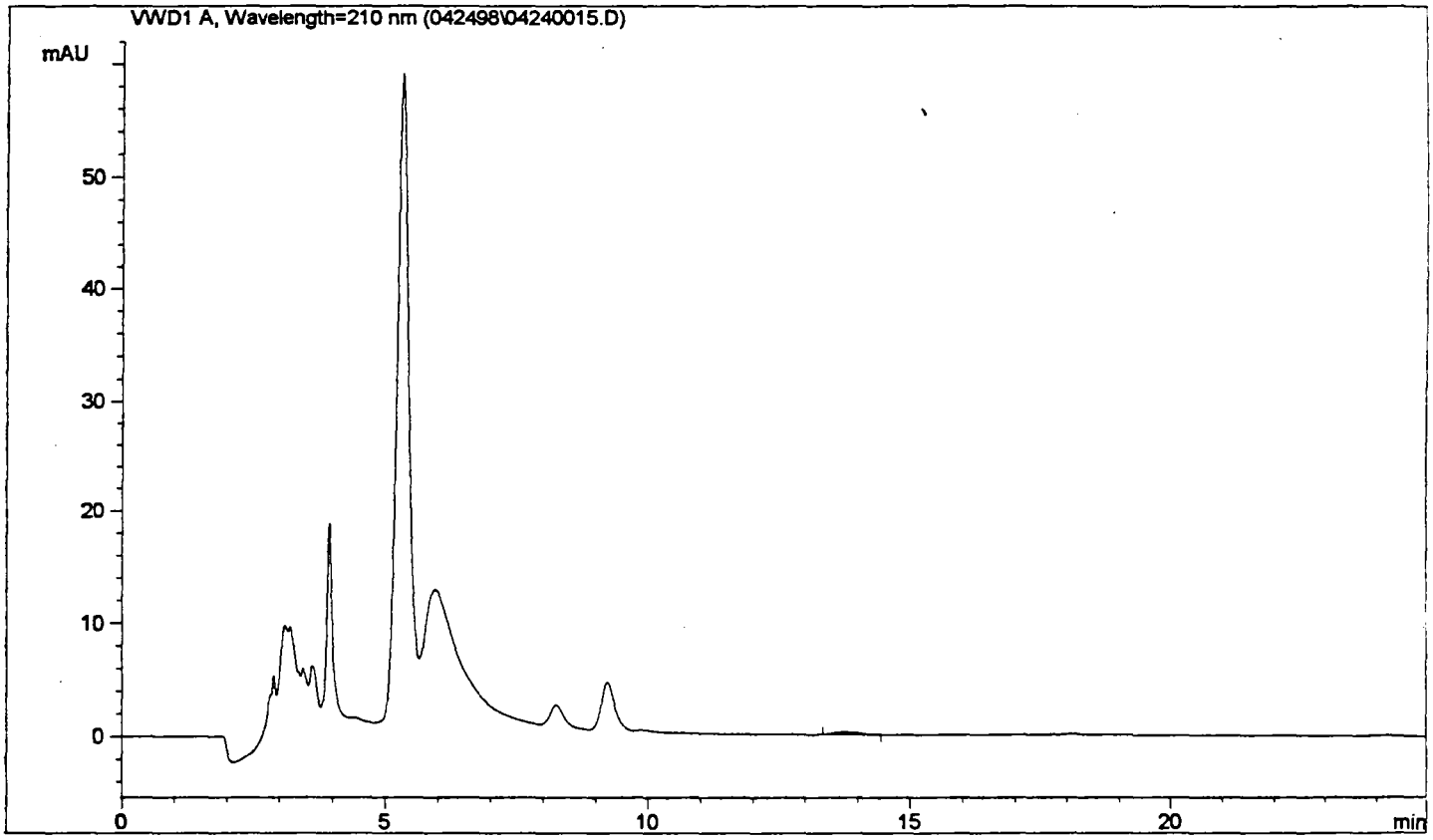
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 15
Sample Name	: 33609.02	Vial No.	: 15
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
13.734	BB	7.86427	0.00000	0.00000	

Totals: 0.00000

37

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-03-3 100X

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.03

Sample Amt: 2g % Moisture 34.76 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	157000	
121-82-4	RDX	1140000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	79800	
1946-51-0	4ADNT	20000	
35572-78-2	2ADNT	3660	J
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

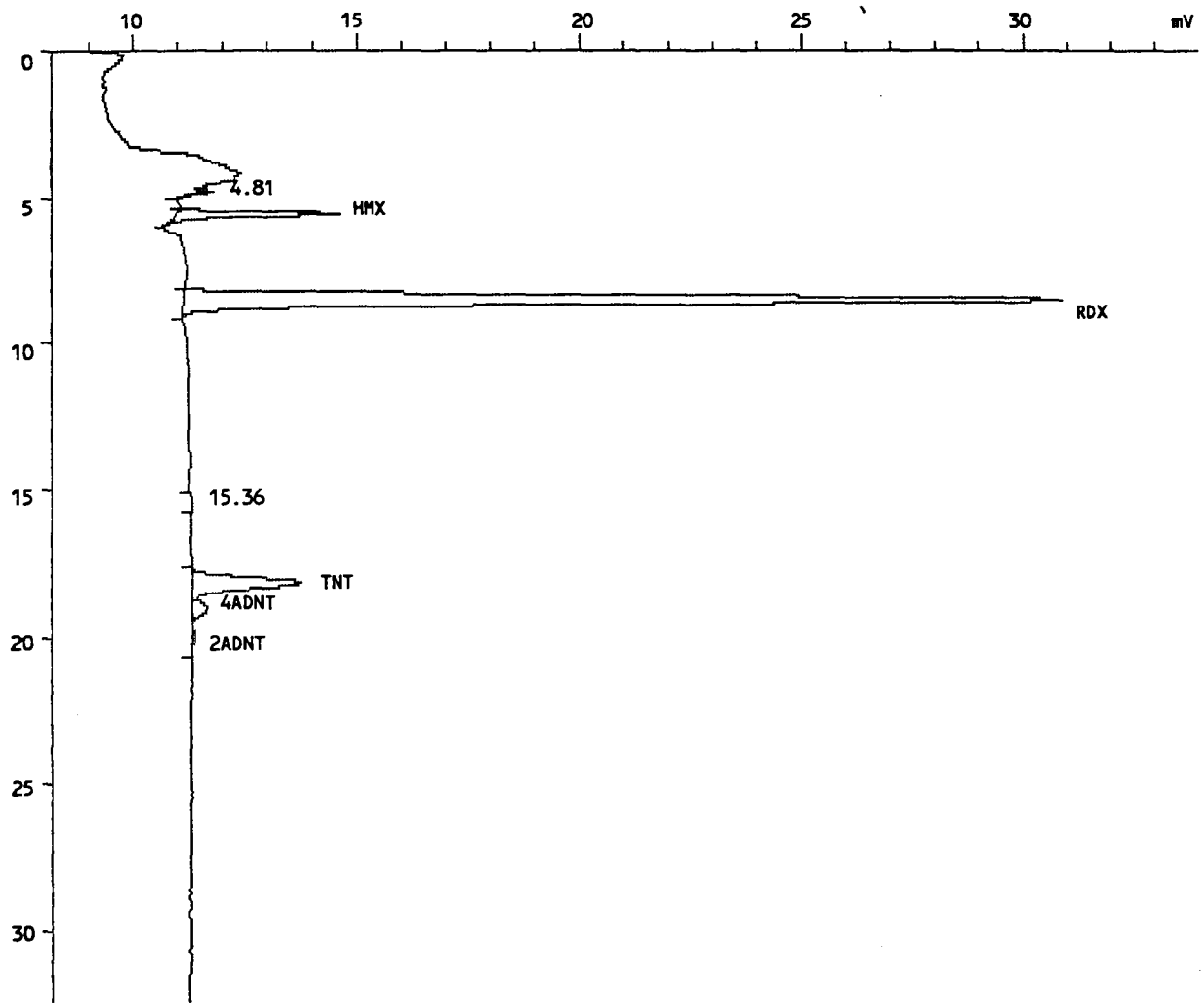
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,15,1

Sample name.....: BIO-S-001-00-03-3 100X
Sample ID.....: 33609.03
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 06:08:12
Reported on 08-May-98 at 12:57:37



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,15,1

Acquired on 20-Apr-98 at 06:08:12
Modified on 08-May-82 at 12:57:16
Reported on 08-May-98 at 12:57:18

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 12:55:40
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-03-3 100X
Sample ID.....: 33609.03
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

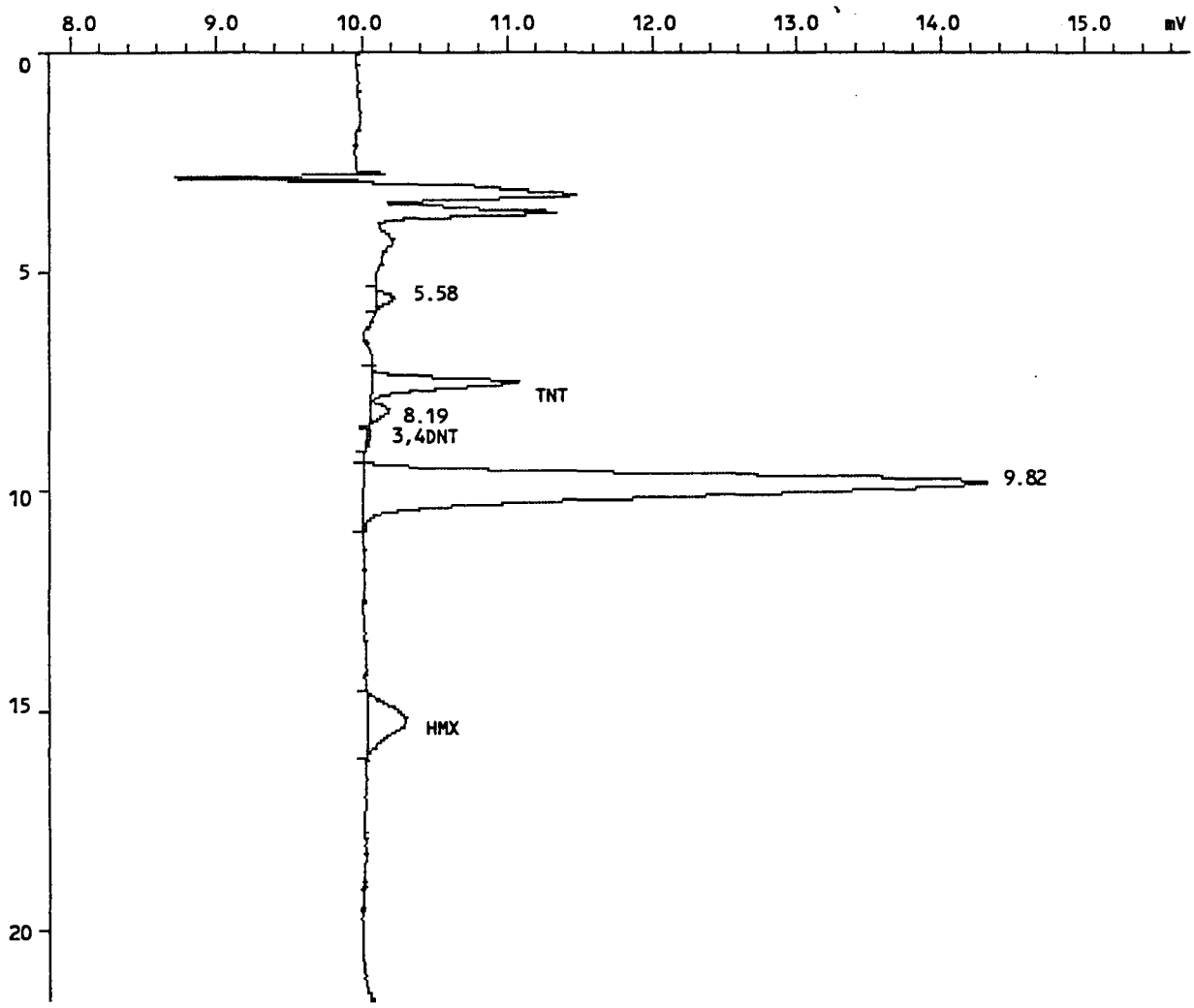
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.584	3738	40776	156950.391	HMX *
3	8.496	19774	425828	1141019.125	RDX *
5	18.123	2438	64297	79852.648	TNT *
6	18.960	358	11591	19990.787	4ADNT *
7	20.091	89	2974	3660.316	2ADNT *
Total		26397	545467	1401473.250	
Residual		491	4318	15731.261	

LONG PLOT

Injection F: <MC3> 3 3CN0420A,10,1

Sample name.....: BIO-S-001-00-03-3 100X
Sample ID.....: 33609.03
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 21-Apr-98 at 11:40:04
Reported on 28-Apr-98 at 11:44:52



INJECTION REPORT

Injection F: <MC3> 3 3CN0420A,10,1

Acquired on 21-Apr-98 at 11:40:04
Modified on 28-Apr-82 at 11:43:26
Reported on 28-Apr-98 at 11:43:29

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 29
Calibration file..: 3CN0420A Last modified on 23-Apr-82 at 20:38:30
Method file.....: LCCN Last modified on 28-Apr-82 at 11:21:18
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-03-3 100X
Sample ID.....: 33609.03
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

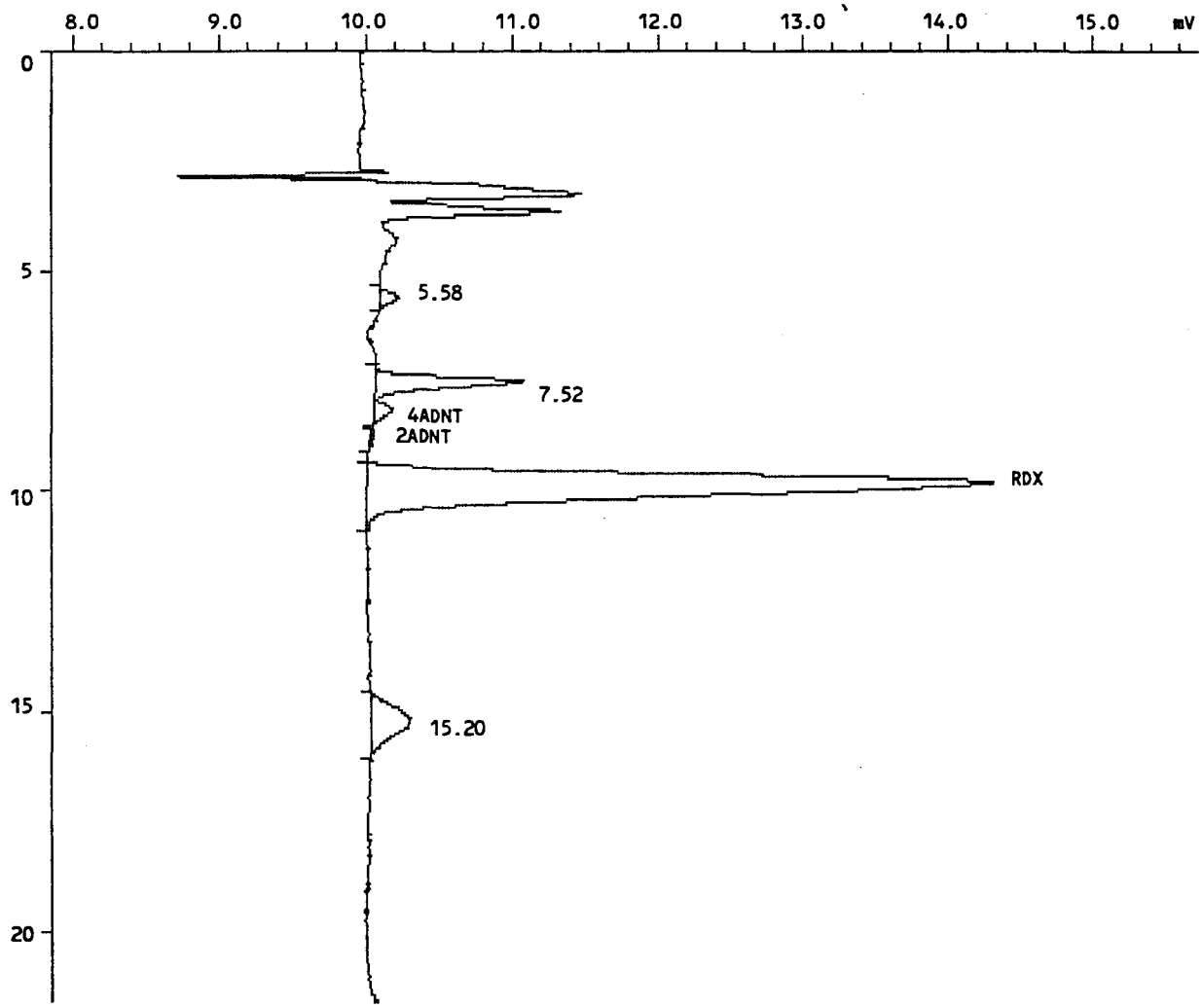
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.520	1019	17375	69945.672	TNT
4	8.859	33	502	3855.432	3,4DNT
6	15.200	271	11900	117471.547	HMX
Total		1324	29776	191272.656	
Residual		4560	144951	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0420A,10,1

Sample name.....: BIO-S-001-00-03-3 100X
Sample ID.....: 33609.03
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 21-Apr-98 at 11:40:04
Reported on 28-Apr-98 at 11:43:01



INJECTION REPORT

Injection F: <MC3> 3 3CN0420A,10,1

Acquired on 21-Apr-98 at 11:40:04
Modified on 28-Apr-82 at 11:42:26
Reported on 28-Apr-98 at 11:42:40

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 29
Calibration file..: 3CN0420B Last modified on 22-Apr-82 at 12:17:16
Method file.....: LCCN Last modified on 28-Apr-82 at 11:21:18
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-03-3 100X
Sample ID.....: 33609.03
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	8.192	138	2618	16652.412	4ADNT
4	8.859	33	502	2043.881	2ADNT
5	9.819	4290	140363	1124702.750	RDX
Total		4462	143483	1143399.000	
Residual		1421	31245	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-03-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.03

Sample Amt: 2g % Moisture 34.76 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

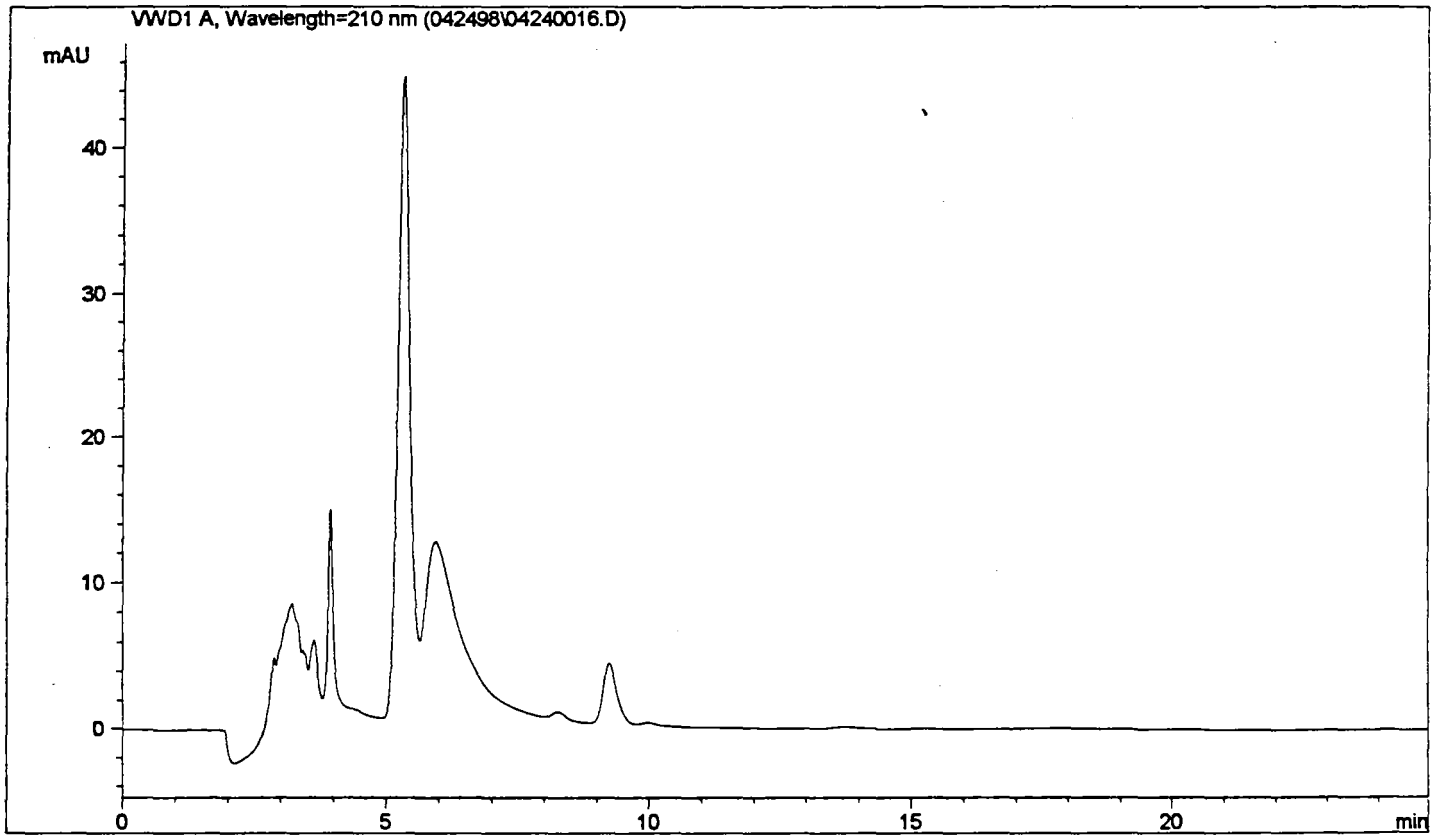
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 16
Sample Name	: 33609.03	Vial No.	: 16
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN

Totals: 0.00000

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*** End of Report ***

45A

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-05
-1 100X

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.04

Sample Amt: 2g % Moisture 27.77 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	178000	
121-82-4	RDX	1470000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	216000	
1946-51-0	4ADNT	21100	
35572-78-2	2ADNT	6110	JP
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

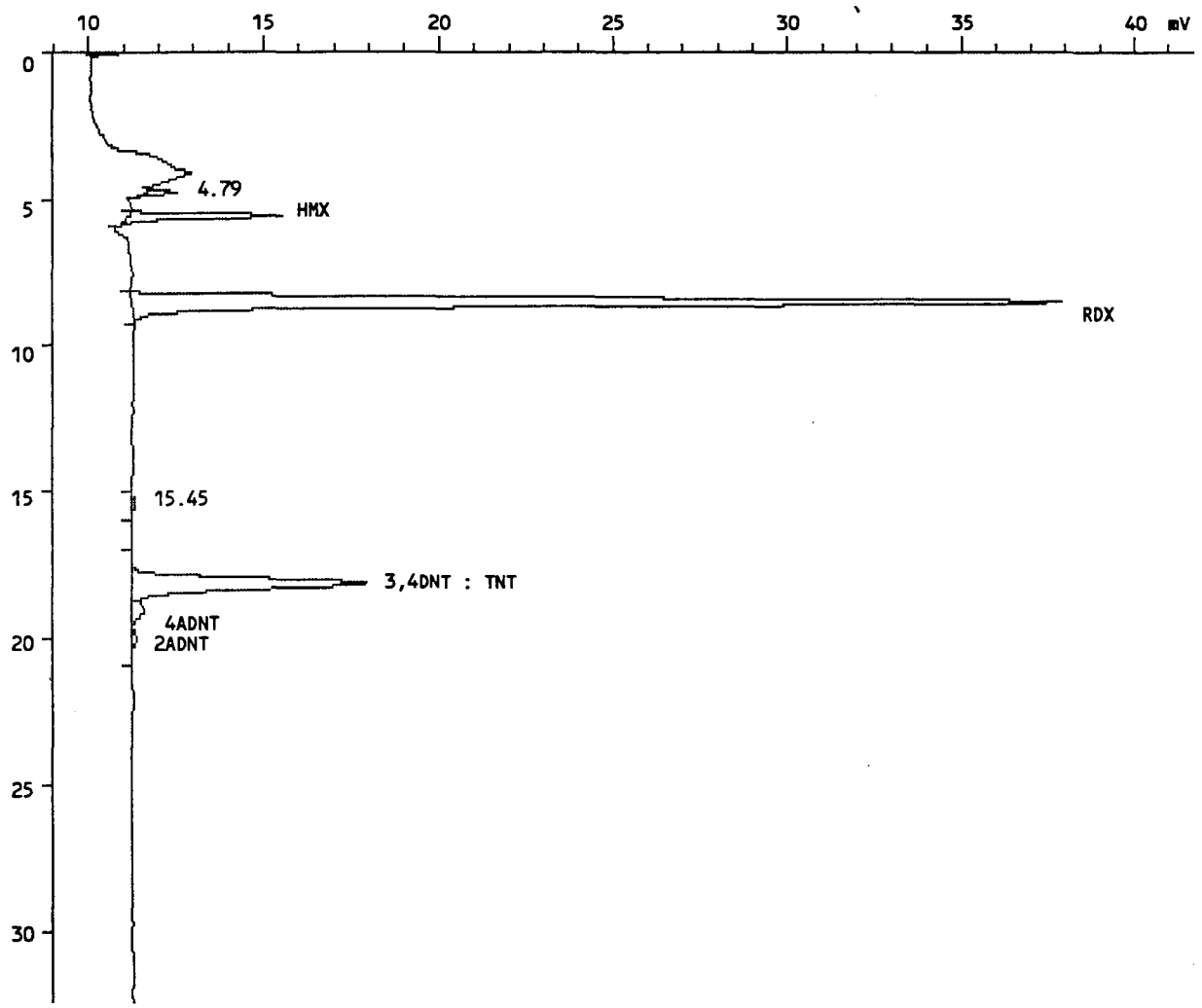
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,16,1

Sample name.....: BIO-S-001-00-05-1 100X
Sample ID.....: 33609.04
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 06:52:49
Reported on 08-May-98 at 12:58:21



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,16,1

Acquired on 20-Apr-98 at 06:52:49
Modified on 08-May-82 at 12:57:58
Reported on 08-May-98 at 12:58:00

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 12:55:40
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-05-1 100X
Sample ID.....: 33609.04
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

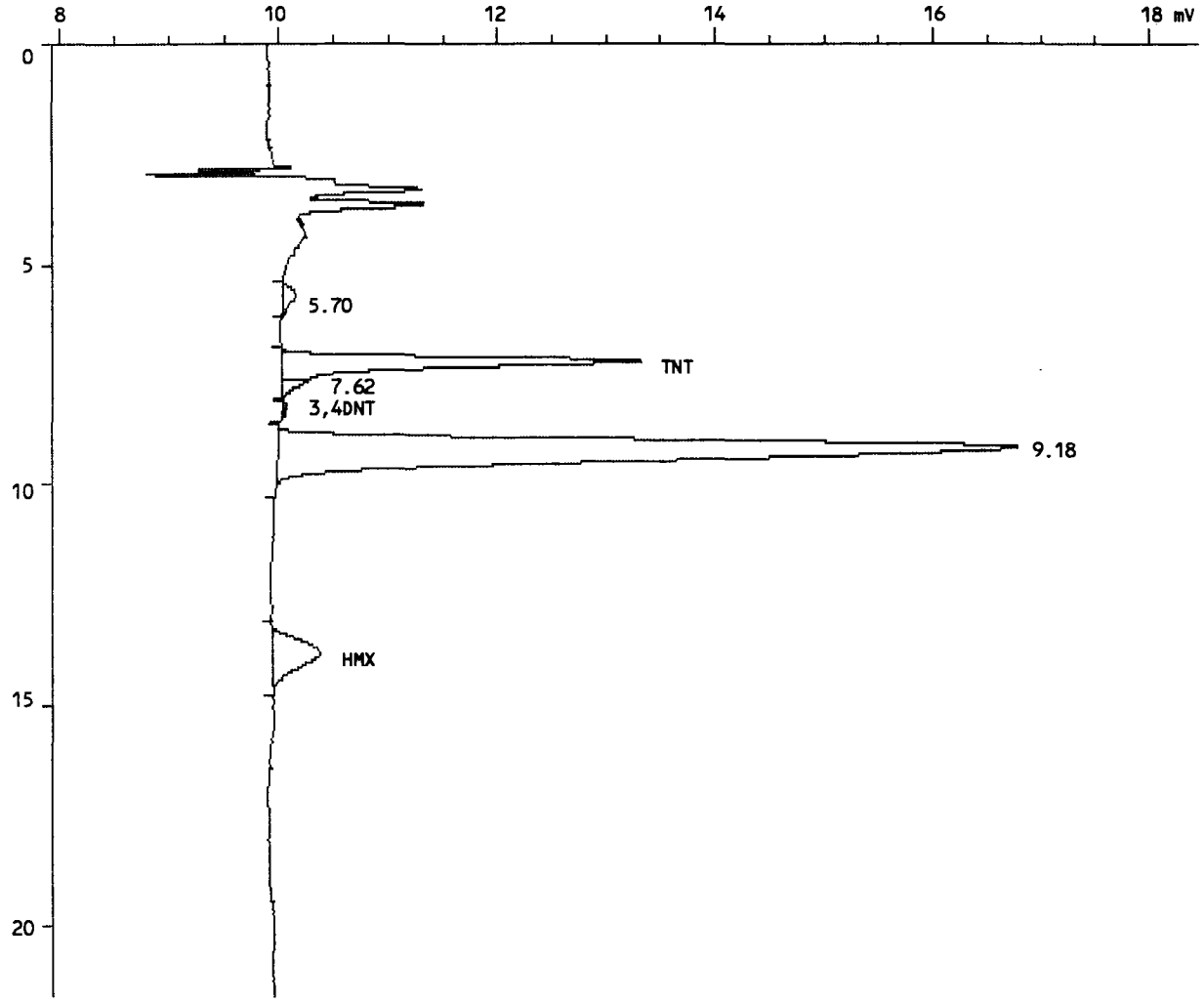
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.595	4462	46344	178384.234	HMX *
3	8.512	26695	547890	1468086.375	RDX *
5	17.616	65	1292	2766.754	3,4DNT 138
6	18.149	6656	173722	215749.922	TNT *
7	19.035	380	12221	21078.436	4ADNT *
8	20.000	140	4968	6113.913	2ADNT * P
Total		38399	786437	1892179.500	
Residual		1095	10664	37762.492	

LONG PLOT

Injection F: <MC3> 3 3CN0422A,1,1

Sample name.....: BIO-S-001-00-05-1 100X
Sample ID.....: 33609.04
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 06:55:34
Reported on 09-May-98 at 16:34:54



INJECTION REPORT

Injection F: <MC3> 3 3CN0422A,1,1

Acquired on 23-Apr-98 at 06:55:34
Modified on 09-May-82 at 16:33:20
Reported on 09-May-98 at 16:33:20

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 40
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-05-1 100X
Sample ID.....: 33609.04
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

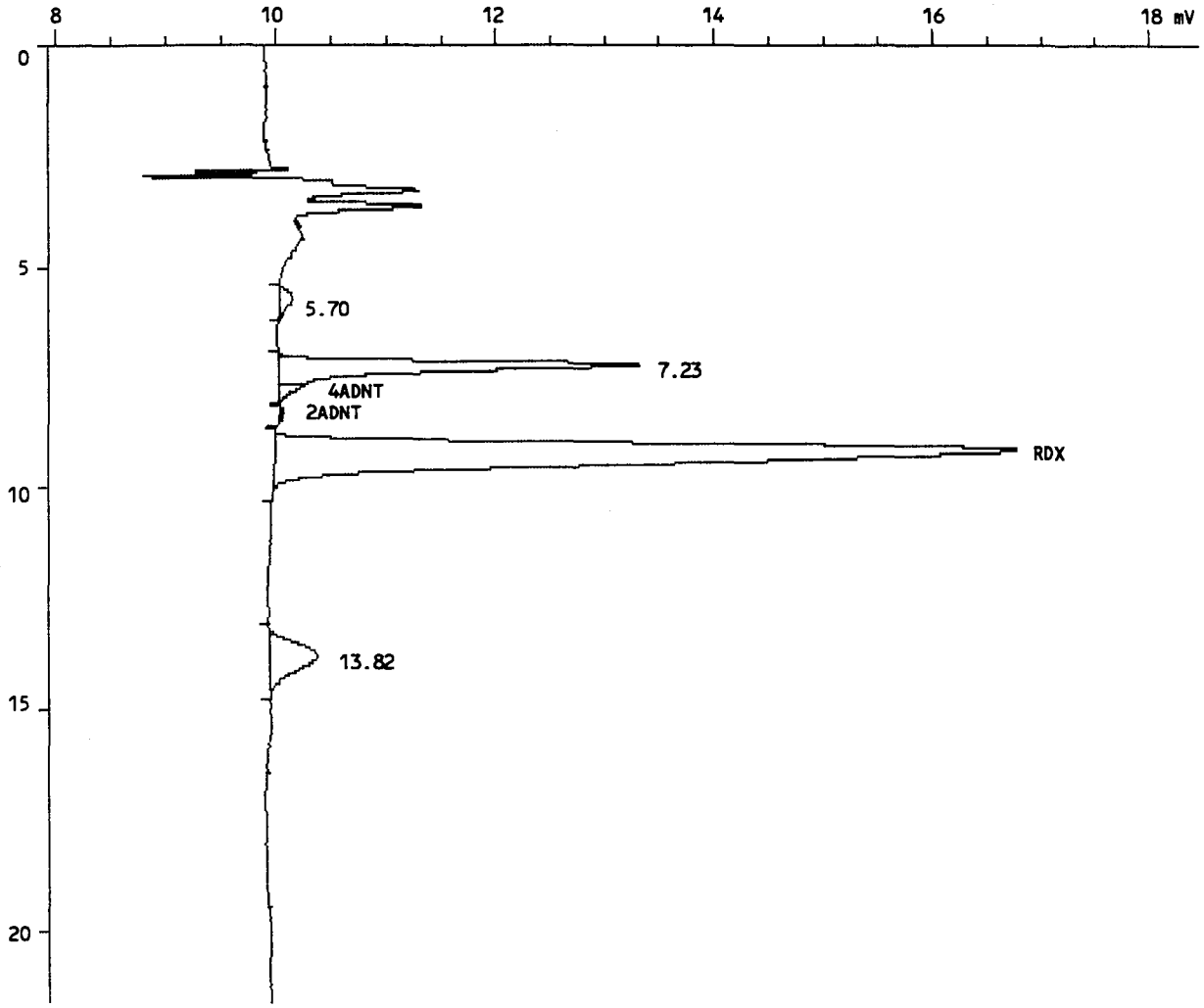
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.227	3298	54202	215771.656	TNT
4	8.304	47	669	5037.589	3,4DNT
6	13.819	444	18423	183676.141	HMX
Total		3789	73294	404485.375	
Residual		7194	209685	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422A,1,1

Sample name.....: BIO-S-001-00-05-1 100X
Sample ID.....: 33609.04
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 06:55:34
Reported on 09-May-98 at 16:37:28



INJECTION REPORT

Injection F: <MC3> 3 3CN0422A,1,1

Acquired on 23-Apr-98 at 06:55:34
Modified on 09-May-82 at 16:35:58
Reported on 09-May-98 at 16:35:58

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 40
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-05-1 100X
Sample ID.....: 33609.04
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	7.621	262	3430	21614.541	4ADNT
4	8.304	47	669	2648.424	2ADNT
5	9.179	6809	203192	1531211.875	RDX
Total		7118	207291	1555474.875	
Residual		3865	75687	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-05-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.04

Sample Amt: 2g % Moisture 27.77 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

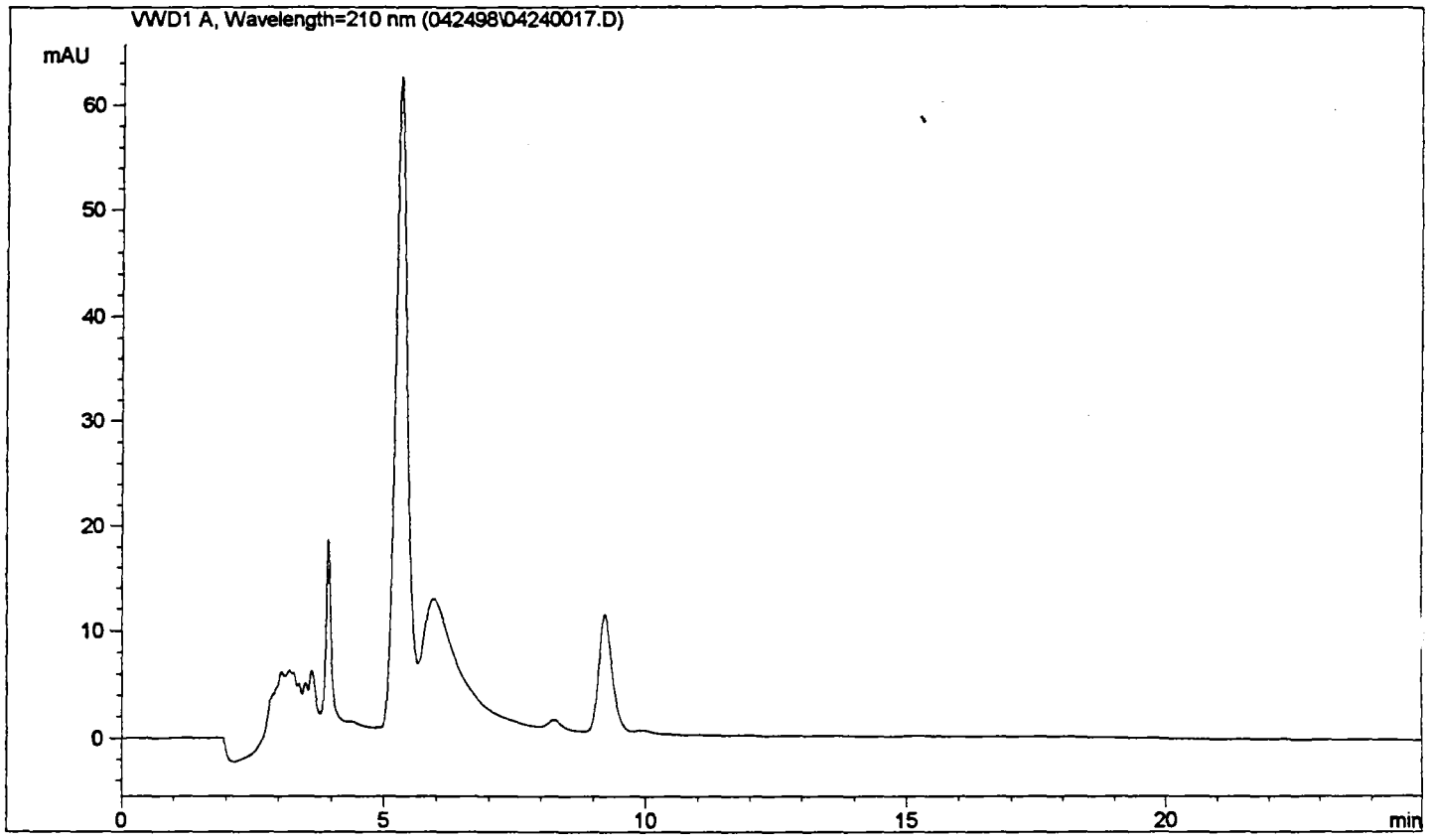
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 17
Sample Name	: 33609.04	Vial No.	: 17
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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*** End of Report ***

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-05
-2 100X

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.05

Sample Amt: 2g % Moisture 62.34 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	28800	J
121-82-4	RDX	163000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	3050	J
1946-51-0	4ADNT	2620	JP
35572-78-2	2ADNT	12500	U
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

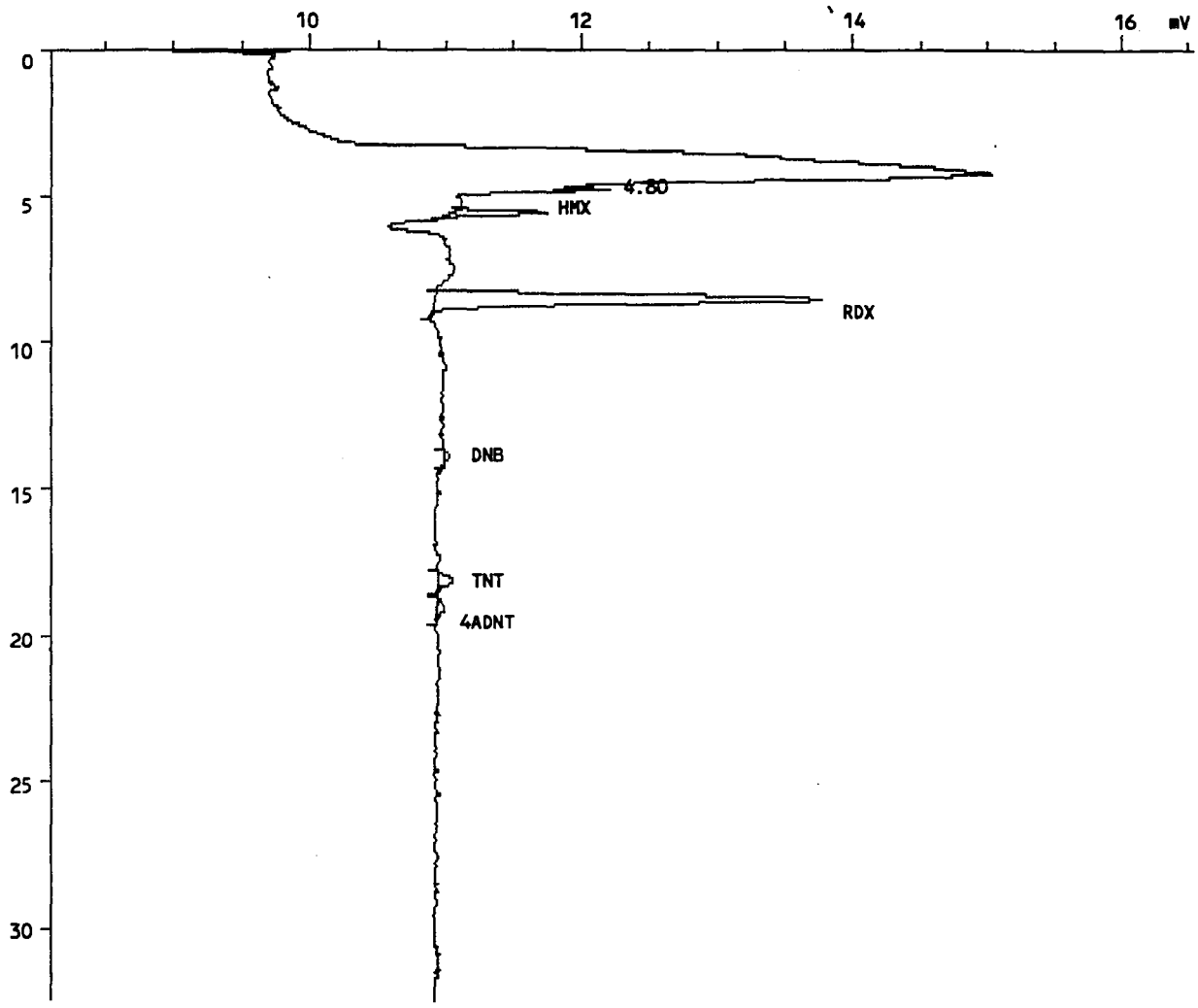
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,17,1

Sample name.....: BIO-S-001-00-05-2 100X
Sample ID.....: 33609.05
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 07:37:27
Reported on 08-May-98 at 13:11:29



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,17,1

Acquired on 20-Apr-98 at 07:37:27
Modified on 08-May-82 at 13:01:02
Reported on 08-May-98 at 13:01:02

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 13:00:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-05-2 100X
Sample ID.....: 33609.05
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

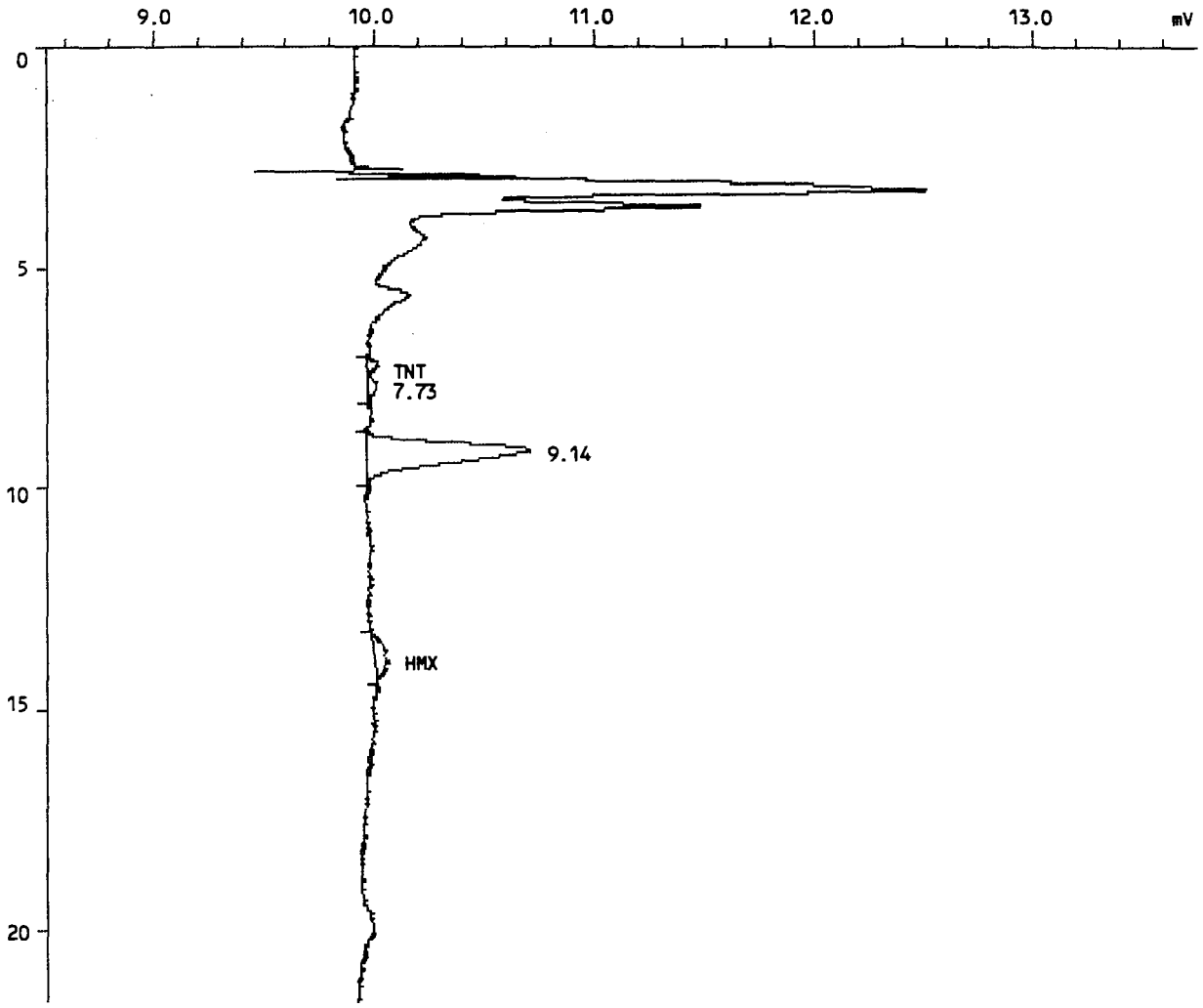
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.584	738	7496	28851.748	HMX
3	8.501	2876	60857	163068.141	RDX
4	13.883	42	627	578.704	DNB
5	18.096	120	2453	3046.150	TNT
6	19.083	60	1519	2620.466	4ADNT
Total		3835	72952	198165.219	
Residual		425	2385	9179.215	

LONG PLOT

Injection F: <MC3> 3 3CN0422A,2,1

Sample name.....: BIO-S-001-00-05-2 100X
Sample ID.....: 33609.05
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 07:39:55
Reported on 09-May-98 at 16:34:34



INJECTION REPORT

Injection F: <MC3> 3 3CN0422A,2,1

Acquired on 23-Apr-98 at 07:39:55
Modified on 09-May-82 at 16:33:32
Reported on 09-May-98 at 16:33:33

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 40
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-05-2 100X
Sample ID.....: 33609.05
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

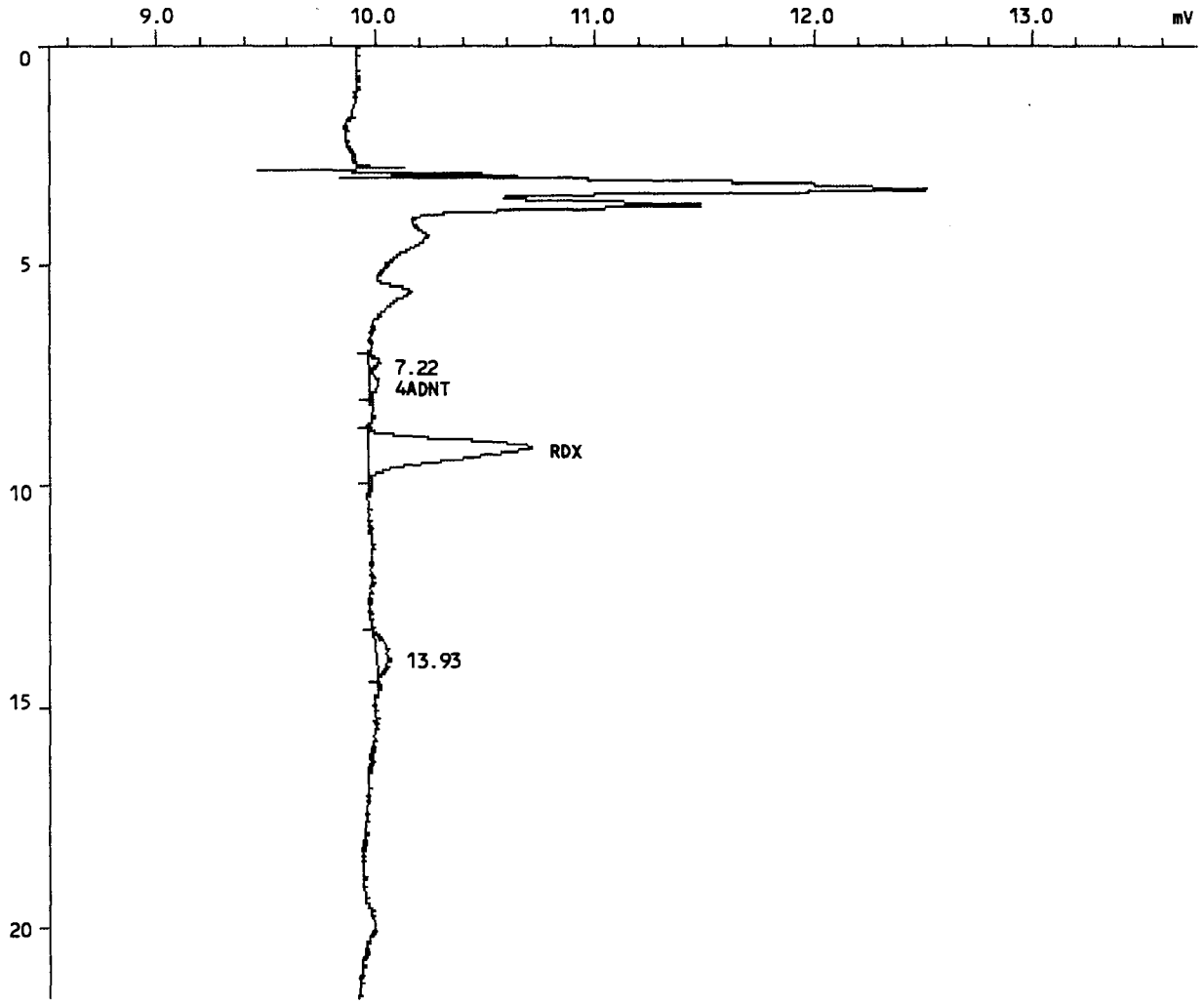
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	7.216	54	723	2878.508	TNT
4	13.931	61	2354	23467.406	HMX
Total		114	3077	26345.914	
Residual		787	22855	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422A,2,1

Sample name.....: BIO-S-001-00-05-2 100X
Sample ID.....: 33609.05
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 07:39:55
Reported on 09-May-98 at 16:37:05



INJECTION REPORT

Injection F: <MC3> 3 3CN0422A,2,1

Acquired on 23-Apr-98 at 07:39:55
Modified on 09-May-82 at 16:36:12
Reported on 09-May-98 at 16:36:12

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 40
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-05-2 100X
Sample ID.....: 33609.05
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.728	46	1021	6436.075	4ADNT
3	9.141	741	21834	164533.234	RDX
Total		787	22855	170969.313	
Residual		114	3077	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-05-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.05

Sample Amt: 2g % Moisture 62.34 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

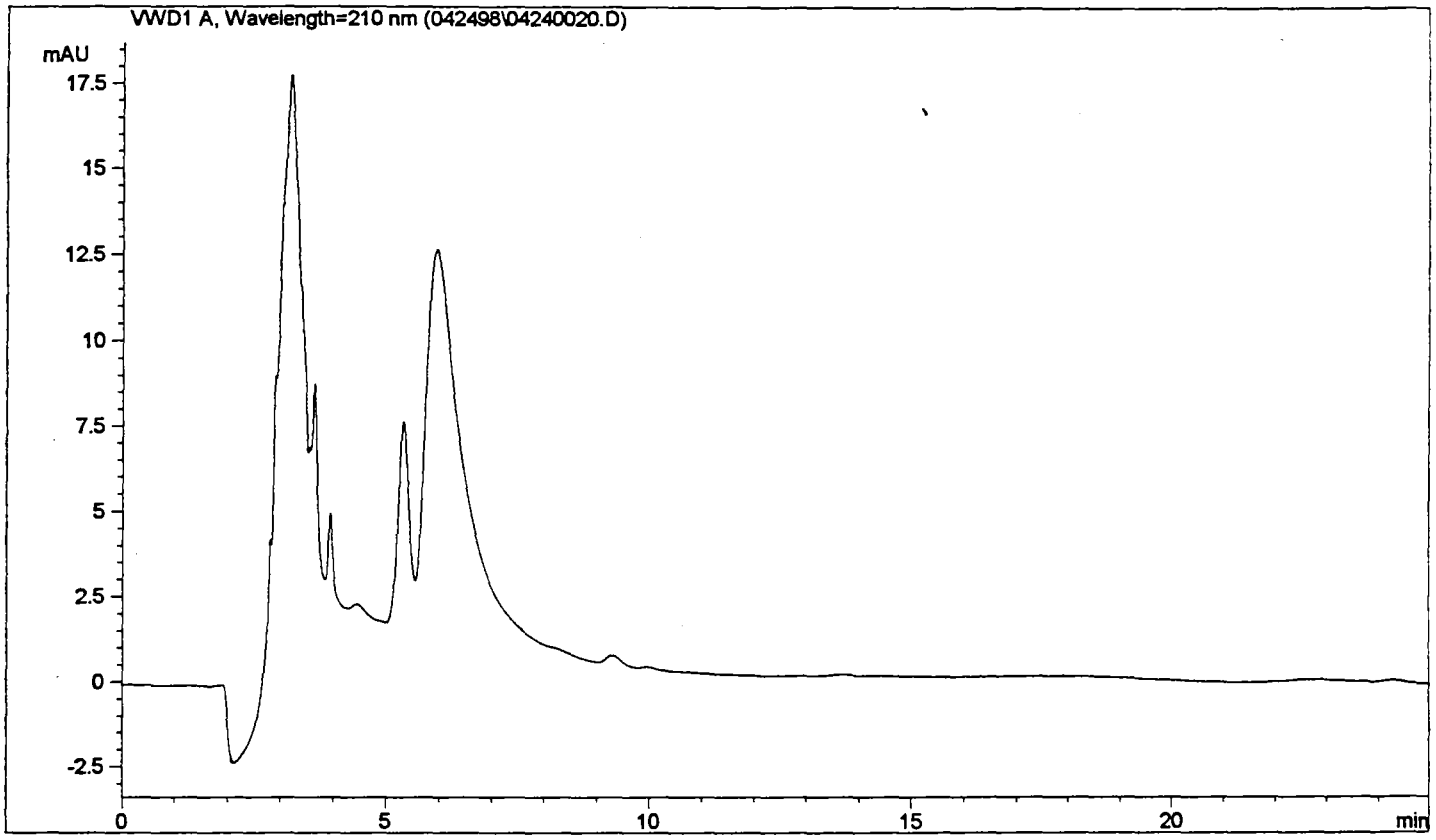
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 20
Sample Name	: 33609.05	Vial No.	: 20
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN

Totals: 0.00000

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*** End of Report ***

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1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-05
-3 100X

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.06

Sample Amt: 2g % Moisture 32.22 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	97200	J
121-82-4	RDX	691000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	77000	
1946-51-0	4ADNT	6700	JP
35572-78-2	2ADNT	12500	U
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

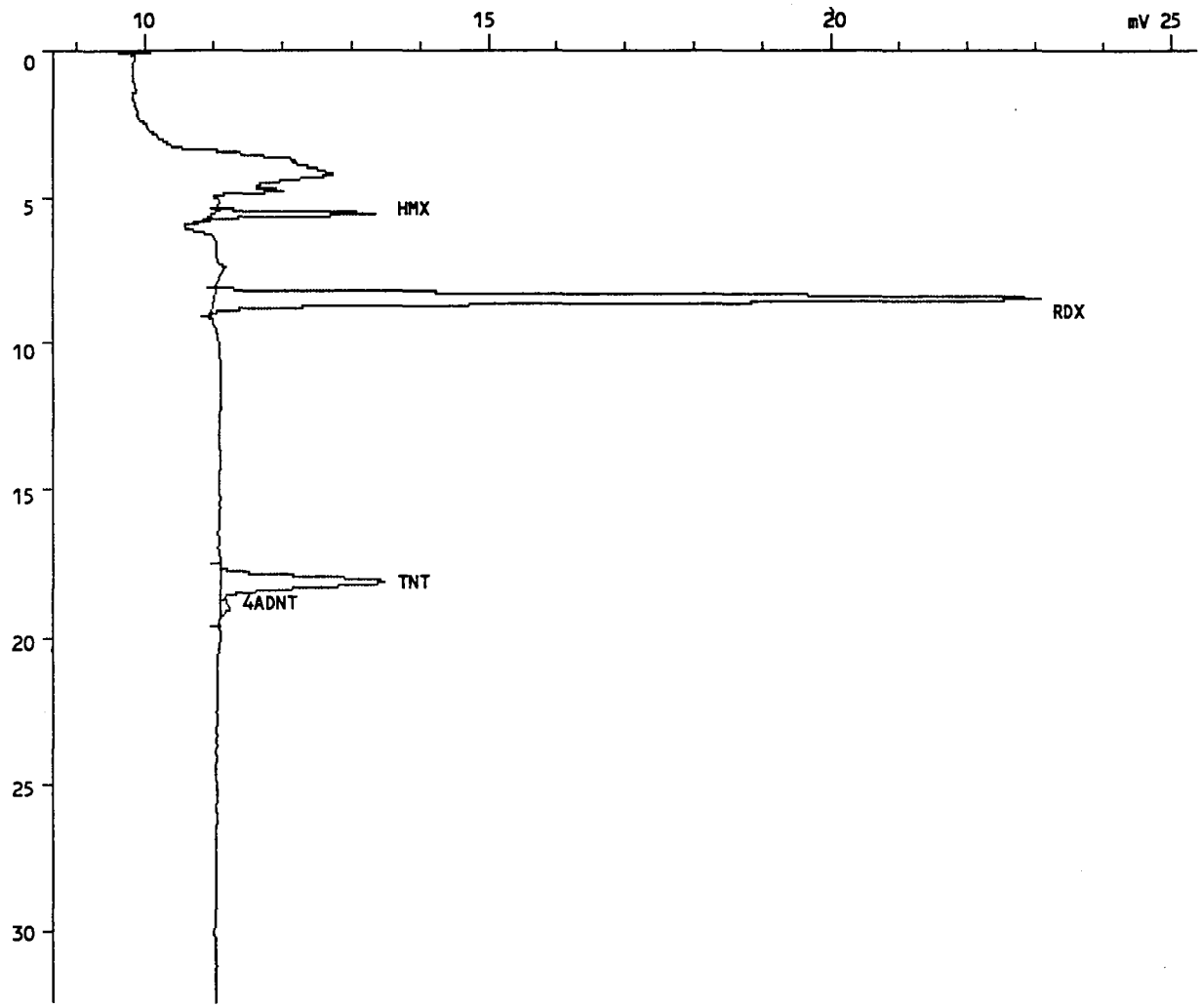
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,18,1

Sample name.....: BIO-S-001-00-05-3 100X
Sample ID.....: 33609.06
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 08:22:04
Reported on 08-May-98 at 13:11:03



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,18,1

Acquired on 20-Apr-98 at 08:22:04
Modified on 08-May-82 at 13:01:18
Reported on 08-May-98 at 13:01:18

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 13:00:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-05-3 100X
Sample ID.....: 33609.06
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

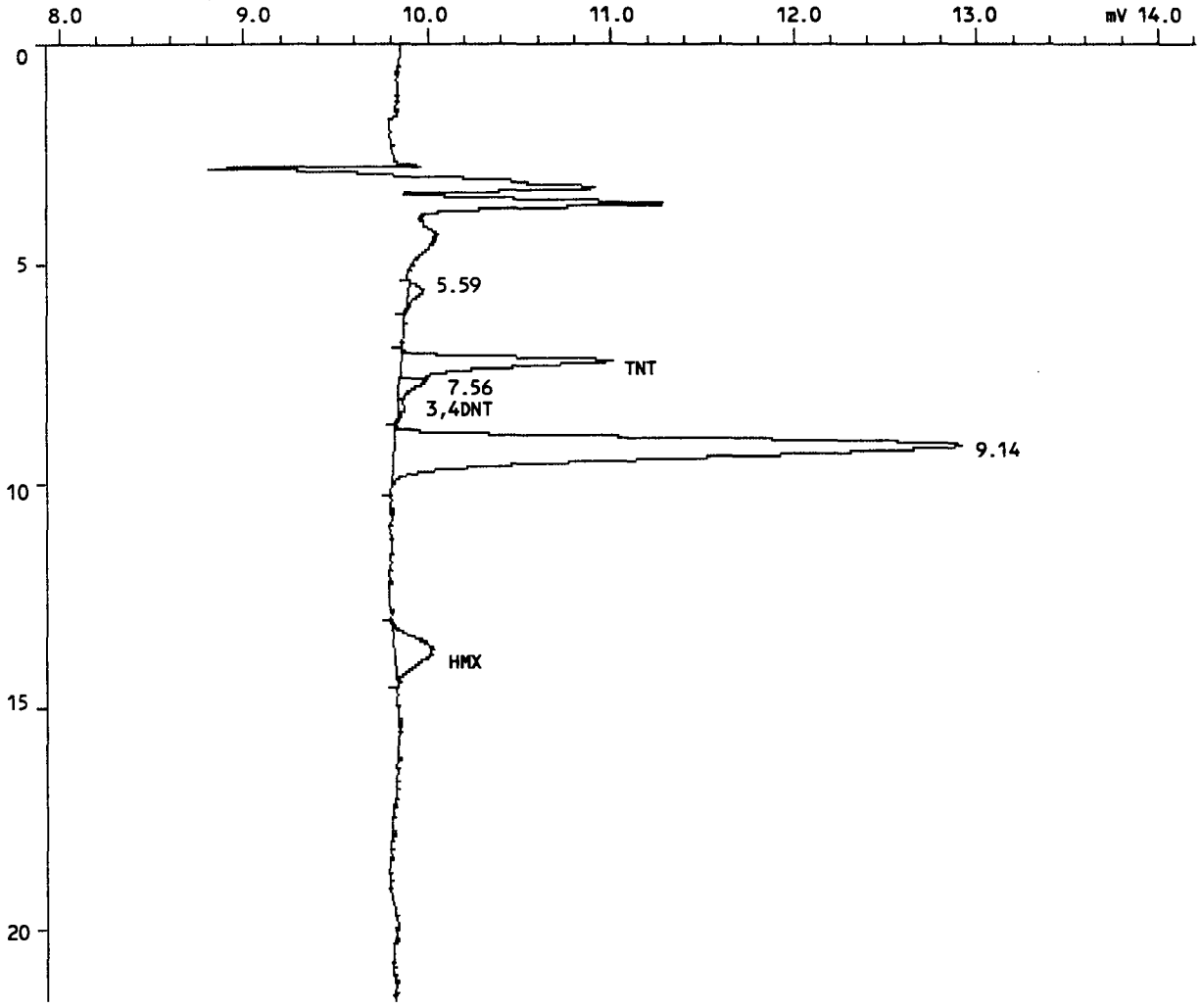
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	5.584	2422	25251	97193.359	HMX *
2	8.496	12069	257869	690968.250	RDX *
3	18.096	2388	61996	76994.297	TNT *
4	18.976	152	3886	6701.603	4ADNT * P
Total		17030	349002	871857.563	
Residual		0	0	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422A,3,1

Sample name.....: BIO-S-001-00-05-3 100X
Sample ID.....: 33609.06
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 08:24:16
Reported on 09-May-98 at 16:34:12



INJECTION REPORT

Injection F: <MC3> 3 3CN0422A,3,1

Acquired on 23-Apr-98 at 08:24:16
Modified on 09-May-82 at 16:33:46
Reported on 09-May-98 at 16:33:46

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 40
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-05-3 100X
Sample ID.....: 33609.06
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

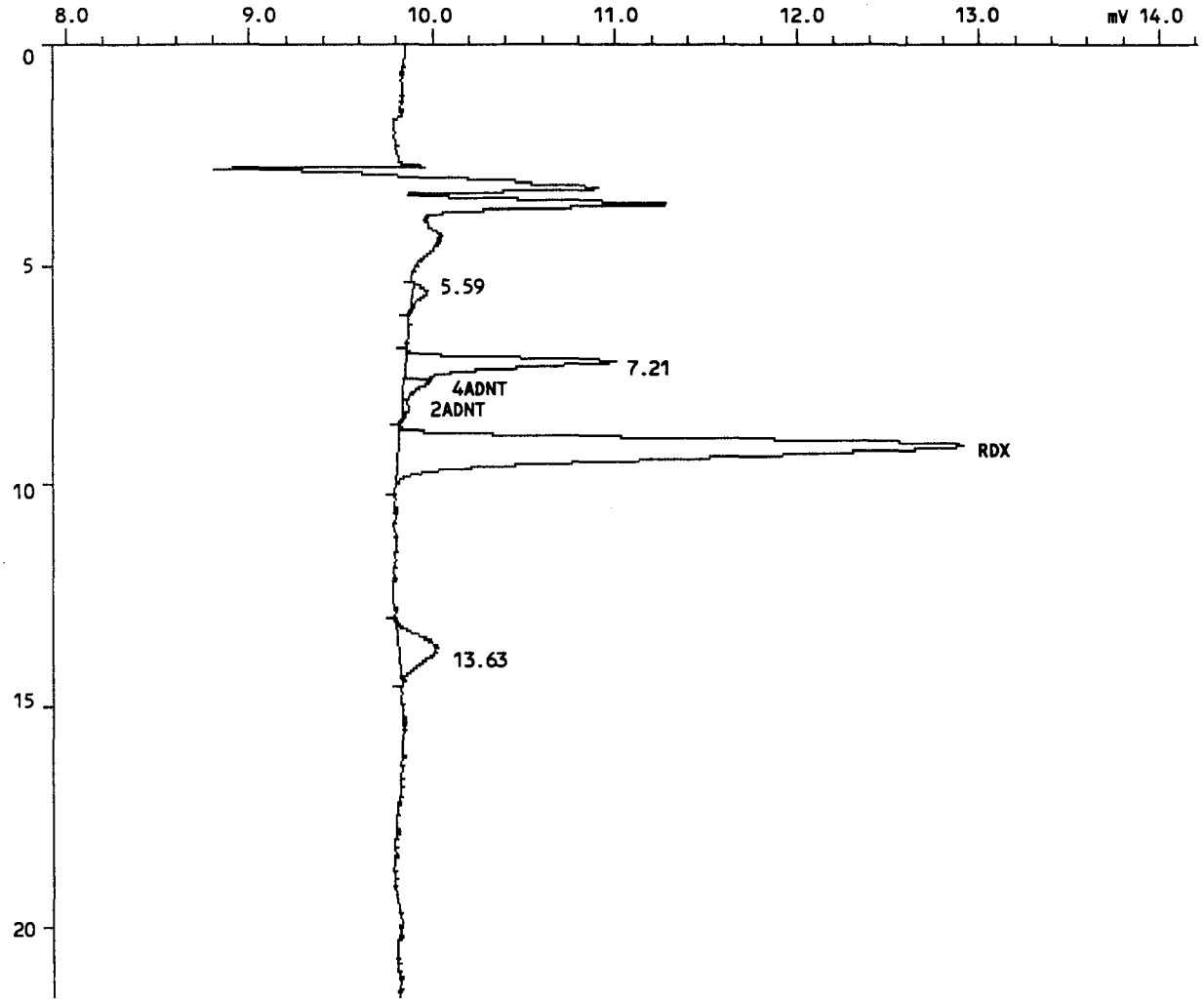
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.205	1156	18827	74949.906	TNT
4	8.256	46	887	6675.475	3,4DNT
6	13.632	214	8525	84997.227	HMX
Total		1416	28239	166622.609	
Residual		3344	95228	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422A,3,1

Sample name.....: BIO-S-001-00-05-3 100X
Sample ID.....: 33609.06
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 08:24:16
Reported on 09-May-98 at 16:36:44



INJECTION REPORT

Injection F: <MC3> 3 3CN0422A,3,1

Acquired on 23-Apr-98 at 08:24:16
Modified on 09-May-82 at 16:36:24
Reported on 09-May-98 at 16:36:25

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 40
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-05-3 100X
Sample ID.....: 33609.06
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	7.563	150	2756	17368.742	4ADNT
4	8.256	46	887	3509.513	2ADNT
5	9.136	3107	90742	683812.813	RDX
Total		3303	94385	704691.063	
Residual		1457	29083	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-05-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.06

Sample Amt: 2g % Moisture 32.22 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

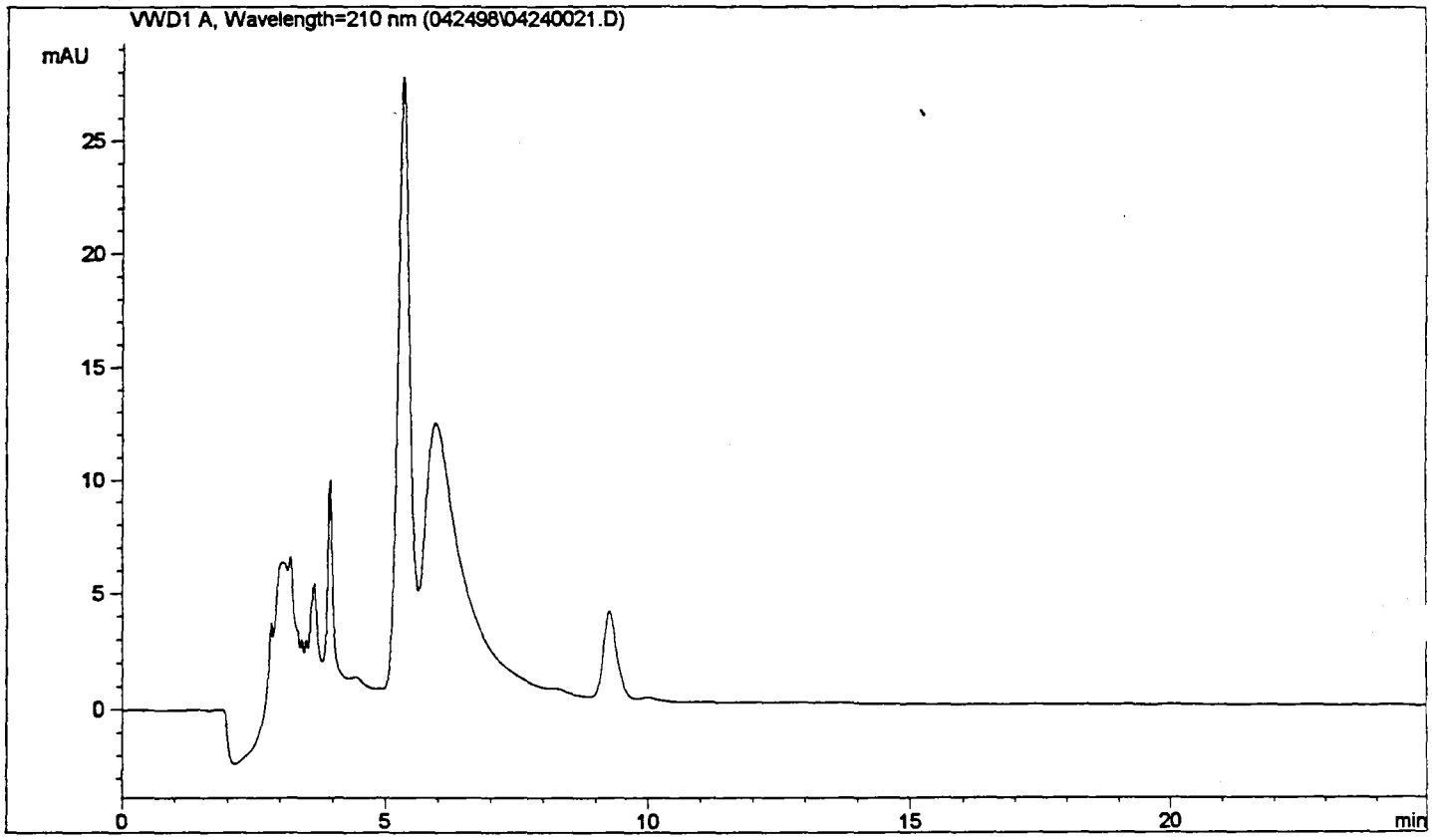
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 21
Sample Name	: 33609.06	Vial No.	: 21
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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*** End of Report ***

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-07-1 100X

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.09

Sample Amt: 2g % Moisture 39.24 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	290000	
121-82-4	RDX	2400000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	281000	
1946-51-0	4ADNT	23800	
35572-78-2	2ADNT	7690	J
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

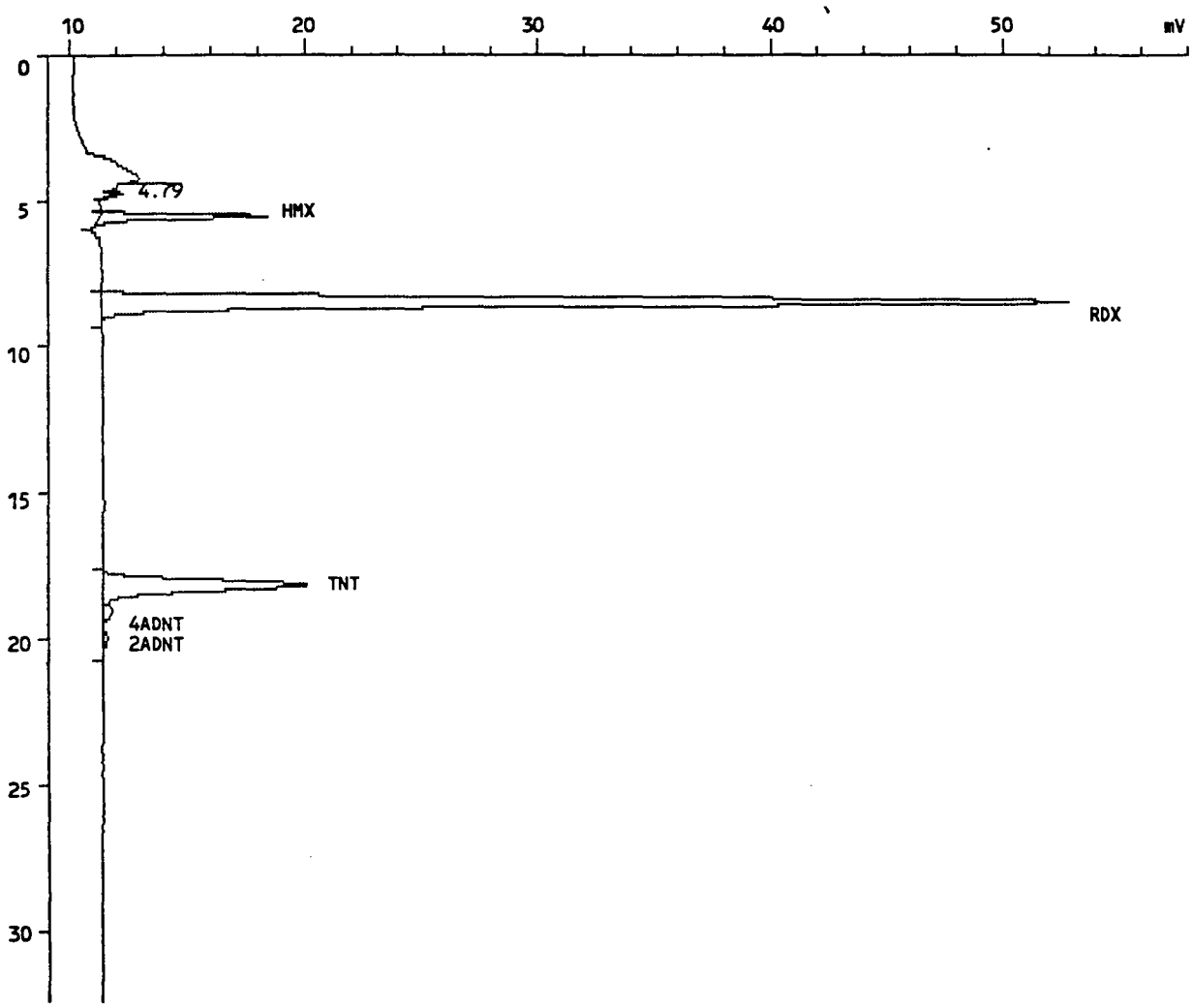
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,23,1

Sample name.....: BIO-S-001-00-07-1 100X
Sample ID.....: 33609.09
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 12:05:12
Reported on 08-May-98 at 13:10:13



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,23,1

Acquired on 20-Apr-98 at 12:05:12
Modified on 08-May-82 at 13:01:34
Reported on 08-May-98 at 13:01:34

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 13:00:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-07-1 100X
Sample ID.....: 33609.09
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

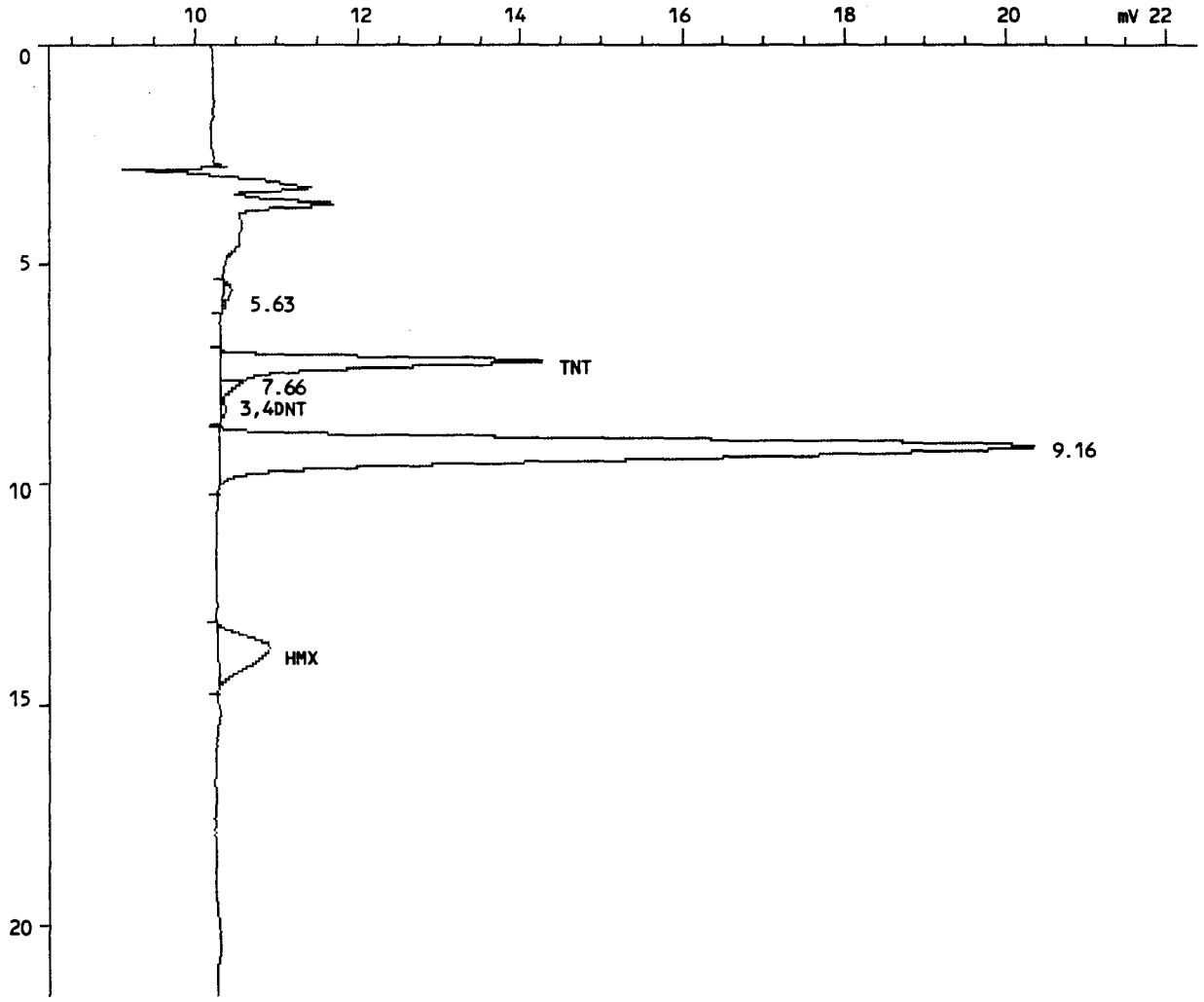
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.579	7257	75379	290144.063	HMX
3	8.501	41480	896028	2400931.500	RDX
4	18.139	8596	226434	281214.375	TNT
5	19.029	421	13811	23820.686	4ADNT
6	20.080	179	6246	7686.263	2ADNT
Total		57932	1217898	3003797.000	
Residual		606	4477	17232.063	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,1,1

Sample name.....: BIO-S-001-00-07-1 100X
Sample ID.....: 33609.09
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 10:47:11
Reported on 09-May-98 at 16:32:39



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,1,1

Acquired on 23-Apr-98 at 10:47:11
Modified on 09-May-82 at 16:26:04
Reported on 09-May-98 at 16:26:05

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-07-1 100X
Sample ID.....: 33609.09
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

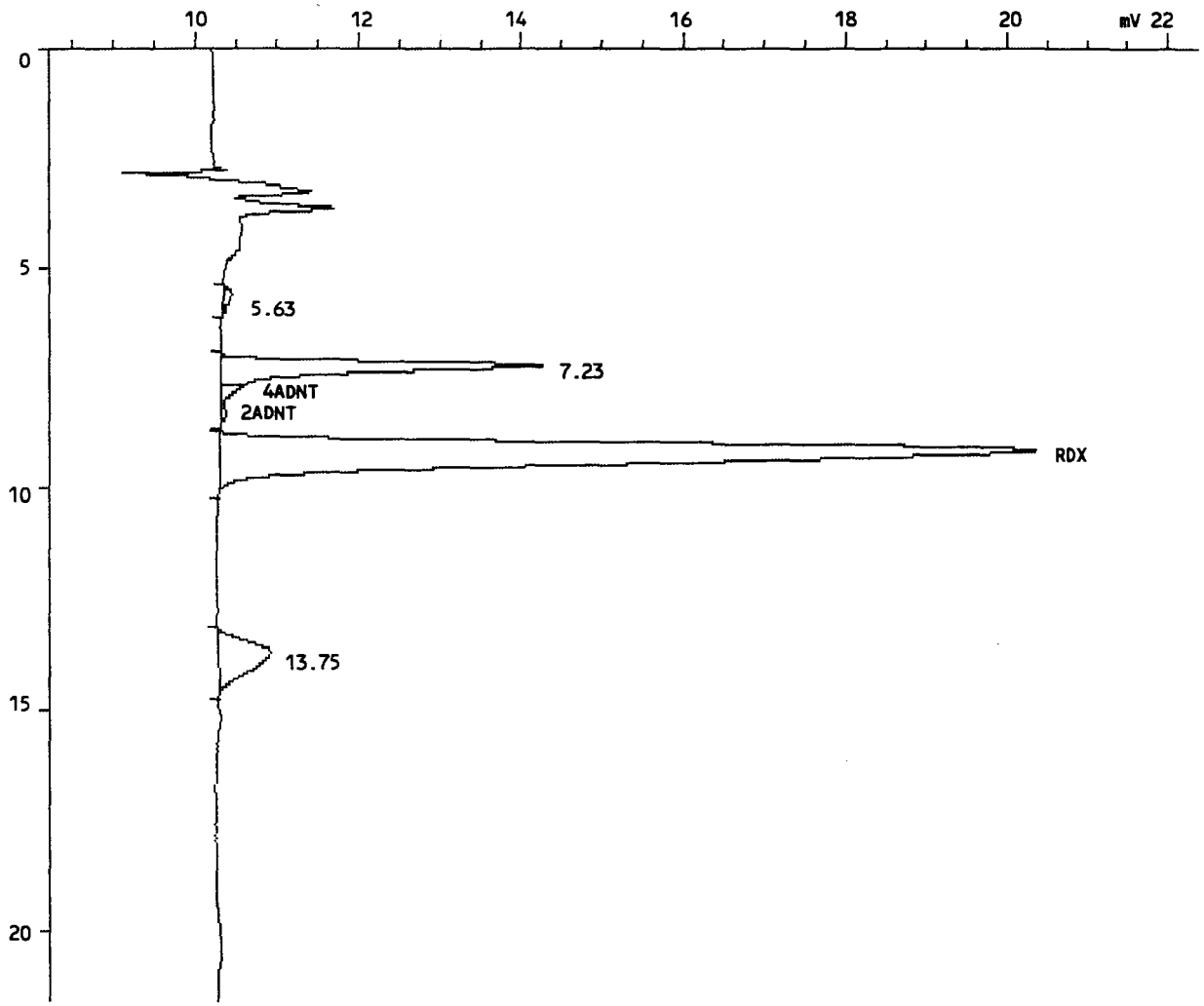
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.227	3963	66869	266199.906	TNT
4	8.267	81	1432	10783.181	3,4DNT
6	13.755	649	29533	294446.000	HMX
Total		4694	97834	571429.125	
Residual		10489	310538	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,1,1

Sample name.....: BIO-S-001-00-07-1 100X
Sample ID.....: 33609.09
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 10:47:11
Reported on 09-May-98 at 16:25:12



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,1,1

Acquired on 23-Apr-98 at 10:47:11
Modified on 09-May-82 at 16:13:54
Reported on 09-May-98 at 16:13:54

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-07-1 100X
Sample ID.....: 33609.09
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	7.664	313	3969	25011.184	4ADNT
4	8.267	81	1432	5669.067	2ADNT
5	9.157	10065	304116	2291758.250	RDX
Total		10459	309518	2322438.500	
Residual		4723	98855	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-07-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.09

Sample Amt: 2g % Moisture 39.24 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

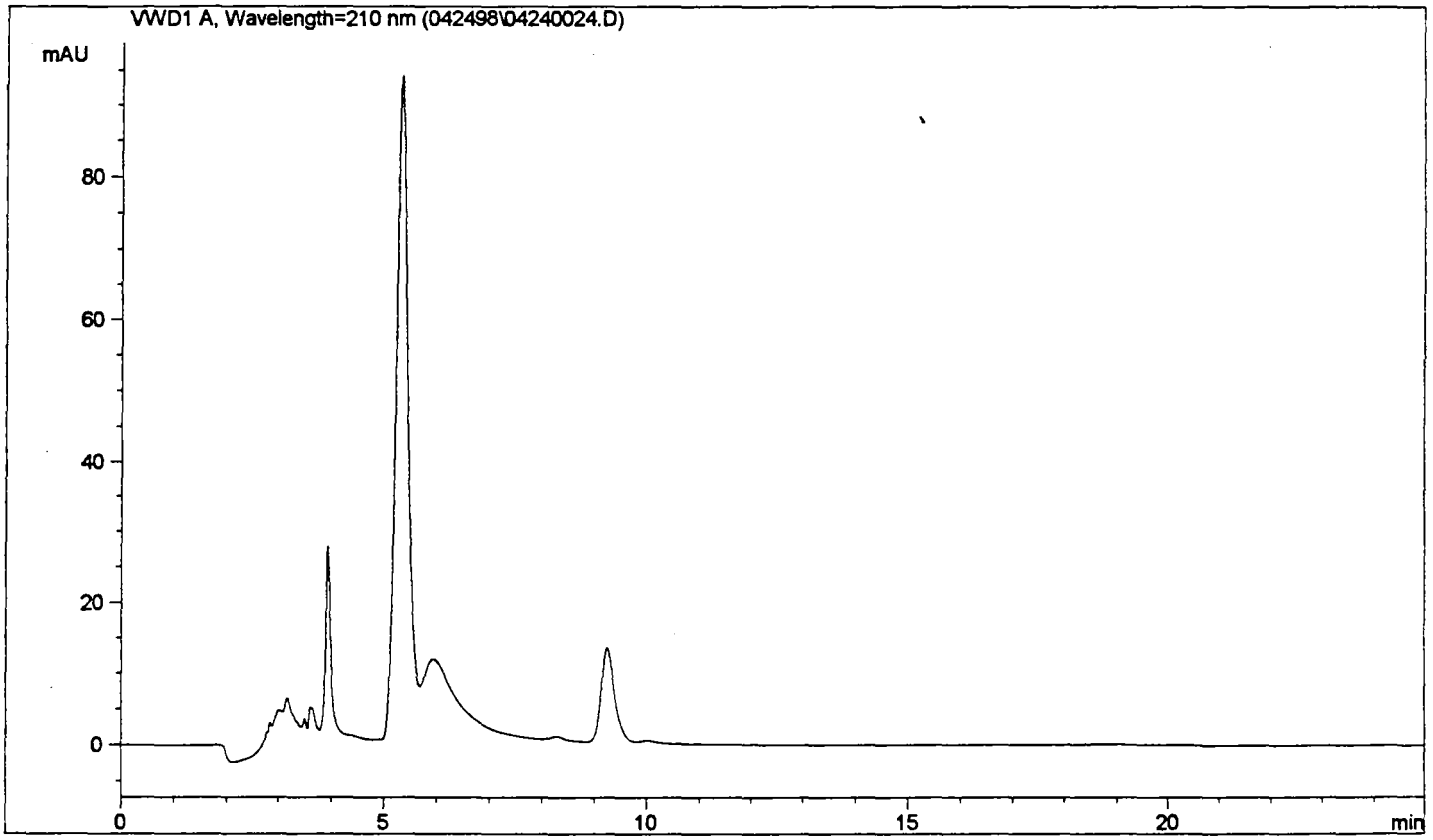
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 24
Sample Name	: 33609.09	Vial No.	: 24
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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*** End of Report ***

80

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-07-2 100X

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.10

Sample Amt: 2g % Moisture 34.75 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	157000	
121-82-4	RDX	1370000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	104000	
1946-51-0	4ADNT	29100	
35572-78-2	2ADNT	6550	J
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

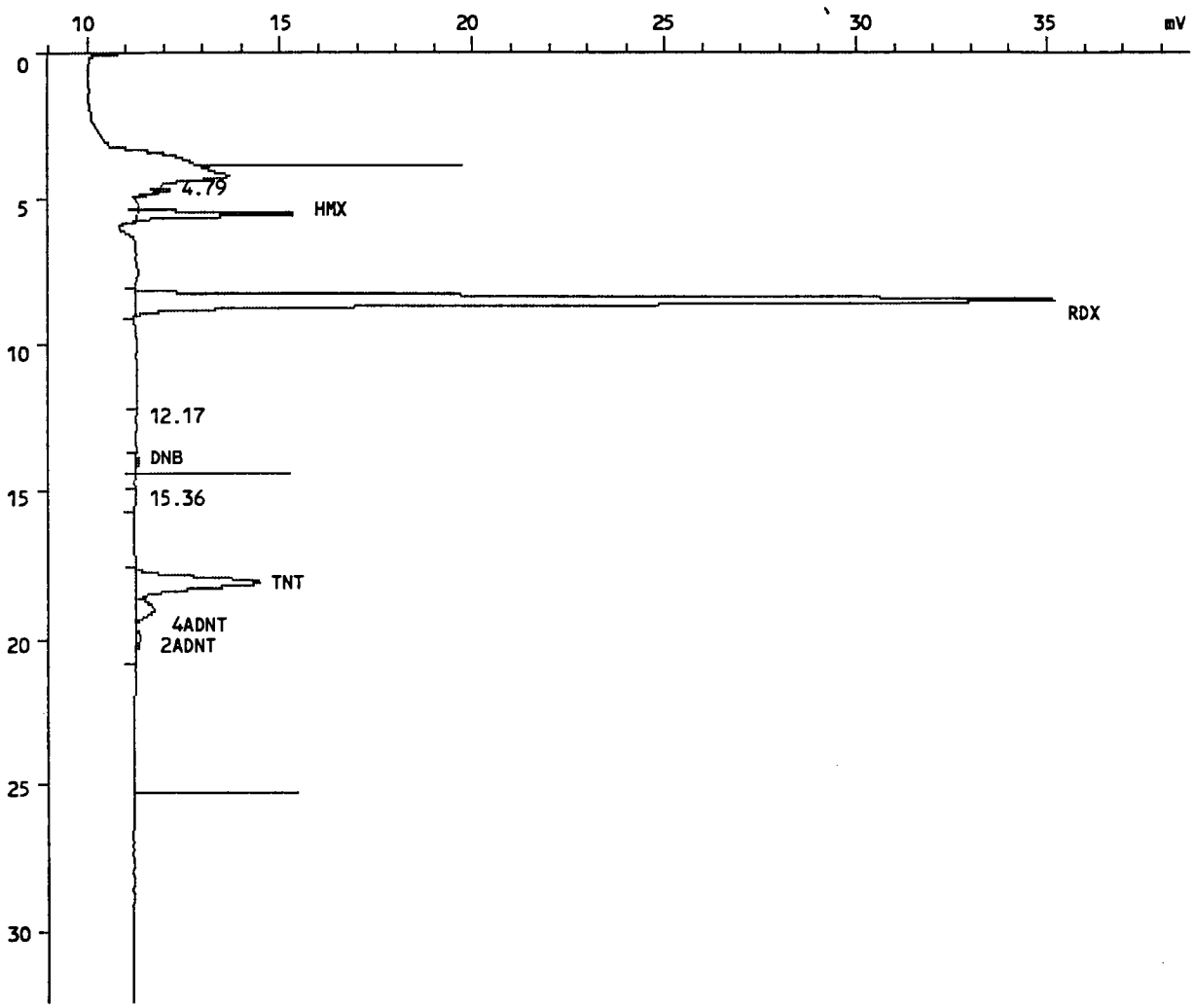
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,24,1

Sample name.....: BIO-S-001-00-07-2 100X
Sample ID.....: 33609.10
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 12:49:49
Reported on 08-May-98 at 13:09:42



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,24,1

Acquired on 20-Apr-98 at 12:49:49
Modified on 08-May-82 at 13:04:12
Reported on 08-May-98 at 13:04:12

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 13:00:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-07-2 100X
Sample ID.....: 33609.10
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

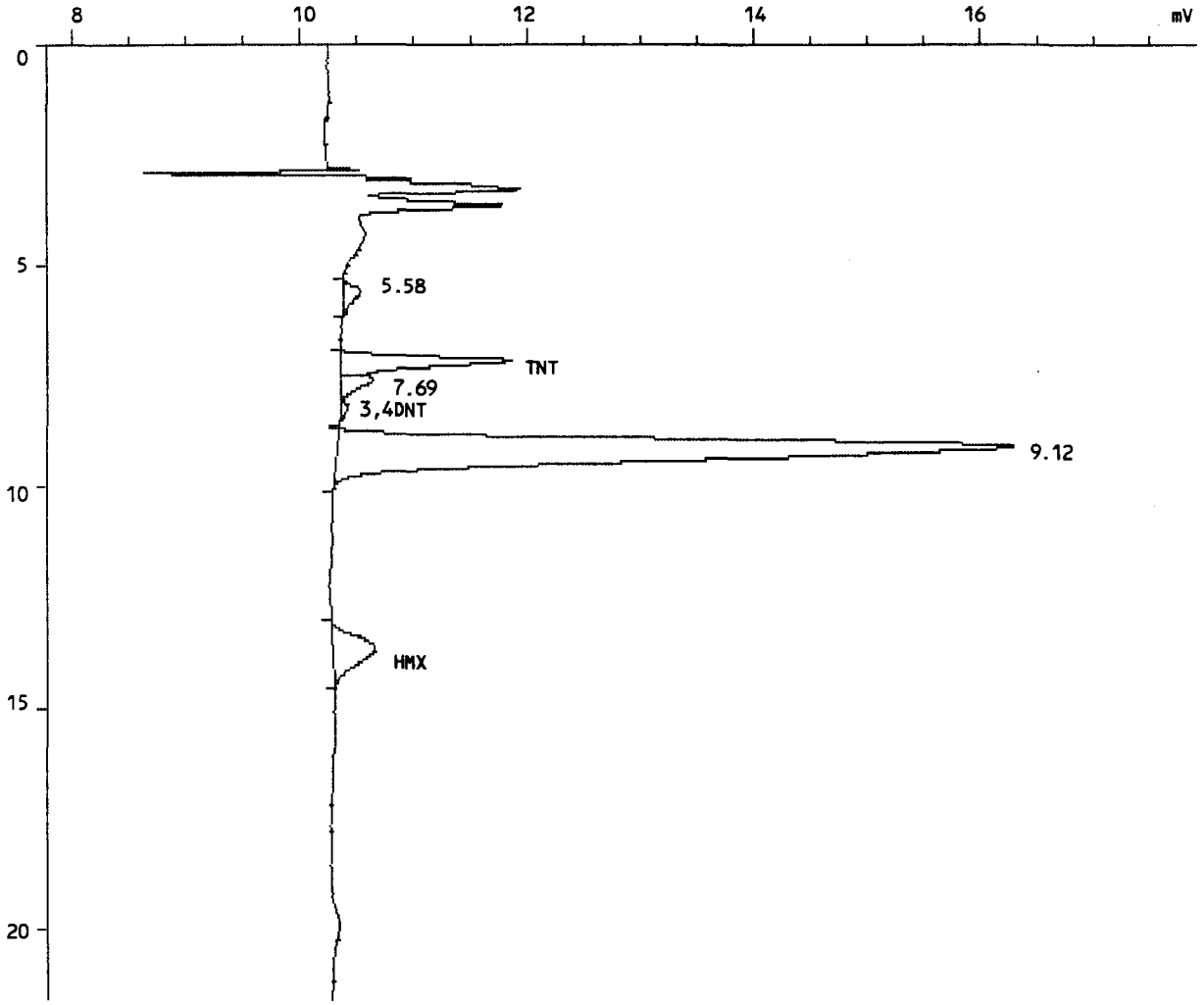
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.573	4076	40776	156951.234	HMX *
3	8.496	24026	512391	1372966.000	RDX *
5	14.021	52	1104	1018.116	DNB
7	18.133	3230	83928	104232.883	TNT *
8	19.056	511	16877	29108.941	4ADNT *
9	20.032	150	5325	6552.955	2ADNT *
Total		32045	660401	1670830.250	
Residual		562	5268	12332.736	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,2,1

Sample name.....: BIO-S-001-00-07-2 100X
Sample ID.....: 33609.10
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 11:36:40
Reported on 09-May-98 at 16:32:17



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,2,1

Acquired on 23-Apr-98 at 11:36:40
Modified on 09-May-82 at 16:26:18
Reported on 09-May-98 at 16:26:18

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-07-2 100X
Sample ID.....: 33609.10
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

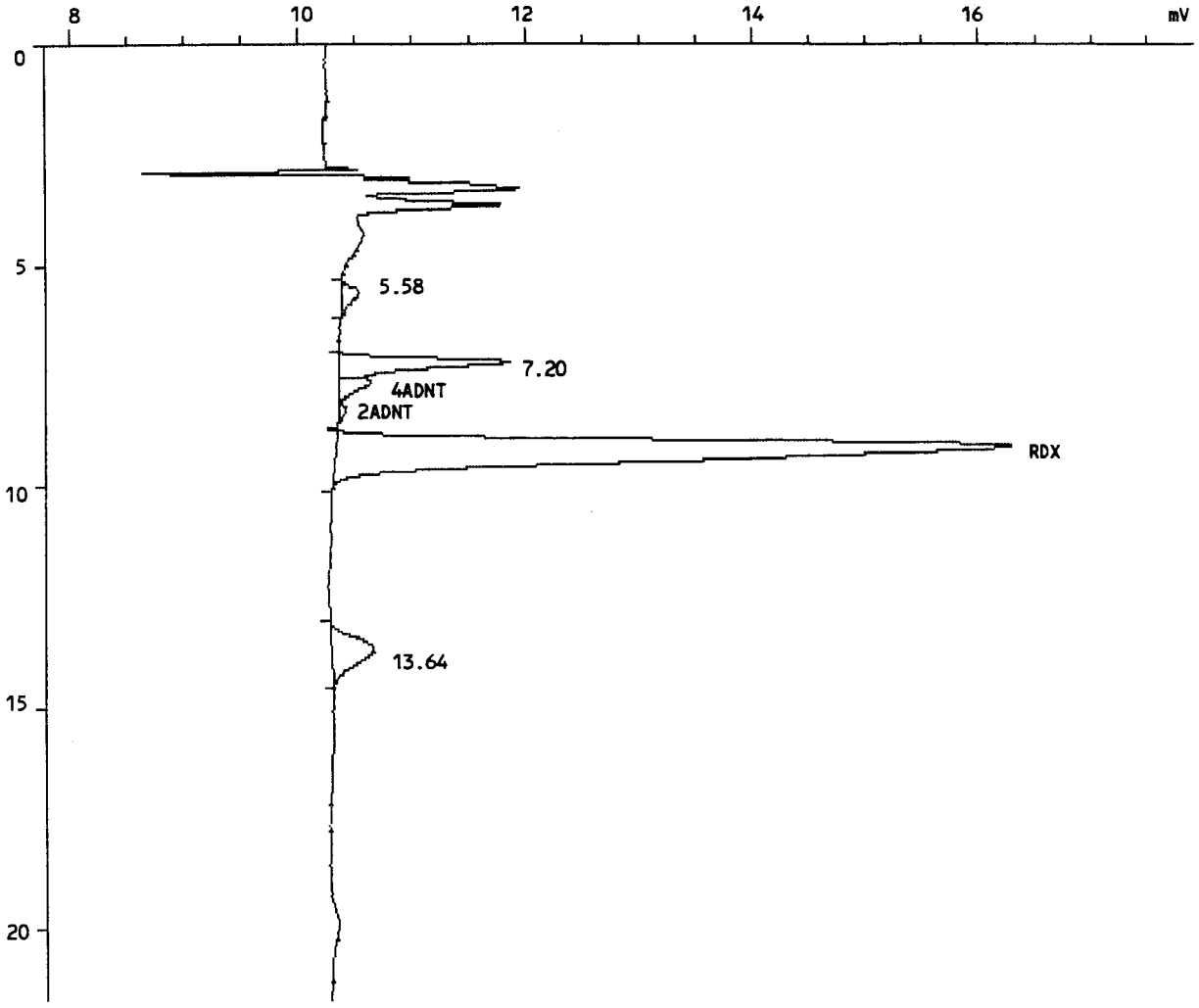
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.200	1508	24663	98181.430	TNT
4	8.283	78	1514	11403.689	3,4DNT
6	13.637	370	15067	150222.031	HMX
Total		1957	41245	259807.156	
Residual		6433	187856	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,2,1

Sample name.....: BIO-S-001-00-07-2 100X
Sample ID.....: 33609.10
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 11:36:40
Reported on 09-May-98 at 16:24:48



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,2,1

Acquired on 23-Apr-98 at 11:36:40
Modified on 09-May-82 at 16:14:06
Reported on 09-May-98 at 16:14:07

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-07-2 100X
Sample ID.....: 33609.10
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	7.685	295	5614	35372.727	4ADNT
4	8.283	78	1514	5995.289	2ADNT
5	9.120	5978	178093	1342069.250	RDX
Total		6351	185221	1383437.250	
Residual		2039	43880	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-07-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.10

Sample Amt: 2g % Moisture 34.75 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

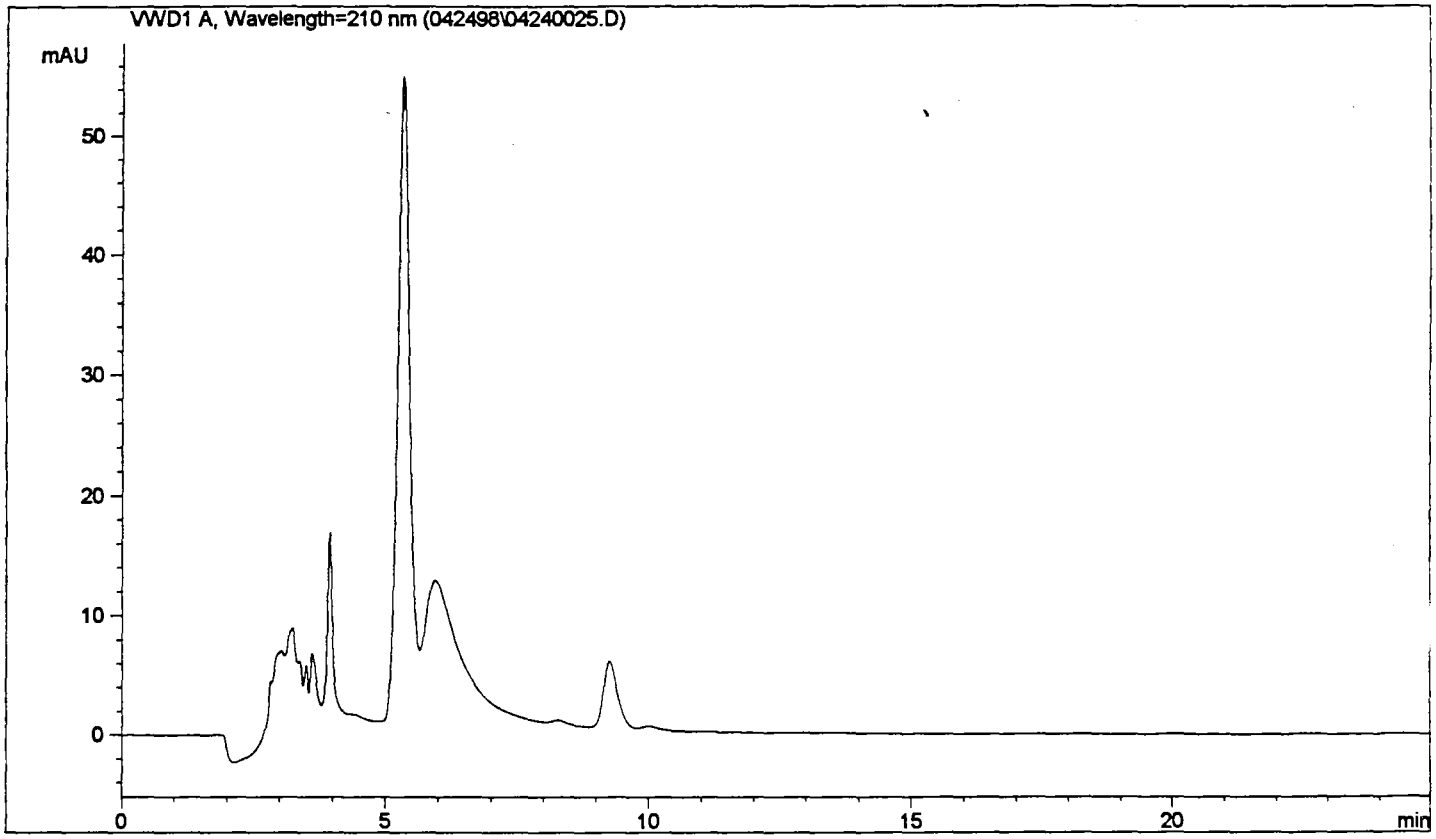
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 25
Sample Name	: 33609.10	Vial No.	: 25
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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*** End of Report ***

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1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-07
-3 100X

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.11

Sample Amt: 2g % Moisture 36.08 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	224000	
121-82-4	RDX	1750000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	296000	
1946-51-0	4ADNT	10100	J
35572-78-2	2ADNT	12500	U
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

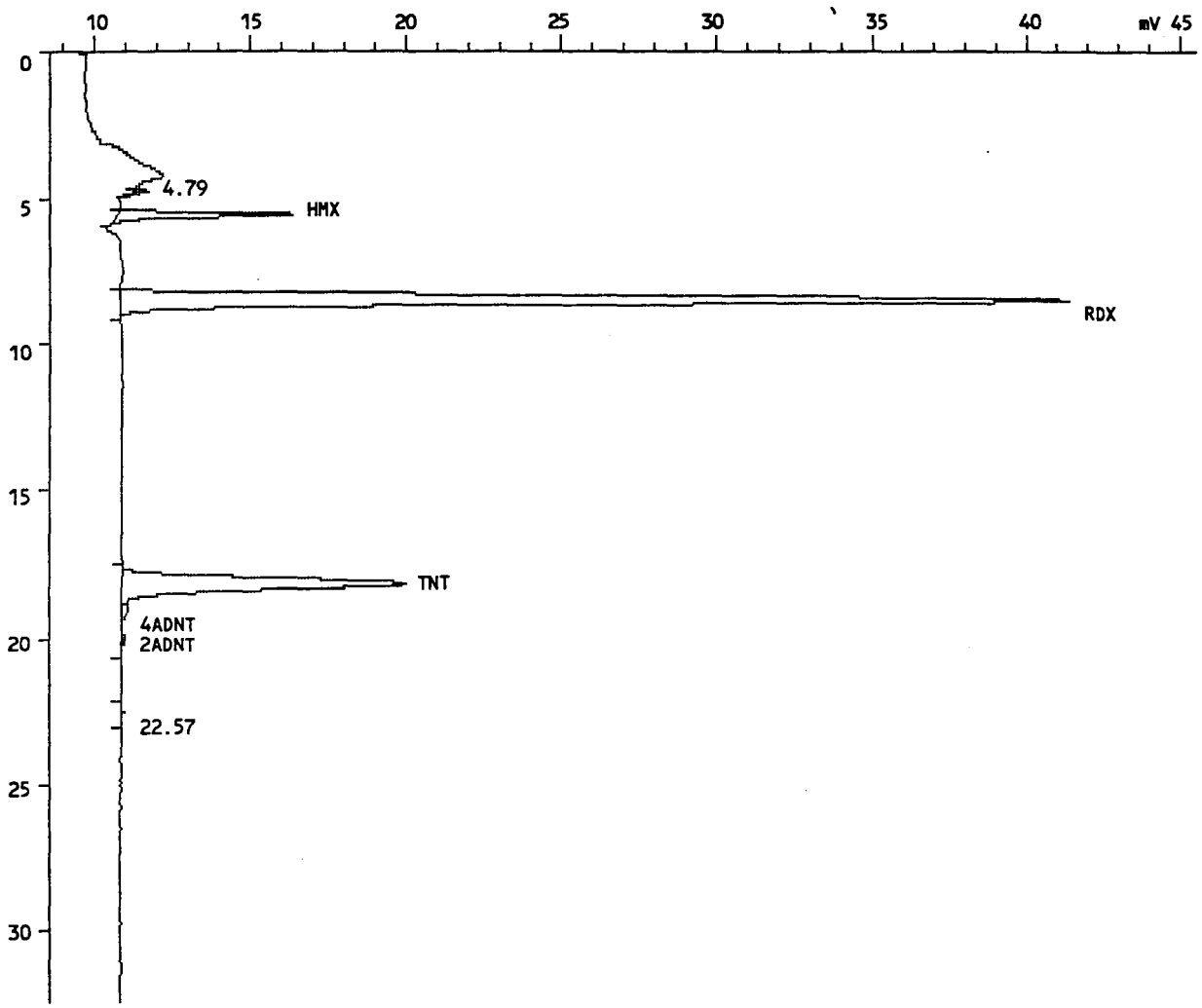
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,25,1

Sample name.....: BIO-S-001-00-07-3 100X
Sample ID.....: 33609.11
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 13:34:27
Reported on 08-May-98 at 13:09:22



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,25,1

Acquired on 20-Apr-98 at 13:34:27
Modified on 08-May-82 at 13:04:28
Reported on 08-May-98 at 13:04:28

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 13:00:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-07-3 100X
Sample ID.....: 33609.11
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

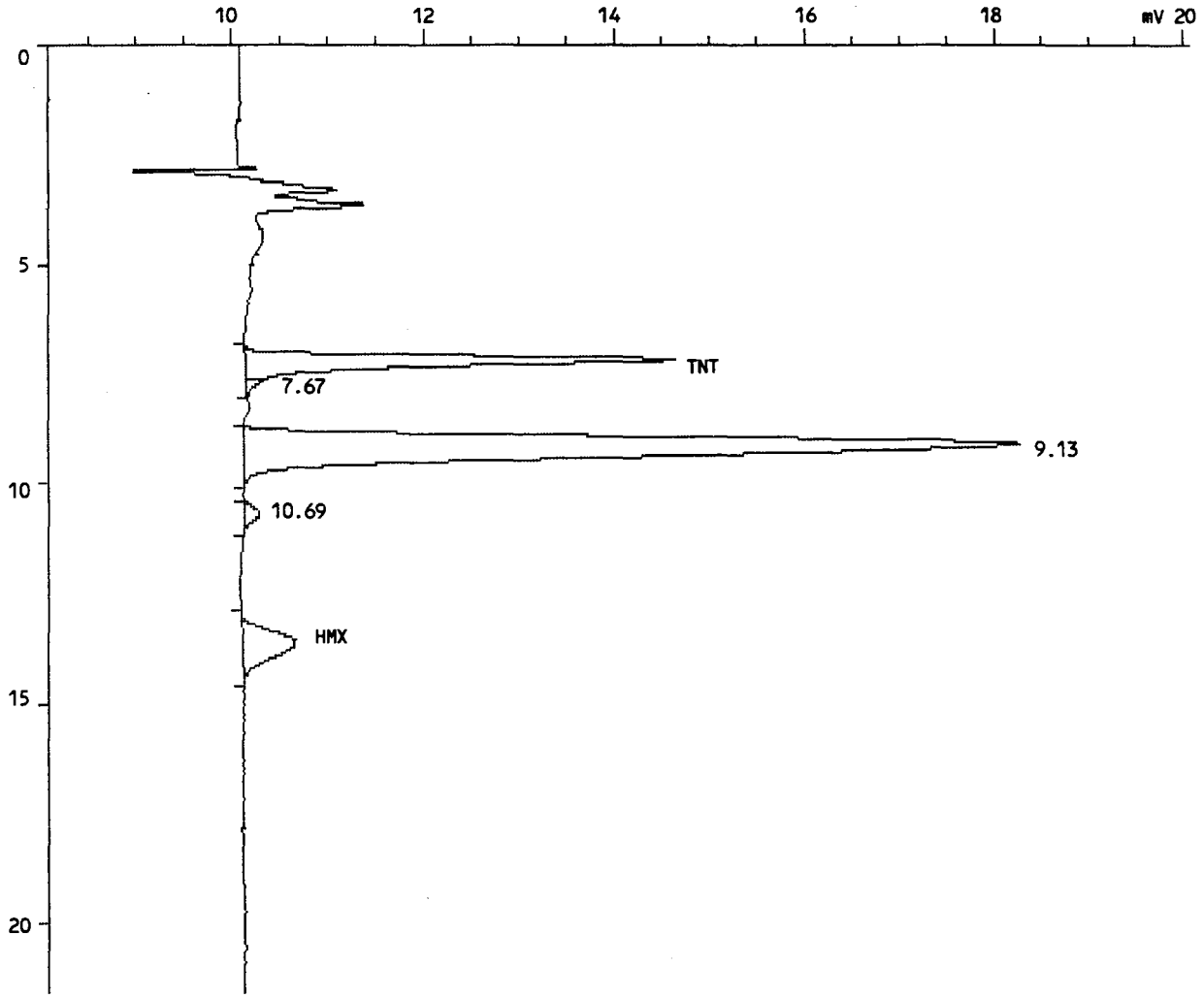
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.579	5639	58266	224273.172	HMX *
3	8.501	30566	652755	1749075.750	RDX *
4	18.155	9060	238783	296551.500	TNT *
5	19.067	206	5865	10116.397	4ADNT *
6	20.016	92	2889	3555.302	2ADNT
Total		45564	958559	2283572.250	
Residual		618	5735	12791.046	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,3,1

Sample name.....: BIO-S-001-00-07-3 100X
Sample ID.....: 33609.11
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 12:15:54
Reported on 09-May-98 at 16:31:57



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,3,1

Acquired on 23-Apr-98 at 12:15:54
Modified on 09-May-82 at 16:26:32
Reported on 09-May-98 at 16:26:33

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-07-3 100X
Sample ID.....: 33609.11
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

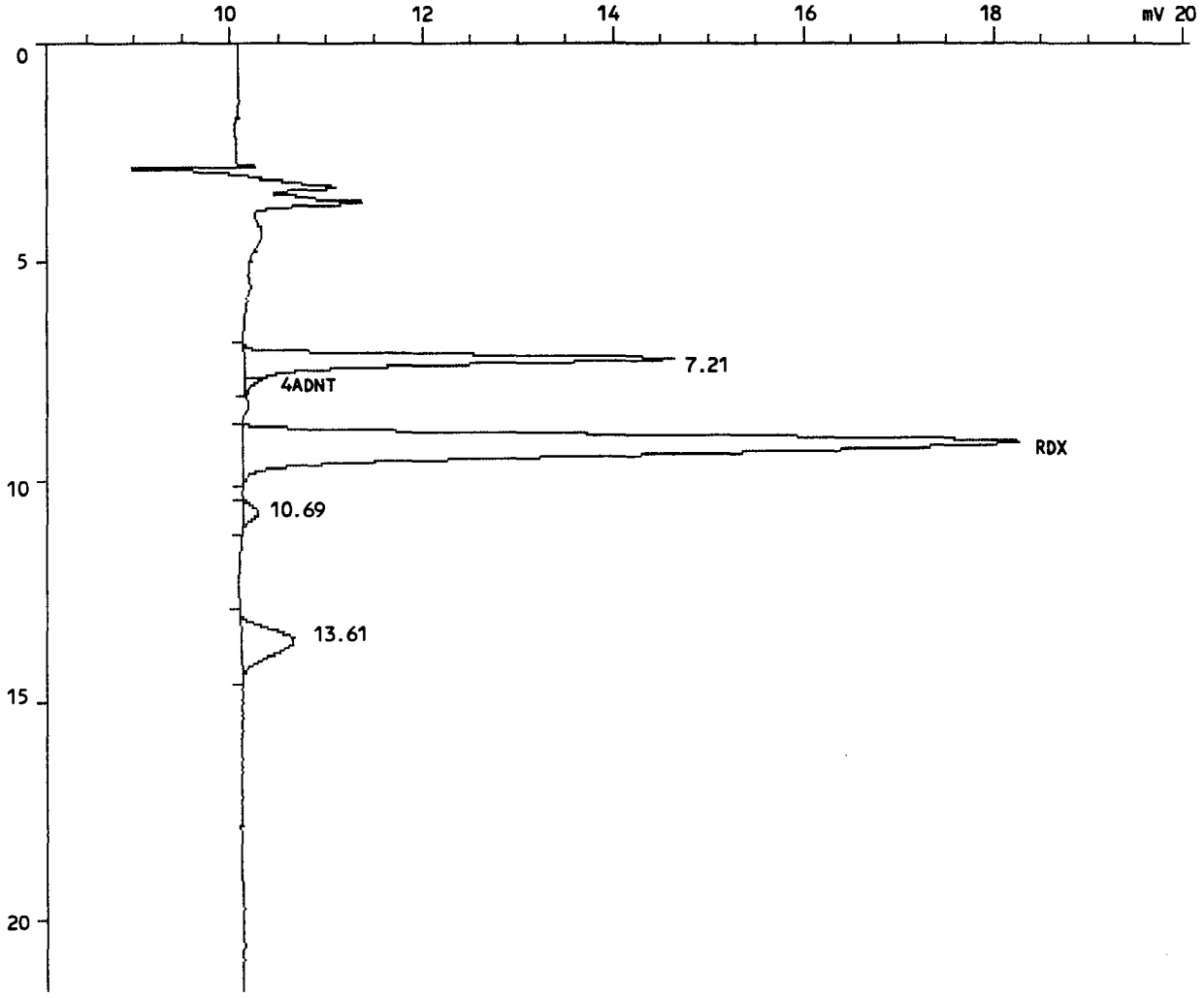
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	7.205	4510	74096	294968.125	TNT
5	13.611	558	22303	222359.938	HMX
Total		5068	96399	517328.063	
Residual		8485	238462	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,3,1

Sample name.....: BIO-S-001-00-07-3 100X
Sample ID.....: 33609.11
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 12:15:54
Reported on 09-May-98 at 16:24:22



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,3,1

Acquired on 23-Apr-98 at 12:15:54
Modified on 09-May-82 at 16:14:20
Reported on 09-May-98 at 16:14:21

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-07-3 100X
Sample ID.....: 33609.11

Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.669	204	1917	12079.683	4ADNT
3	9.131	8128	233366	1758600.625	RDX
Total		8332	235283	1770680.250	
Residual		5220	99577	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-07-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.11

Sample Amt: 2g % Moisture 36.08 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

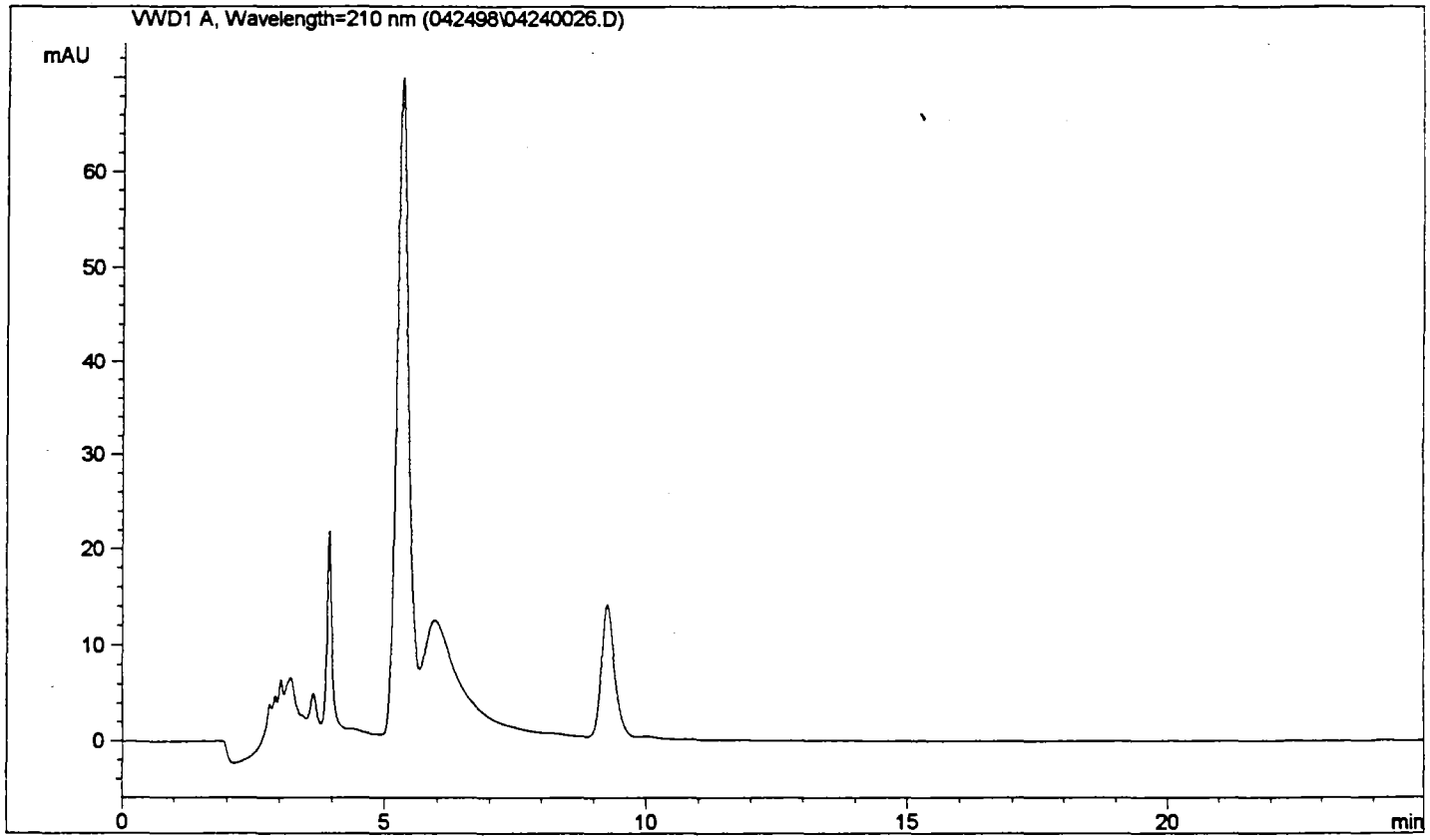
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 26
Sample Name	: 33609.11	Vial No.	: 26
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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*** End of Report ***

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1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-09
-1 100X

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.12

Sample Amt: 2g % Moisture 37.61 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	247000	
121-82-4	RDX	1840000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	178000	
1946-51-0	4ADNT	28500	P
35572-78-2	2ADNT	9010	J
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

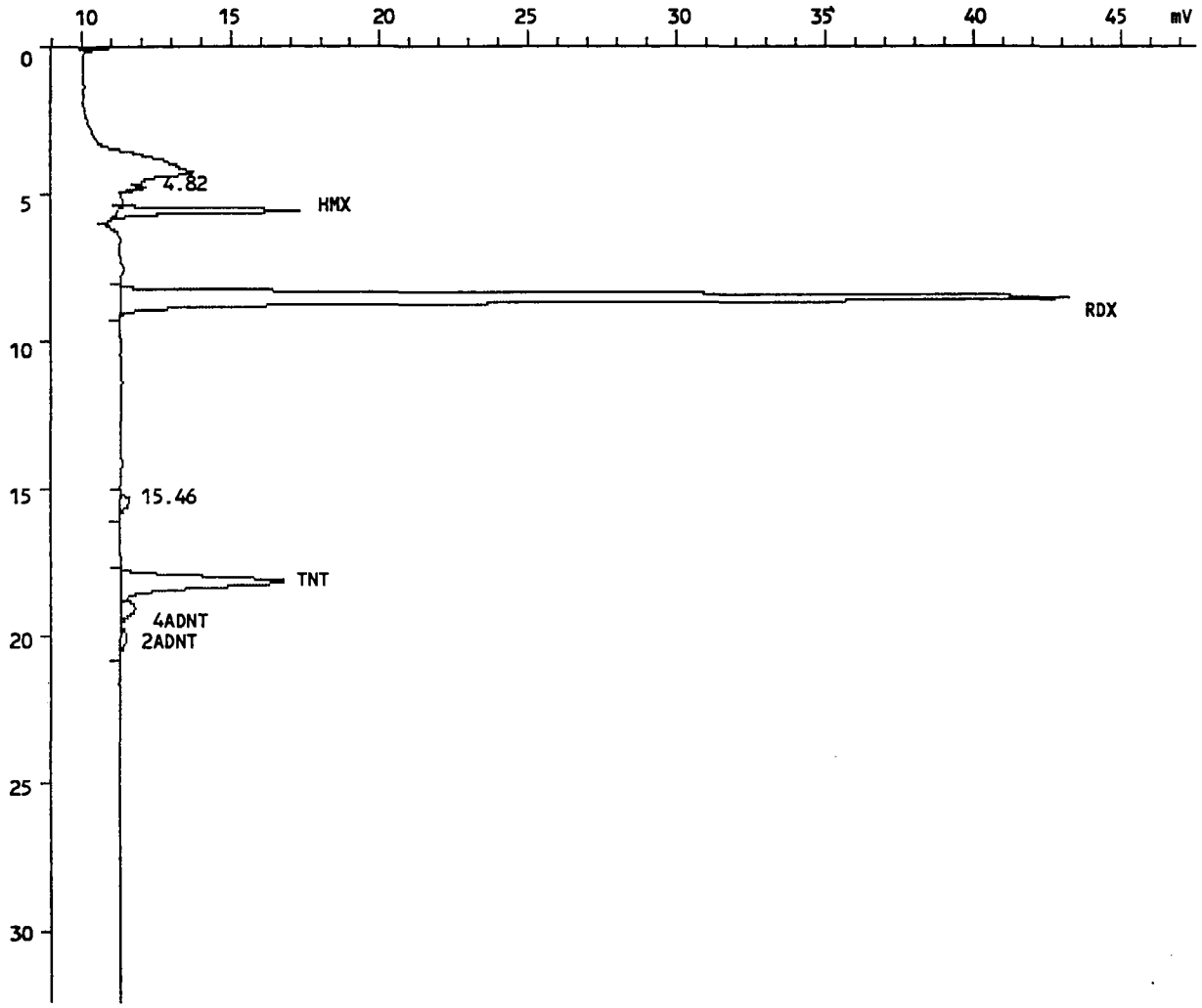
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,26,1

Sample name.....: BIO-S-001-00-09-1 100X
Sample ID.....: 33609.12
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 14:19:04
Reported on 08-May-98 at 13:08:58



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,26,1

Acquired on 20-Apr-98 at 14:19:04
Modified on 08-May-82 at 13:04:44
Reported on 08-May-98 at 13:04:44

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 13:00:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-09-1 100X
Sample ID.....: 33609.12
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

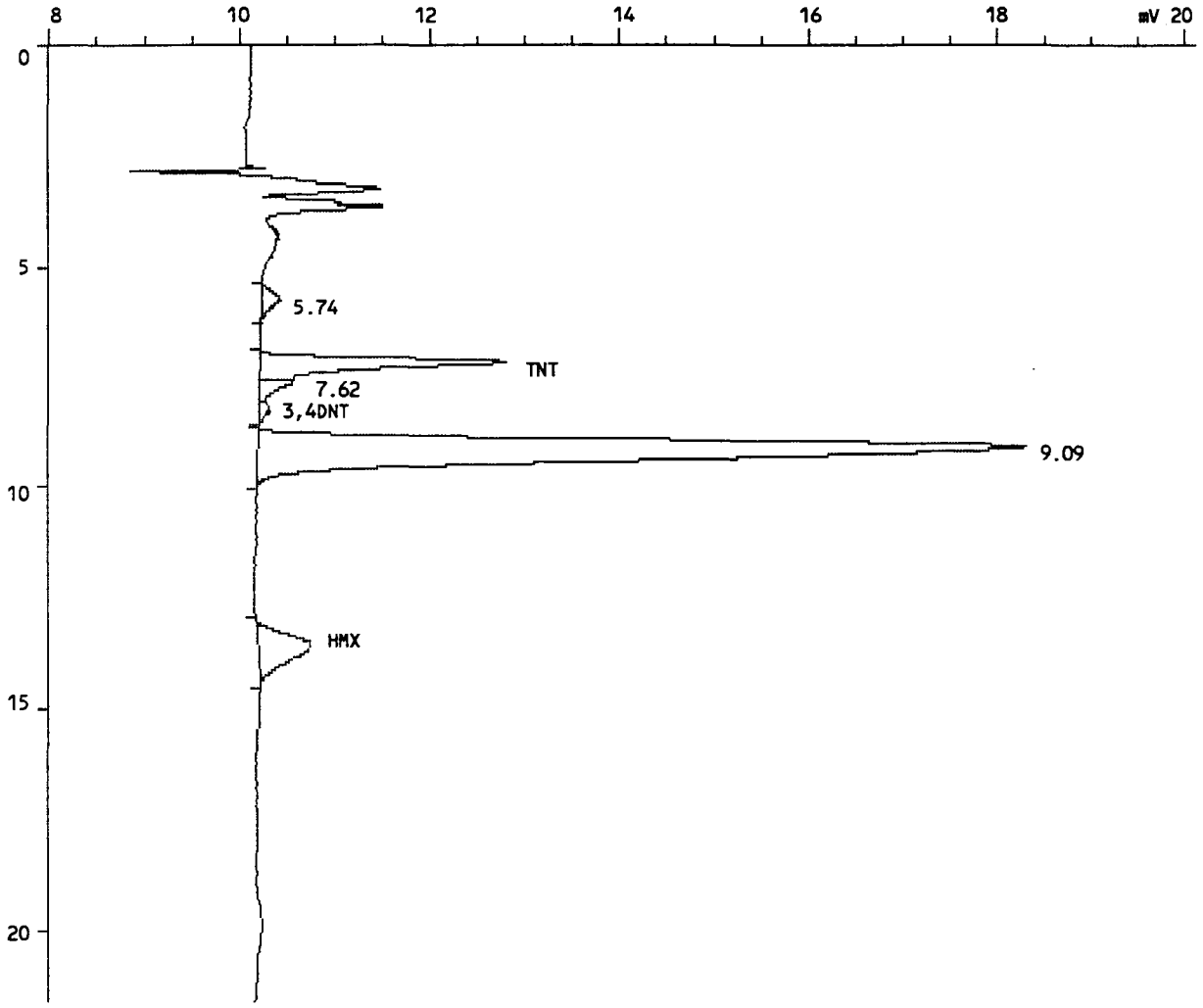
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.595	6091	64188	247066.703	HMX
3	8.523	31974	688869	1845843.500	RDX
5	18.171	5453	143237	177889.906	TNT
6	19.099	518	16517	28486.758	4ADNT
7	20.133	217	7325	9014.344	2ADNT
Total		44253	920135	2308301.250	
Residual		749	12427	36630.930	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,4,1

Sample name.....: BIO-S-001-00-09-1 100X
Sample ID.....: 33609.12
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 13:00:15
Reported on 09-May-98 at 16:31:36



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,4,1

Acquired on 23-Apr-98 at 13:00:15
Modified on 09-May-82 at 16:26:46
Reported on 09-May-98 at 16:26:46

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-09-1 100X
Sample ID.....: 33609.12
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

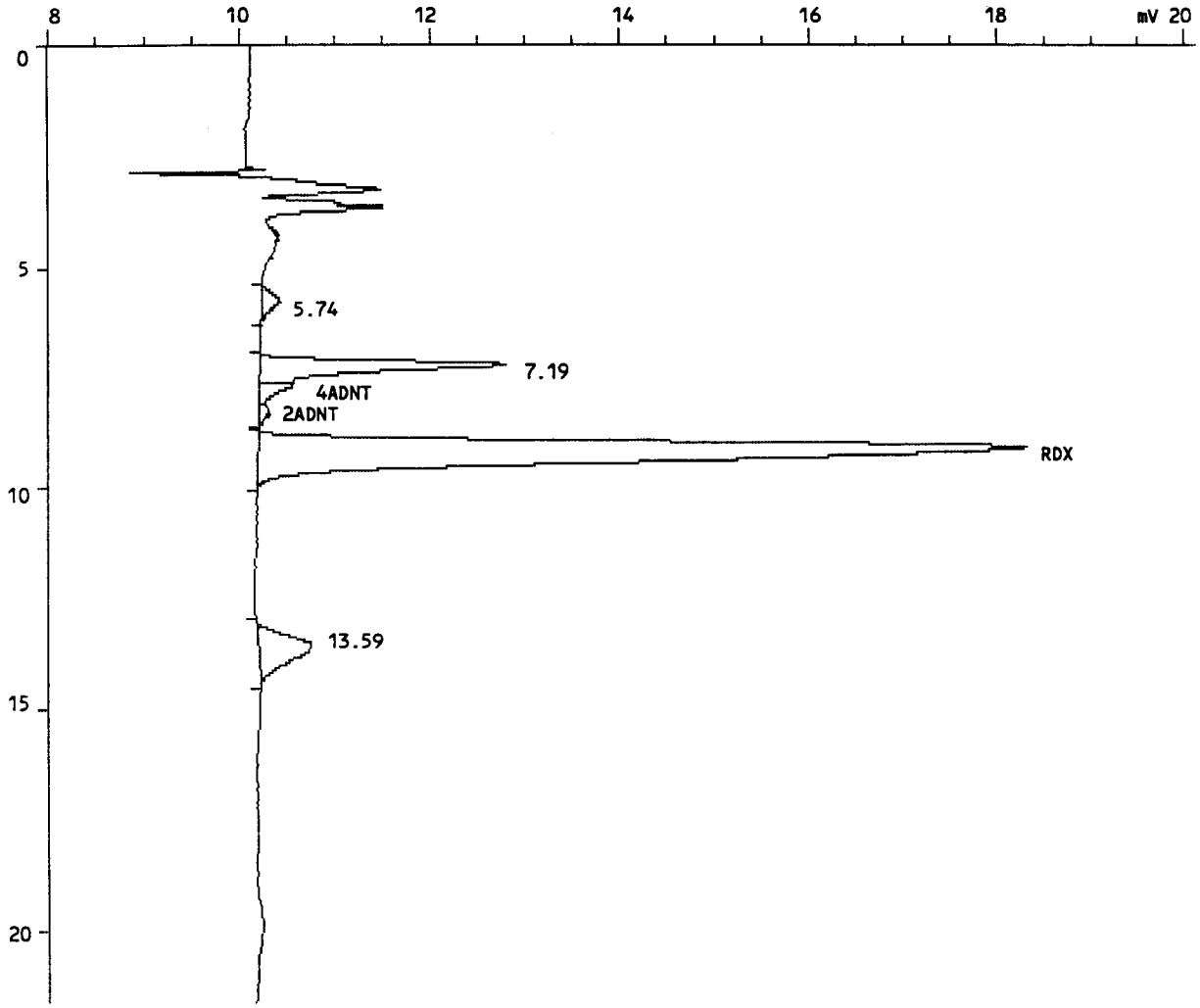
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.189	2606	43628	173677.969	TNT
4	8.240	112	2352	17710.654	3,4DNT
6	13.595	555	23170	231009.406	HMX
Total		3273	69150	422398.031	
Residual		8673	249082	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,4,1

Sample name.....: BIO-S-001-00-09-1 100X
Sample ID.....: 33609.12
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 13:00:15
Reported on 09-May-98 at 16:23:52



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,4,1

Acquired on 23-Apr-98 at 13:00:15
Modified on 09-May-82 at 16:21:18
Reported on 09-May-98 at 16:21:20

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-09-1 100X
Sample ID.....: 33609.12
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	7.616	368	6038	38043.945	4ADNT
4	8.240	112	2352	9311.064	2ADNT
5	9.093	8110	238250	1795400.250	RDX
Total		8590	246639	1842755.250	
Residual		3356	71593	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-09-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.12

Sample Amt: 2g % Moisture 37.61 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

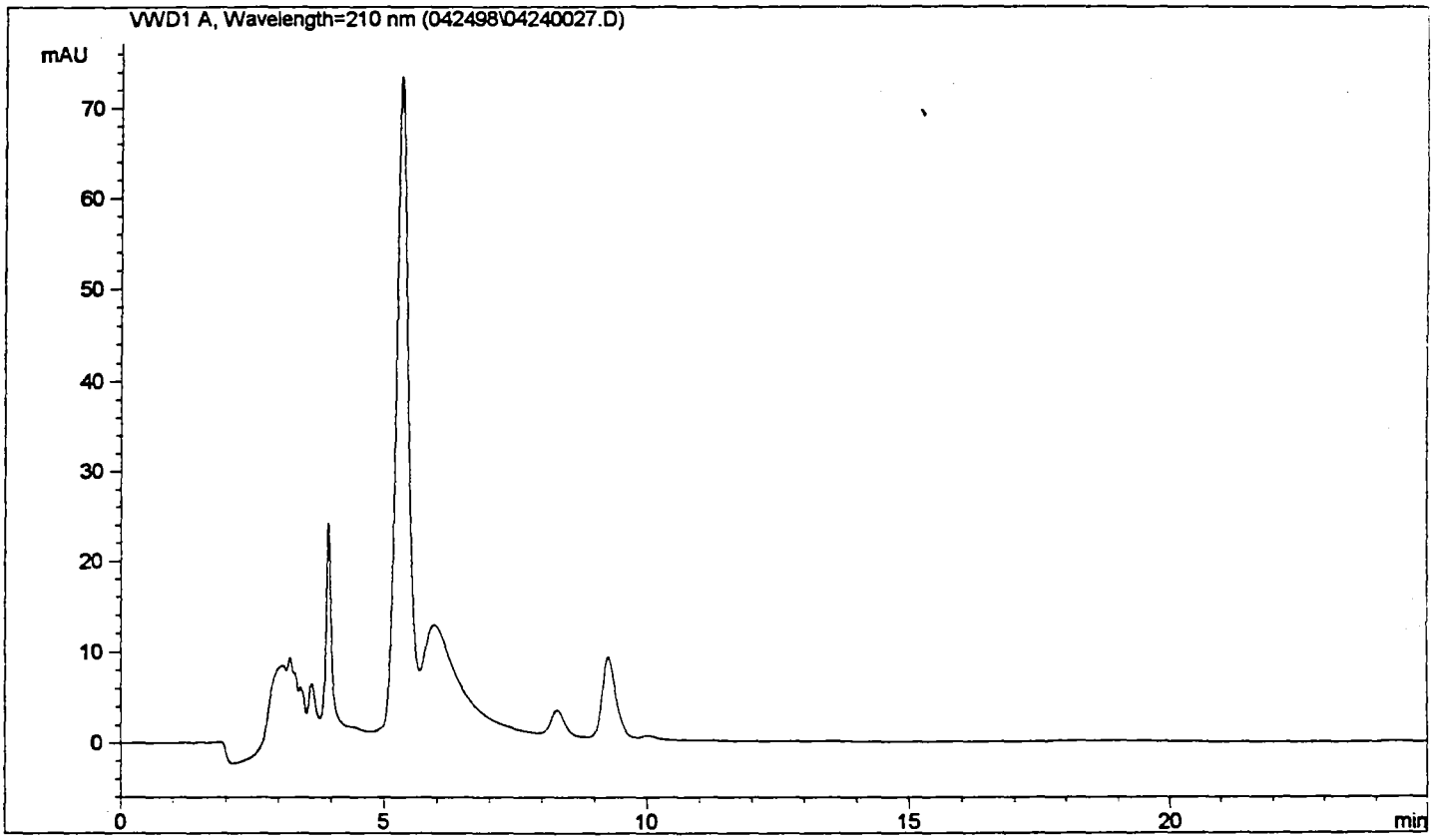
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 27
Sample Name	: 33609.12	Vial No.	: 27
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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*** End of Report ***

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-09
-1FD 100X

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.13

Sample Amt: 2g % Moisture 38.60 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	225000	
121-82-4	RDX	1790000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	210000	
1946-51-0	4ADNT	13400	P
35572-78-2	2ADNT	6680	J
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

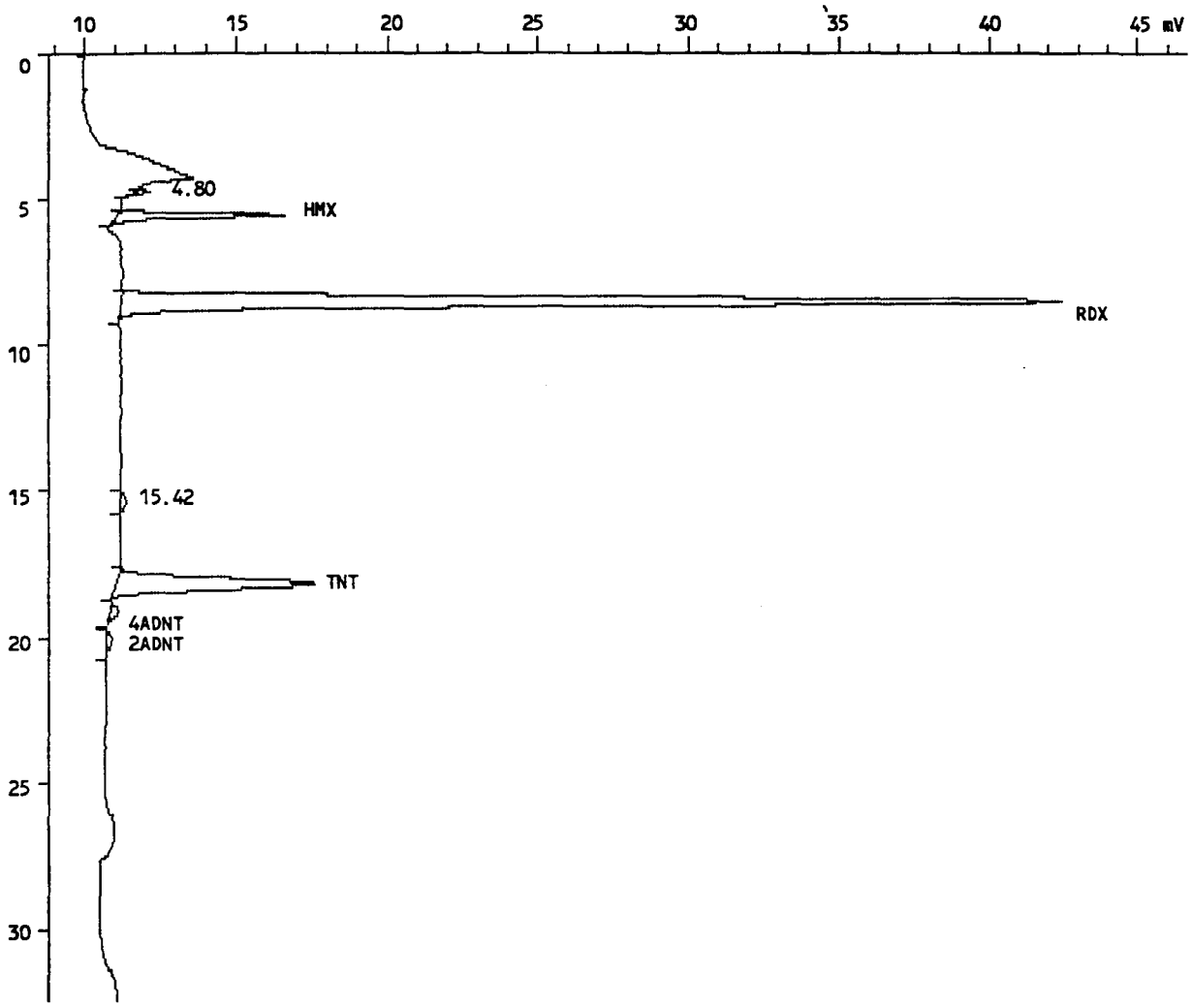
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,27,1

Sample name.....: BIO-S-001-00-09-1FD 100X
Sample ID.....: 33609.13
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 15:03:44
Reported on 08-May-98 at 13:08:33



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,27,1

Acquired on 20-Apr-98 at 15:03:44
Modified on 08-May-82 at 13:05:00
Reported on 08-May-98 at 13:05:00

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 13:00:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-09-1FD 100X
Sample ID.....: 33609.13
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.579	5511	58404	224804.094	HMX *
3	8.507	31243	669791	1794725.000	RDX *
5	18.155	6555	169255	210202.172	TNT *
6	19.131	284	7790	13436.084	4ADNT * P
7	20.011	180	5431	6683.808	2ADNT *
Total		43772	910672	2249851.000	
Residual		835	10275	27531.344	

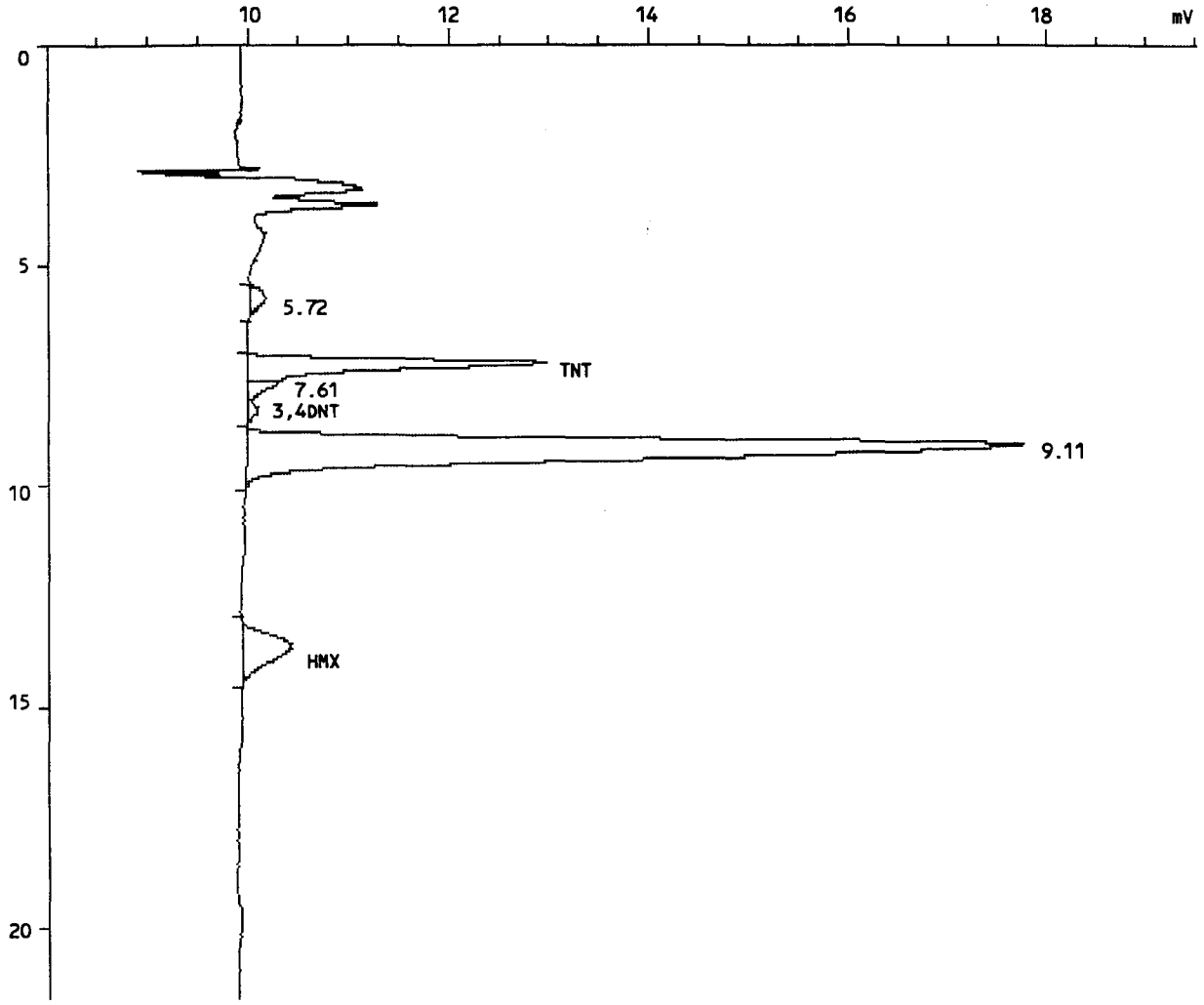
109A

LONG PLOT

Injection F: <MC3> 3 3CN0422B,5,1

Sample name.....: BIO-S-001-00-09-1FD 100X
Sample ID.....: 33609.13
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 13:44:36
Reported on 09-May-98 at 16:31:03



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,5,1

Acquired on 23-Apr-98 at 13:44:36
Modified on 09-May-82 at 16:27:00
Reported on 09-May-98 at 16:27:00

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-09-1FD 100X
Sample ID.....: 33609.13
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

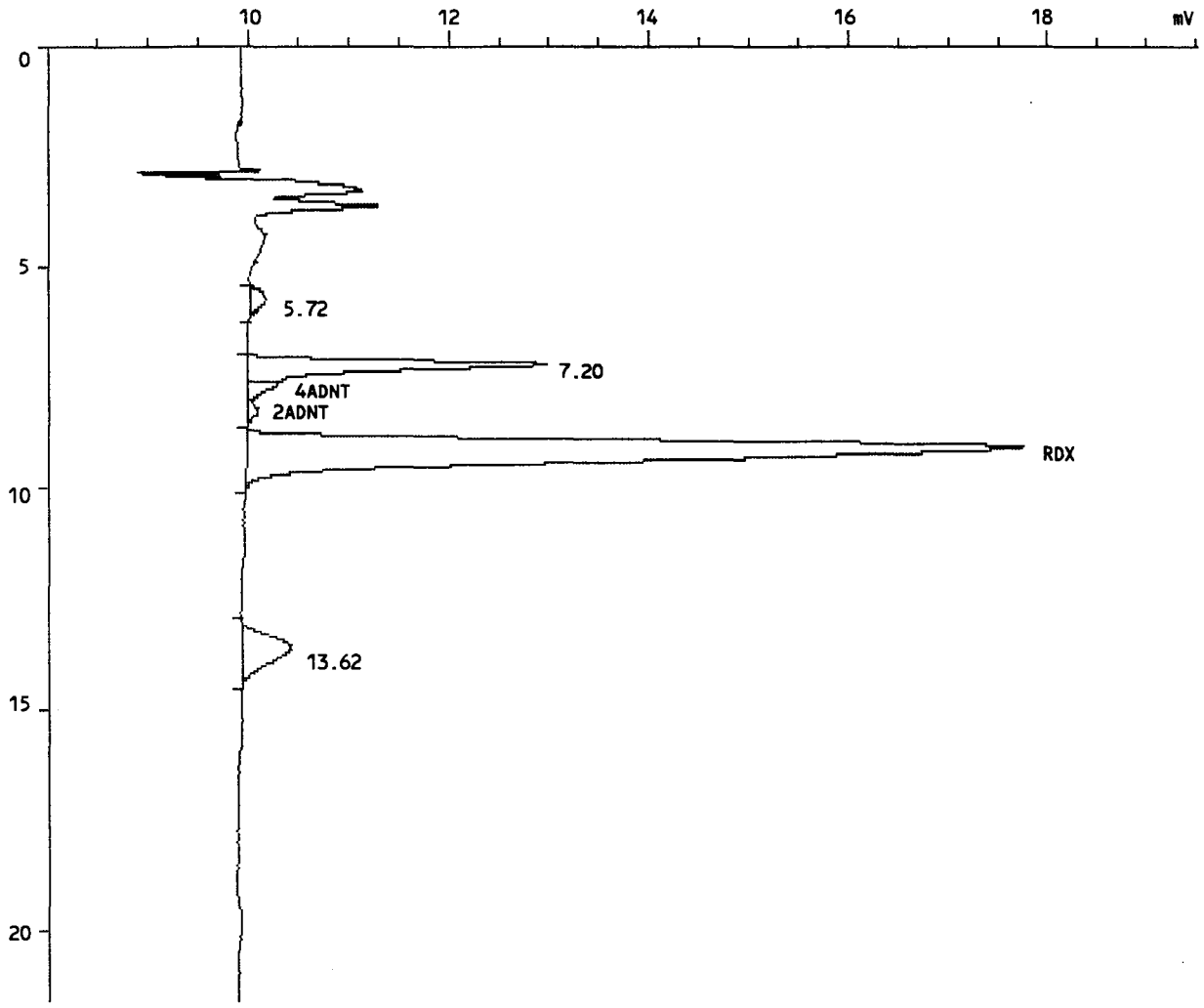
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.200	3002	49862	198493.500	TNT
4	8.261	99	2176	16385.039	3,4DNT
6	13.616	494	20177	201161.641	HMX
Total		3595	72214	416040.188	
Residual		8261	239426	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,5,1

Sample name.....: BIO-S-001-00-09-1FD 100X
Sample ID.....: 33609.13
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 13:44:36
Reported on 09-May-98 at 16:23:24



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,5,1

Acquired on 23-Apr-98 at 13:44:36
Modified on 09-May-82 at 16:21:34
Reported on 09-May-98 at 16:21:34

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-09-1FD 100X
Sample ID.....: 33609.13
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	7.605	331	5040	31760.418	4ADNT
4	8.261	99	2176	8614.145	2ADNT
5	9.115	7767	230337	1735775.000	RDX
Total		8197	237554	1776149.500	
Residual		3659	74086	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-09-1FD

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.13

Sample Amt: 2g % Moisture 38.60 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

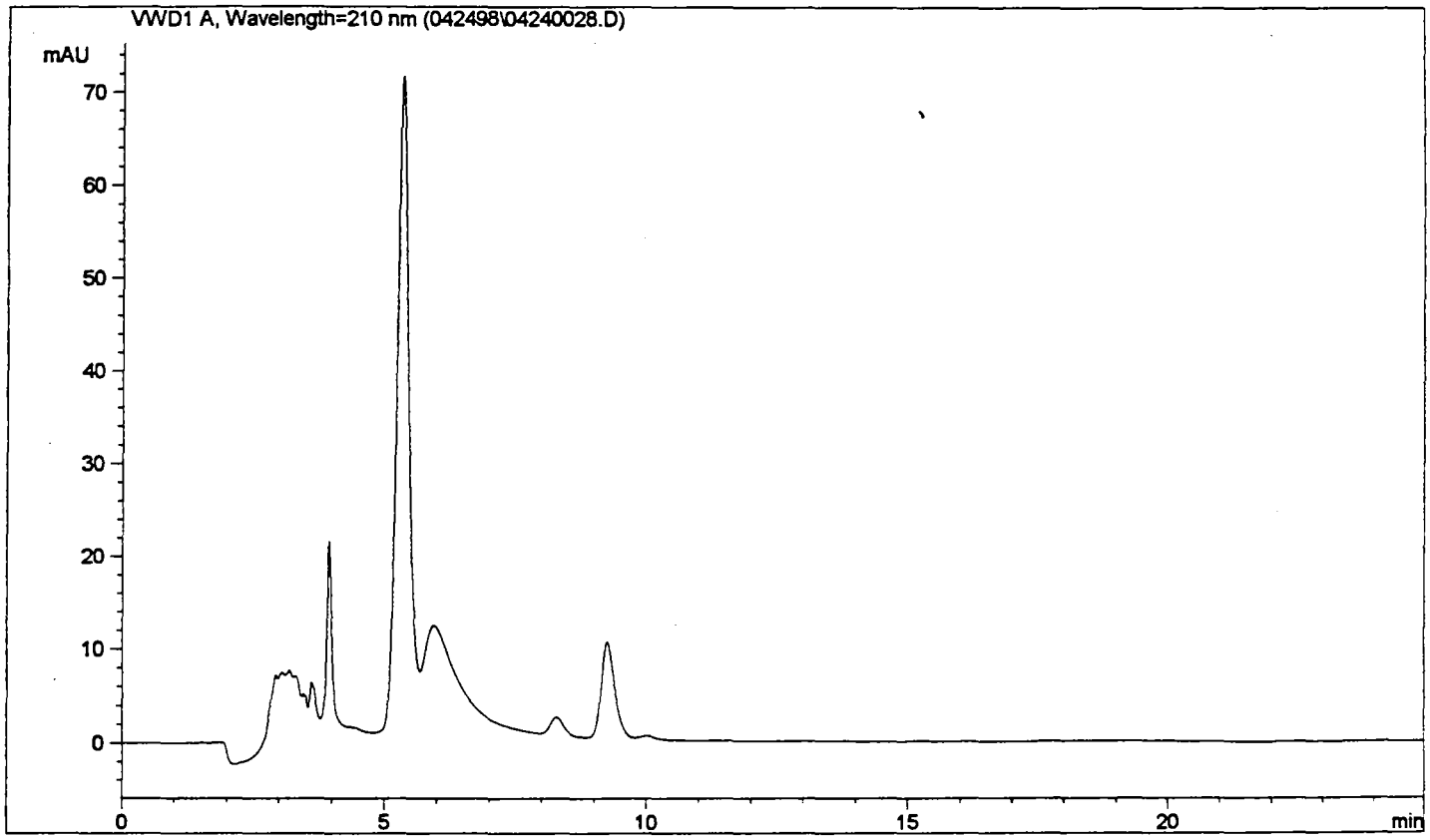
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 28
Sample Name	: 33609.13	Vial No.	: 28
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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*** End of Report ***

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1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-09-2 100X

ab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.14

Sample Amt: 2g % Moisture 45.19 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	236000	
121-82-4	RDX	1800000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	152000	
1946-51-0	4ADNT	30100	
35572-78-2	2ADNT	6960	J
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

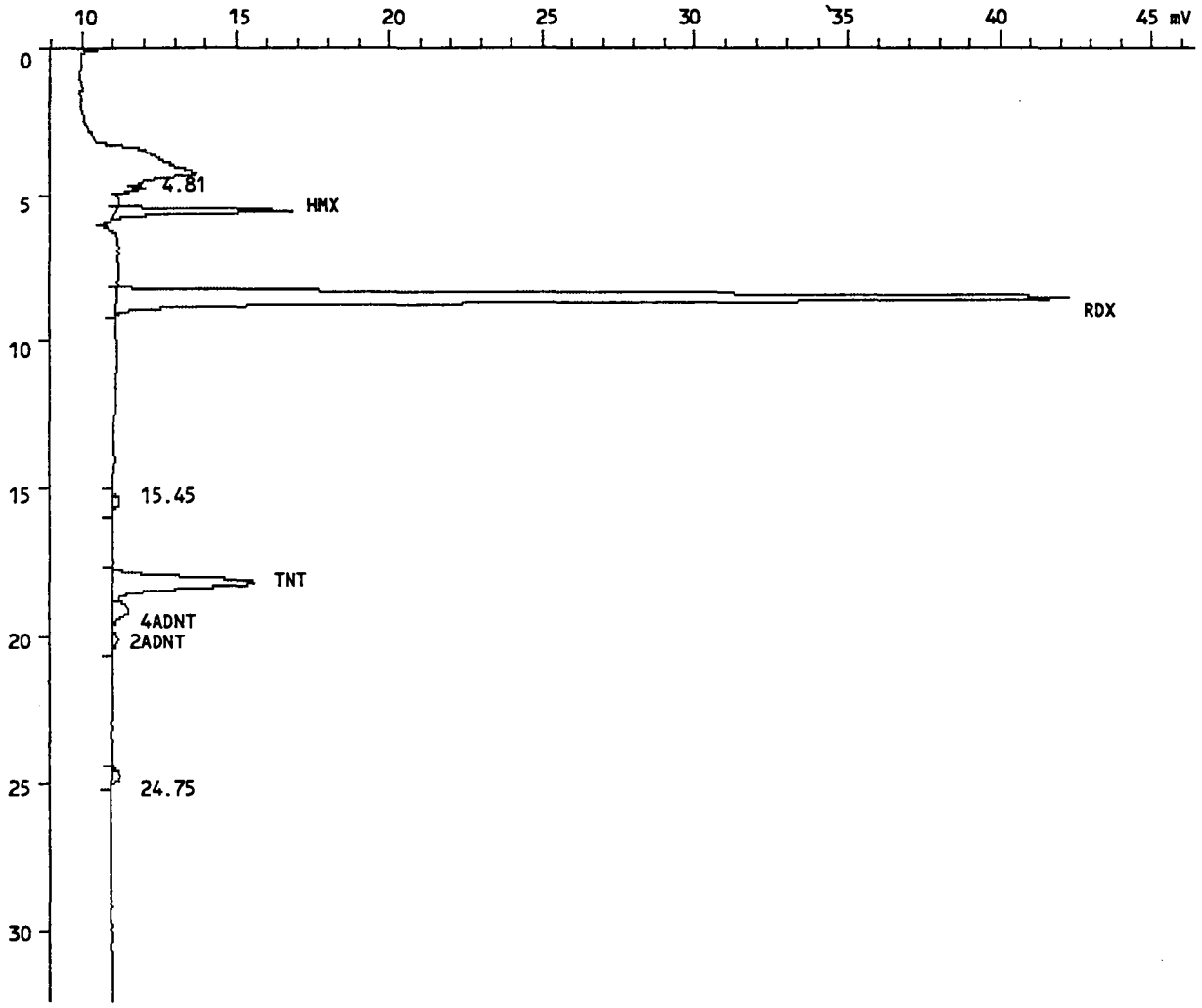
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,28,1

Sample name.....: BIO-S-001-00-09-2 100X
Sample ID.....: 33609.14
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 15:48:22
Reported on 08-May-98 at 13:08:08



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,28,1

Acquired on 20-Apr-98 at 15:48:22
Modified on 08-May-82 at 13:05:16
Reported on 08-May-98 at 13:05:16

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 13:00:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-09-2 100X
Sample ID.....: 33609.14
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

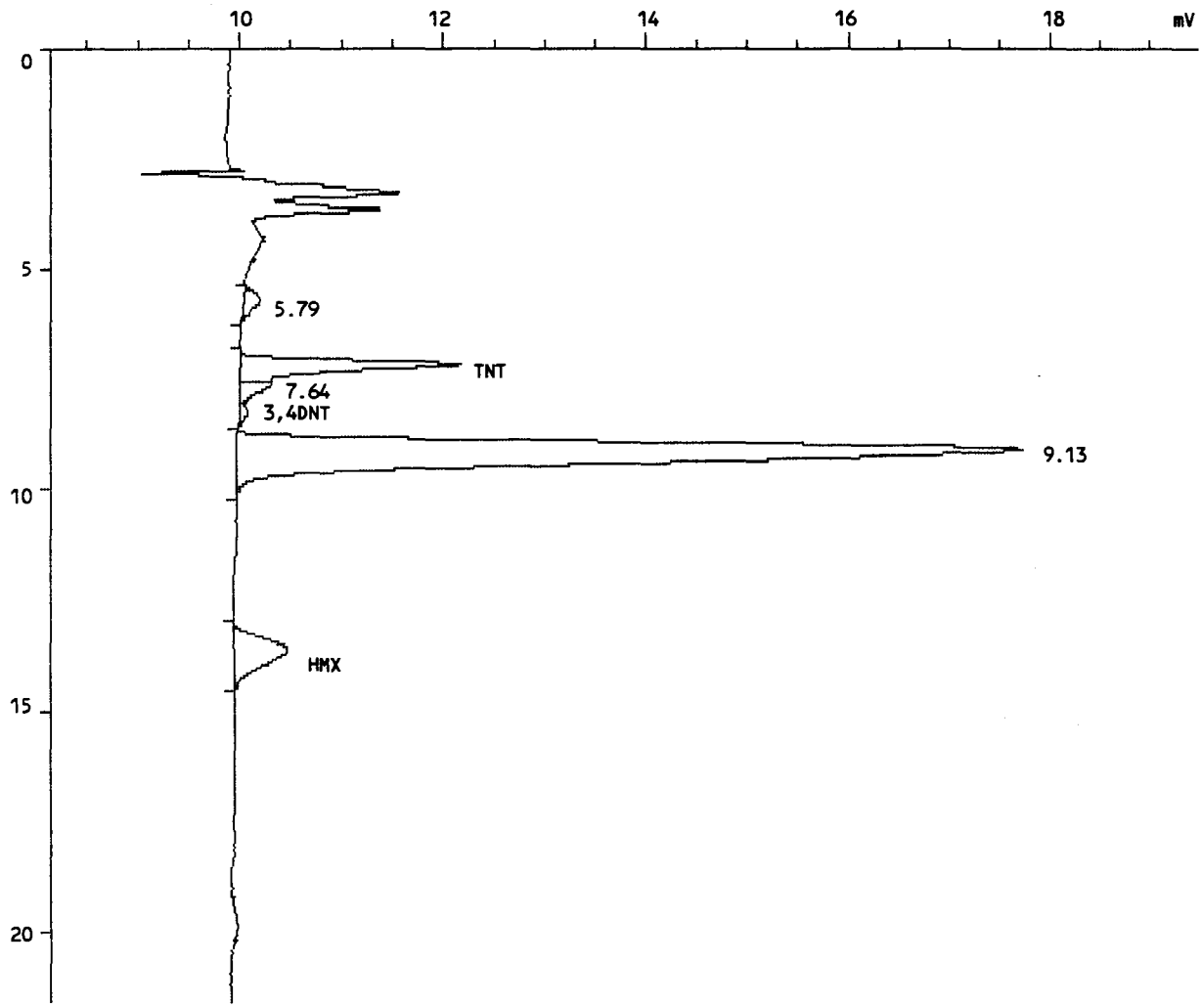
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.579	5853	61441	236493.063	HMX *
3	8.507	31104	671705	1799852.000	RDX *
5	18.181	4600	122037	151560.719	TNT *
6	19.056	528	17465	30121.996	4ADNT *
7	20.117	177	5653	6957.125	2ADNT *
Total		42262	878300	2224985.000	
Residual		935	15718	33042.371	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,6,1

Sample name.....: BIO-S-001-00-09-2 100X
Sample ID.....: 33609.14
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 14:28:57
Reported on 09-May-98 at 16:30:31



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,6,1

Acquired on 23-Apr-98 at 14:28:57
Modified on 09-May-82 at 16:27:14
Reported on 09-May-98 at 16:27:14

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-09-2 100X
Sample ID.....: 33609.14
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

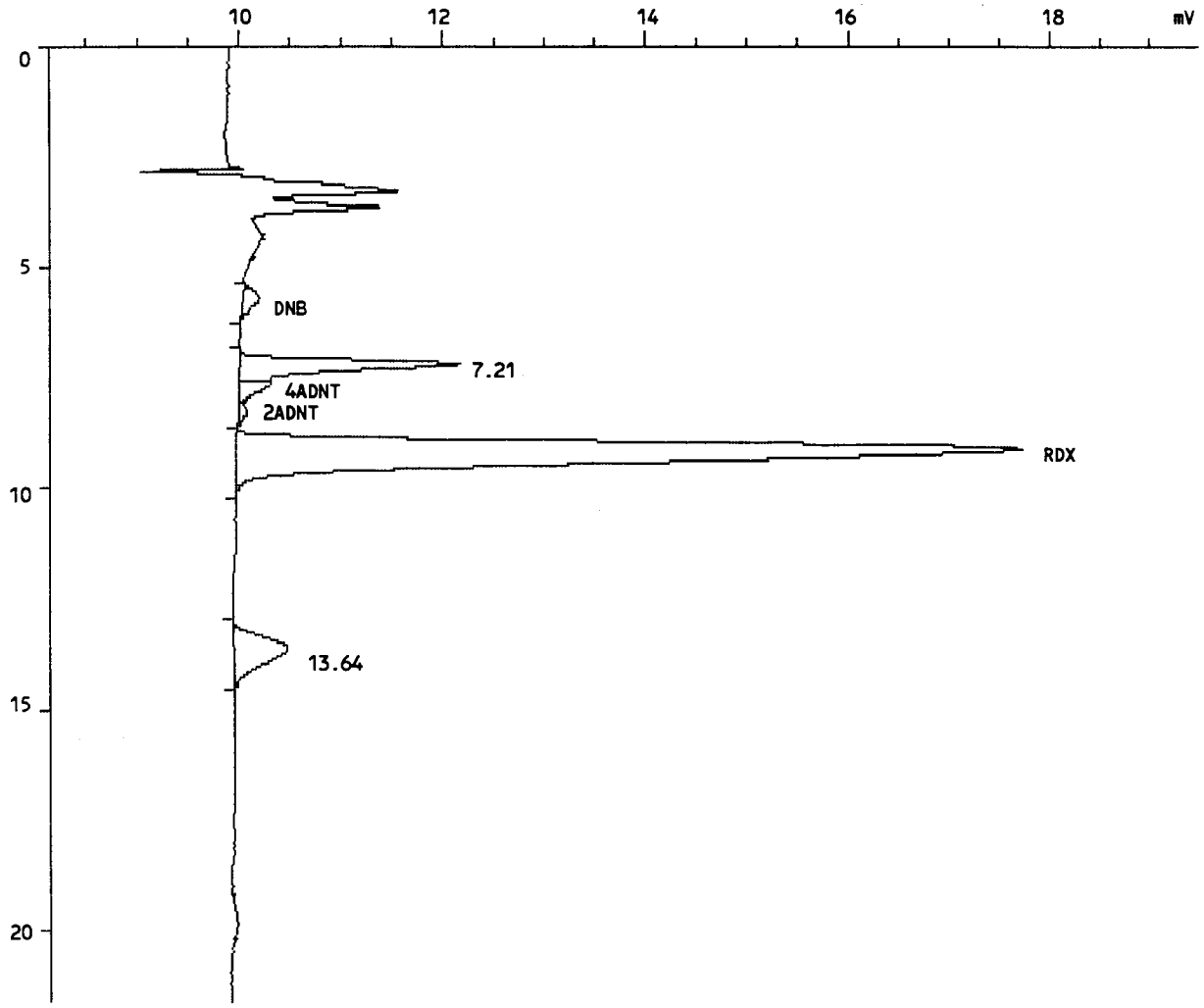
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.211	2162	35892	142880.688	TNT
4	8.261	99	2066	15557.692	3,4DNT
6	13.643	526	21478	214137.453	HMX
Total		2787	59436	372575.813	
Residual		8234	241702	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,6,1

Sample name.....: BIO-S-001-00-09-2 100X
Sample ID.....: 33609.14
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 14:28:57
Reported on 09-May-98 at 16:23:03



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,6,1

Acquired on 23-Apr-98 at 14:28:57
Modified on 09-May-82 at 16:21:48
Reported on 09-May-98 at 16:21:48

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-09-2 100X
Sample ID.....: 33609.14
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	5.792	171	4609	12925.399	DNB
3	7.643	327	6055	38155.164	4ADNT
4	8.261	99	2066	8179.183	2ADNT
5	9.131	7736	231038	1741052.750	RDX
Total		8333	243768	1800312.500	
Residual		2688	57370	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-09-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.14

Sample Amt: 2g % Moisture 45.19 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

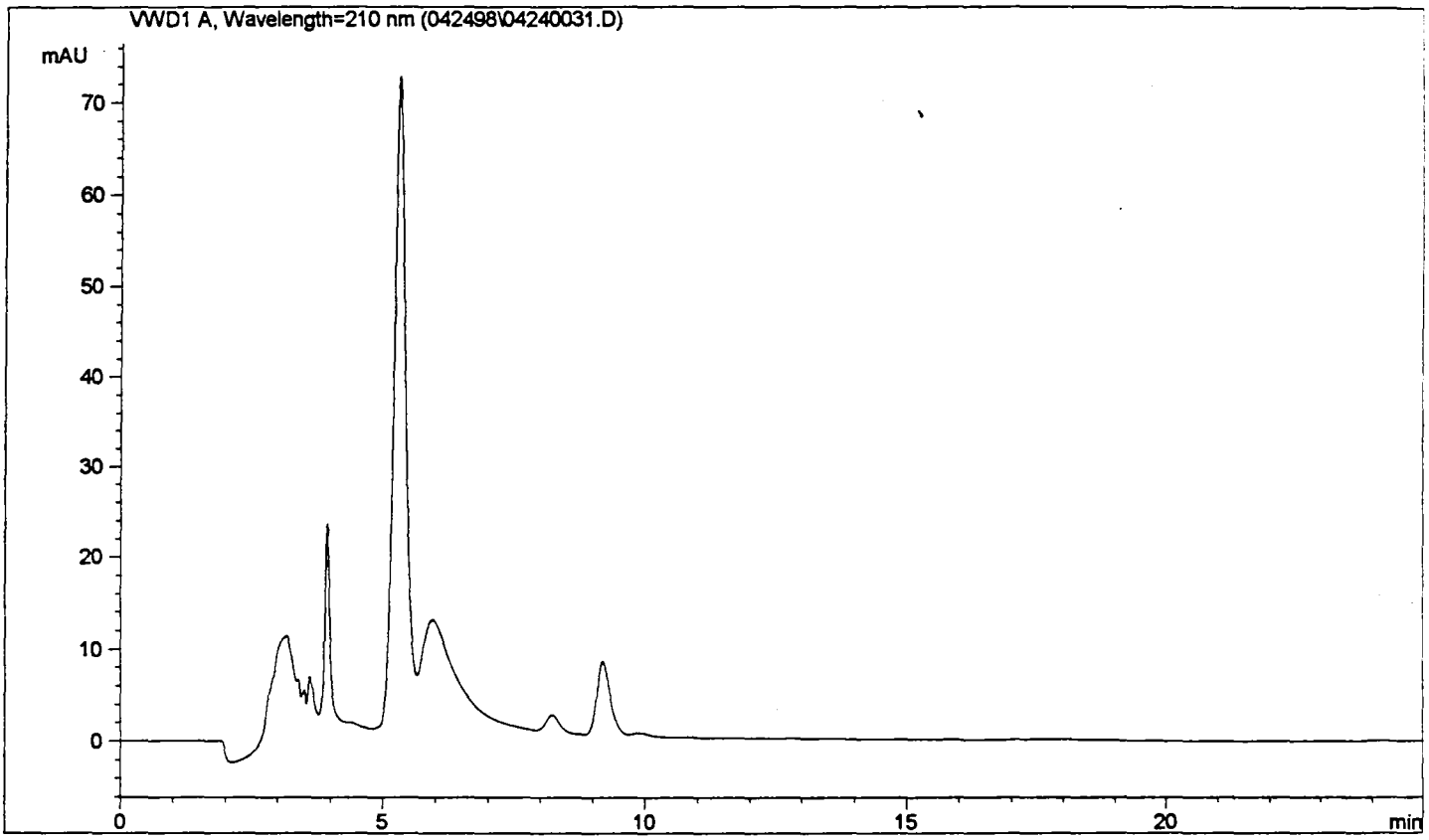
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 31
Sample Name	: 33609.14	Vial No.	: 31
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN

Totals: 0.00000

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*** End of Report ***

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1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-09-3 100%

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.15

Sample Amt: 2g % Moisture 24.88 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	177000	
121-82-4	RDX	1450000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	157000	
1946-51-0	4ADNT	10400	JP
35572-78-2	2ADNT	2750	JP
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

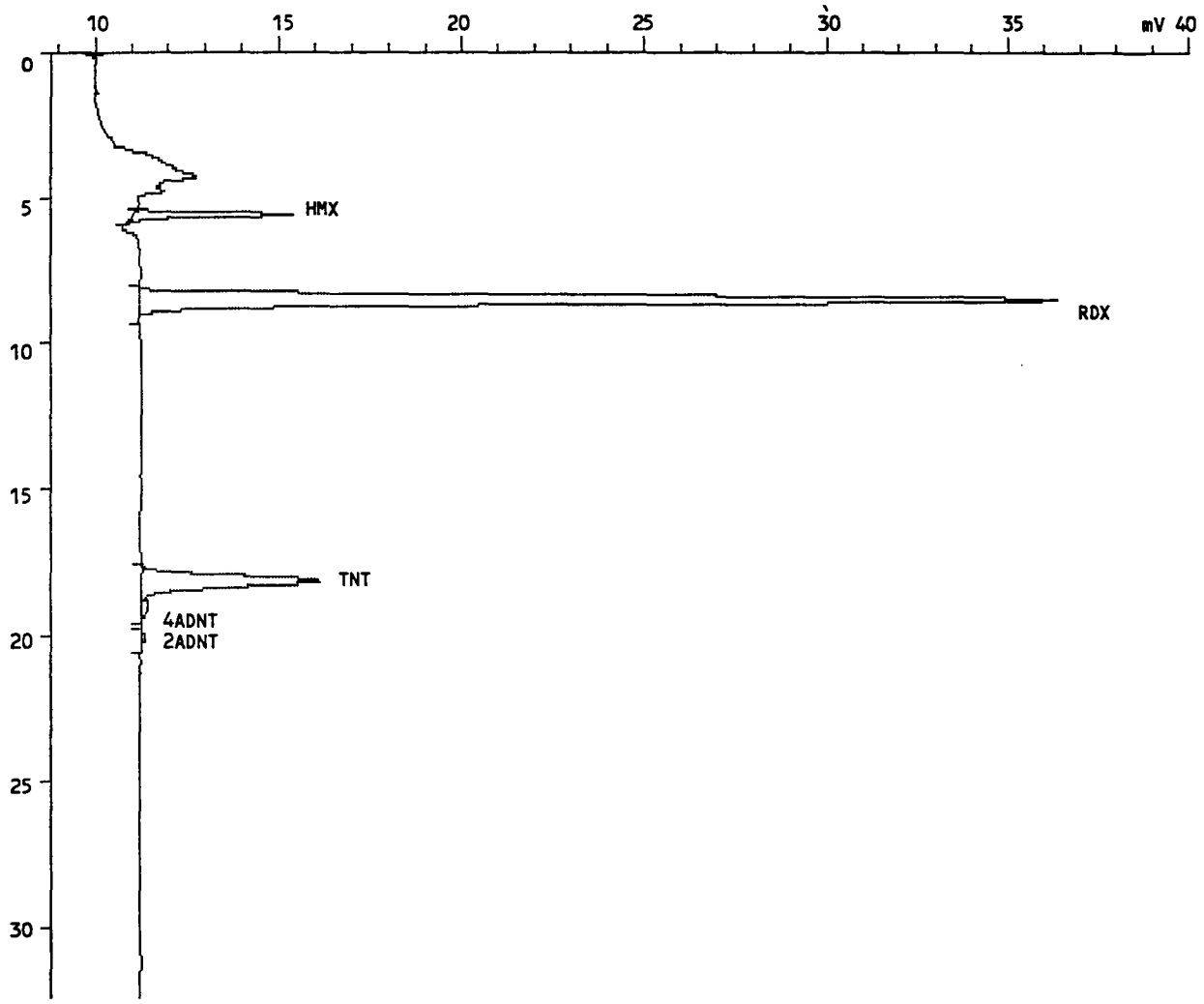
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,29,1

Sample name.....: BIO-S-001-00-09-3 100X
Sample ID.....: 33609.15
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 16:33:02
Reported on 08-May-98 at 13:07:40



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,29,1

Acquired on 20-Apr-98 at 16:33:02
Modified on 08-May-82 at 13:05:32
Reported on 08-May-98 at 13:05:32

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 13:00:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-09-3 100X
Sample ID.....: 33609.15
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

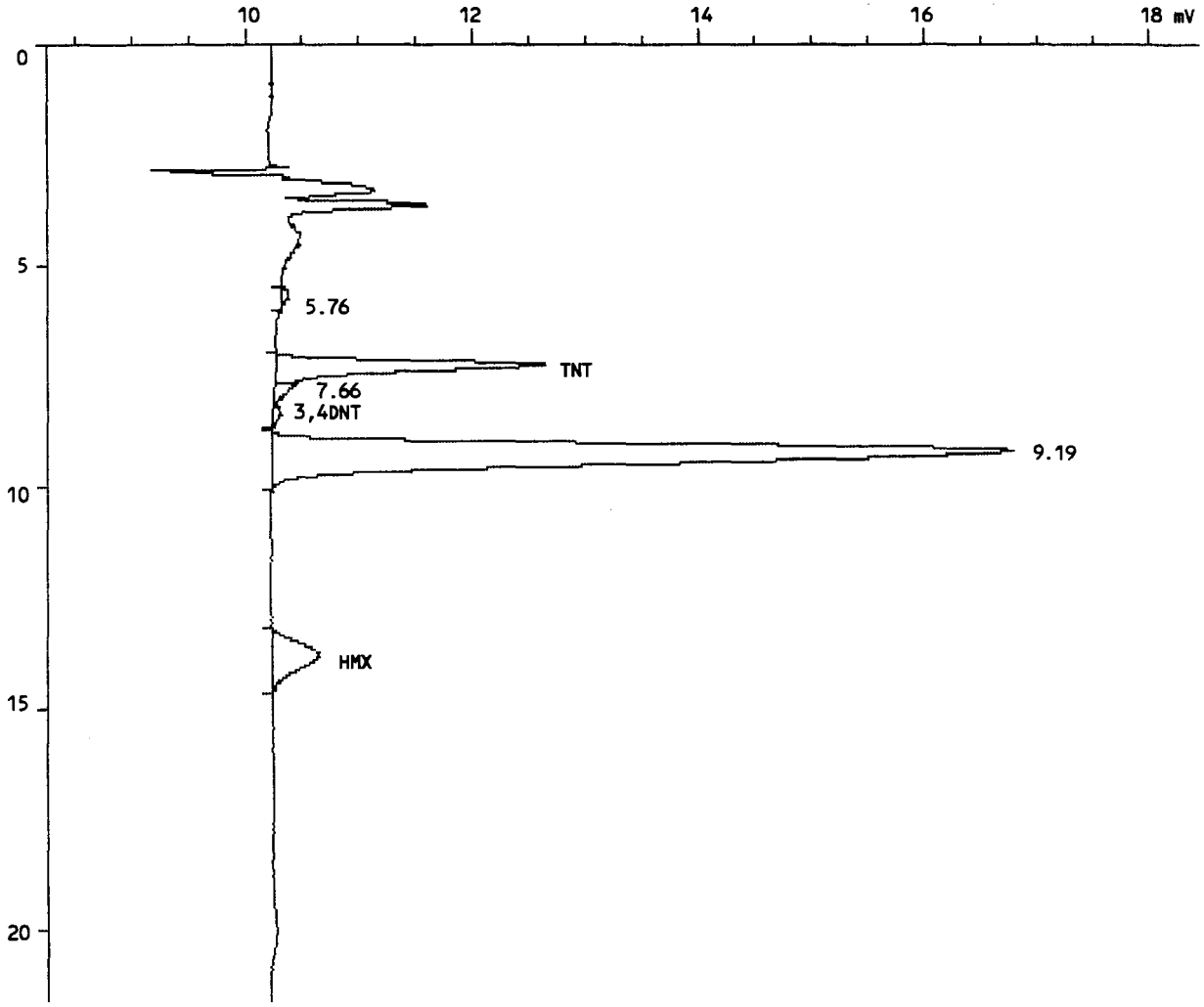
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	5.595	4339	46039	177211.016	HMX
2	8.517	25203	540361	1447913.875	RDX
3	18.155	4852	126762	157429.203	TNT
4	19.072	195	6046	10428.548	4ADNT
5	20.197	89	2235	2750.226	2ADNT
Total		34678	721444	1795732.875	
Residual		0	0	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,9,1

Sample name.....: BIO-S-001-00-09-3 100X
Sample ID.....: 33609.15
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 16:42:01
Reported on 09-May-98 at 16:29:56



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,9,1

Acquired on 23-Apr-98 at 16:42:01
Modified on 09-May-82 at 16:27:28
Reported on 09-May-98 at 16:27:28

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-09-3 100X
Sample ID.....: 33609.15
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

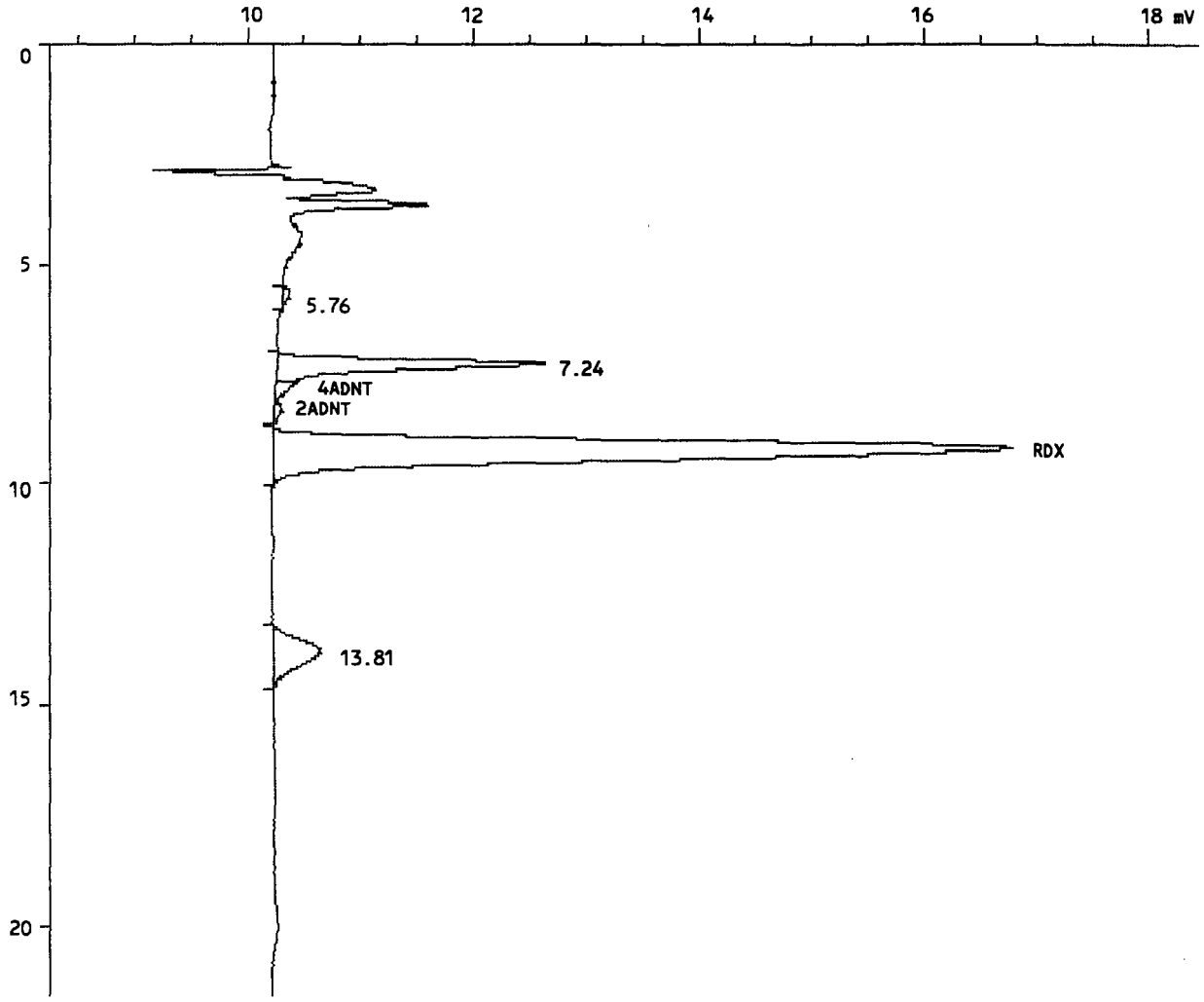
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.243	2383	39102	155659.531	TNT
4	8.357	65	1311	9873.467	3,4DNT
6	13.813	411	16801	167503.563	HMX
Total		2860	57213	333036.563	
Residual		6804	194900	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422B,9,1

Sample name.....: BIO-S-001-00-09-3 100X
Sample ID.....: 33609.15
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 16:42:01
Reported on 09-May-98 at 16:22:37



INJECTION REPORT

Injection F: <MC3> 3 3CN0422B,9,1

Acquired on 23-Apr-98 at 16:42:01
Modified on 09-May-82 at 16:22:02
Reported on 09-May-98 at 16:22:03

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 37
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-09-3 100X
Sample ID.....: 33609.15
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	7.659	189	3049	19215.270	4ADNT
4	8.357	65	1311	5190.801	2ADNT
5	9.195	6553	190756	1437501.000	RDX
Total		6807	195117	1461907.125	
Residual		2857	56996	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-09-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.15

Sample Amt: 2g % Moisture 24.88 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

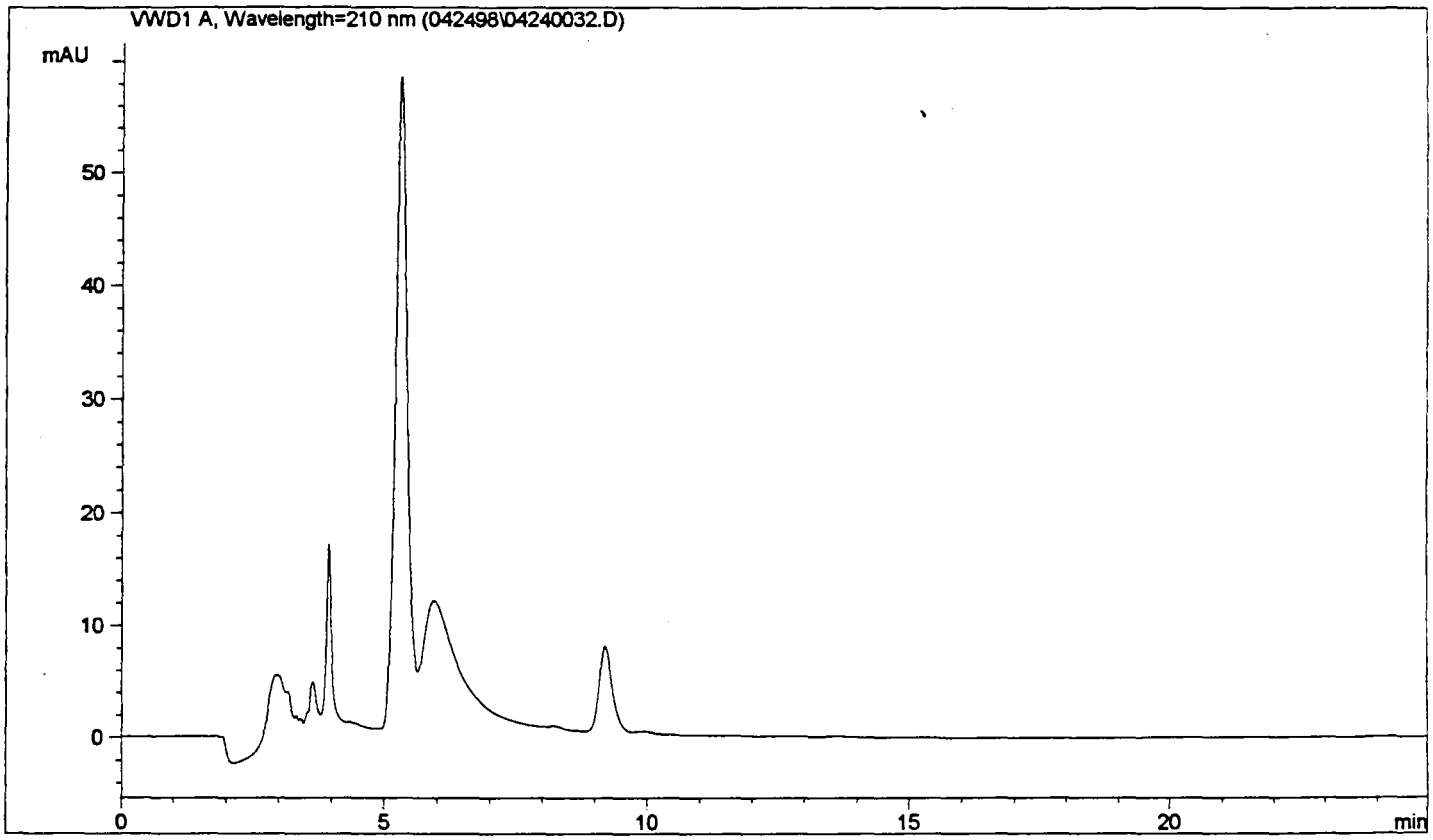
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 32
Sample Name	: 33609.15	Vial No.	: 32
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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*** End of Report ***

0133

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-11-1 100K

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.16

Sample Amt: 2g % Moisture 30.34 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	103000	J
121-82-4	RDX	786000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	42400	
1946-51-0	4ADNT	7030	JP
35572-78-2	2ADNT	1460	JP
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

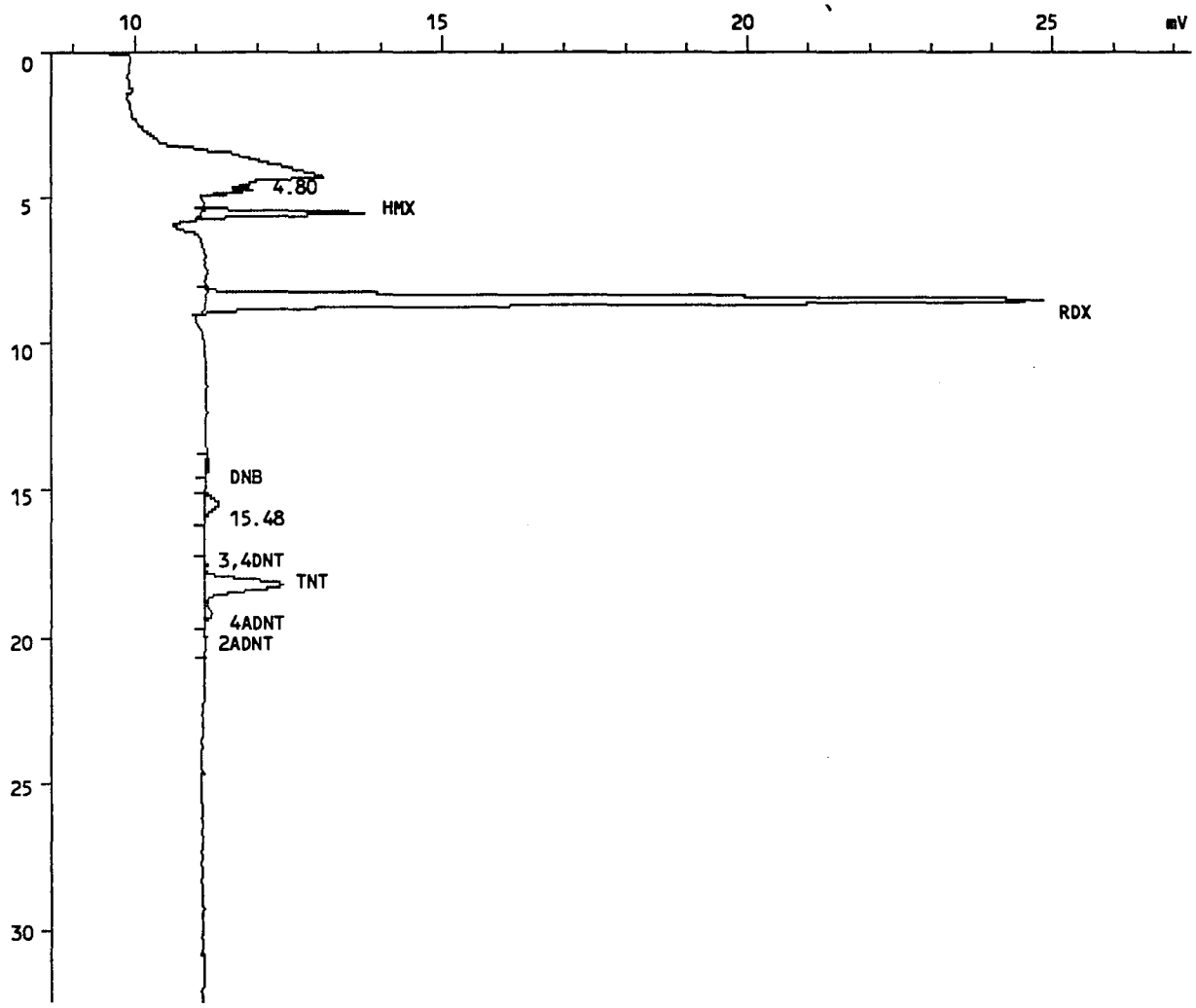
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419,30,1

Sample name.....: BIO-S-001-00-11-1 100X
Sample ID.....: 33609.16
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 17:17:40
Reported on 08-May-98 at 13:07:17



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,30,1

Acquired on 20-Apr-98 at 17:17:40
Modified on 08-May-82 at 13:05:48
Reported on 08-May-98 at 13:05:49

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 13:00:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-11-1 100X
Sample ID.....: 33609.16
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

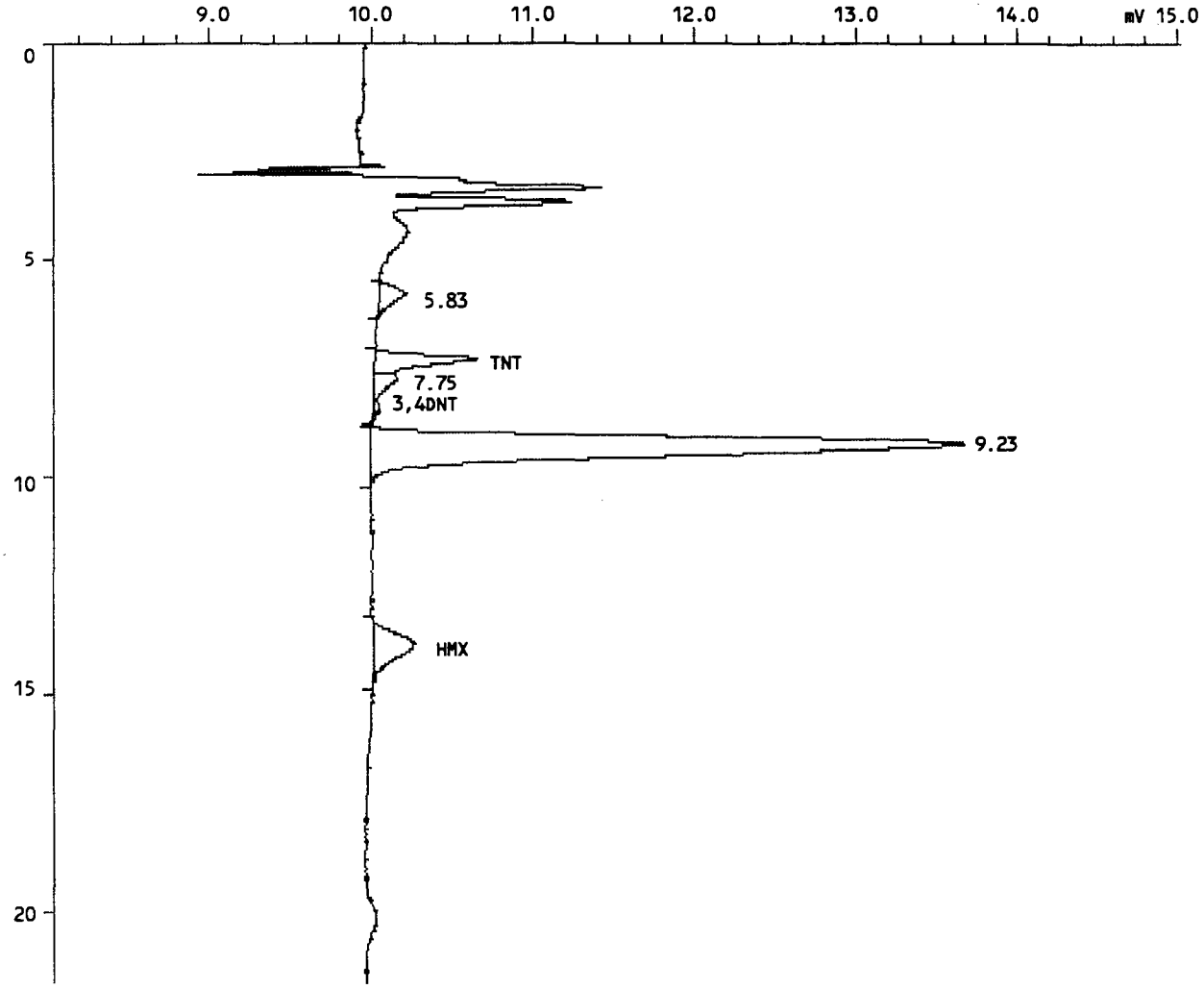
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.573	2645	26824	103250.438	HMX
3	8.507	13685	293371	786094.750	RDX
4	14.171	52	1225	1130.014	DNB
6	17.477	42	843	1805.633	3,4DNT 90
7	18.213	1276	34159	42423.289	TNT
8	19.131	140	4074	7026.407	4ADNT
9	20.000	47	1186	1460.102	2ADNT
Total		17888	361683	943190.688	
Residual		615	9065	15909.712	

LONG PLOT

Injection F: <MC3> 3 3CN0422C,1,1

Sample name.....: BIO-S-001-00-11-1 100X
Sample ID.....: 33609.16
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 18:34:59
Reported on 09-May-98 at 16:38:23



INJECTION REPORT

Injection F: <MC3> 3 3CN0422C,1,1

Acquired on 23-Apr-98 at 18:34:59
Modified on 09-May-82 at 16:38:02
Reported on 09-May-98 at 16:38:05

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-11-1 100X
Sample ID.....: 33609.16
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

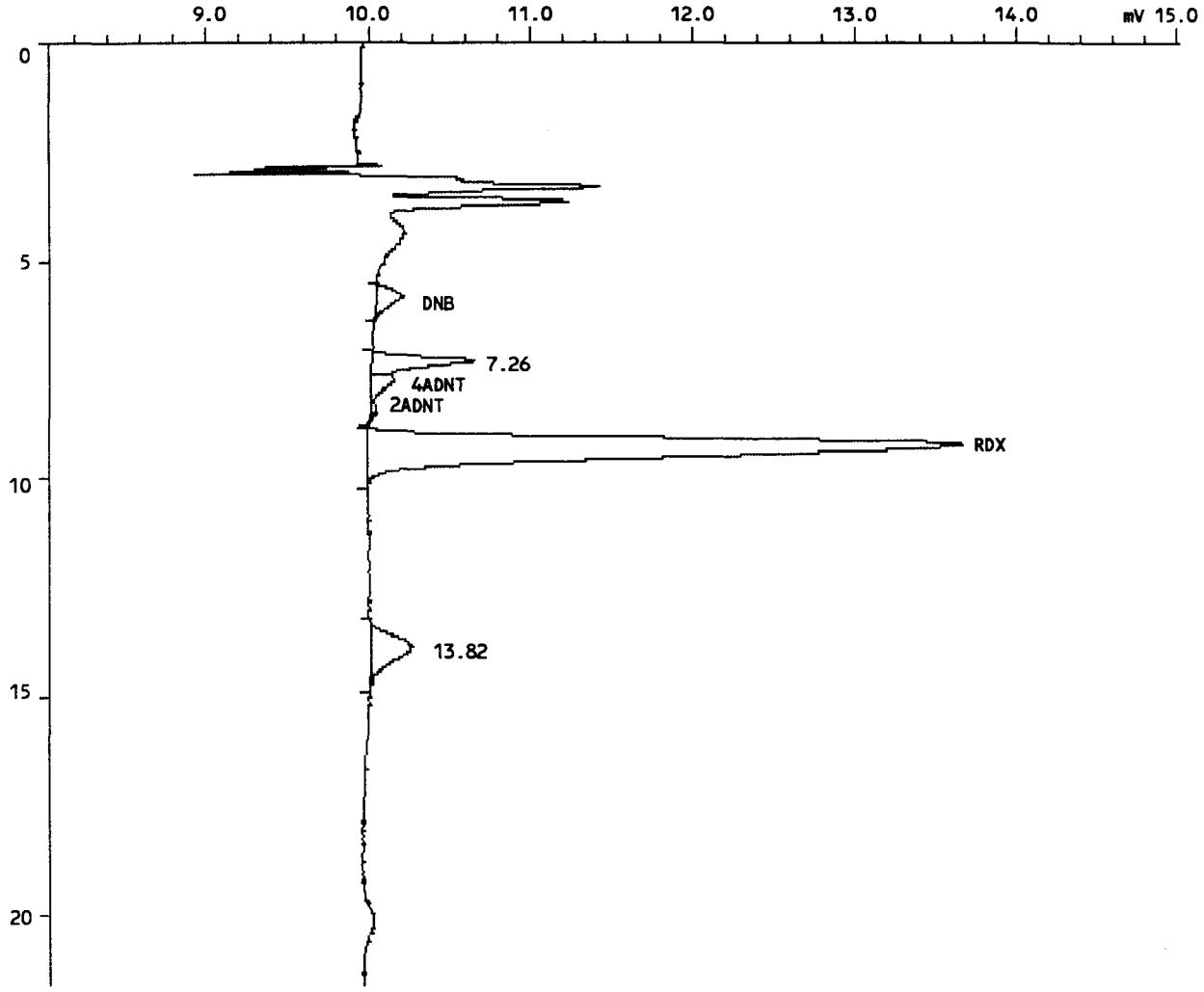
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.259	639	10600	42197.723	TNT
4	8.395	48	898	6763.731	3,4DNT
6	13.824	257	10363	103323.086	HMX
Total		944	21862	152284.531	
Residual		3990	113968	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422C,1,1

Sample name.....: BIO-S-001-00-11-1 100X
Sample ID.....: 33609.16
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 18:34:59
Reported on 09-May-98 at 16:41:32



INJECTION REPORT

Injection F: <MC3> 3 3CN0422C,1,1

Acquired on 23-Apr-98 at 18:34:59
Modified on 09-May-82 at 16:41:00
Reported on 09-May-98 at 16:41:03

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-11-1 100X
Sample ID.....: 33609.16
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	5.835	170	4044	11339.648	DNB
3	7.749	152	3308	20847.227	4ADNT
4	8.395	48	898	3555.912	2ADNT
5	9.232	3668	106615	803431.750	RDX
Total		4038	114866	839174.563	
Residual		896	20963	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-11-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.16

Sample Amt: 2g % Moisture 30.34 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

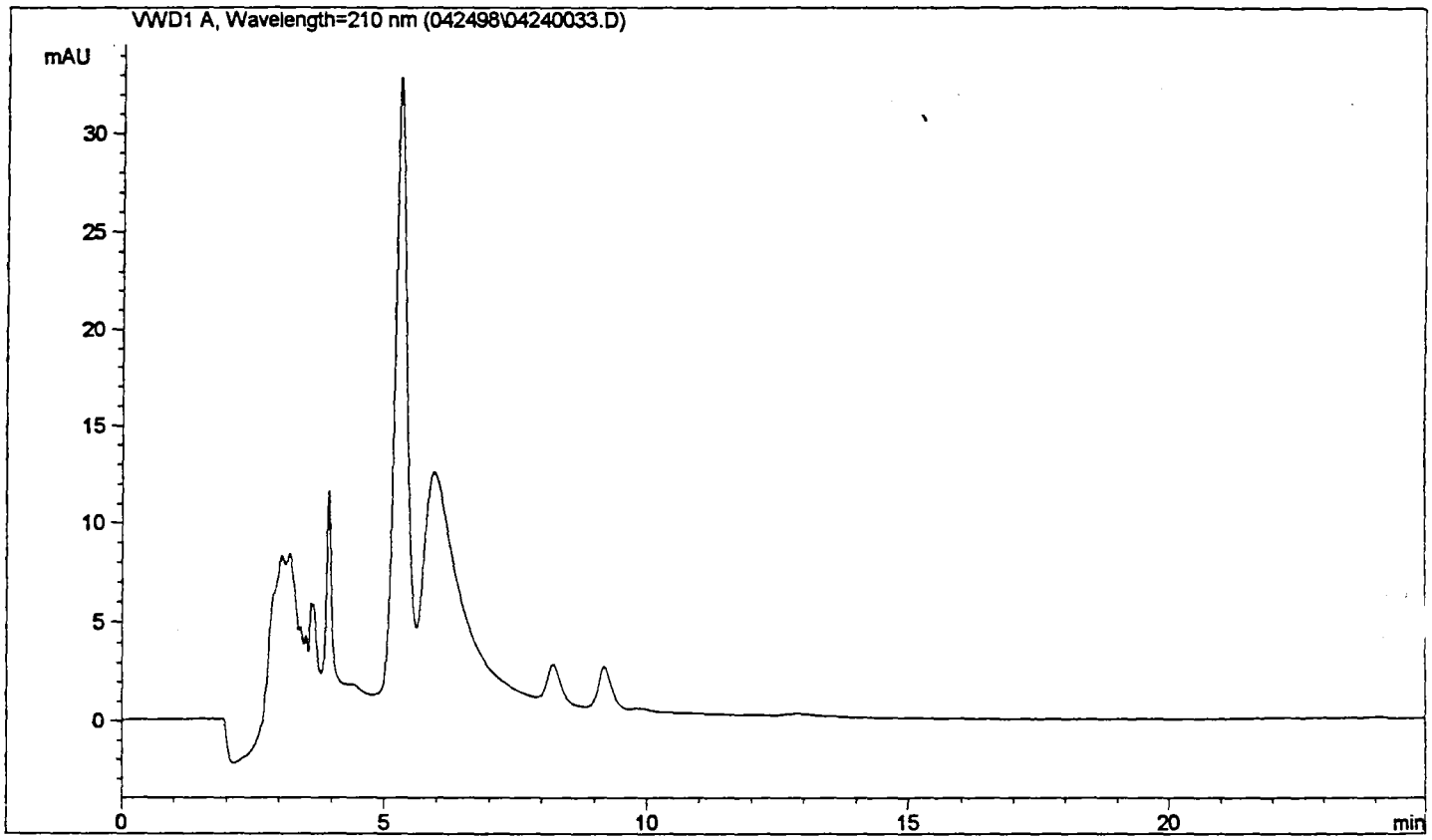
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 33
Sample Name	: 33609.16	Vial No.	: 33
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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*** End of Report ***

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-11-2 10X

ab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.17

Sample Amt: 2g % Moisture 50.82 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	27800	J
121-82-4	RDX	156000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	15400	
1946-51-0	4ADNT	12500	U
35572-78-2	2ADNT	12500	U
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

FORM I

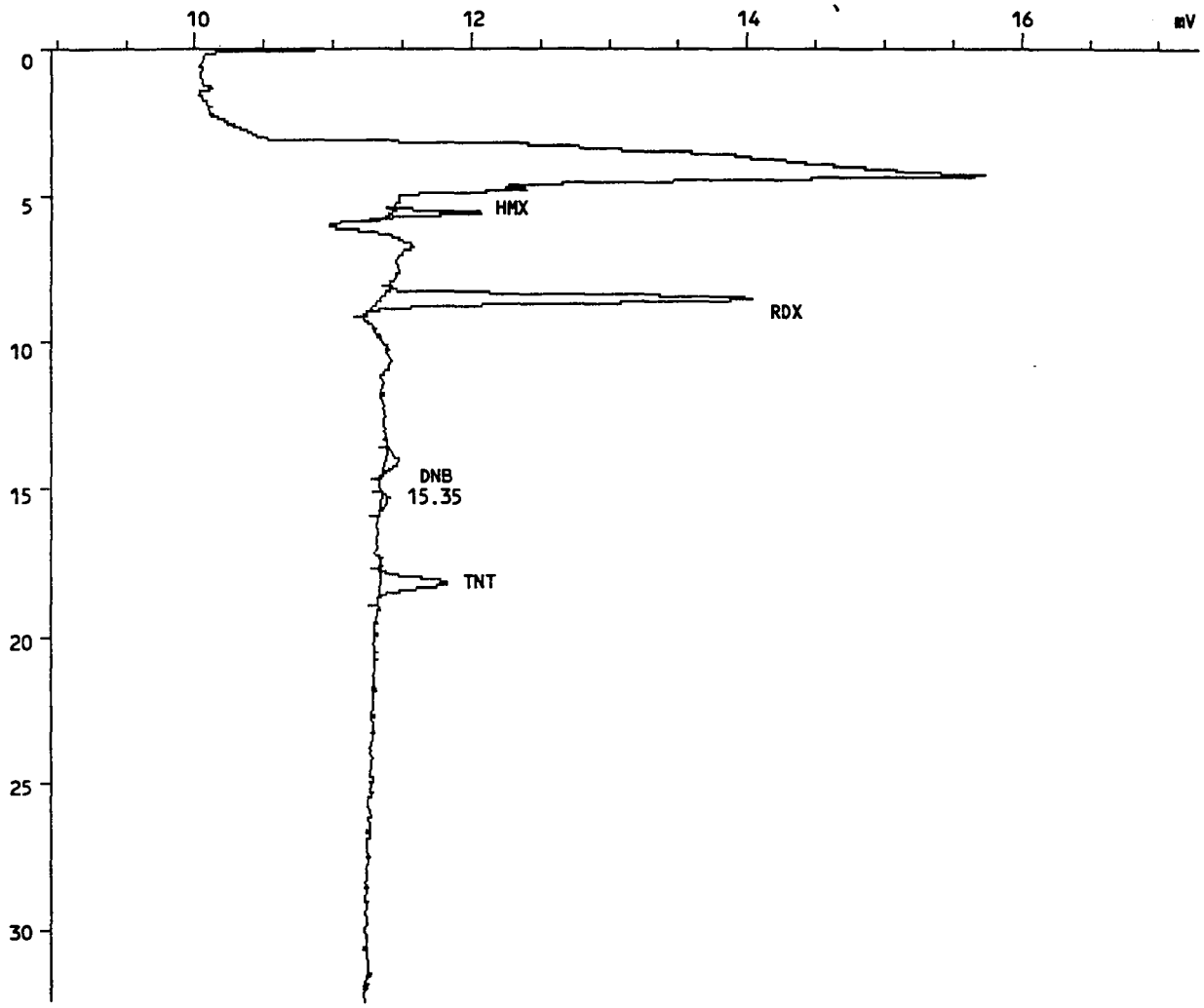
140A

LONG PLOT

Injection F: <MC3> 2 2EX0419,33,1

Sample name.....: BIO-S-001-00-11-2 100X
Sample ID.....: 33609.17
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 20-Apr-98 at 19:34:59
Reported on 08-May-98 at 13:06:45



INJECTION REPORT

Injection F: <MC3> 2 2EX0419,33,1

Acquired on 20-Apr-98 at 19:34:59
Modified on 08-May-82 at 13:06:06
Reported on 08-May-98 at 13:06:07

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 36
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 13:00:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-11-2 100X
Sample ID.....: 33609.17
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

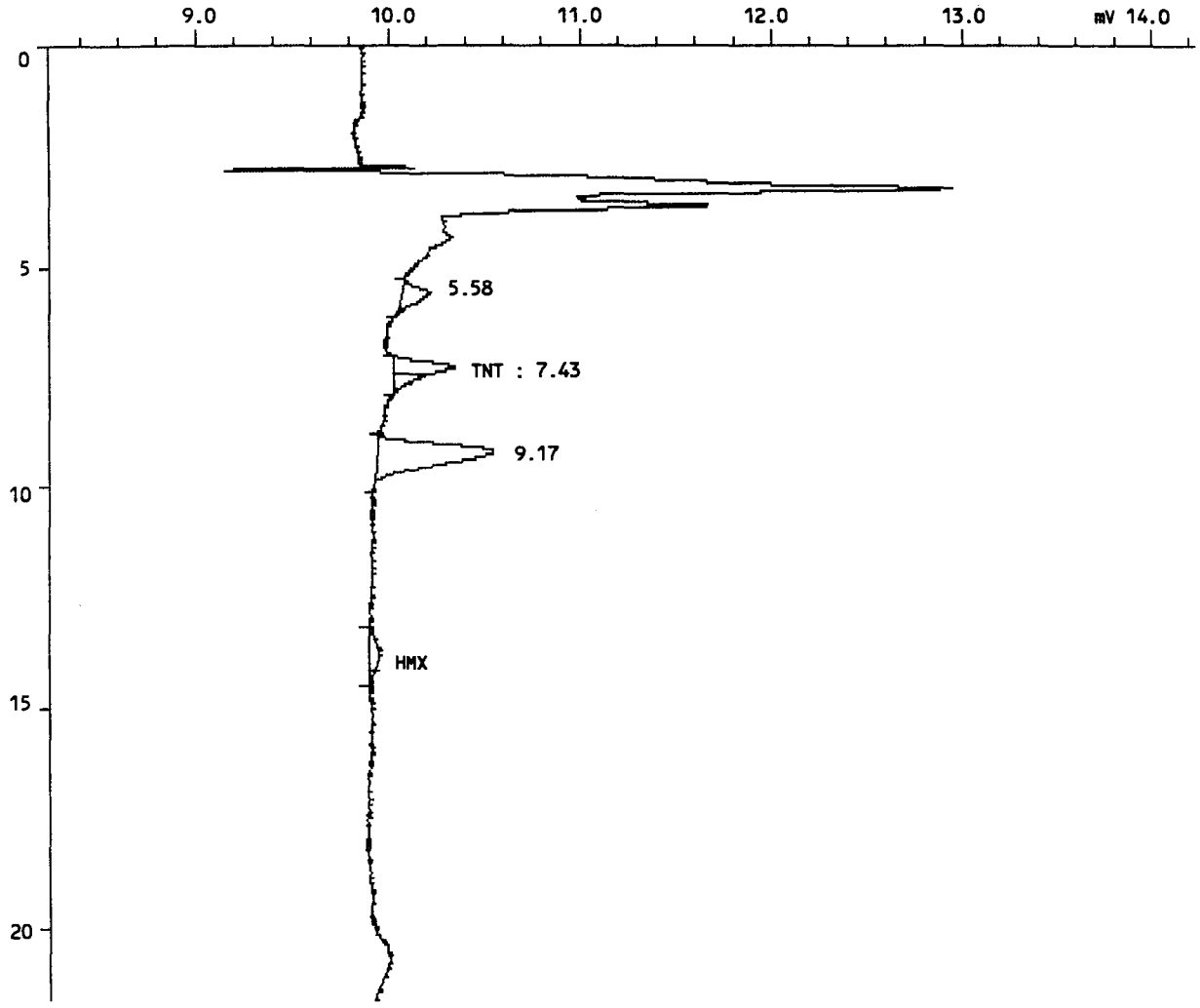
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	5.579	697	7234	27843.607	HMX *
2	8.512	2706	58346	156340.453	RDX *
3	14.176	102	3328	3069.182	DNB
5	18.192	490	12379	15373.373	TNT *
Total		3996	81286	202626.625	
Residual		74	1551	1430.816	

LONG PLOT

Injection F: <MC3> 3 3CN0422E,1,1

Sample name.....: BIO-S-001-00-11-2 100X
Sample ID.....: 33609.17
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 25-Apr-98 at 04:05:10
Reported on 09-May-98 at 16:42:16



INJECTION REPORT

Injection F: <MC3> 3 3CN0422E,1,1

Acquired on 25-Apr-98 at 04:05:10
Modified on 09-May-82 at 16:41:58
Reported on 09-May-98 at 16:42:00

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 9
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-11-2 100X
Sample ID.....: 33609.17
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

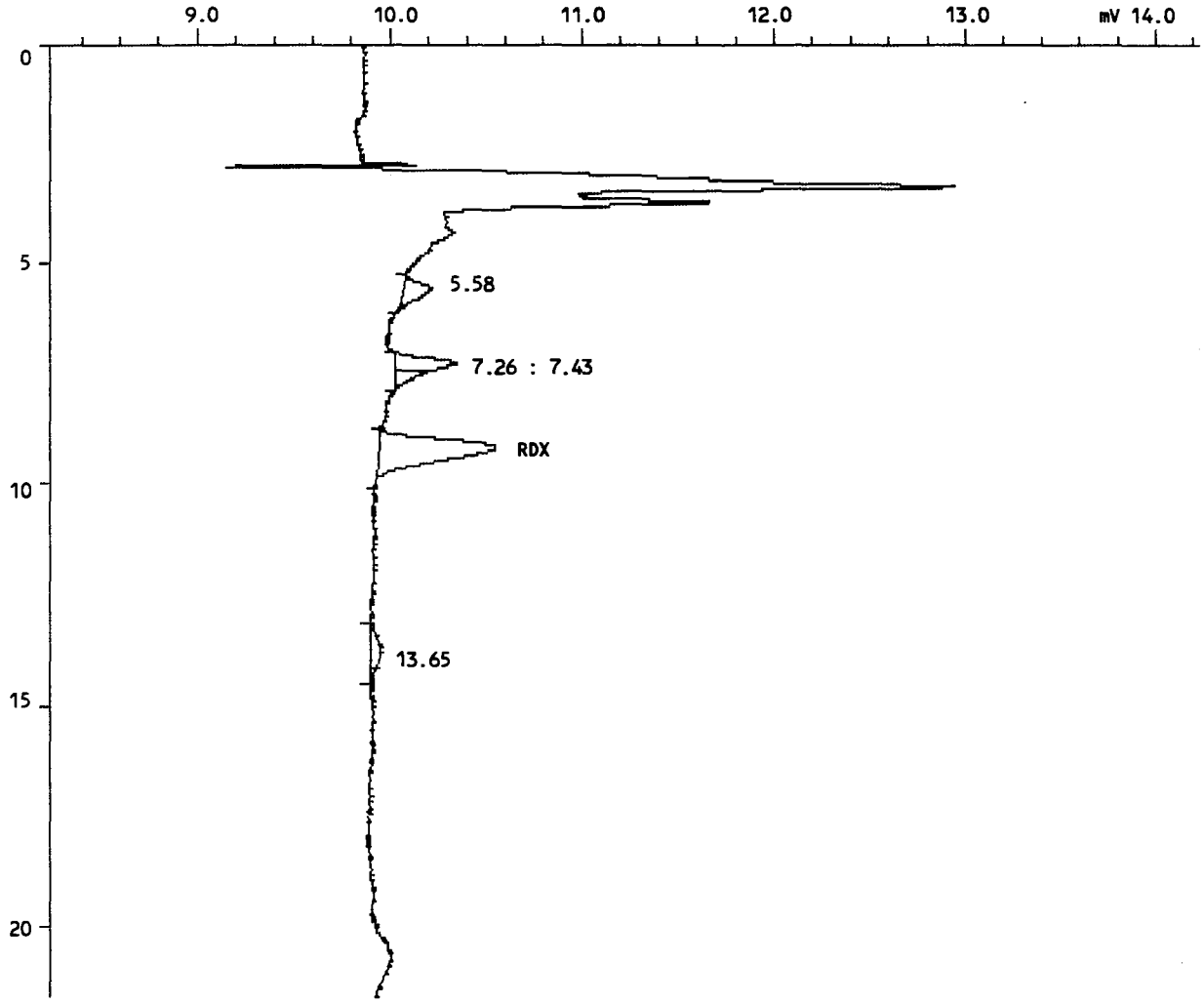
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.264	318	5012	19952.229	TNT
5	13.653	67	2701	26932.682	HMX
Total		386	7713	46884.910	
Residual		952	25043	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422E,1,1

Sample name.....: BIO-S-001-00-11-2 100X
Sample ID.....: 33609.17
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 25-Apr-98 at 04:05:10
Reported on 09-May-98 at 16:43:01



INJECTION REPORT

Injection F: <MC3> 3 3CN0422E,1,1

Acquired on 25-Apr-98 at 04:05:10
Modified on 09-May-82 at 16:42:42
Reported on 09-May-98 at 16:42:44

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 9
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-11-2 100X
Sample ID.....: 33609.17
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
4	9.173	611	19098	143915.484	RDX
Total		611	19098	143915.484	
Residual		727	13659	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-11-2

ab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.17

Sample Amt: 2g % Moisture 50.82 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

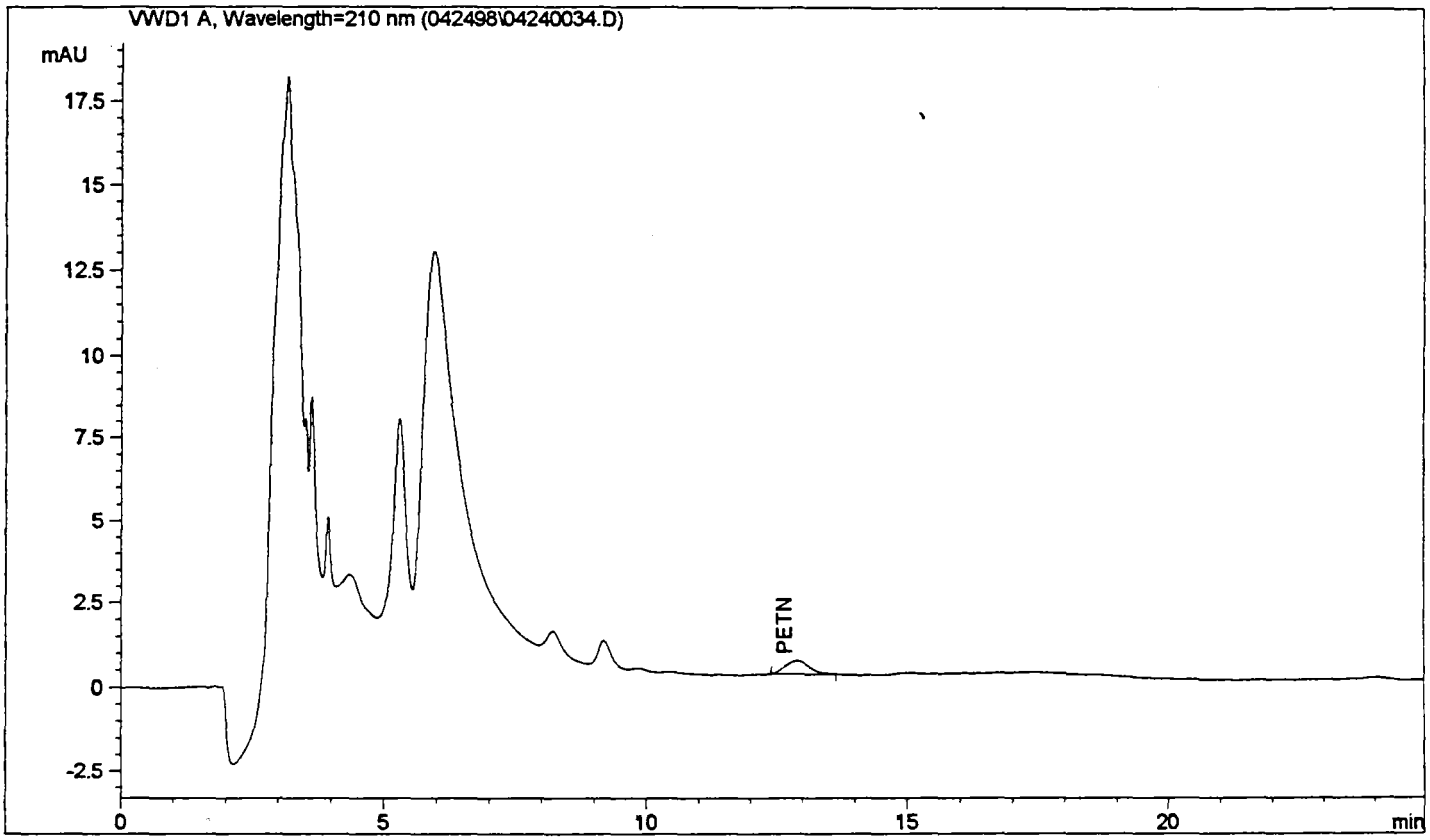
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 34
Sample Name	: 33609.17	Vial No.	: 34
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
12.887	BB	13.19901	3.24584	4.28419e4	PETN
Totals:				4.28419e4	

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*** End of Report ***

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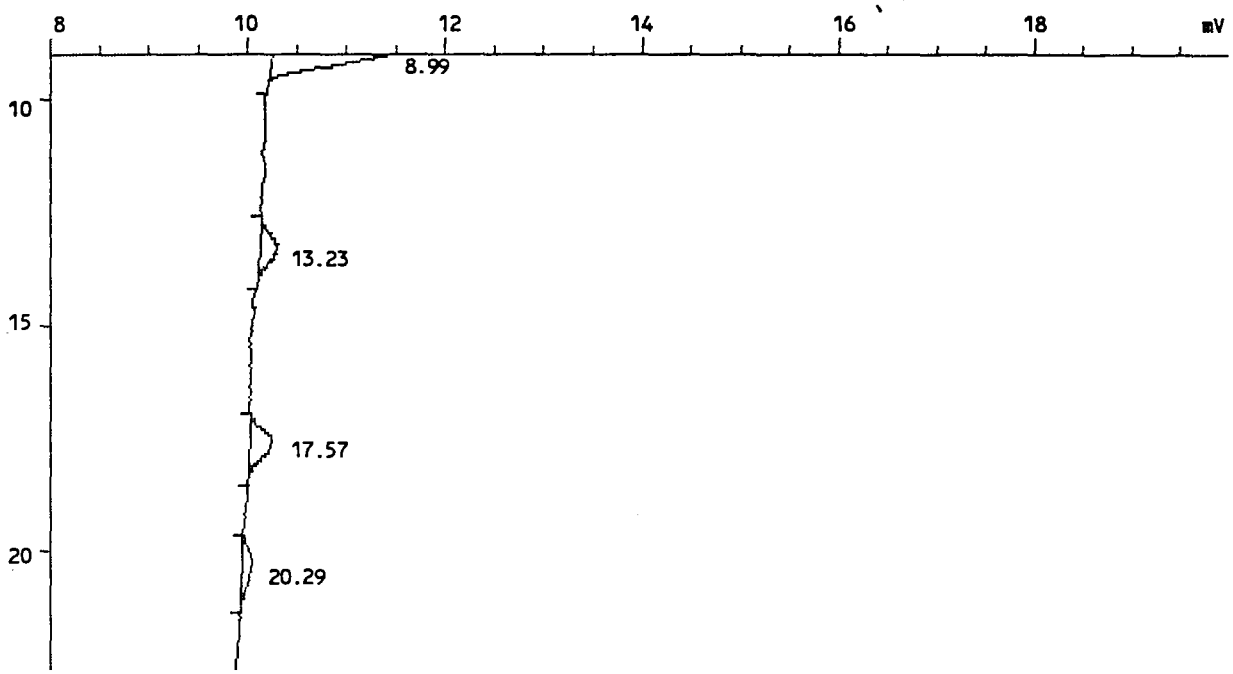
LONG PLOT

Injection F: <MC3> 3 3CNPETNC,1,1

Sample name.....: BIO-S-001-00-11-2 100X
Sample ID.....: 33609.17
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 27-Apr-98 at 19:25:19
Reported on 28-Apr-98 at 10:31:41



INJECTION REPORT

Injection F: <MC3> 3 3CNPETNC,1,1

Acquired on 27-Apr-98 at 19:25:19
Modified on 28-Apr-82 at 10:31:18
Reported on 28-Apr-98 at 10:31:20

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC 200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV
Number of samples.: 6
Calibration file..: PETN Last modified on 28-Apr-82 at 10:23:44
Method file.....: LCCN Last modified on 28-Apr-82 at 10:28:24
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-11-2 100X
Sample ID.....: 33609.17
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak RT mins	Hght uV	Area uVs	ug/Kg	Peak name
Total	0	0	0.000	
Residual	1738	58948	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-11-3 10

ıb Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.18

Sample Amt: 2g % Moisture 38.65 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/16/98

Extraction Method: SONC Date Analyzed: 04/21/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	86200	J
121-82-4	RDX	536000	
99-35-4	TNB	12500	U
99-65-0	DNB	12500	U
479-45-8	TETRYL	32500	U
98-95-3	NB	13000	U
118-96-7	TNT	37800	
1946-51-0	4ADNT	12500	U
35572-78-2	2ADNT	12500	U
606-20-2	26DNT	13000	U
121-14-2	24DNT	12500	U
88-72-2	2NT	12500	U
99-99-0	4NT	12500	U
99-08-1	3NT	12500	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

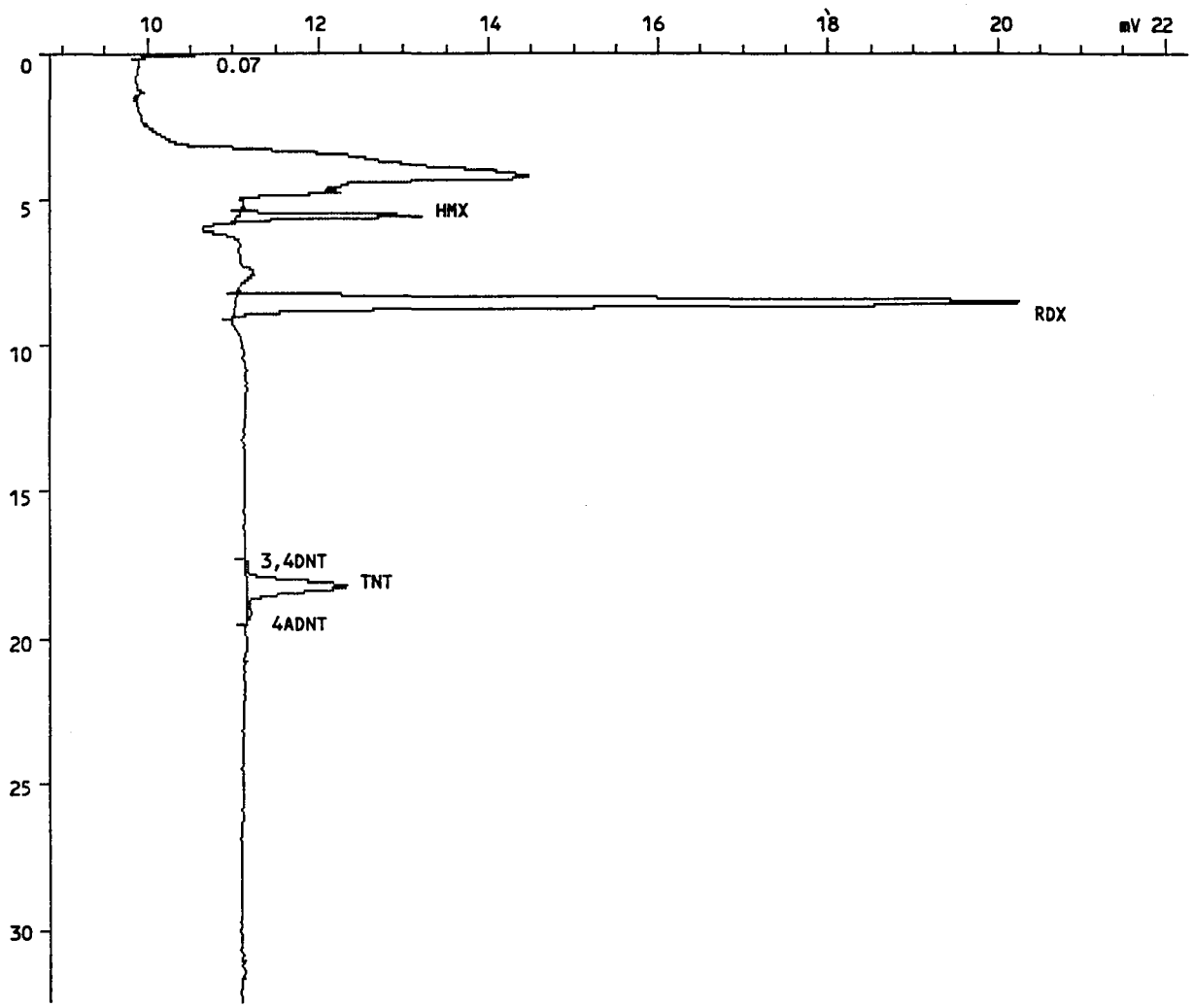
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0419B,3,1

Sample name.....: BIO-S-001-00-11-3 100X
Sample ID.....: 33609.18
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 21-Apr-98 at 14:11:33
Reported on 08-May-98 at 13:18:07



INJECTION REPORT

Injection F: <MC3> 2 2EX0419B,3,1

Acquired on 21-Apr-98 at 14:11:33
Modified on 08-May-82 at 13:17:46
Reported on 08-May-98 at 13:17:50

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 5
Calibration file..: 2EX0419 Last modified on 08-May-82 at 12:53:32
Method file.....: EXPLOS Last modified on 08-May-82 at 13:00:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-11-3 100X
Sample ID.....: 33609.18
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

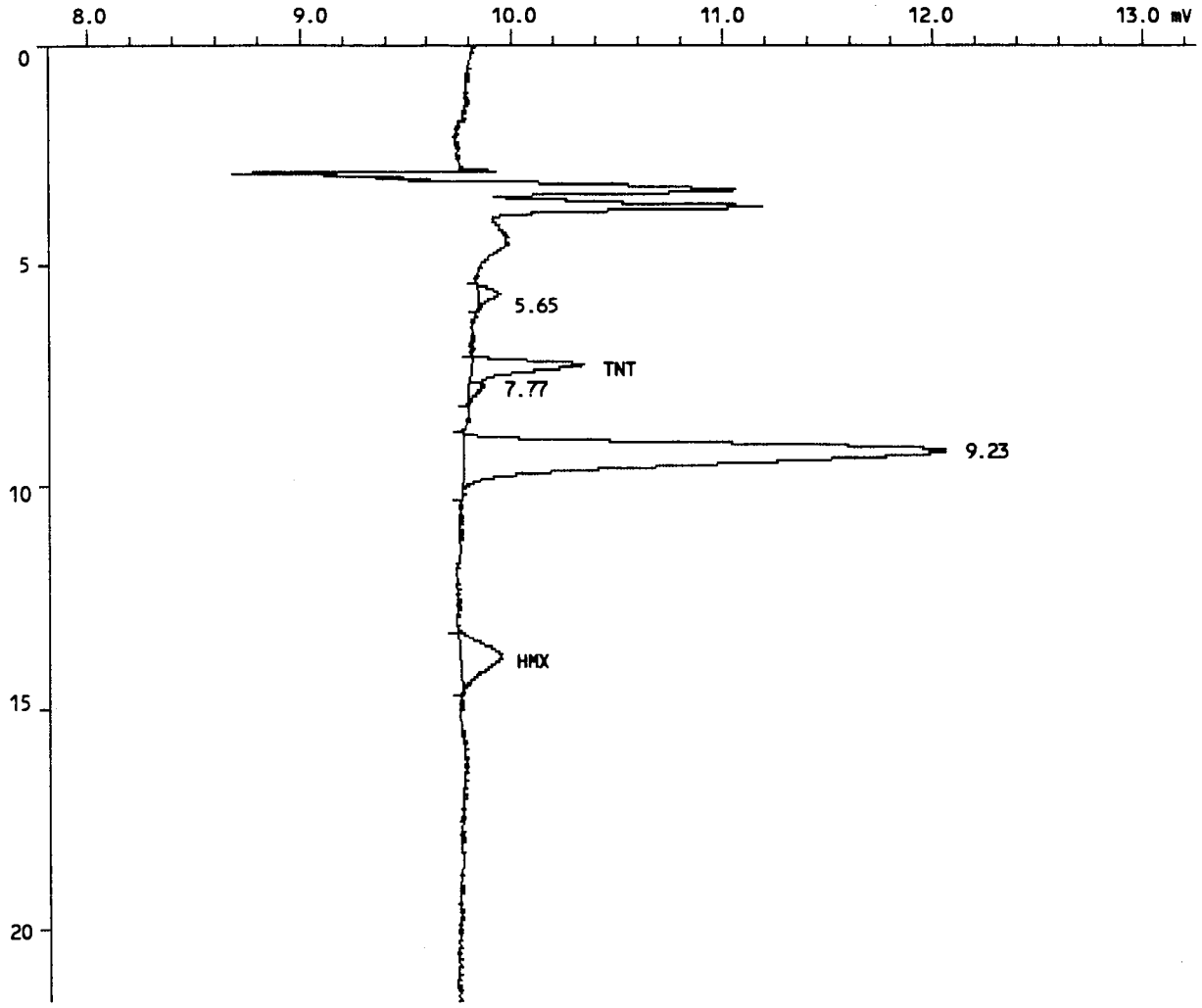
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.589	2187	22403	86231.102	HMX *
3	8.533	9221	199950	535771.313	RDX *
4	17.477	43	619	1326.208	3,4DNT **
5	18.229	1174	30454	37822.008	TNT *
6	19.067	60	1344	2317.919	4ADNT
Total		12686	254770	663468.563	
Residual		637	2527	9728.513	

LONG PLOT

Injection F: <MC3> 3 3CN0422C,3,1

Sample name.....: BIO-S-001-00-11-3 100X
Sample ID.....: 33609.18
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 20:01:41
Reported on 09-May-98 at 16:39:22



INJECTION REPORT

Injection F: <MC3> 3 3CN0422C,3,1

Acquired on 23-Apr-98 at 20:01:41
Modified on 09-May-82 at 16:38:52
Reported on 09-May-98 at 16:38:56

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0422A Last modified on 09-May-82 at 14:03:28
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-11-3 100X
Sample ID.....: 33609.18
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

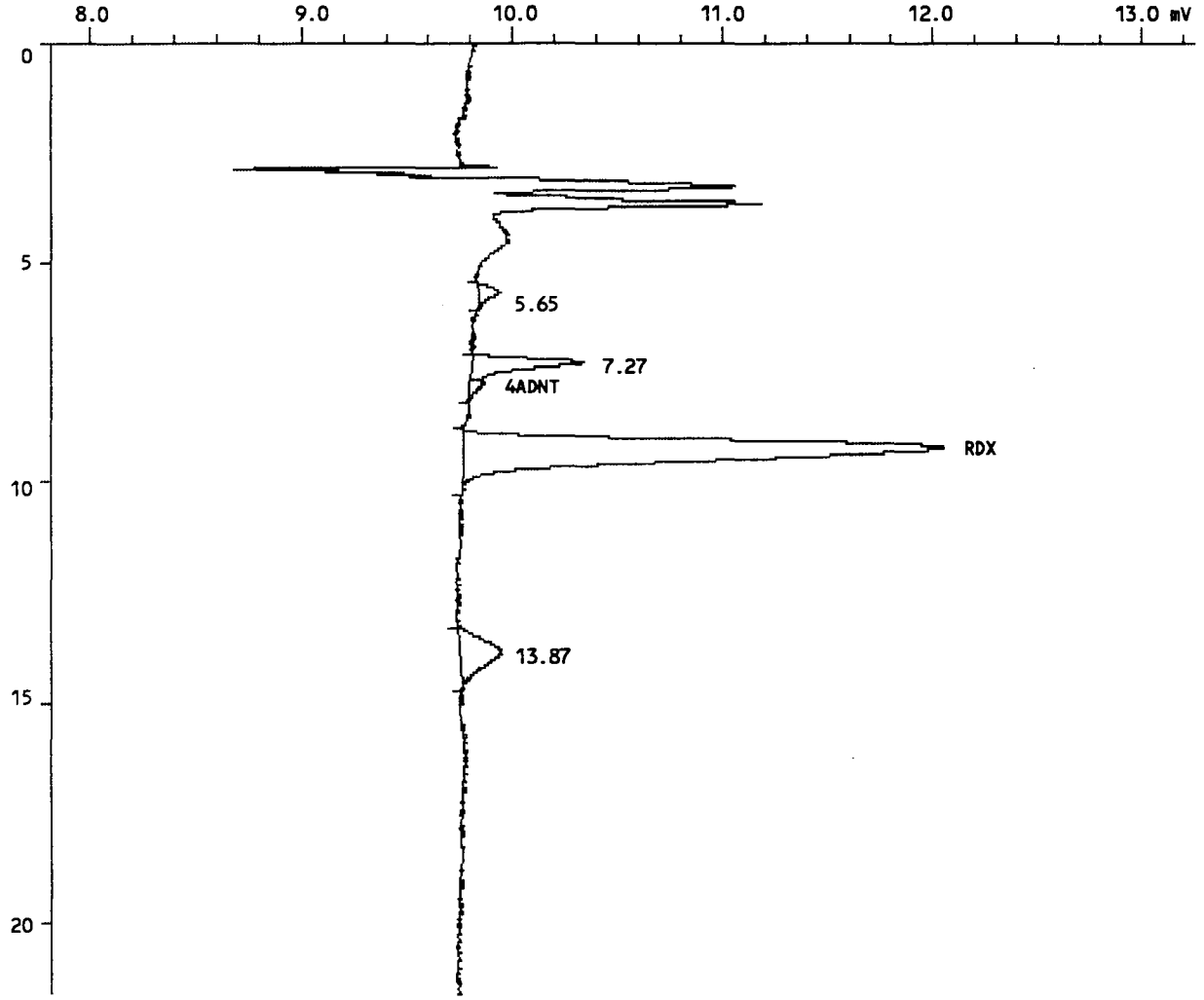
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.275	530	8569	34110.934	TNT
5	13.872	201	8294	82694.547	HMX
Total		732	16863	116805.484	
Residual		2460	72571	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0422C,3,1

Sample name.....: BIO-S-001-00-11-3 100X
Sample ID.....: 33609.18
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 23-Apr-98 at 20:01:41
Reported on 09-May-98 at 16:40:35



INJECTION REPORT

Injection F: <MC3> 3 3CN0422C,3,1

Acquired on 23-Apr-98 at 20:01:41
Modified on 09-May-82 at 16:39:56
Reported on 09-May-98 at 16:39:57

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0422B Last modified on 09-May-82 at 14:01:06
Method file.....: LCCN Last modified on 09-May-82 at 16:13:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-00-11-3 100X
Sample ID.....: 33609.18
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 20.000
Dilution.....: 100.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	7.765	66	1152	7259.876	4ADNT
4	9.232	2288	69708	525302.000	RDX
Total		2353	70860	532561.875	
Residual		838	18575	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-00-11-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) SOIL Lab Sample ID: 33609.18

Sample Amt: 2g % Moisture 38.65 Date Received: 04/16/98

Extraction Volume: 10ml Date Extracted: 04/20/98

Extraction Method: Date Analyzed: 04/25/98

GPC Cleanup: (Y/N) N Dilution Factor: 100.00

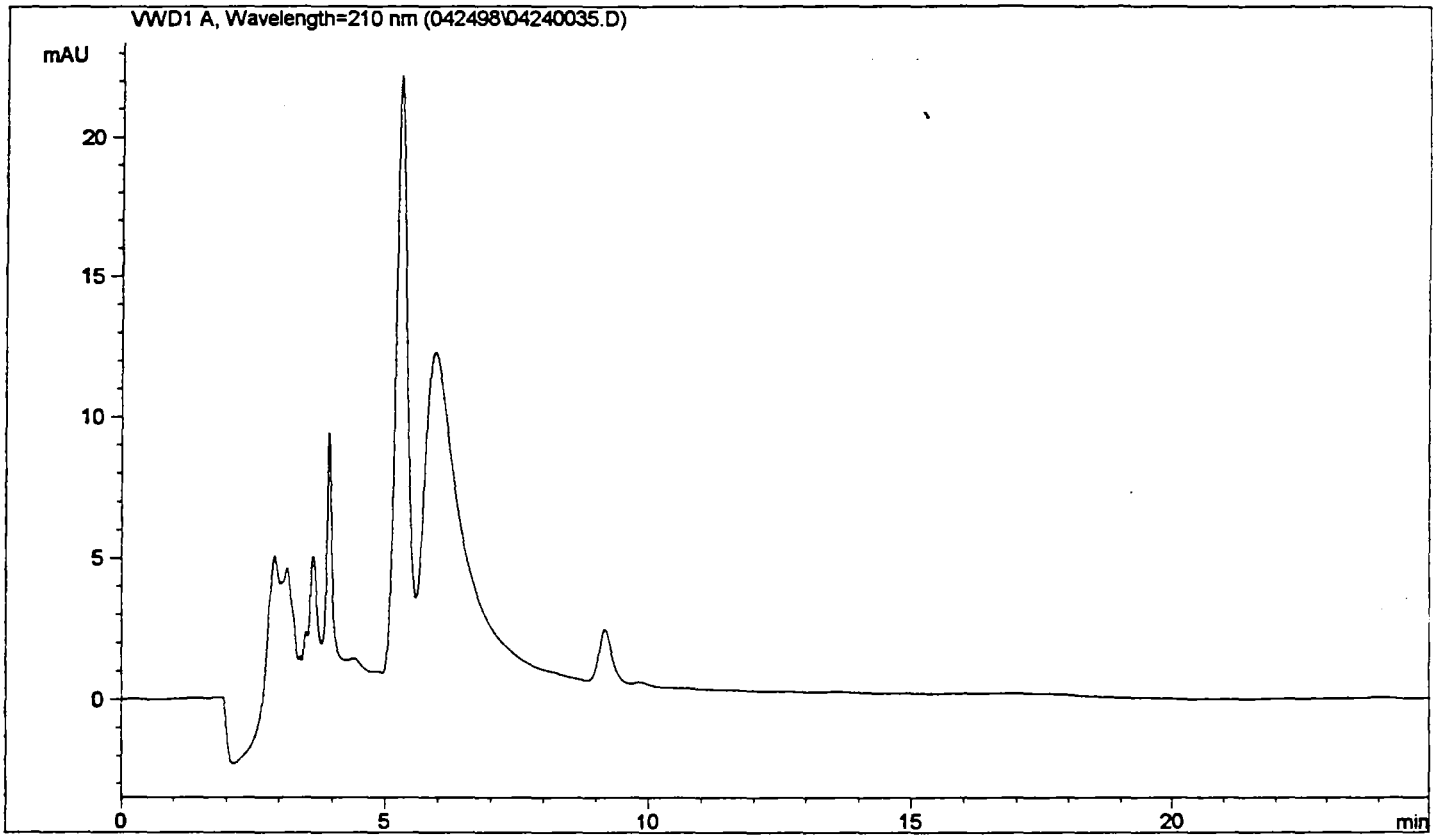
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	12500	U

FORM I

Injection Date	: Sat, 25. Apr. 1998	Seq Line	: 35
Sample Name	: 33609.18	Vial No.	: 35
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042498.M
Analysis Method : C:\HPCHEM\1\METHODS\042498.M
Last Changed : Mon, 27. Apr. 1998, 06:54:36 pm

PETN SOIL 33609



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,06:53:53 pm
Multiplier : 10.000000
Dilution : 100.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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*** End of Report ***

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1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-RB-041598

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33609

Matrix: (soil/water) WATER Lab Sample ID: 33609.19

Sample Amt: 1ml % Moisture Date Received: 04/16/98

Extraction Volume: 1ml Date Extracted: DIRECT INJ

Extraction Method: DIRECT Date Analyzed: 04/18/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
2691-41-0	HMX	13.0	U
121-82-4	RDX	14.0	U
99-35-4	TNB	7.30	U
99-65-0	DNB	4.00	U
479-45-8	TETRYL	10.0	U
98-95-3	NB	7.00	U
118-96-7	TNT	6.40	U
1946-51-0	4ADNT	7.00	U
35572-78-2	2ADNT	12.0	U
606-20-2	26DNT	9.40	U
121-14-2	24DNT	5.70	U
88-72-2	2NT	12.0	U
99-99-0	4NT	8.00	U
99-08-1	3NT	7.90	U

SURROGATE AMOUNT SPIKED (ug/L) 200
3,4-DNT

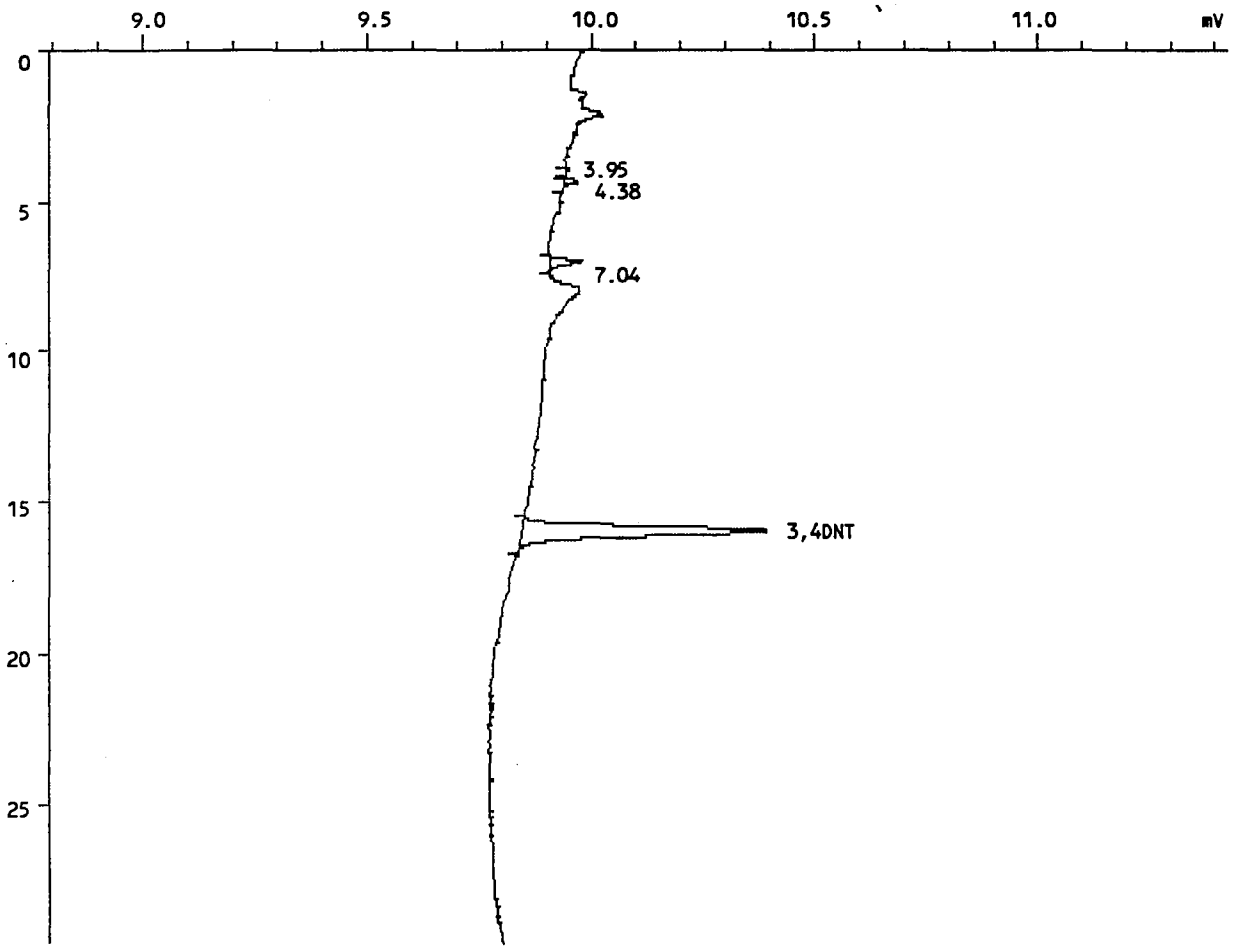
FORM I

LONG PLOT

Injection F: <MC3> 5 5E0417WA,13,1

Sample name.....: BIO-RB-041598
Sample ID.....: 33609.19
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 18-Apr-98 at 13:20:38
Reported on 20-Apr-98 at 19:17:59



INJECTION REPORT

Injection F: <MC3> 5 5E0417WA,13,1

Acquired on 18-Apr-98 at 13:20:38
Modified on 20-Apr-82 at 19:17:18
Reported on 20-Apr-98 at 19:17:20

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC 200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 15
Calibration file..: 5E0417W Last modified on 20-Apr-82 at 19:17:18
Method file.....: EXPLOS Last modified on 20-Apr-82 at 19:13:50
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-RB-041598
Sample ID.....: 33609.19
Sample type.....: Sample
Sample amount.....: 1.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 1.000
Dilution.....: 2.000
Amount (g or mL).....: 1.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/L	Peak name
4	15.973	547	11587	238.408	3,4DNT 119
Total		547	11587	238.408	
Residual		115	1365	-2.133	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

Lab Name: SWL-TULSA	Contract:		BIO-RB-041598
Lab Code: SWOK	Case No: MKF-OH	SDG:	33609
Matrix: (soil/water)	WATER	Lab Sample ID:	33609.19
Sample Amt: 1ml	% Moisture	Date Received:	04/16/98
Extraction Volume:	1ml	Date Extracted:	Direct Inj.
Extraction Method:	DIRECT	Date Analyzed:	04/21/98
GPC Cleanup: (Y/N)	N	Dilution Factor:	2.00

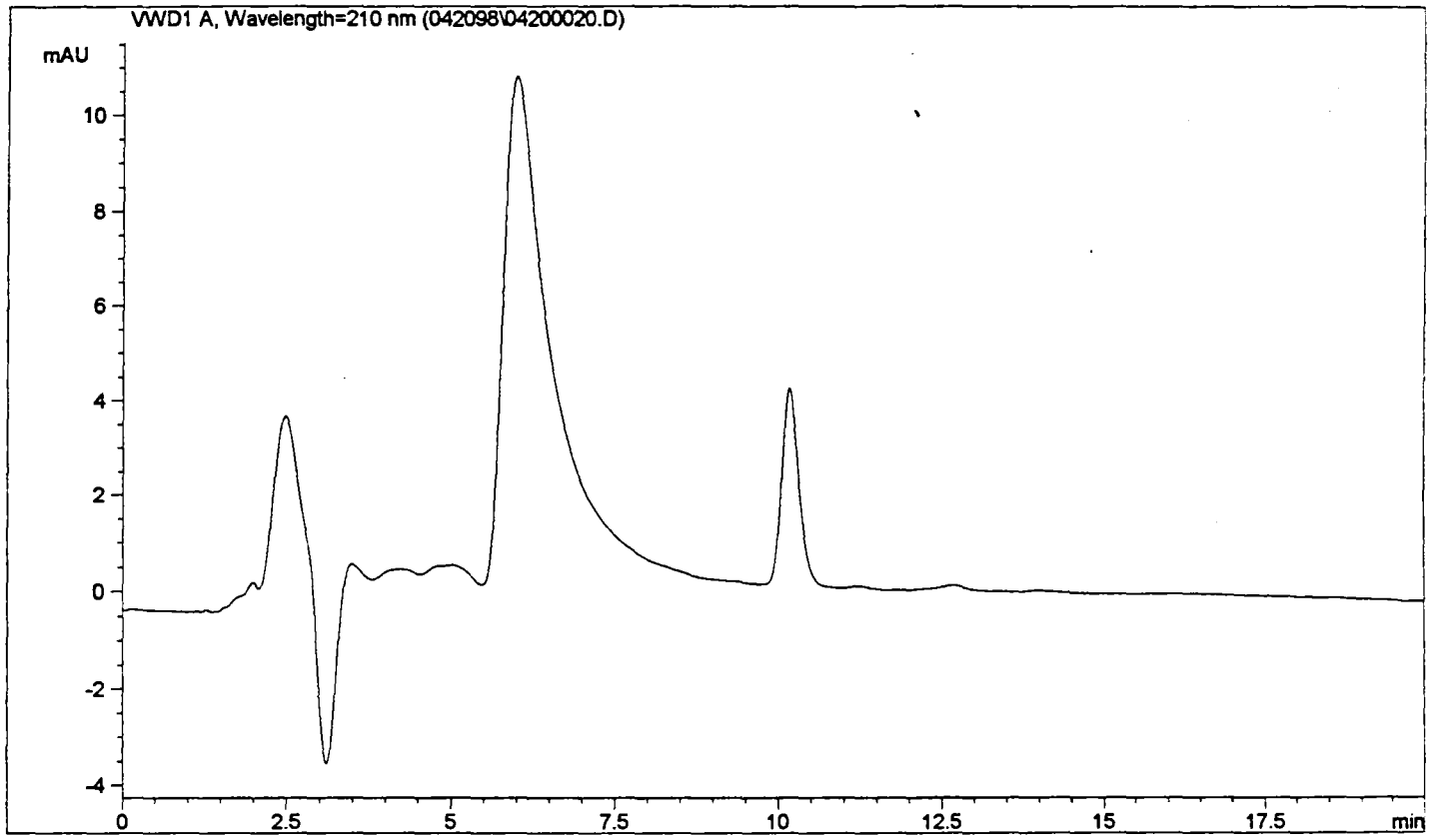
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg)	ug/L	Q
75-11-5	PETN		20.0	U

FORM I

Injection Date	: Tue, 21. Apr. 1998	Seq Line	: 20
Sample Name	: 33609.19	Vial No.	: 20
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: -

Acq. Method : 042098W.M
Analysis Method : C:\HPCHEM\1\METHODS\042098W.M
Last Changed : Mon, 27. Apr. 1998, 07:52:13 pm

PETN



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Mon, 27. Apr. 1998,07:52:03 pm
Multiplier : 2.000000
Dilution : 1.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

==========

*** End of Report ***

165

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33609
Instrument ID: IN12 Column ID: CARB-06

Dates of Anlayses: 04/19/98 to 04/22/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
INST. BLK.	INST.BLK.	04/19/98	20:28
EXP L1 SOIL STD	2-173:IA1	04/19/98	21:57
EXP L2 SOIL STD	2-172:IA2	04/19/98	22:41
EXP L3 SOIL STD	2-171:IA3	04/19/98	23:26
EXP L4 SOIL STD	2-170:IA4	04/20/98	00:11
EXP L5 SOIL STD	2-169:IA5	04/20/98	00:55
BL0416SB	BL0416SB	04/20/98	01:40
LC0416SB	LC0416SB	04/20/98	03:09
LD0416SB	LD0416SB	04/20/98	03:54
BIO-S-001-00-03-1 10	33609.01	04/20/98	04:38
BIO-S-001-00-03-2 10	33609.02	04/20/98	05:23
BIO-S-001-00-03-3 10	33609.03	04/20/98	06:08
BIO-S-001-00-05-1 10	33609.04	04/20/98	06:52
BIO-S-001-00-05-2 10	33609.05	04/20/98	07:37
BIO-S-001-00-05-3 10	33609.06	04/20/98	08:22
EXP L3 SOIL STD	2-171:CA1	04/20/98	09:06
BIO-S-001-00-05-3 MS	33609.08MSD	04/20/98	11:20
BIO-S-001-00-07-1 10	33609.09	04/20/98	12:05
BIO-S-001-00-07-2 10	33609.10	04/20/98	12:49

FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33609
Instrument ID: IN12 Column ID: CARB-06

Dates of Anlayses: 04/19/98 to 04/22/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
BIO-S-001-00-07-3 10	33609.11	04/20/98	13:34
BIO-S-001-00-09-1 10	33609.12	04/20/98	14:19
BIO-S-001-00-09-1FD	33609.13	04/20/98	15:03
BIO-S-001-00-09-2 10	33609.14	04/20/98	15:48
BIO-S-001-00-09-3 10	33609.15	04/20/98	16:33
BIO-S-001-00-11-1 10	33609.16	04/20/98	17:17
EXP L3 SOIL STD	2-171:CA2	04/20/98	18:50
BIO-S-001-00-11-2 10	33609.17	04/20/98	19:34
BIO-S-001-05-3 MS 10	33609.07MS	04/20/98	21:48
EXP L3 SOIL STD	2-171:CA3	04/20/98	22:33
EXP L3 SOIL STD	2-171:CA4	04/21/98	13:26
BIO-S-001-00-11-3 10	33609.18	04/21/98	14:11
EXP L3 SOIL STD	2-171:CA5	04/21/98	19:06

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
nstrument ID: IN12
olumn ID : CARB-06

Inj 1

Injection File Name Level 1 : 2EX0419,4
Injection File Name Level 2 : 2EX0419,5
Injection File Name Level 3 : 2EX0419,6
Injection File Name Level 4 : 2EX0419,7
Injection File Name Level 5 : 2EX0419,8

Calibration Date : 04/19/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	CAL FACTOR Level 1	Area Level 2	CAL FACTOR Level 2	Area Level 3	CAL FACTOR Level 3	Area Level 4	CAL FACTOR Level 4	Area Level 5	CAL FACTOR Level 5
HMX	12981	1280	316844	1247	897233	1359	1298790	1312	1710187	1296
RDX	8371	1984	187068	1771	526087	1906	757505	1839	1007901	1833
TNB	11005	3644	275405	3643	795578	4038	1154754	3901	1493910	3792
DNB	8028	4956	212819	5242	615419	5828	885493	5590	1163636	5489
TETRYL	7696	2069	198469	2134	582815	2408	833881	2291	1101779	2276
NB	13101	3970	330987	4017	963490	4502	1394782	4332	1821437	4236
3,4-DNT	11233	2211	282630	2229	823036	2494	1191558	2402	1542219	2337
TNT	10618	3933	256864	3800	748864	4255	1090093	4129	1412446	4013
4ADNT	6439	2728	164642	2781	478014	3104	697009	3004	885785	2876
2ADNT	8936	3786	230328	3891	669013	4344	976263	4208	1257961	4084
26DNT	9763	2516	243404	2504	686975	2705	997588	2625	1300402	2570
24DNT	11997	5083	306526	5178	889819	5778	1308225	5639	1711473	5557
T	8682	2569	204610	2419	583275	2651	849890	2575	1118246	2541
T	8483	2510	188063	2223	531491	2416	787303	2386	1032428	2346
T	8966	2784	215822	2684	603447	2874	881854	2808	1176861	2815

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN12
Column ID : CARB-06

Inj 1

Injection File Name Level 1 : 2EX0419,4
Injection File Name Level 2 : 2EX0419,5
Injection File Name Level 3 : 2EX0419,6
Injection File Name Level 4 : 2EX0419,7
Injection File Name Level 5 : 2EX0419,8

Calibration Date : 04/19/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Cal Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
HMX	1299	3.19	0.99959	1309	0.000
RDX	1866	4.34	0.99972	1844	0.000
TNB	3804	4.48	0.99925	3858	0.000
DNB	5421	6.17	0.99936	5563	0.000
TETRYL	2236	6.03	0.99937	2297	0.000
NB	4211	5.25	0.99930	4299	0.000
3,4-DNT	2335	5.09	0.99920	2377	0.000
[illegible]T	4026	4.36	0.99928	4079	0.000
[illegible]DNT	2899	5.36	0.99883	2947	0.000
2ADNT	4063	5.60	0.99923	4156	0.000
26DNT	2584	3.20	0.99954	2605	0.000
24DNT	5447	5.53	0.99961	5606	0.000
2NT	2551	3.31	0.99964	2565	0.000
4NT	2376	4.41	0.99974	2366	0.000
3NT	2793	2.47	0.99987	2819	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/19/1998
Continuing Calibration #: 1
Continuing Cal Date : 04/20/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-06
Injection File Name : 2EX0419,19
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	871537	1321	1299	1.66	1309	0.91
RDX	510311	1849	1866	0.94	1844	0.29
TNB	760918	3863	3804	1.55	3858	0.13
DNB	585965	5549	5421	2.36	5563	0.25
TETRYL	534864	2210	2236	1.14	2297	3.77
NB	904577	4227	4211	0.37	4299	1.67
3,4-DNT	783326	2374	2335	1.67	2377	0.15
TNT	713996	4057	4026	0.77	4079	0.54
4ADNT	455667	2959	2899	2.07	2947	0.41
2ADNT	639522	4153	4063	2.22	4156	0.07
26DNT	667392	2628	2584	1.68	2605	0.88
24DNT	857479	5568	5447	2.22	5606	0.67
2NT	559602	2544	2551	0.29	2565	0.83
NT	512972	2332	2376	1.87	2366	1.44
NT	580890	2766	2793	0.97	2819	1.87

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/19/1998
Continuing Calibration #: 2
Continuing Cal Date : 04/20/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-06
Injection File Name : 2EX0419,32
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	892633	1352	1299	4.12	1309	3.35
RDX	522353	1893	1866	1.40	1844	2.66
TNB	784790	3984	3804	4.73	3858	3.27
DNB	610594	5782	5421	6.66	5563	3.94
TETRYL	548810	2268	2236	1.44	2297	1.26
NB	949122	4435	4211	5.31	4299	3.18
3,4-DNT	822905	2494	2335	6.81	2377	4.90
TNT	742100	4216	4026	4.74	4079	3.38
4ADNT	479737	3115	2899	7.47	2947	5.72
2ADNT	667004	4331	4063	6.61	4156	4.22
26DNT	688626	2711	2584	4.92	2605	4.09
24DNT	885345	5749	5447	5.54	5606	2.55
2NT	577073	2623	2551	2.82	2565	2.27
4NT	532856	2422	2376	1.93	2366	2.38
NT	603903	2876	2793	2.95	2819	2.02

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/19/1998
ntinuing Calibration #: 3
ntinuing Cal Date : 04/20/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-06
Injection File Name : 2EX0419A,1
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	858368	1301	1299	0.13	1309	0.62
RDX	502059	1819	1866	2.54	1844	1.33
TNB	757816	3847	3804	1.13	3858	0.28
DNB	594722	5632	5421	3.89	5563	1.24
TETRYL	523720	2164	2236	3.20	2297	5.78
NB	907641	4241	4211	0.71	4299	1.33
3,4-DNT	790325	2395	2335	2.58	2377	0.74
TNT	720095	4091	4026	1.63	4079	0.31
4ADNT	465553	3023	2899	4.29	2947	2.59
2ADNT	645156	4189	4063	3.12	4156	0.81
26DNT	665853	2621	2584	1.45	2605	0.64
24DNT	856145	5559	5447	2.06	5606	0.83
2NT	547156	2487	2551	2.51	2565	3.03
4NT	507251	2306	2376	2.97	2366	2.54
NT	571471	2721	2793	2.58	2819	3.46

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/19/1998
Continuing Calibration #: 4
Continuing Cal Date : 04/21/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-06
Injection File Name : 2EX0419B,2
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	914888	1386	1299	6.72	1309	5.93
RDX	527648	1912	1866	2.43	1844	3.70
TNB	776797	3943	3804	3.67	3858	2.22
DNB	618364	5856	5421	8.02	5563	5.26
TETRYL	479296	1981	2236	11.41	2297	13.77
NB	944368	4413	4211	4.79	4299	2.66
3,4-DNT	824787	2499	2335	7.05	2377	5.14
TNT	749612	4259	4026	5.80	4079	4.42
4ADNT	490120	3183	2899	9.79	2947	8.01
2ADNT	672400	4366	4063	7.47	4156	5.07
26DNT	694134	2733	2584	5.76	2605	4.92
24DNT	897306	5827	5447	6.97	5606	3.94
2NT	564146	2564	2551	0.52	2565	0.02
4NT	514404	2338	2376	1.60	2366	1.17
NT	584927	2785	2793	0.28	2819	1.19

CALIBRATION FACTOR DATA
FORM 9C

itial Calibration Date: 04/19/1998
itinuing Calibration #: 5
ontinuing Cal Date : 04/21/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-06
Injection File Name : 2EX0419C,2
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	851244	1290	1299	0.70	1309	1.44
RDX	498984	1808	1866	3.14	1844	1.93
TNB	754548	3830	3804	0.70	3858	0.71
DNB	581962	5511	5421	1.66	5563	0.93
TETRYL	549057	2269	2236	1.48	2297	1.22
NB	919244	4296	4211	2.00	4299	0.07
3,4-DNT	780155	2364	2335	1.26	2377	0.55
TNT	712709	4049	4026	0.59	4079	0.72
4ADNT	457407	2970	2899	2.46	2947	0.80
2ADNT	635536	4127	4063	1.58	4156	0.69
26DNT	657581	2589	2584	0.19	2605	0.61
24DNT	845919	5493	5447	0.84	5606	2.01
2NT	557776	2535	2551	0.62	2565	1.15
NT	515004	2341	2376	1.48	2366	1.05
NT	582628	2774	2793	0.67	2819	1.58

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Injection volume = 200uL

Amount Units = ng

COMPONENT NAME	AMT ON COL Level 1	AMT ON COL Level 2	AMT ON COL Level 3	AMT ON COL Level 4	AMT ON COL Level 5
HMX	10.140	254.000	660.000	990.000	1320.000
RDX	4.220	105.600	276.000	412.000	550.000
TNB	3.020	75.600	197.000	296.000	394.000
DNB	1.620	40.600	105.600	158.400	212.000
TETRYL	3.720	93.000	242.000	364.000	484.000
NB	3.300	82.400	214.000	322.000	430.000
3,4-DNT	5.080	126.800	330.000	496.000	660.000
TNT	2.700	67.600	176.000	264.000	352.000
4ADNT	2.360	59.200	154.000	232.000	308.000
2ADNT	2.360	59.200	154.000	232.000	308.000
26DNT	3.880	97.200	254.000	380.000	506.000
24DNT	2.360	59.200	154.000	232.000	308.000
2NT	3.380	84.600	220.000	330.000	440.000
4NT	3.380	84.600	220.000	330.000	440.000
3NT	3.220	80.400	210.000	314.000	418.000

2EX0419
page 1
CA1->CA5

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN12
Column ID : CARB-06
Calibration Date : 04/19/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	5.56	5.57	5.56	5.56	5.55
RDX	8.50	8.48	8.46	8.46	8.45
TNB	11.40	11.42	11.40	11.40	11.38
DNB	13.98	13.98	13.96	13.97	13.94
TETRYL	15.02	15.05	15.02	15.03	15.00
NB	15.85	15.88	15.85	15.86	15.84
3,4-DNT	17.37	17.39	17.36	17.37	17.34
TNT	18.04	18.07	18.04	18.05	18.03
4ADNT	18.88	18.94	18.90	18.93	18.89
2ADNT	19.94	19.96	19.92	19.95	19.92
26DNT	21.17	21.19	21.15	21.17	21.16
24DNT	21.91	21.90	21.86	21.87	21.86
2NT	25.70	25.76	25.71	25.72	25.73
4NT	27.53	27.53	27.48	27.49	27.51
3NT	29.74	29.68	29.64	29.65	29.68

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
HMX	5.57	5.60	5.57	5.58	5.59
RDX	8.48	8.45	8.50	8.52	8.54
TNB	11.44	11.40	11.45	11.48	11.49
DNB	14.02	13.99	14.04	14.06	14.09
TETRYL	15.09	15.07	15.13	15.18	15.21
NB	15.92	15.90	15.94	15.97	15.99
3,4-DNT	17.45	17.43	17.48	17.53	17.55
TNT	18.13	18.12	18.16	18.21	18.23
4ADNT	19.03	19.00	19.06	19.13	19.14
2ADNT	20.05	20.03	20.08	20.17	20.16
26DNT	21.28	21.26	21.31	21.38	21.38
24DNT	21.99	21.97	22.02	22.09	22.09
2NT	25.87	25.87	25.90	25.98	25.98
4NT	27.65	27.64	27.68	27.77	27.76
3NT	29.82	29.82	29.85	29.95	29.94

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	5.57	0.015	0.045	5.53 - 5.62
RDX	8.49	0.029	0.088	8.40 - 8.58
TNB	11.43	0.037	0.111	11.32 - 11.54
DNB	14.01	0.047	0.141	13.87 - 14.15
TETRYL	15.09	0.072	0.217	14.87 - 15.30
NB	15.91	0.054	0.162	15.74 - 16.07
3,4-DNT	17.43	0.074	0.222	17.21 - 17.66
TNT	18.11	0.074	0.223	17.89 - 18.34

2EX0419
page 2
CA1 → CA5

4ADNT	19.00	0.096	0.288	18.71 - 19.29
2ADNT	20.03	0.095	0.286	19.74 - 20.31
26DNT	21.25	0.089	0.268	20.99 - 21.52
24DNT	21.96	0.089	0.266	21.70 - 22.23
2NT	25.83	0.110	0.331	25.50 - 26.16
NT	27.61	0.110	0.330	27.28 - 27.94
3NT	29.79	0.116	0.347	29.44 - 30.13

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33609
Instrument ID: IN10 Column ID: LC-CN-10

Dates of Anlayses: 04/20/98 to 04/22/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
EXP L1A STD	2-146:IA1	04/22/98	23:32
EXP L2A STD	2-145:IA2	04/23/98	00:16
EXP L3A STD	2-144:IA3	04/23/98	01:00
EXP L4A STD	2-143:IA4	04/23/98	01:45
EXP L5A STD	2-142:IA5	04/23/98	02:29
EXP L1B STD	1-151:IB1	04/23/98	03:13
EXP L2B STD	2-150:IB2	04/23/98	03:58
EXP L3B STD	2-149:IB3	04/23/98	04:42
EXP L4B STD	2-148:IB4	04/23/98	05:26
EXP L5B STD	2-147:IB5	04/23/98	06:11
BIO-S-001-00-05-1 10	33609.04	04/23/98	06:55
BIO-S-001-00-05-2 10	33609.05	04/23/98	07:39
BIO-S-001-00-05-3 10	33609.06	04/23/98	08:24
BIO-S-001-00-07-1 10	33609.09	04/23/98	10:47
BIO-S-001-00-07-2 10	33609.10	04/23/98	11:36
BIO-S-001-00-07-3 10	33609.11	04/23/98	12:15
BIO-S-001-00-09-1 10	33609.12	04/23/98	13:00
BIO-S-001-00-09-1FD	33609.13	04/23/98	13:44
BIO-S-001-00-09-2 10	33609.14	04/23/98	14:28

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33609
Instrument ID: IN10 Column ID: LC-CN-10

Dates of Anlayses: 04/20/98 to 04/22/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
EXP L3A STD	2-144:CA1	04/23/98	15:13
EXP L3B STD	2-149:CB1	04/23/98	15:57
BIO-S-001-00-09-3 10	33609.15	04/23/98	16:42
BIO-S-001-00-11-1 10	33609.16	04/23/98	18:34
BIO-S-001-00-11-3 10	33609.18	04/23/98	20:01
EXP L3A STD	2-144:CA2	04/24/98	00:21
EXP L3B STD	2-149:CB2	04/24/98	01:05
EXP L3A STD	2-144:CA6	04/25/98	02:38
EXP L3B STD	2-149:CB6	04/25/98	03:21
BIO-S-001-00-11-2 10	33609.17	04/25/98	04:05
EXP L3A STD	2-144:CA7	04/25/98	09:09
EXP L3B STD	2-149:CB7	04/25/98	09:52

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

PLOSIVE CALIBRATION - METHOD SW846-8330
strument ID: IN10
lumn ID : LC-CN-10

Inj 1

Injection File Name Level 1 : 3CN0420,4
Injection File Name Level 2 : 3CN0420,5
Injection File Name Level 3 : 3CN0420,6
Injection File Name Level 4 : 3CN0420,7
Injection File Name Level 5 : 3CN0420,8

Calibration Date : 04/20/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	CAL FACTOR Level 1	Area Level 2	CAL FACTOR Level 2	Area Level 3	CAL FACTOR Level 3	Area Level 4	CAL FACTOR Level 4	Area Level 5	CAL FACTOR Level 5
TNB	11153	2425	55470	2412	144717	2517	287758	2502	587279	2553
26DNT	8260	1652	40346	1614	106117	1698	210225	1682	424028	1696
TNT	11042	2400	55332	2406	145628	2533	289808	2520	589589	2563
3,4DNT	8163	1166	41498	1186	114577	1389	226144	1371	460842	1396
TETRYL	13893	1544	67639	1503	167917	1493	334932	1489	698094	1551
HMX	6880	983	35544	1016	90342	1032	177367	1014	357601	1022

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : LC-CN-10

Inj 1

Injection File Name Level 1 : 3CN0420,9
Injection File Name Level 2 : 3CN0420,10
Injection File Name Level 3 : 3CN0420,11
Injection File Name Level 4 : 3CN0420,12
Injection File Name Level 5 : 3CN0420,13

Calibration Date : 04/20/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	CAL FACTOR Level 1	Area Level 2	CAL FACTOR Level 2	Area Level 3	CAL FACTOR Level 3	Area Level 4	CAL FACTOR Level 4	Area Level 5	CAL FACTOR Level 5
NB	9406	1881	48176	1927	125413	2007	251478	2012	500501	2002
DNB	13125	3281	68169	3408	179390	3588	359766	3598	719713	3599
24DNT	14836	2967	76100	3044	199883	3198	401859	3215	798598	3194
4ADNT	13693	1488	70698	1537	186208	1619	372504	1620	734511	1597
2ADNT	22824	2282	119813	2396	316175	2529	629864	2519	1275750	2552
RDX	5520	1104	29870	1195	83456	1335	163267	1306	324824	1299

CALIBRATION FACTOR DATA
FORM 9B

TXPLOSIVE CALIBRATION - METHOD SW846-8330
trument ID: IN10
lumn ID : LC-CN-10

Inj 1

Injection File Name Level 1 : 3CN0420,4
Injection File Name Level 2 : 3CN0420,5
Injection File Name Level 3 : 3CN0420,6
Injection File Name Level 4 : 3CN0420,7
Injection File Name Level 5 : 3CN0420,8

Calibration Date : 04/20/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Cal Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
TNB	2482	2.46	0.99995	2541	0.000
26DNT	1668	2.13	0.99998	1693	0.000
TNT	2484	3.06	0.99996	2553	0.000
3,4DNT	1302	8.86	0.99988	1390	0.000
TETRYL	1516	1.95	0.99977	1537	0.000
HMX	1013	1.83	0.99998	1021	0.000

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : LC-CN-10

Inj 1

Injection File Name Level 1 : 3CN0420,9
Injection File Name Level 2 : 3CN0420,10
Injection File Name Level 3 : 3CN0420,11
Injection File Name Level 4 : 3CN0420,12
Injection File Name Level 5 : 3CN0420,13

Calibration Date : 04/20/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Cal Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
NB	1966	2.98	0.99999	2004	0.000
DNB	3495	4.12	0.99999	3596	0.000
24DNT	3124	3.57	0.99998	3197	0.000
4ADNT	1572	3.67	0.99995	1602	0.000
2ADNT	2456	4.65	0.99998	2543	0.000
RDX	1248	7.73	0.99991	1302	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/20/1998
Continuing Calibration #: 1
Continuing Cal Date : 04/21/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CN0420A,11
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	144572	2514	2482	1.31	2541	1.05
26DNT	108806	1741	1668	4.35	1693	2.83
TNT	148078	2575	2484	3.65	2553	0.88
3,4DNT	114890	1393	1302	7.00	1390	0.21
TETRYL	143014	1271	1516	16.14	1537	17.28
HMX	91152	1042	1013	2.81	1021	2.07

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/20/1998
Continuing Calibration #: 1
Continuing Cal Date : 04/21/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CN0420A,12
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	126908	2031	1966	3.30	2004	1.35
DNB	181046	3621	3495	3.61	3596	0.68
24DNT	203297	3253	3124	4.13	3197	1.73
4ADNT	191006	1661	1572	5.65	1602	3.70
2ADNT	318792	2550	2456	3.85	2543	0.28
RDX	80978	1296	1248	3.83	1302	0.45

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Injection volume = 100uL

Amount Units = ng

COMPONENT NAME	AMT ON COL Level 1	AMT ON COL Level 2	AMT ON COL Level 3	AMT ON COL Level 4	AMT ON COL Level 5
TNB	4.600	23.000	57.500	115.000	230.000
26DNT	5.000	25.000	62.500	125.000	250.000
TNT	4.600	23.000	57.500	115.000	230.000
3,4DNT	7.000	35.000	82.500	165.000	330.000
TETRYL	9.000	45.000	112.500	225.000	450.000
HMX	7.000	35.000	87.500	175.000	350.000

CALIBRATION FACTOR DATA
FORM 9D

PLOSIVE CALIBRATION - METHOD SW846-8330

Injection volume = 100uL

Amount Units = ng

COMPONENT NAME	AMT ON COL Level 1	AMT ON COL Level 2	AMT ON COL Level 3	AMT ON COL Level 4	AMT ON COL Level 5
NB	5.000	25.000	62.500	125.000	250.000
DNB	4.000	20.000	50.000	100.000	200.000
24DNT	5.000	25.000	62.500	125.000	250.000
4ADNT	9.200	46.000	115.000	230.000	460.000
2ADNT	10.000	50.000	125.000	250.000	500.000
RDX	5.000	25.000	62.500	125.000	250.000

3CN042C
A STD

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-10
Calibration Date : 04/20/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
TNB	6.18	6.17	6.16	6.16	6.16
26DNT	6.92	6.92	6.90	6.91	6.91
TNT	7.52	7.50	7.48	7.50	7.50
3,4DNT	8.84	8.82	8.80	8.82	8.82
TETRYL	12.46	12.43	12.40	12.42	12.44
HMX	15.45	15.31	15.25	15.30	15.33

COMPONENT NAME	RT Cont CA1
TNB	6.19
26DNT	6.96
TNT	7.53
3,4DNT	8.87
TRYL	12.44
[illegible]	15.23

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
TNB	6.17	0.014	0.041	6.13 - 6.21
26DNT	6.92	0.019	0.056	6.87 - 6.98
TNT	7.51	0.018	0.054	7.45 - 7.56
3,4DNT	8.83	0.023	0.069	8.76 - 8.90
TETRYL	12.43	0.022	0.065	12.36 - 12.50
HMX	15.31	0.077	0.232	15.08 - 15.54

3CN0420
B STD

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-10
Calibration Date : 04/20/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
NB	5.47	5.43	5.45	5.43	5.43
DNB	6.10	6.07	6.09	6.07	6.07
24DNT	7.25	7.21	7.23	7.21	7.21
4ADNT	8.16	8.14	8.18	8.16	8.14
2ADNT	8.82	8.78	8.81	8.78	8.77
RDX	9.86	9.82	9.85	9.82	9.81

COMPONENT NAME	RT Cont CA1
NB	5.45
DNB	6.08
24DNT	7.22
4ADNT	8.16
2ADNT	8.77
RDX	9.80

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
NB	5.44	0.016	0.047	5.39 - 5.49
DNB	6.08	0.012	0.036	6.04 - 6.12
24DNT	7.22	0.018	0.054	7.17 - 7.28
4ADNT	8.16	0.012	0.037	8.12 - 8.19
2ADNT	8.79	0.023	0.068	8.72 - 8.86
RDX	9.83	0.024	0.071	9.75 - 9.90

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33609
Instrument ID: IN10 Column ID: LC-CN-10

Dates of Anlayses: 04/20/98 to 04/22/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
EXP L1A STD	2-146:IA1	04/20/98	21:37
EXP L2A STD	2-145:IA2	04/20/98	22:21
EXP L3A STD	2-144:IA3	04/20/98	23:06
EXP L4A STD	2-143:IA4	04/20/98	23:50
EXP L5A STD	2-142:IA5	04/21/98	00:34
EXP L1B STD	1-151:IB1	04/21/98	01:19
EXP L2B STD	2-150:IB2	04/21/98	02:03
EXP L3B STD	2-149:IB3	04/21/98	02:47
EXP L4B STD	2-148:IB4	04/21/98	03:32
EXP L5B STD	2-147:IB5	04/21/98	04:16
BL0416WH	BL0416WH	04/21/98	05:45
BL0416SB	BL0416SB	04/21/98	08:42
BIO-S-001-00-03-1 10	33609.01	04/21/98	10:11
BIO-S-001-00-03-2 10	33609.02	04/21/98	10:55
BIO-S-001-00-03-3 10	33609.03	04/21/98	11:40
EXP L3A STD	2-144:CA1	04/21/98	12:24
EXP L3B STD	2-149:CB1	04/21/98	13:08

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : LC-CN-10

Inj 1

Injection File Name Level 1 : 3CN0422,4
Injection File Name Level 2 : 3CN0422,5
Injection File Name Level 3 : 3CN0422,6
Injection File Name Level 4 : 3CN0422,7
Injection File Name Level 5 : 3CN0422,8

Calibration Date : 04/22/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	CAL FACTOR Level 1	Area Level 2	CAL FACTOR Level 2	Area Level 3	CAL FACTOR Level 3	Area Level 4	CAL FACTOR Level 4	Area Level 5	CAL FACTOR Level 5
TNB	11305	2458	57110	2483	146079	2541	291399	2534	583396	2537
26DNT	8350	1670	41987	1679	108906	1742	216116	1729	434113	1736
TNT	10934	2377	56881	2473	147632	2568	294536	2561	593574	2581
3,4DNT	8193	1170	43601	1246	115706	1402	230009	1394	470302	1425
TETRYL	14065	1563	70200	1560	167123	1486	337619	1501	687292	1527
HMX	5984	855	35603	1017	91534	1046	183078	1046	368281	1052

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : LC-CN-10

Inj 1

Injection File Name Level 1 : 3CN0422,9
Injection File Name Level 2 : 3CN0422,10
Injection File Name Level 3 : 3CN0422,11
Injection File Name Level 4 : 3CN0422,12
Injection File Name Level 5 : 3CN0422,13

Calibration Date : 04/22/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	CAL FACTOR Level 1	Area Level 2	CAL FACTOR Level 2	Area Level 3	CAL FACTOR Level 3	Area Level 4	CAL FACTOR Level 4	Area Level 5	CAL FACTOR Level 5
NB	9575	1915	48449	1938	124239	1988	247645	1981	502207	2009
DNB	13468	3367	69735	3487	182416	3648	362619	3626	740695	3703
24DNT	15690	3138	75972	3039	200662	3211	396899	3175	806903	3228
4ADNT	14614	1588	70675	1536	187434	1630	365722	1590	731612	1590
2ADNT	24550	2455	121838	2437	322208	2578	637439	2550	1306155	2612
RDX	7084	1417	31167	1247	82566	1321	163588	1309	335752	1343

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : LC-CN-10

Inj 1

Injection File Name Level 1 : 3CN0422,4
Injection File Name Level 2 : 3CN0422,5
Injection File Name Level 3 : 3CN0422,6
Injection File Name Level 4 : 3CN0422,7
Injection File Name Level 5 : 3CN0422,8

Calibration Date : 04/22/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Cal Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
TNB	2510	1.50	1.00000	2536	0.000
26DNT	1711	1.99	0.99999	1735	0.000
TNT	2512	3.45	0.99999	2576	0.000
3,4DNT	1328	8.50	0.99992	1417	0.000
TETRYL	1527	2.27	0.99993	1521	0.000
HMX	1003	8.38	1.00000	1050	0.000

251A

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : LC-CN-10

Inj 1

Injection File Name Level 1 : 3CN0422,9
Injection File Name Level 2 : 3CN0422,10
Injection File Name Level 3 : 3CN0422,11
Injection File Name Level 4 : 3CN0422,12
Injection File Name Level 5 : 3CN0422,13

Calibration Date : 04/22/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Cal Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
NB	1966	1.96	0.99998	2002	0.000
DNB	3566	3.84	0.99995	3685	0.000
24DNT	3158	2.37	0.99996	3216	0.000
4ADNT	1587	2.09	0.99996	1592	0.000
2ADNT	2526	3.05	0.99993	2598	0.000
RDX	1327	4.64	0.99990	1335	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/22/1998
Continuing Calibration #: 1
Continuing Cal Date : 04/23/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CN0422B,7
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	146902	2555	2510	1.77	2536	0.75
26DNT	112033	1793	1711	4.74	1735	3.32
TNT	152540	2653	2512	5.61	2576	3.00
3,4DNT	118801	1440	1328	8.47	1417	1.63
TETRYL	151503	1347	1527	11.82	1521	11.44
HMX	95190	1088	1003	8.43	1050	3.56

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/22/1998
Continuing Calibration #: 1
Continuing Cal Date : 04/23/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CN0422B,8
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	131427	2103	1966	6.95	2002	5.03
DNB	190392	3808	3566	6.77	3685	3.34
24DNT	204179	3267	3158	3.45	3216	1.59
4ADNT	193957	1687	1587	6.27	1592	5.95
2ADNT	326563	2613	2526	3.41	2598	0.57
RDX	85806	1373	1327	3.44	1335	2.84

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/22/1998
Continuing Calibration #: 2
Continuing Cal Date : 04/24/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CN0422C,9
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	148345	2580	2510	2.77	2536	1.74
26DNT	112185	1795	1711	4.88	1735	3.46
TNT	152608	2654	2512	5.66	2576	3.05
3,4DNT	117098	1419	1328	6.92	1417	0.17
TETRYL	149946	1333	1527	12.73	1521	12.35
HMX	94426	1079	1003	7.56	1050	2.73

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/22/1998
Continuing Calibration #: 2
Continuing Cal Date : 04/24/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CN0422C,10
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	126813	2029	1966	3.20	2002	1.34
DNB	186598	3732	3566	4.64	3685	1.28
24DNT	206803	3309	3158	4.77	3216	2.90
4ADNT	194548	1692	1587	6.59	1592	6.27
2ADNT	330105	2641	2526	4.53	2598	1.66
RDX	84970	1360	1327	2.43	1335	1.84

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/22/1998
Continuing Calibration #: 6
Continuing Cal Date : 04/25/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CN0422D,15
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	141036	2453	2510	2.29	2536	3.27
26DNT	113626	1818	1711	6.23	1735	4.79
TNT	154402	2685	2512	6.90	2576	4.26
3,4DNT	119188	1445	1328	8.82	1417	1.96
TETRYL	117313	1043	1527	31.72	1521	31.43
HMX	94857	1084	1003	8.05	1050	3.20

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/22/1998
Continuing Calibration #: 6
Continuing Cal Date : 04/25/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CN0422D,16
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	123967	1983	1966	0.88	2002	0.93
DNB	188689	3774	3566	5.82	3685	2.41
24DNT	209236	3348	3158	6.01	3216	4.11
4ADNT	195737	1702	1587	7.25	1592	6.92
2ADNT	330085	2641	2526	4.53	2598	1.65
RDX	86610	1386	1327	4.41	1335	3.80

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/22/1998
Continuing Calibration #: 7
Continuing Cal Date : 04/25/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CN0422E,8
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	149516	2600	2510	3.58	2536	2.54
26DNT	112631	1802	1711	5.30	1735	3.87
TNT	154785	2692	2512	7.17	2576	4.52
3,4DNT	119212	1445	1328	8.85	1417	1.98
TETRYL	154206	1371	1527	10.25	1521	9.86
HMX	95156	1087	1003	8.39	1050	3.52

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/22/1998
Continuing Calibration #: 7
Continuing Cal Date : 04/25/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CN0422E,9
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	132030	2112	1966	7.44	2002	5.51
DNB	199805	3996	3566	12.05	3685	8.45
24DNT	221903	3550	3158	12.43	3216	10.41
4ADNT	207091	1801	1587	13.47	1592	13.12
2ADNT	352084	2817	2526	11.49	2598	8.43
RDX	92412	1479	1327	11.40	1335	10.76

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Injection volume = 100uL

Amount Units = ng

COMPONENT NAME	AMT ON COL Level 1	AMT ON COL Level 2	AMT ON COL Level 3	AMT ON COL Level 4	AMT ON COL Level 5
TNB	4.600	23.000	57.500	115.000	230.000
26DNT	5.000	25.000	62.500	125.000	250.000
TNT	4.600	23.000	57.500	115.000	230.000
3,4DNT	7.000	35.000	82.500	165.000	330.000
TETRYL	9.000	45.000	112.500	225.000	450.000
HMX	7.000	35.000	87.500	175.000	350.000

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Injection volume = 100uL

Amount Units = ng

COMPONENT NAME	AMT ON COL Level 1	AMT ON COL Level 2	AMT ON COL Level 3	AMT ON COL Level 4	AMT ON COL Level 5
NB	5.000	25.000	62.500	125.000	250.000
DNB	4.000	20.000	50.000	100.000	200.000
24DNT	5.000	25.000	62.500	125.000	250.000
4ADNT	9.200	46.000	115.000	230.000	460.000
2ADNT	10.000	50.000	125.000	250.000	500.000
RDX	5.000	25.000	62.500	125.000	250.000

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-10
Calibration Date : 04/22/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
TNB	5.98	5.99	6.00	5.98	5.96
26DNT	6.62	6.64	6.64	6.63	6.60
TNT	7.20	7.20	7.21	7.20	7.17
3,4DNT	8.28	8.33	8.33	8.32	8.28
TETRYL	11.48	11.54	11.54	11.53	11.48
HMX	13.73	13.72	13.74	13.74	13.66

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
TNB	6.00	6.01	6.03	6.02	6.00
26DNT	6.65	6.67	6.69	6.69	6.66
TNT	7.22	7.23	7.26	7.25	7.21
3,4DNT	8.34	8.37	8.41	8.40	8.34
TETRYL	11.55	11.58	11.62	11.60	11.52
HMX	13.75	13.76	13.79	13.74	13.60

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
TNB	6.00	0.022	0.066	5.94 - 6.07
26DNT	6.66	0.041	0.122	6.54 - 6.78
TNT	7.22	0.034	0.102	7.12 - 7.33
3,4DNT	8.36	0.061	0.182	8.17 - 8.54
TETRYL	11.57	0.074	0.223	11.34 - 11.79
HMX	13.73	0.069	0.206	13.53 - 13.94

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-10
Calibration Date : 04/22/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
NB	5.27	5.29	5.28	5.27	5.26
DNB	5.88	5.88	5.87	5.87	5.86
24DNT	6.91	6.91	6.90	6.90	6.89
4ADNT	7.69	7.69	7.69	7.68	7.67
2ADNT	8.25	8.26	8.25	8.25	8.23
RDX	9.13	9.15	9.14	9.13	9.11

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
NB	5.31	5.31	5.32	5.31	5.29
DNB	5.89	5.91	5.91	5.90	5.88
24DNT	6.93	6.96	6.96	6.94	6.92
4ADNT	7.73	7.75	7.77	7.74	7.71
2ADNT	8.29	8.32	8.33	8.31	8.26
RDX	9.18	9.20	9.20	9.19	9.12

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
NB	5.30	0.029	0.088	5.21 - 5.39
DNB	5.89	0.028	0.083	5.81 - 5.98
24DNT	6.94	0.043	0.129	6.81 - 7.06
4ADNT	7.73	0.059	0.176	7.55 - 7.91
2ADNT	8.29	0.062	0.185	8.11 - 8.48
RDX	9.17	0.057	0.170	9.00 - 9.34

3CN0422
A STD

CALIBRATION FACTOR DAT
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-10
Calibration Date : 04/22/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
TNB	5.98	5.99	6.00	5.98	5.96
26DNT	6.62	6.64	6.64	6.63	6.60
TNT	7.20	7.20	7.21	7.20	7.17
3,4DNT	8.28	8.33	8.33	8.32	8.28
TETRYL	11.48	11.54	11.54	11.53	11.48
HMX	13.73	13.72	13.74	13.74	13.66

COMPONENT NAME	RT Cont CA6	RT Cont CA7
TNB	6.01	6.04
26DNT	6.69	6.75
TNT	7.24	7.30
3,4DNT	8.39	8.50
TETRYL	11.58	11.76
HMX	13.70	13.89

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
TNB	6.00	0.022	0.066	5.94 - 6.07
26DNT	6.66	0.041	0.122	6.54 - 6.78
TNT	7.22	0.034	0.102	7.12 - 7.33
3,4DNT	8.36	0.061	0.182	8.17 - 8.54
TETRYL	11.57	0.074	0.223	11.34 - 11.79
HMX	13.73	0.069	0.206	13.53 - 13.94

3CN0422
B STD

CALIBRATION FACTOR DAT
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-10
Calibration Date : 04/22/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
NB	5.27	5.29	5.28	5.27	5.26
DNB	5.88	5.88	5.87	5.87	5.86
24DNT	6.91	6.91	6.90	6.90	6.89
4ADNT	7.69	7.69	7.69	7.68	7.67
2ADNT	8.25	8.26	8.25	8.25	8.23
RDX	9.13	9.15	9.14	9.13	9.11

COMPONENT NAME	RT Cont CA6	RT Cont CA7
NB	5.32	5.37
DNB	5.90	5.96
24DNT	6.96	7.05
4ADNT	7.77	7.88
2ADNT	8.33	8.45
DX	9.19	9.32

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
NB	5.30	0.029	0.088	5.21 - 5.39
DNB	5.89	0.028	0.083	5.81 - 5.98
24DNT	6.94	0.043	0.129	6.81 - 7.06
4ADNT	7.73	0.059	0.176	7.55 - 7.91
2ADNT	8.29	0.062	0.185	8.11 - 8.48
RDX	9.17	0.057	0.170	9.00 - 9.34

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33609
Instrument ID: LC4 Column ID:

Dates of Anlayses: 04/24/98 to 04/25/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
instrument blank	instrument bla	04/24/98	20:15
L1 2-189:IA1	L1 2-189:IA1	04/24/98	21:39
L2 2-188:IA2	L2 2-188:IA2	04/24/98	22:07
L3 2-200:IA3	L3 2-200:IA3	04/24/98	22:36
L4 2-186:IA4	L4 2-186:IA4	04/24/98	23:04
L5 2-185:IA5	L5 2-185:IA5	04/24/98	23:32
ICV	ICV	04/25/98	00:00
BL0417SG	BL0417SG	04/25/98	00:28
LC0417SG	LC0417SG	04/25/98	01:24
LD0417SG	LD0417SG	04/25/98	01:52
BIO-S-001-00-03-1	33609.01	04/25/98	02:21
BIO-S-001-00-03-2	33609.02	04/25/98	02:49
BIO-S-001-00-03-3	33609.03	04/25/98	03:17
BIO-S-001-00-05-1	33609.04	04/25/98	03:45
L3 2-200:CA1	L3 2-200:CA1	04/25/98	04:13
BIO-S-001-00-05-2	33609.05	04/25/98	05:09
BIO-S-001-00-05-3	33609.06	04/25/98	05:38
BIO-S-001-00-05-3	33609.07MS	04/25/98	06:06
BIO-S-001-00-05-3	33609.08MSD	04/25/98	06:34

FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33609
Instrument ID: LC4 Column ID:

Dates of Anlayses: 04/24/98 to 04/25/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
BIO-S-001-00-07-1	33609.09	04/25/98	07:02
BIO-S-001-00-07-2	33609.10	04/25/98	07:30
BIO-S-001-00-07-3	33609.11	04/25/98	07:58
BIO-S-001-00-09-1	33609.12	04/25/98	08:26
BIO-S-001-00-09-1FD	33609.13	04/25/98	08:54
L3 2-200:CA2	L3 2-200:CA2	04/25/98	09:22
BIO-S-001-00-09-2	33609.14	04/25/98	10:19
BIO-S-001-00-09-3	33609.15	04/25/98	10:47
BIO-S-001-00-11-1	33609.16	04/25/98	11:15
BIO-S-001-00-11-2	33609.17	04/25/98	11:43
BIO-S-001-00-11-3	33609.18	04/25/98	12:11
L3 2-200:CA3	L3 2-200:CA3	04/25/98	12:39

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: LC4
Column ID :

Inj 1

Injection File Name Level 1 : 042498,4
Injection File Name Level 2 : 042498,5
Injection File Name Level 3 : 042498,6
Injection File Name Level 4 : 042498,7
Injection File Name Level 5 : 042498,8

Calibration Date : 04/24/98
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	RESP. FACT Level 1	Area Level 2	RESP. FACT Level 2	Area Level 3	RESP. FACT Level 3	Area Level 4	RESP. FACT Level 4	Area Level 5	RESP. FACT Level 5
PETN	5.7118	3.50E0	49.8636	3.21E0	97.8053	3.27E0	409.035	3.13E0	814.071	3.14E0

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
ıstrument ID: LC4
olumn ID :

	Inj 1
Injection File Name Level 1 :	042498,4
Injection File Name Level 2 :	042498,5
Injection File Name Level 3 :	042498,6
Injection File Name Level 4 :	042498,7
Injection File Name Level 5 :	042498,8

Calibration Date : 04/24/98
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Resp Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
PETN	3.25E0	4.64	0.99998	3.14E0	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/24/98
Continuing Calibration #: 1
Continuing Cal Date : 04/25/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 042498.dmp,18
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	98.4481	3.25E0	3.25E0	0.02	3.14E0	3.41

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/24/98
Continuing Calibration #: 2
Continuing Cal Date : 04/25/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 042498.dmp,29
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	98.581	3.25E0	3.25E0	0.16	3.14E0	3.27

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/24/98
Continuing Calibration #: 3
Continuing Cal Date : 04/25/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 042498.dmp,36
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	98.4681	3.25E0	3.25E0	0.04	3.14E0	3.39

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Injection volume = 200ul

Amount Units = ug/L

COMPONENT NAME	SPIKE AMT Level 1	SPIKE AMT Level 2	SPIKE AMT Level 3	SPIKE AMT Level 4	SPIKE AMT Level 5
PETN	20	160	320	1280	2560

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : LC4
Column ID :
Calibration Date : 04/24/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
PETN	12.49	12.53	12.54	12.54	12.54

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3
PETN	12.63	12.62	12.55

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
PETN	12.56	0.046	0.137	12.42 - 12.69

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33609
Instrument ID: IN10 Column ID: LC-CN-10

Dates of Anlayses: 04/27/98 to 04/27/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
PETN L1 SOIL STD	2-189:IA1	04/27/98	13:50
PETN L2 SOIL STD	2-188:IA2	04/27/98	14:35
PETN L3 SOIL STD	2-187:IA3	04/27/98	15:19
PETN L4 SOIL STD	2-186:IA4	04/27/98	16:03
PETN L5 SOIL STD	2-185:IA5	04/27/98	16:48
BL0417SG	BL0417SG	04/27/98	17:32
BIO-S-001-00-11-2 10	33609.17	04/27/98	19:25
PETN L3 SOIL STD	2-187:CA1	04/27/98	22:22

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : LC-CN-10

	Inj 1
Injection File Name Level 1 :	PETN,3
Injection File Name Level 2 :	PETN,4
Injection File Name Level 3 :	PETN,5
Injection File Name Level 4 :	PETN,6
Injection File Name Level 5 :	PETN,7

Calibration Date : 04/27/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	CAL FACTOR Level 1	Area Level 2	CAL FACTOR Level 2	Area Level 3	CAL FACTOR Level 3	Area Level 4	CAL FACTOR Level 4	Area Level 5	CAL FACTOR Level 5
PETN	2923	1462	20119	1257	45074	1409	172658	1349	340135	1329

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
lumn ID : LC-CN-10

	Inj 1
Injection File Name Level 1 :	PETN,3
Injection File Name Level 2 :	PETN,4
Injection File Name Level 3 :	PETN,5
Injection File Name Level 4 :	PETN,6
Injection File Name Level 5 :	PETN,7

Calibration Date : 04/27/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Cal Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
PETN	1361	5.72	0.99993	1334	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/27/1998
Continuing Calibration #: 1
Continuing Cal Date : 04/27/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CNPETNC,5
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
PETN	47421	1482	1361	8.88	1334	11.13

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

jection volume = 100uL

Amount Units = ng

COMPONENT NAME	AMT ON COL Level 1	AMT ON COL Level 2	AMT ON COL Level 3	AMT ON COL Level 4	AMT ON COL Level 5
PETN	2.000	16.000	32.000	128.000	256.000

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

strument ID : IN10
olumn ID : LC-CN-10
Calibration Date : 04/27/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
PETN	15.78	15.86	16.00	15.92	15.84

COMPONENT NAME	RT Cont CA1
PETN	15.77

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
PETN	15.86	0.087	0.261	15.60 - 16.12

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33609
Instrument ID: LC4 Column ID: 1

Dates of Anlayses: 04/20/98 to 04/21/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
instrument blank	instrument bla	04/20/98	19:20
L1 2-184:IA1	L1 2-184:IA1	04/20/98	19:43
L2 2-183:IA2	L2 2-183:IA2	04/20/98	21:40
L3 2-182:IA3	L3 2-182:IA3	04/20/98	22:03
L4 2-181:IA4	L4 2-181:IA4	04/20/98	22:50
L5 2-180:IA5	L5 2-180:IA5	04/20/98	23:13
ICV	ICV	04/20/98	23:36
BL0416WH	BL0416WH	04/21/98	00:00
LC0416WH	LC0416WH	04/21/98	00:46
LD0416WH	LD0416WH	04/21/98	01:09
BIO-RB-041598	33609.19	04/21/98	02:42
L3 2-182:CA1	L3 2-182:CA1	04/21/98	03:29

page 1

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: LC4
Column ID : 1

Inj 1

Injection File Name Level 1 : 042098W,2
Injection File Name Level 2 : 042098W,7
Injection File Name Level 3 : 042098W,8
Injection File Name Level 4 : 042098W,10
Injection File Name Level 5 : 042098W,11

Calibration Date : 04/20/98
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	RESP. FACT Level 1	Area Level 2	RESP. FACT Level 2	Area Level 3	RESP. FACT Level 3	Area Level 4	RESP. FACT Level 4	Area Level 5	RESP. FACT Level 5
PETN	5.79272	3.45E0	47.7014	3.35E0	100.221	3.19E0	406.398	3.15E0	817.895	3.13E0

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: LC4
lumn ID : 1

Inj 1

Injection File Name Level 1 : 042098W,2
Injection File Name Level 2 : 042098W,7
Injection File Name Level 3 : 042098W,8
Injection File Name Level 4 : 042098W,10
Injection File Name Level 5 : 042098W,11

Calibration Date : 04/20/98
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Resp Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
PETN	3.26E0	4.33	0.99999	3.13525475	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/20/98
Continuing Calibration #: 1
Continuing Cal Date : 04/21/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID : 1
Injection File Name : 042098W.dmp,22
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	99.7528	3.21E0	3.26E0	1.47	3.14E0	2.32

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

ıjection volume = 200ul

Amount Units = ug/L

COMPONENT NAME	SPIKE AMT Level 1	SPIKE AMT Level 2	SPIKE AMT Level 3	SPIKE AMT Level 4	SPIKE AMT Level 5
PETN	20	160	320	1280	2560

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : LC4
Column ID : 1
Calibration Date : 04/20/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
PETN	12.99	13.07	13.04	12.96	12.97

COMPONENT NAME	RT Cont CA1	RT Cont CA2
PETN	13.03	13.00

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
PETN	13.01	0.040	0.121	12.89 - 13.13

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33609
Instrument ID: IN13 Column ID: CARB-06

Dates of Anlayses: 04/17/98 to 04/19/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
INST. BLANK	INST.BLK.	04/17/98	20:03
EXP HIGH WATER L1 ST	2-129:IA1	04/17/98	22:17
EXP HIGH WATER L2 ST	2-128:IA2	04/17/98	23:02
EXP HIGH WATER L3 ST	2-127:IA3	04/17/98	23:46
EXP HIGH WATER L4 ST	2-126:IA4	04/18/98	00:31
EXP HIGH WATER L5 ST	2-125:IA5	04/18/98	01:16
BL0416WH	BL0416WH	04/18/98	02:45
LC0416WH	LC0416WH	04/18/98	04:15
LD0416WH	LD0416WH	04/18/98	04:59
EXP HIGH WATER L3 ST	2-127:CA1	04/18/98	07:58
BIO-RB-041598	33609.19	04/18/98	13:20
EXP HIGH WATER L3 ST	2-127:CA2	04/18/98	14:05

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN13
Column ID : CARB-06

Inj 1

Injection File Name Level 1 : 5E0417W,4
Injection File Name Level 2 : 5E0417W,5
Injection File Name Level 3 : 5E0417W,6
Injection File Name Level 4 : 5E0417W,7
Injection File Name Level 5 : 5E0417W,8

Calibration Date : 04/17/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	CAL FACTOR Level 1	Area Level 2	CAL FACTOR Level 2	Area Level 3	CAL FACTOR Level 3	Area Level 4	CAL FACTOR Level 4	Area Level 5	CAL FACTOR Level 5
HMX	411	321	837	263	53820	338	111156	350	224834	354
RDX	624	600	1020	392	56135	432	114903	442	233400	451
TNB	586	814	1539	855	85963	959	174859	977	356094	995
DNB	364	958	1172	1221	61117	1284	125219	1318	253139	1332
TETRYL	514	571	1571	695	76222	675	150520	666	300870	669
NB	466	685	1456	856	71077	836	145686	857	296201	871
3,4-DNT	548	428	1311	407	84057	525	170821	534	343923	537
TNT	592	925	1325	828	85537	1069	172735	1080	350906	1097
4ADNT	497	497	1214	482	78837	631	159113	636	322458	645
2ADNT	381	680	900	643	62850	898	126885	906	256043	914
26DNT	430	448	1177	490	68817	598	140106	609	282169	613
24DNT	438	782	1619	1156	84318	1205	173080	1236	350678	1252
2NT	544	486	1375	491	76481	527	157499	543	323949	559
[illegible]T	229	286	788	394	43497	435	89824	449	187861	470
	372	465	975	488	57641	607	120207	633	242972	639

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN13
Column ID : CARB-06

Inj 1
Injection File Name Level 1 : 5E0417W,4
Injection File Name Level 2 : 5E0417W,5
Injection File Name Level 3 : 5E0417W,6
Injection File Name Level 4 : 5E0417W,7
Injection File Name Level 5 : 5E0417W,8

Calibration Date : 04/17/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Cal Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
HMX	325	11.33	0.99994	352	0.000
RDX	463	17.18	0.99991	448	0.000
TNB	920	8.74	0.99994	990	0.000
DNB	1223	12.60	0.99995	1327	0.000
TETRYL	655	7.37	0.99999	668	0.000
NB	821	9.38	0.99993	867	0.000
3,4-DNT	486	13.02	0.99998	536	0.000
TNT	1000	11.80	0.99996	1092	0.000
[illegible]NT	578	14.08	0.99997	643	0.000
[illegible]NT	808	16.67	0.99999	912	0.000
26DNT	552	13.98	0.99998	612	0.000
24DNT	1126	17.39	0.99995	1247	0.000
2NT	521	6.13	0.99984	554	0.000
4NT	407	17.91	0.99966	464	0.000
3NT	566	14.74	0.99992	637	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/17/1998
Continuing Calibration #: 1
Continuing Cal Date : 04/18/1998
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-06
Injection File Name : 5E0417WA,8
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	54934	345	325	6.25	352	1.87
RDX	57769	444	463	4.09	448	0.83
TNB	85857	958	920	4.16	990	3.18
DNB	61770	1298	1223	6.14	1327	2.24
TETRYL	70715	626	655	4.47	668	6.37
NB	61358	722	821	12.10	867	16.73
3,4-DNT	85911	537	486	10.40	536	0.15
TNT	84945	1062	1000	6.21	1092	2.77
4ADNT	77344	619	578	7.02	643	3.72
2ADNT	60680	867	808	7.24	912	4.96
26DNT	67630	588	552	6.56	612	3.89
24DNT	84033	1200	1126	6.58	1247	3.74
2NT	66235	457	521	12.35	554	17.58
4NT	40425	404	407	0.63	464	12.94
NT	51340	540	566	4.56	637	15.11

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/17/1998
Continuing Calibration #: 2
Continuing Cal Date : 04/18/1998
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-06
Injection File Name : 5E0417WA,14
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	53258	335	325	3.01	352	4.86
RDX	57098	439	463	5.20	448	1.98
TNB	84166	939	920	2.11	990	5.09
DNB	59925	1259	1223	2.97	1327	5.16
TETRYL	74916	663	655	1.21	668	0.81
NB	68848	810	821	1.37	867	6.57
3,4-DNT	81200	508	486	4.35	536	5.34
TNT	82240	1028	1000	2.83	1092	5.87
4ADNT	75711	606	578	4.76	643	5.75
2ADNT	59750	854	808	5.59	912	6.42
26DNT	66920	582	552	5.45	612	4.90
24DNT	82537	1179	1126	4.68	1247	5.46
2NT	75454	520	521	0.15	554	6.11
4NT	43280	433	407	6.39	464	6.79
NT	57007	600	566	5.97	637	5.74

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

ıjection volume = 200uL

Amount Units = ng

COMPONENT NAME	AMT ON COL Level 1	AMT ON COL Level 2	AMT ON COL Level 3	AMT ON COL Level 4	AMT ON COL Level 5
HMX	1.280	3.180	159.000	318.000	636.000
RDX	1.040	2.600	130.000	260.000	518.000
TNB	0.720	1.800	89.600	179.000	358.000
DNB	0.380	0.960	47.600	95.000	190.000
TETRYL	0.900	2.260	113.000	226.000	450.000
NB	0.680	1.700	85.000	170.000	340.000
3,4-DNT	1.280	3.220	160.000	320.000	640.000
TNT	0.640	1.600	80.000	160.000	320.000
4ADNT	1.000	2.520	125.000	250.000	500.000
2ADNT	0.560	1.400	70.000	140.000	280.000
26DNT	0.960	2.400	115.000	230.000	460.000
24DNT	0.560	1.400	70.000	140.000	280.000
2NT	1.120	2.800	145.000	290.000	580.000
4NT	0.800	2.000	100.000	200.000	400.000
3NT	0.800	2.000	95.000	190.000	380.000

page 1

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN13
Column ID : CARB-06
Calibration Date : 04/17/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	4.80	4.82	4.82	4.81	4.79
RDX	7.56	7.54	7.56	7.55	7.52
TNB	10.24	10.24	10.27	10.26	10.24
DNB	12.68	12.62	12.66	12.66	12.65
TETRYL	13.60	13.52	13.56	13.58	13.56
NB	14.49	14.42	14.44	14.45	14.43
3,4-DNT	15.92	15.77	15.80	15.84	15.81
TNT	16.44	16.31	16.36	16.39	16.37
4ADNT	17.34	17.22	17.26	17.31	17.29
2ADNT	18.29	18.13	18.17	18.22	18.20
26DNT	19.42	19.26	19.28	19.33	19.30
24DNT	20.08	19.94	19.94	19.98	19.95
2NT	23.71	23.62	23.53	23.59	23.54
4NT	25.38	25.28	25.16	25.22	25.15
3NT	27.29	27.21	27.13	27.18	27.10

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
HMX	4.81	4.82	4.82	4.83	4.81
RDX	7.53	7.52	7.57	7.57	7.58
TNB	10.26	10.23	10.29	10.28	10.34
DNB	12.66	12.61	12.69	12.69	12.78
TETRYL	13.55	13.47	13.61	13.61	13.74
NB	14.46	14.40	14.49	14.48	14.60
3,4-DNT	15.84	15.73	15.88	15.87	16.05
TNT	16.38	16.29	16.42	16.41	16.57
4ADNT	17.28	17.14	17.31	17.34	17.55
2ADNT	18.17	18.03	18.20	18.26	18.45
26DNT	19.30	19.19	19.32	19.36	19.56
24DNT	19.95	19.84	19.96	20.01	20.21
2NT	23.54	23.44	23.53	23.59	23.86
4NT	25.16	25.06	25.15	25.22	25.50
3NT	27.12	27.01	27.10	27.17	27.48

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	4.81	0.011	0.033	4.78 - 4.85
RDX	7.55	0.022	0.066	7.48 - 7.62
TNB	10.26	0.033	0.099	10.16 - 10.36
DNB	12.67	0.048	0.144	12.53 - 12.81
TETRYL	13.58	0.071	0.214	13.37 - 13.79
NB	14.47	0.057	0.171	14.29 - 14.64
3,4-DNT	15.85	0.089	0.267	15.58 - 16.12
TNT	16.39	0.078	0.235	16.16 - 16.63

page 2

4ADNT	17.30	0.105	0.315	16.99 - 17.62
2ADNT	18.21	0.111	0.334	17.88 - 18.54
26DNT	19.33	0.101	0.304	19.03 - 19.64
24DNT	19.99	0.100	0.300	19.68 - 20.29
2NT	23.59	0.117	0.351	23.24 - 23.94
NT	25.23	0.130	0.389	24.84 - 25.62
T	27.18	0.128	0.385	26.79 - 27.56

MORRISON KNUDSEN CORPORATION

CHAIN OF CUSTODY RECORD

720 Park Blvd., P.O. Box 73
Boise, Idaho 83729
(208) 386-5000

B10-003

Project No.: 4324-0004-07-35

Project Name: NSWC Crane Bio-Facility

Samplers: (Signature)

Sampler: (Print) Peter J Chevalier

Split Samples

Analysis Required: 8330 explosives

Sample Type	Sampling Point Description	Sample Date	Time	Sample I.D. Number	Split Samples Yes	Split Samples No	8330 explosives	Remarks
composite	column 3 SL1	4/15/98	1215	B10-S-001-00-03-1		✓	✓	Windrow col Day 0
	2		1220	B10-S-001-00-03-2				
	3		1225	B10-S-001-00-03-3				
	5 1		1231	B10-S-001-00-05-1				
	2		1234	B10-S-001-00-05-2				
	3		1243	B10-S-001-00-05-3				MS/MSD
	7 1		1250	B10-S-001-00-07-1				
	2		1253	B10-S-001-00-07-2				
	3		1256	B10-S-001-00-07-3				SL = Sample location
	9 1		1315	B10-S-001-00-09-1				
	~~2~~ 1		1315	B10-S-001-00-09-1-FD				
	~~3~~ 2		1312	B10-S-001-00-09-2				
	3		1318	B10-S-001-00-09-3				
	11 1		1330	B10-S-001-00-11-1				
	2		1332	B10-S-001-00-11-2				Southwest Labs
	3		1327	B10-S-001-00-11-3				
liquid	rinse blank		1240	B10-RB-041598				

Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:	Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:
	4/15/98 1530				
Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:	Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:
Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:	Received for Laboratory By: (Signature) / Company: S. Hodson	Date/Time 4/16/98 9:40	Total No. Samples This Shipping Container: / Company:
Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:	Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:

Seal #s 2148 2149

4°C

APPENDIX L
RAW DATA FOR LABORATORY ANALYSIS DAY 26

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Laboratory Quality Control Data Summary	17 pages
Analytical Raw Data and Chromatograms	157 pages
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2E

EXPLOSIVE SURROGATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No: MKF-OH SDG No:33946

	SAMPLE NUMBER	S1 #	OTHER
1	BIO-S-001-26-03-1	116	0
2	BIO-S-001-26-03-2	112	0
3	BIO-S-001-26-03-2 MS	77.0	0
4	BIO-S-001-26-03-2 MS	75.8	0
5	BIO-S-001-26-03-3	117	0
6	BIO-S-001-26-05-1	116	0
7	BIO-S-001-26-05-2	120	0
8	BIO-S-001-26-05-3	110	0
9	BIO-S-001-26-05-3FD	117	0
10	BIO-S-001-26-07-1	113	0
11	BIO-S-001-26-07-2	122	0
12	BIO-S-001-26-07-3	117	0
13	BIO-S-001-26-09-1	119	0
14	BIO-S-001-26-09-2	117	0
15	BIO-S-001-26-09-3	112	0
16	BIO-S-001-26-11-1	139	0
17	BIO-S-001-26-11-2	131	0
18	BIO-S-001-26-11-3	119	0
19	BIO-RB051198	125	0
20	BIO-RB051198 MS	142*	0
21	BIO-RB-RB051198 MSD	139	0
22	BL0514SB	124	0
23	BL0514WB	119	0
24	LC0514SB	90.3	0
25	LC0514WB	138	0
26	LD0514SB	78.8	0
27	LD0514WB	145*	0
28			
29			
30			

S1 = 3,4-DNT (60-140)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

FORM II

SOIL EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Client Sample No: BIO-S-001-26-03-2 MS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
HMX	9500		10200	107	54-128
RDX	9500		8960	94	66-109
TNB	9500		9980	105	57-130
DNB	9500		10600	112	74-122
TETRYL	9500		8430	89	32-119
NB	9500		9470	100	70-135
TNT	9500	744	9550	93	44-124
4ADNT	9500		10300	108	60-140
2ADNT	9500		9710	102	60-140
26DNT	9500		10600	112	58-125
24DNT	9500		9920	104	59-120
2NT	9500		10400	109	79-124
4NT	9500		10200	107	74-128
3NT	9500		10500	110	79-121

No of Analyte recoveries out of QC Advisory Limits = 0

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD#	QC LIMITS RPD	QC LIMITS REC.
HMX	9500	10100	106	1	30	54-128
RDX	9500	8550	90	5	30	66-109
TNB	9500	9800	103	2	30	57-130
DNB	9500	10400	109	3	45	74-122
TETRYL	9500	7410	78	13	30	32-119
NB	9500	9310	98	2	35	70-135
TNT	9500	9470	92	1	30	44-124
4ADNT	9500	10300	108	0	40	60-140
2ADNT	9500	9930	104	2	40	60-140
26DNT	9500	9760	103	8	35	58-125
24DNT	9500	9660	102	2	35	59-120
2NT	9500	10000	105	4	35	79-124
4NT	9500	10000	105	2	35	74-128
3NT	9500	10300	108	2	35	79-121

No of Analyte recoveries out of QC Advisory Limits = 0
No of RPD's out of QC Limits 0

3F

SOIL EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Client Sample No: BIO-S-001-26-03-2

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
PETN	3000		3140	105	70-130

No of Analyte recoveries out of QC Advisory Limits = 0

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD#	QC LIMITS RPD	QC LIMITS REC.
PETN	3000	3130	104	1	30	70-130

No of Analyte recoveries out of QC Advisory Limits = 0
No of RPD's out of QC Limits 0

WATER EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Client Sample No: BIO-RB-RB051198 MSD

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
HMX	400		375	94	44-145
RDX	150		148	99	66-139
TNB	225		214	95	56-129
DNB	125		122	98	76-122
TETRYL	413		293	71*	76-120
NB	213		224	105	82-111
TNT	188		246	131	76-137
4ADNT	313		310	99	60-140
2ADNT	313		293	94	60-140
26DNT	288		262	91	80-118
24DNT	175		166	95	72-123
2NT	363		339	93	74-130
4NT	250		238	95	78-116
3NT	238		285	120	72-126

No of Analyte recoveries out of QC Advisory Limits = 1

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD#	QC LIMITS RPD	QC LIMITS REC.
HMX	400	371	93	1	15	44-145
RDX	150	149	99	1	12	66-139
TNB	225	215	96	1	10	56-129
DNB	125	122	98	0	15	76-122
TETRYL	413	314	76	7	14	76-120
NB	213	222	104	1	13	82-111
TNT	188	251	134	2	15	76-137
4ADNT	313	312	100	1	40	60-140
2ADNT	313	300	96	2	40	60-140
26DNT	288	274	95	4	13	80-118
24DNT	175	163	93	2	14	72-123
2NT	363	345	95	2	15	74-130
4NT	250	245	98	3	14	78-116
3NT	238	284	119	1	15	72-126

No of Analyte recoveries out of QC Advisory Limits = 1
No of RPD's out of QC Limits 0

WATER EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Client Sample No: BIO-RB051198

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
PETN	1200		1440	120	70-130

No of Analyte recoveries out of QC Advisory Limits = 0

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD#	QC LIMITS RPD	QC LIMITS REC.
PETN	1200	1470	122	2	30	70-130

No of Analyte recoveries out of QC Advisory Limits = 0
No of RPD's out of QC Limits 0

3G

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Client Sample No: LC0514SB

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
HMX	9500		10200	107	57-137
RDX	9500		8490	89	77-113
TNB	9500		10200	107	64-125
DNB	9500		10300	108	82-118
TETRYL	9500		13000	137*	23-124
NB	9500		9580	101	69-143
TNT	9500		9280	98	75-118
4ADNT	9500		9710	102	60-140
2ADNT	9500		9840	104	60-140
26DNT	9500		9970	105	78-117
24DNT	9500		9840	104	74-126
2NT	9500		10200	107	78-123
4NT	9500		10200	107	79-125
3NT	9500		10100	106	78-121

# of Analyte recoveries out of QC Advisory Limits = 1

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Client Sample No: LC0514SD

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
PETN	3000		2470	82	70-130

No of Analyte recoveries out of QC Advisory Limits = 0

WATER EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Client Sample No: LC0514WB

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC LIMITS REC.
HMX	400		338	85	46-151
RDX	150		129	86	72-129
TNB	225		193	86	74-118
DNB	125		112	90	76-132
TETRYL	413		295	71	58-120
NB	213		201	94	68-135
TNT	188		229	122	61-145
4ADNT	313		288	92	60-140
2ADNT	313		272	87	60-140
26DNT	288		252	88	77-125
24DNT	175		153	87	70-134
2NT	363		316	87	73-131
4NT	250		218	87	73-116
3NT	238		266	112	71-127

# of Analyte recoveries out of QC Advisory Limits = 0

3G

WATER EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Client Sample No: LC0514WC

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC LIMITS REC.
PETN	1200		1350	112	70-130

No of Analyte recoveries out of QC Advisory Limits = 0

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Client Sample No: LD0514SB

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	QC LIMITS REC.
HMX	9500		10400	109	57-137
RDX	9500		8770	92	77-113
TNB	9500		10200	107	64-125
DNB	9500		10500	110	82-118
TETRYL	9500		11000	116	23-124
NB	9500		9870	104	69-143
TNT	9500		9390	99	75-118
4ADNT	9500		10100	106	60-140
2ADNT	9500		9980	105	60-140
26DNT	9500		10100	106	78-117
24DNT	9500		10000	105	74-126
2NT	9500		10500	110	78-123
4NT	9500		10600	112	79-125
3NT	9500		10300	108	78-121

# of Analyte recoveries out of QC Advisory Limits = 0

3G

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Client Sample No: LD0514SD

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	QC LIMITS REC.
PETN	3000		2440	81	70-130

No of Analyte recoveries out of QC Advisory Limits = 0

3G

WATER EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Client Sample No: LD0514WB

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	QC LIMITS REC.
HMX	400		358	90	46-151
RDX	150		145	97	72-129
TNB	225		209	93	74-118
DNB	125		125	100	76-132
TETRYL	413		335	81	58-120
NB	213		241	113	68-135
TNT	188		250	133	61-145
4ADNT	313		320	102	60-140
2ADNT	313		302	97	60-140
26DNT	288		273	95	77-125
24DNT	175		171	98	70-134
2NT	363		331	91	73-131
4NT	250		233	93	73-116
3NT	238		283	119	71-127

# of Analyte recoveries out of QC Advisory Limits = 0

3G

WATER EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Client Sample No: LD0514WC

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	QC LIMITS REC.
PETN	1200		1390	116	70-130

No of Analyte recoveries out of QC Advisory Limits = 0

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0514SB

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Matrix: (soil/water) Soil

Date Extracted: 05/14/98 Extn. Method: SONC

Date Analyzed (1): 05/17/98 Date Analyzed(2): 05/22/98

Time Analyzed (1): 01:08:58 Time Analyzed(2): 16:32:35

Instrument ID (1): IN13 Instrument ID(2): IN10

LC Column ID (1): CARB-08 LC Column ID (2): LC-CN-09

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC'S.

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	LC0514SB	LC0514SB	05/17/98	
2	LD0514SB	LD0514SB	05/17/98	
3	BIO-S-001-26-03-1	33946.01	05/17/98	05/22/98
4	BIO-S-001-26-03-2	33946.02	05/17/98	05/22/98
	BIO-S-001-26-03-2 MS	33946.03MS	05/17/98	
	BIO-S-001-26-03-2 MS	33946.04MSD	05/17/98	
7	BIO-S-001-26-03-3	33946.05	05/17/98	05/22/98
8	BIO-S-001-26-05-1	33946.06	05/17/98	05/22/98
9	BIO-S-001-26-05-2	33946.07	05/17/98	05/23/98
10	BIO-S-001-26-05-3	33946.08	05/17/98	05/23/98
11	BIO-S-001-26-05-3FD	33946.09	05/17/98	05/23/98
12	BIO-S-001-26-07-1	33946.10	05/17/98	05/23/98
13	BIO-S-001-26-07-2	33946.11	05/17/98	05/23/98
14	BIO-S-001-26-07-3	33946.12	05/17/98	05/23/98
15	BIO-S-001-26-09-1	33946.13	05/17/98	05/23/98
16	BIO-S-001-26-09-2	33946.14	05/17/98	05/23/98
17	BIO-S-001-26-09-3	33946.15	05/17/98	05/23/98
18	BIO-S-001-26-11-1	33946.16	05/17/98	05/23/98
19	BIO-S-001-26-11-2	33946.17	05/17/98	05/23/98
20	BIO-S-001-26-11-3	33946.18	05/18/98	05/23/98
21				
22				
23				
24				
25				

FORM IV

Lab Name: SWL-TULSA Contract:

Sample ID: BL0514SD

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Matrix: (soil/water) Soil

Date Extracted: 05/14/98 Extn. Method: SONC

Date Analyzed (1): 05/19/98 Date Analyzed(2):

Time Analyzed (1): 23:02:26 Time Analyzed(2):

Instrument ID (1): LC4 Instrument ID(2):

LC Column ID (1): LC Column ID (2):

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC'S.

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	LC0514SD	LC0514SD	05/19/98	
2	LD0514SD	LD0514SD	05/20/98	
3	BIO-S-001-26-03-1	33946.01	05/20/98	
4	BIO-S-001-26-03-2	33946.02	05/20/98	
	BIO-S-001-26-03-2	33946.03MS	05/20/98	
	BIO-S-001-26-03-2	33946.04MSD	05/20/98	
7	BIO-S-001-26-03-3	33946.05	05/20/98	06/02/98
8	BIO-S-001-26-05-1	33946.06	05/20/98	06/02/98
9	BIO-S-001-26-05-2	33946.07	05/20/98	
10	BIO-S-001-26-05-3	33946.08	05/20/98	06/02/98
11	BIO-S-001-26-05-3FD	33946.09	05/20/98	06/02/98
12	BIO-S-001-26-07-1	33946.10	05/20/98	
13	BIO-S-001-26-07-2	33946.11	05/20/98	
14	BIO-S-001-26-07-3	33946.12	05/20/98	
15	BIO-S-001-26-09-1	33946.13	05/20/98	
16	BIO-S-001-26-09-2	33946.14	05/20/98	
17	BIO-S-001-26-09-3	33946.15	05/20/98	
18	BIO-S-001-26-11-1	33946.16	05/20/98	
19	BIO-S-001-26-11-2	33946.17	05/20/98	
20	BIO-S-001-26-11-3	33946.18	05/20/98	
21				
22				
23				
24				
25				

FORM IV

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0514WB

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Matrix: (soil/water) Water

Date Extracted: Extn. Method: DIRECT

Date Analyzed (1): 05/15/98 Date Analyzed(2):

Time Analyzed (1): 22:13:44 Time Analyzed(2):

Instrument ID (1): IN13 Instrument ID(2):

LC Column ID (1): CARB-08 LC Column ID (2):

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC'S.

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	LC0514WB	LC0514WB	05/15/98	
2	LD0514WB	LD0514WB	05/16/98	
3	BIO-RB051198	33946.19	05/16/98	
4	BIO-RB051198 MS	33946.19MS	05/16/98	
	BIO-RB-RB051198 MSD	33946.19MSD	05/16/98	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

FORM IV

4C

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0514WC

Lab Code: SWOK Case No: MKF-OH SDG No:33946

Matrix: (soil/water) Water

Date Extracted: Extn. Method: DIRECT

Date Analyzed (1): 05/26/98 Date Analyzed(2):

Time Analyzed (1): 18:25:35 Time Analyzed(2):

Instrument ID (1): LC4 Instrument ID(2):

LC Column ID (1): LC Column ID (2):

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES AND QC'S.

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	LC0514WC	LC0514WC	05/26/98	
2	LD0514WC	LD0514WC	05/26/98	
3	BIO-RB051198	33946.19	05/26/98	
4	BIO-RB051198	33946.19MS	05/26/98	
5	BIO-RB051198	33946.19MSD	05/26/98	
6				
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FORM IV

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-03-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.01

Sample Amt: 2g % Moisture 23.34 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	523	P
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

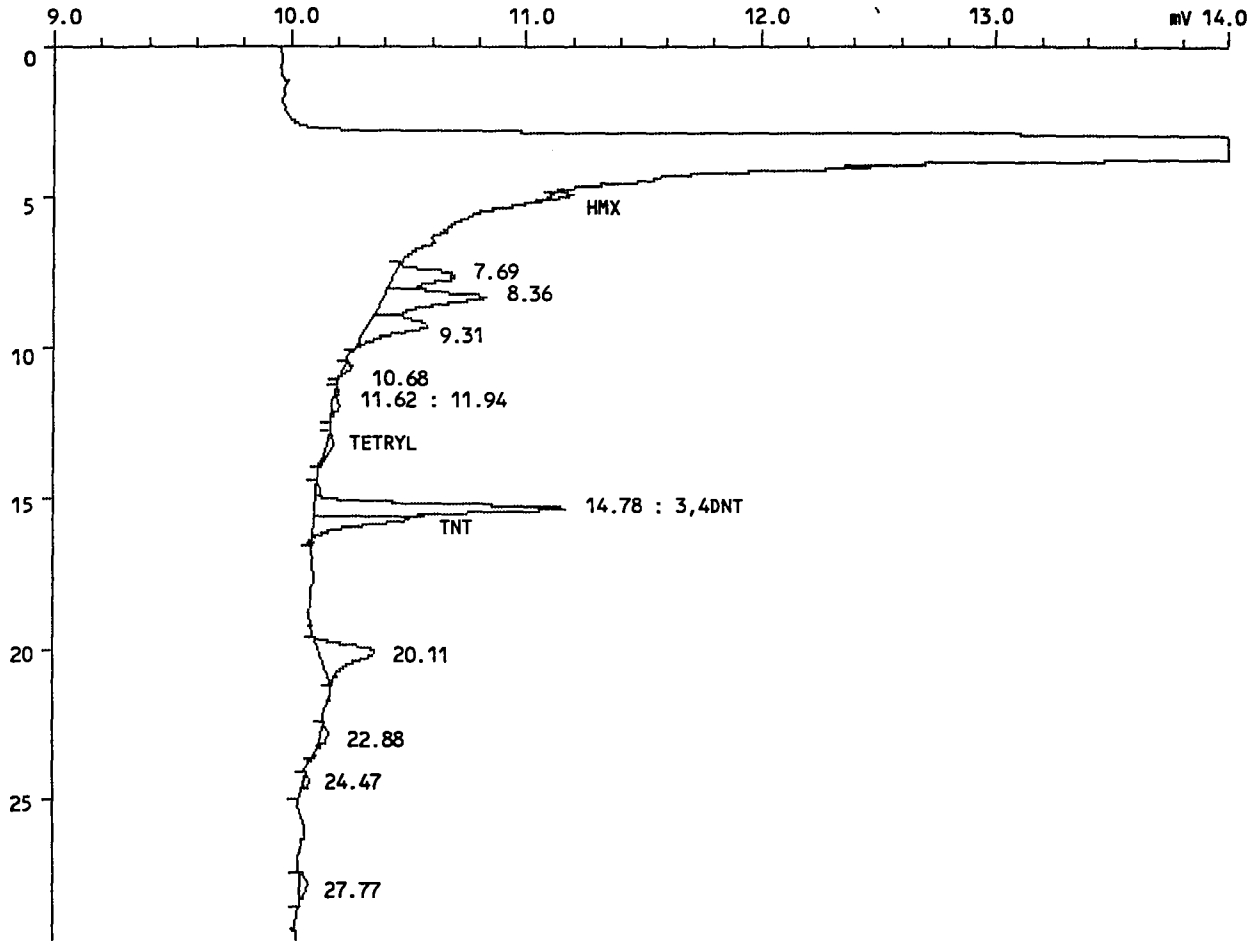
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,16,1

Sample name.....: BIO-S-001-26-03-1
Sample ID.....: 33946.01
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 06:21:57
Reported on 21-May-98 at 15:20:22



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,16,1

Acquired on 17-May-98 at 06:21:57
Modified on 21-May-82 at 15:18:16
Reported on 21-May-98 at 15:20:44

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 15:18:08
Method file.....: EXPLOS Last modified on 21-May-82 at 15:20:38
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-03-1
Sample ID.....: 33946.01
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

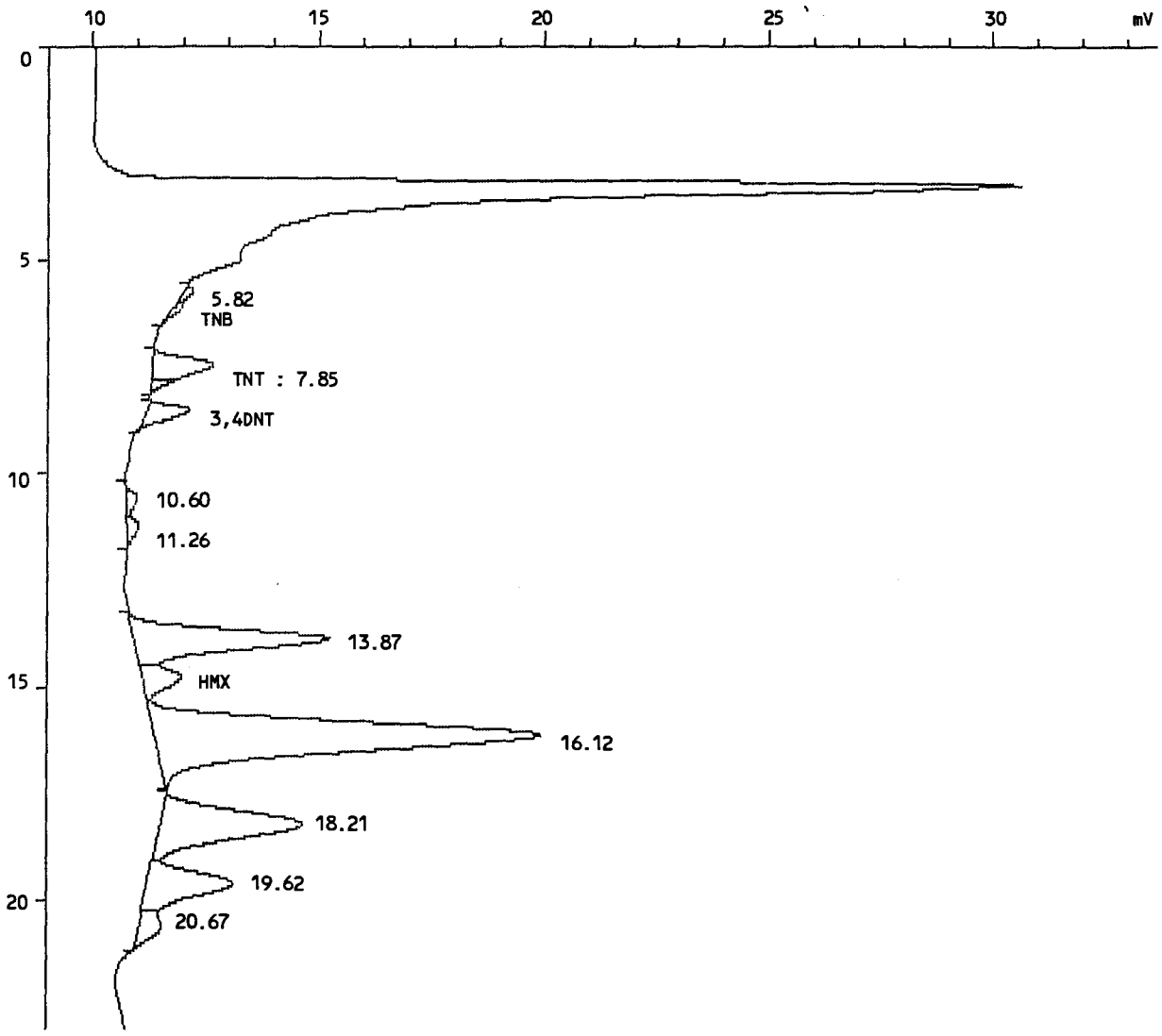
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.992	102	1119	174.234	HMX
8	13.317	37	1177	143.176	TETRYL
10	15.360	1059	21242	2324.086	3,4DNT
11	15.595	458	9723	522.750	TNT * P
Total		1656	33261	3164.246	
Residual		1457	47312	5994.814	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,6,1

Sample name.....: BIO-S-001-26-03-1
Sample ID.....: 33946.01
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 22-May-98 at 20:14:35
Reported on 02-Jun-98 at 12:37:47



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,6,1

Acquired on 22-May-98 at 20:14:35
Modified on 02-Jun-82 at 12:36:52
Reported on 02-Jun-98 at 12:37:26

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 02-Jun-82 at 12:37:24
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-03-1
Sample ID.....: 33946.01
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

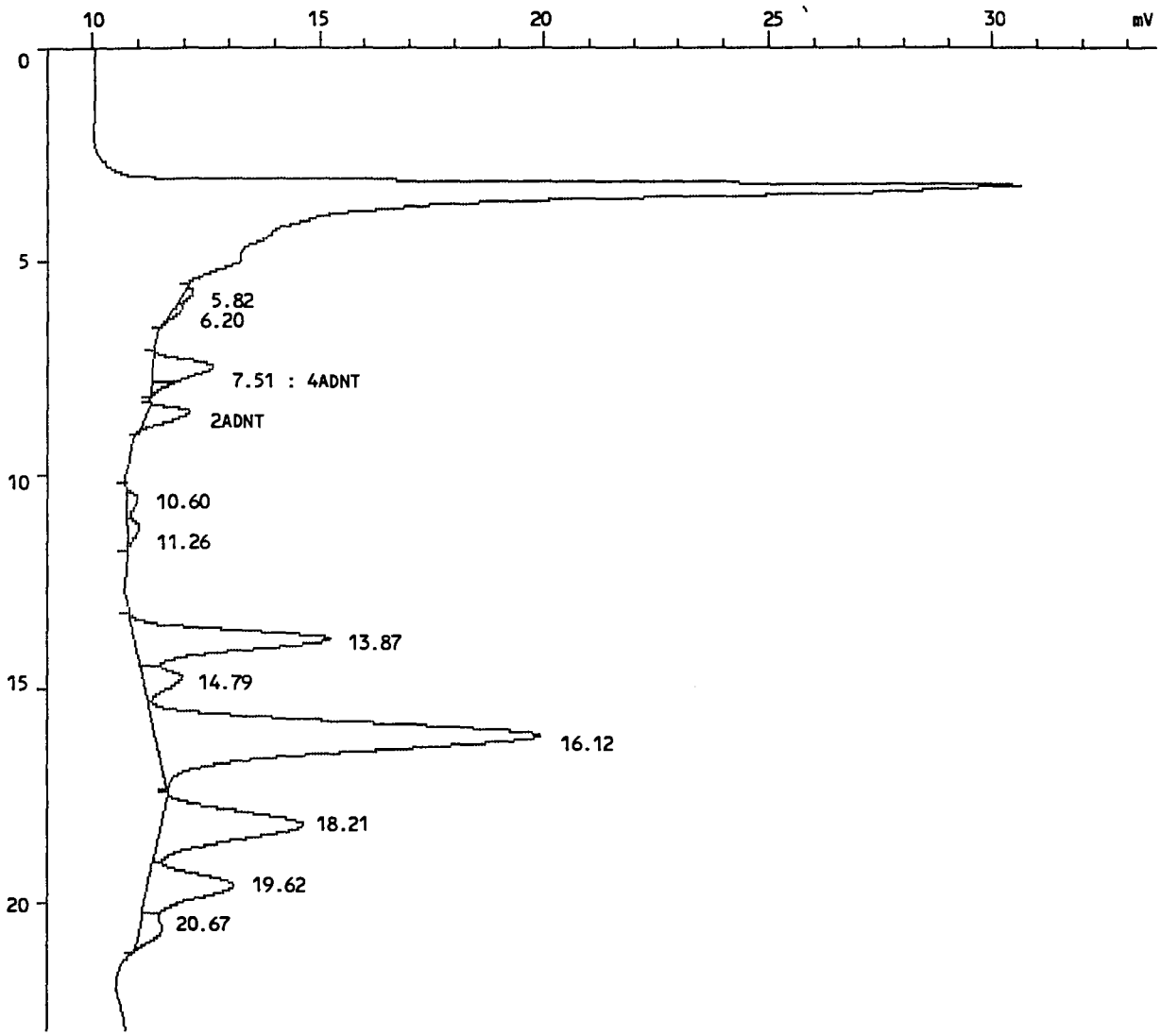
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.197	229	4424	175.685	TNB
3	7.509	1313	35856	1466.490	TNT
5	8.581	992	22004	1581.852	3,4DNT
9	14.789	854	26505	2548.572	HMX
Total		3388	88788	5772.600	
Residual		19733	787847	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,6,1

Sample name.....: BIO-S-001-26-03-1
Sample ID.....: 33946.01
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 22-May-98 at 20:14:35
Reported on 02-Jun-98 at 12:38:38



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,6,1

Acquired on 22-May-98 at 20:14:35
Modified on 02-Jun-82 at 12:38:14
Reported on 02-Jun-98 at 12:38:15

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 02-Jun-82 at 12:37:24
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-03-1
Sample ID.....: 33946.01
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
4	7.851	574	4434	255.989	4ADNT
5	8.581	992	22004	832.522	2ADNT
Total		1567	26437	1088.512	
Residual		21554	850198	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-03-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.01

Sample Amt: 2g % Moisture 23.34 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	250	U

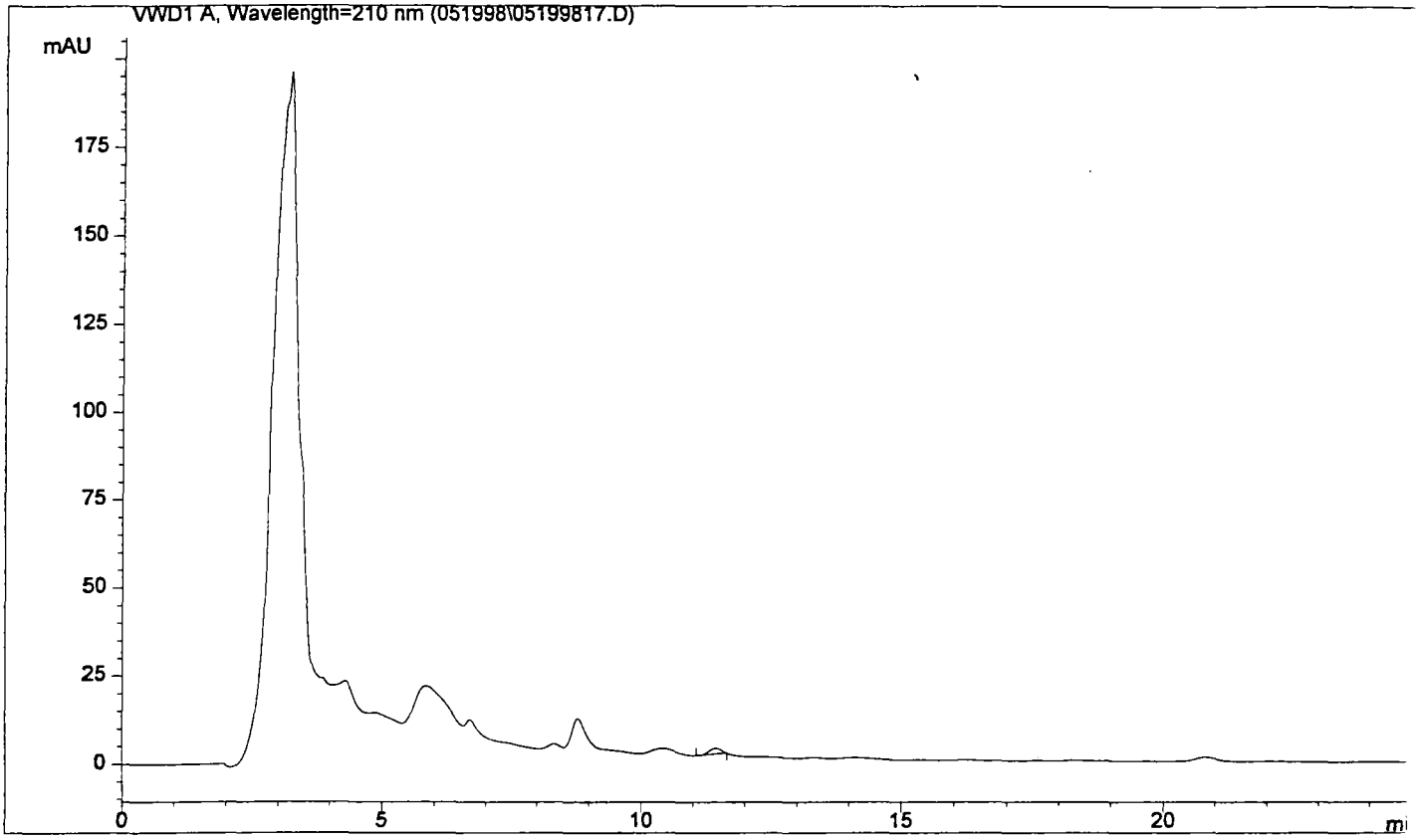
FORM I

028

Injection Date	: Wed, 20. May. 1998	Seq Line	: 17
Sample Name	: 33946.01	Vial No.	: 17
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp

==========

Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
0.000		0.00000	0.00000	0.00000	PETN
11.448	VBA	26.44019	0.00000	0.00000	
Totals:				0.00000	

029

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-03-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.02

Sample Amt: 2g % Moisture 20.20 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	744	P
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

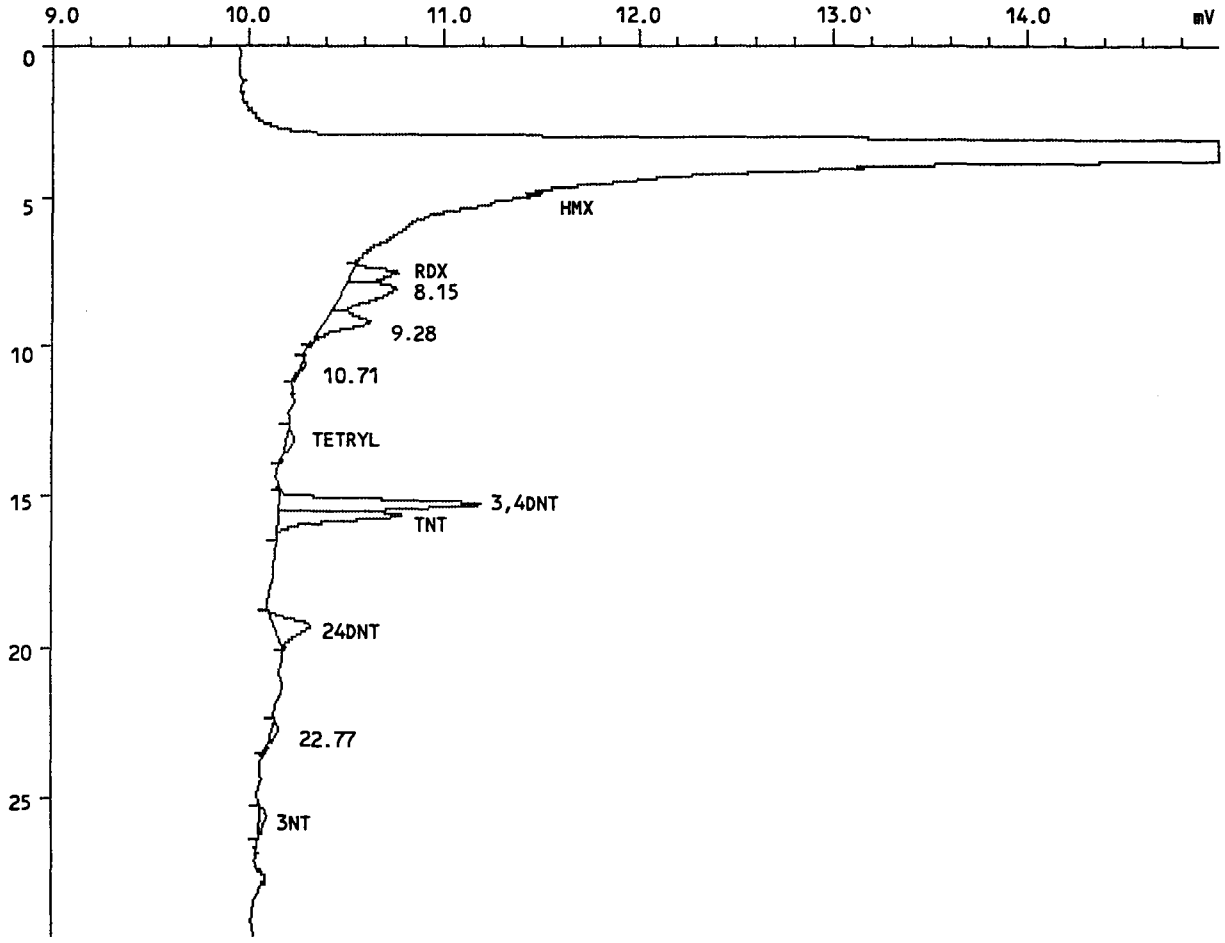
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,17,1

Sample name.....: BIO-S-001-26-03-2
Sample ID.....: 33946.02
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 07:06:41
Reported on 21-May-98 at 13:04:32



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,17,1

Acquired on 17-May-98 at 07:06:41
Modified on 21-May-82 at 12:55:40
Reported on 21-May-98 at 12:55:24

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 12:54:36
Method file.....: EXPLOS Last modified on 21-May-82 at 12:52:28
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-03-2
Sample ID.....: 33946.02
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

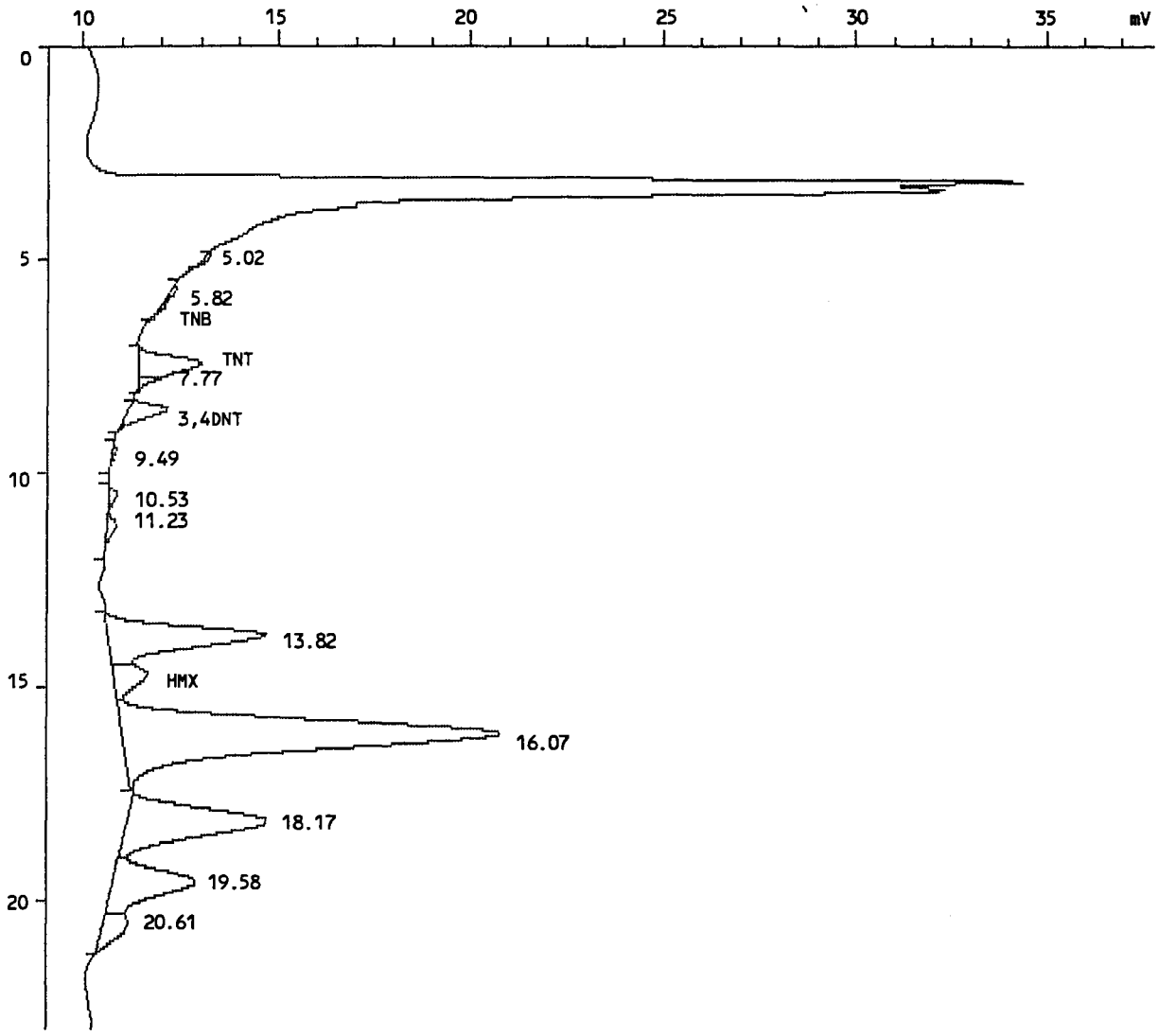
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.944	59	299	46.513	HMX
2	7.589	238	4970	524.303	RDX
6	13.269	48	1887	229.509	TETRYL
7	15.317	1027	20566	2250.134	3,4DNT 112
8	15.723	628	13840	744.110	TNT *p
9	19.349	186	6677	293.619	24DNT
11	25.637	37	1480	139.862	3NT
Total		2223	49719	4228.050	
Residual		584	20790	2110.098	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,7,1

Sample name.....: BIO-S-001-26-03-2
Sample ID.....: 33946.02
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 22-May-98 at 20:59:00
Reported on 02-Jun-98 at 12:41:19



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,7,1

Acquired on 22-May-98 at 20:59:00
Modified on 02-Jun-82 at 12:40:46
Reported on 02-Jun-98 at 12:40:50

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 02-Jun-82 at 12:37:24
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-03-2
Sample ID.....: 33946.02
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

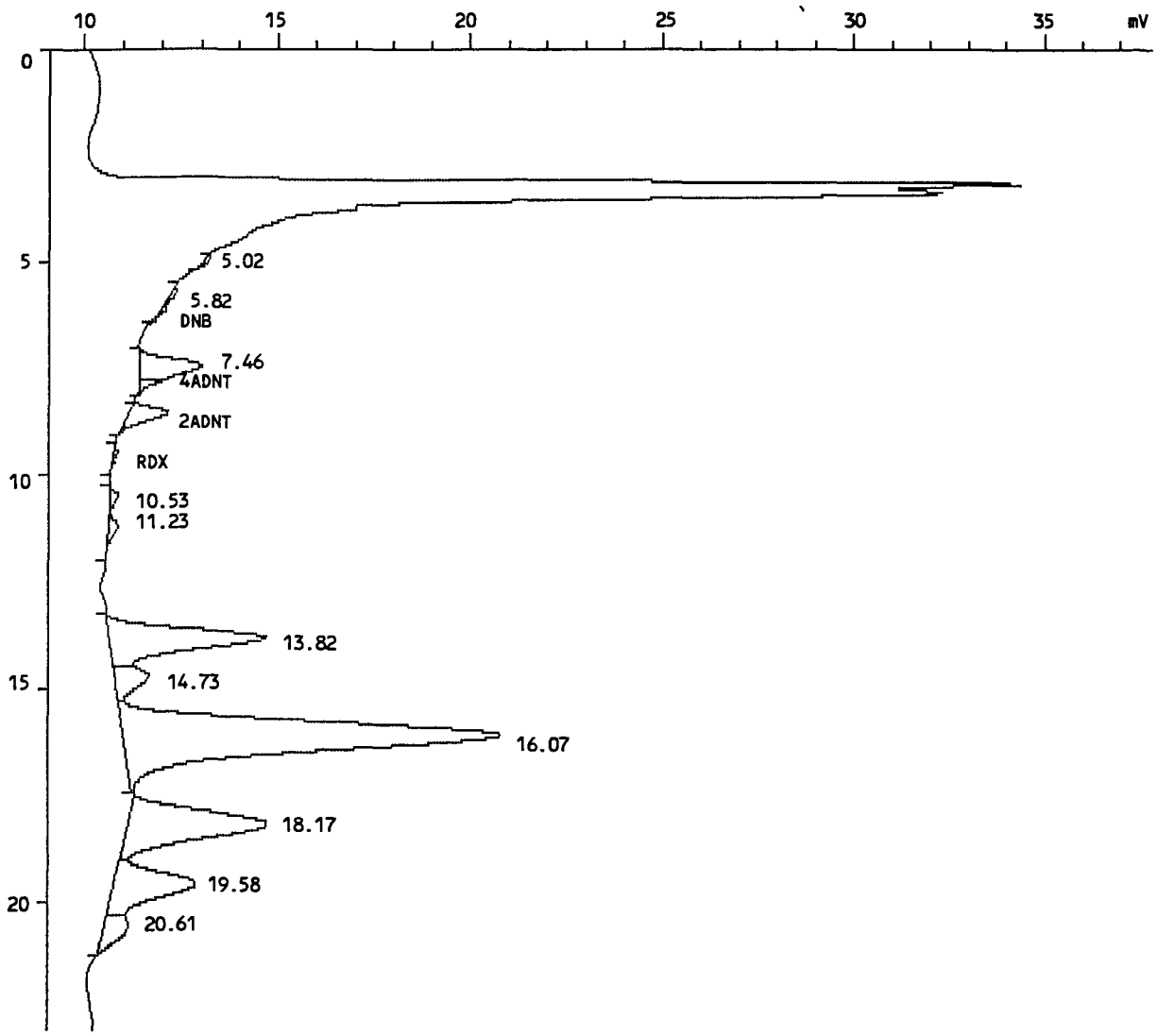
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	6.171	172	2876	114.225	TNB
4	7.461	1619	40169	1642.919	TNT
6	8.539	1000	22504	1617.861	3,4DNT
11	14.725	869	28683	2758.012	HMX
Total		3659	94233	6133.017	
Residual		21901	883833	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,7,1

Sample name.....: BIO-S-001-26-03-2
Sample ID.....: 33946.02
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 22-May-98 at 20:59:00
Reported on 02-Jun-98 at 12:42:14



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,7,1

Acquired on 22-May-98 at 20:59:00
Modified on 02-Jun-82 at 12:41:48
Reported on 02-Jun-98 at 12:41:49

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 02-Jun-82 at 12:37:24
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-03-2
Sample ID.....: 33946.02
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	6.171	172	2876	77.609	DNB
5	7.771	667	5682	328.083	4ADNT
6	8.539	1000	22504	851.474	2ADNT
7	9.493	91	2256	164.808	RDX
Total		1930	33319	1421.974	
Residual		23630	944747	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-03-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.02

Sample Amt: 2g % Moisture 20.20 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

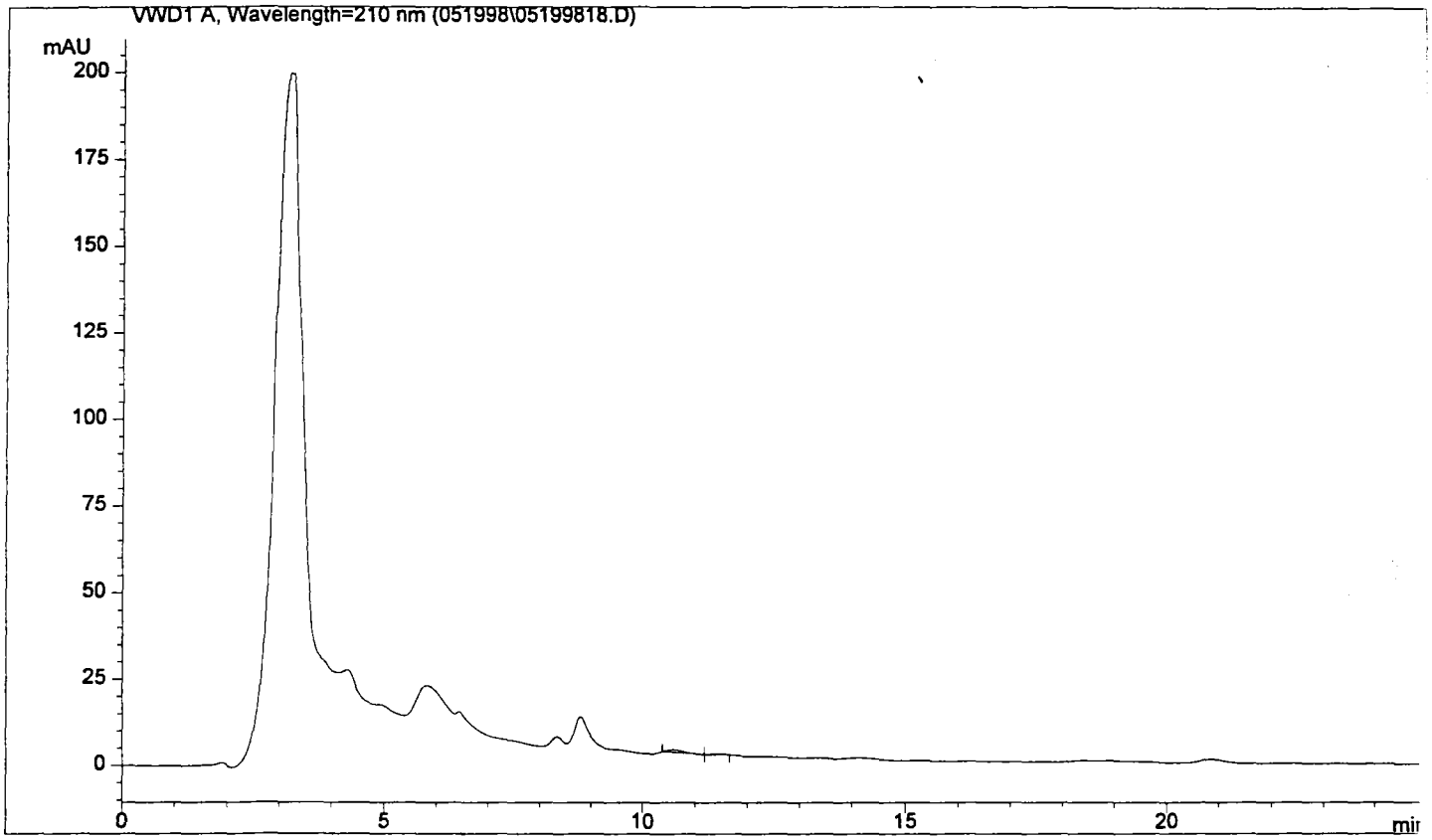
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 18
Sample Name	: 33946.02	Vial No.	: 18
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µ

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
10.590	BP	14.65744	0.00000	0.00000	
0.000		0.00000	0.00000	0.00000	PETN
11.434	VBA	4.51869	0.00000	0.00000	
Totals:				0.00000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-03-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.05

Sample Amt: 2g % Moisture 20.44 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	375	P
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

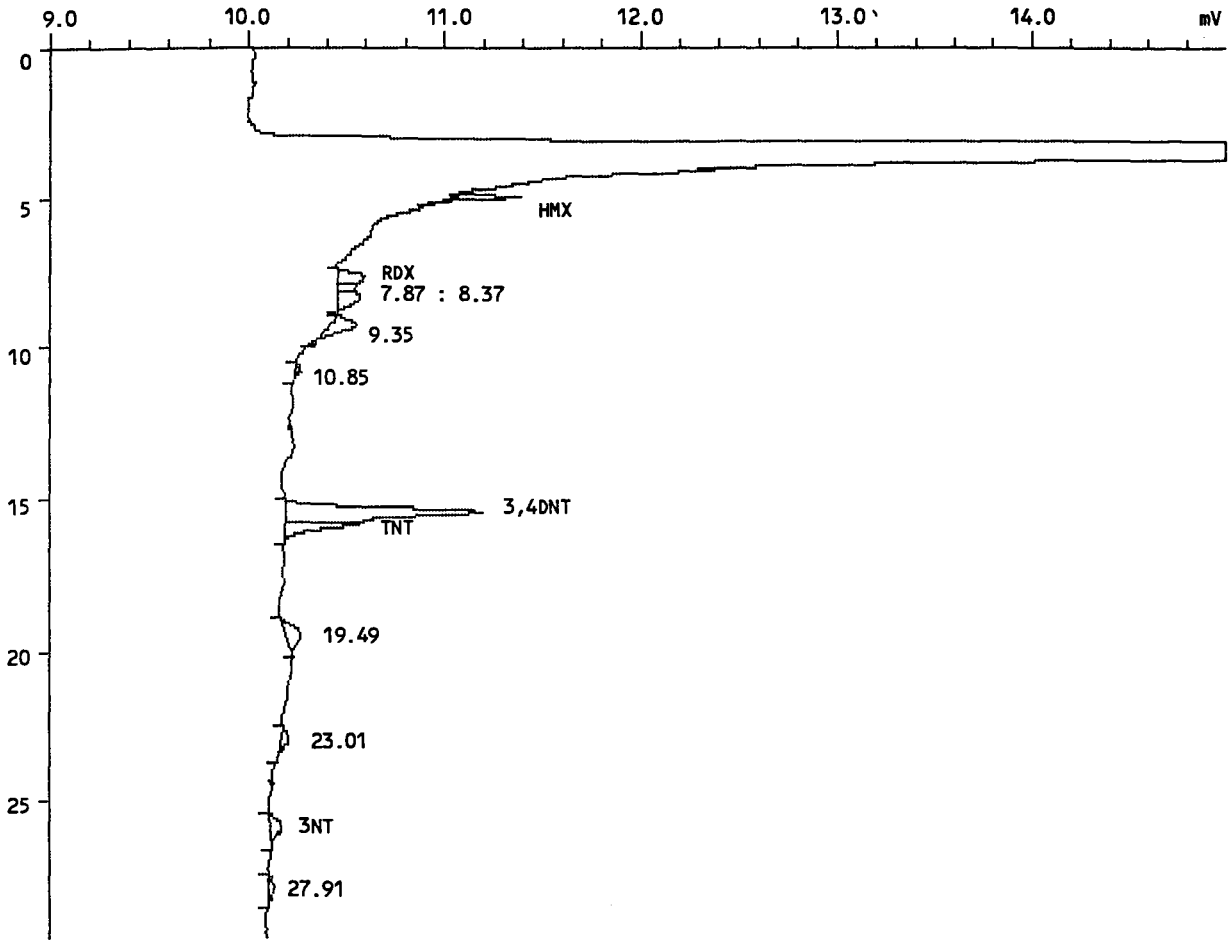
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,22,1

Sample name.....: BIO-S-001-26-03-3
Sample ID.....: 33946.05
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 13:25:34
Reported on 21-May-98 at 13:05:58



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,22,1

Acquired on 17-May-98 at 13:25:34
Modified on 21-May-82 at 12:56:46
Reported on 21-May-98 at 12:56:29

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 12:54:36
Method file.....: EXPLOS Last modified on 21-May-82 at 12:52:28
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-03-3
Sample ID.....: 33946.05
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

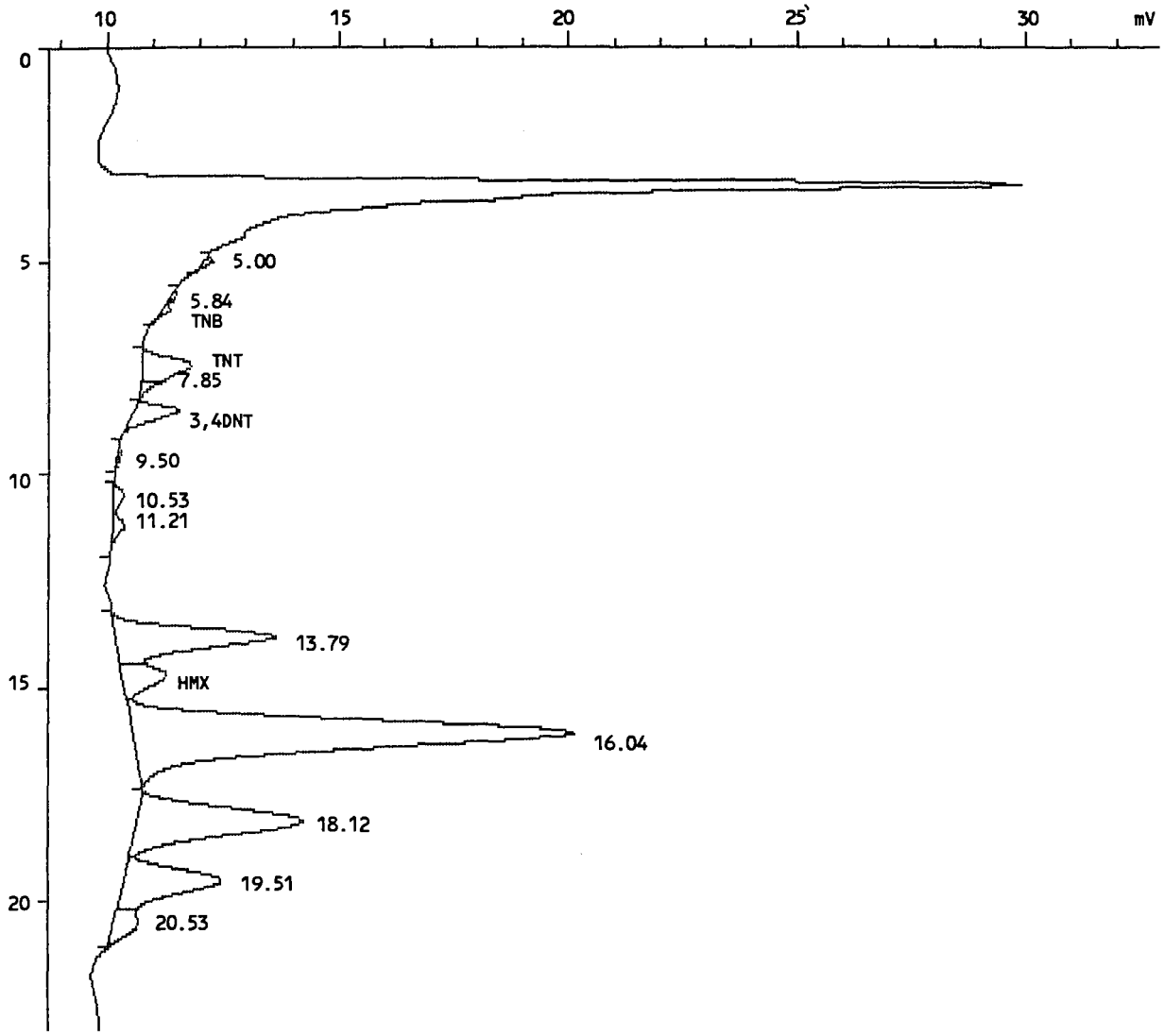
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.987	376	3171	493.927	HMX
2	7.643	142	2737	288.683	RDX
7	15.477	1003	21411	2342.557	3,4DNT 117
8	15.765	402	6969	374.658	TNT *P
11	25.904	62	2114	199.783	3NT
Total		1984	36401	3699.608	
Residual		556	15301	1373.600	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,8,1

Sample name.....: BIO-S-001-26-03-3
Sample ID.....: 33946.05
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 22-May-98 at 21:43:24
Reported on 02-Jun-98 at 12:45:00



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,8,1

Acquired on 22-May-98 at 21:43:24
Modified on 02-Jun-82 at 12:44:16
Reported on 02-Jun-98 at 12:44:18

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 02-Jun-82 at 12:37:24
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-03-3
Sample ID.....: 33946.05
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

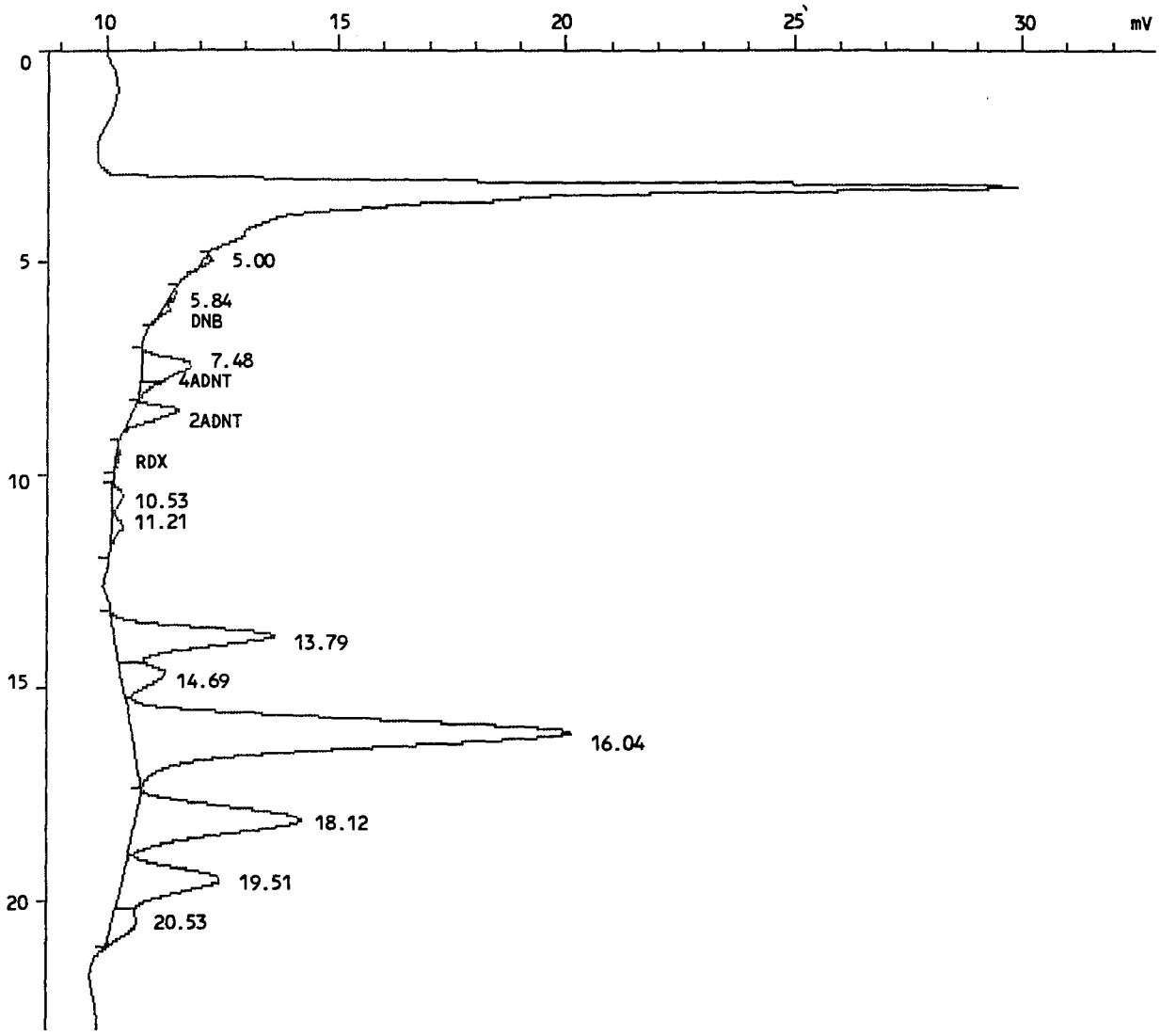
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	6.155	206	3835	152.299	TNB
4	7.477	1093	31947	1306.644	TNT
6	8.533	979	22683	1630.725	3,4DNT
11	14.688	962	32359	3111.426	HMX
Total		3240	90825	6201.094	
Residual		20762	837119	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,8,1

Sample name.....: BIO-S-001-26-03-3
Sample ID.....: 33946.05
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 22-May-98 at 21:43:24
Reported on 02-Jun-98 at 12:43:52



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,8,1

Acquired on 22-May-98 at 21:43:24
Modified on 02-Jun-82 at 12:43:32
Reported on 02-Jun-98 at 12:43:32

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 02-Jun-82 at 12:37:24
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-03-3
Sample ID.....: 33946.05
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	6.155	206	3835	103.478	DNB
5	7.851	469	4120	237.895	4ADNT
6	8.533	979	22683	858.244	2ADNT
7	9.499	86	2341	170.993	RDX
Total		1740	32980	1370.610	
Residual		22263	894964	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-03-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.05

Sample Amt: 2g % Moisture 20.44 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

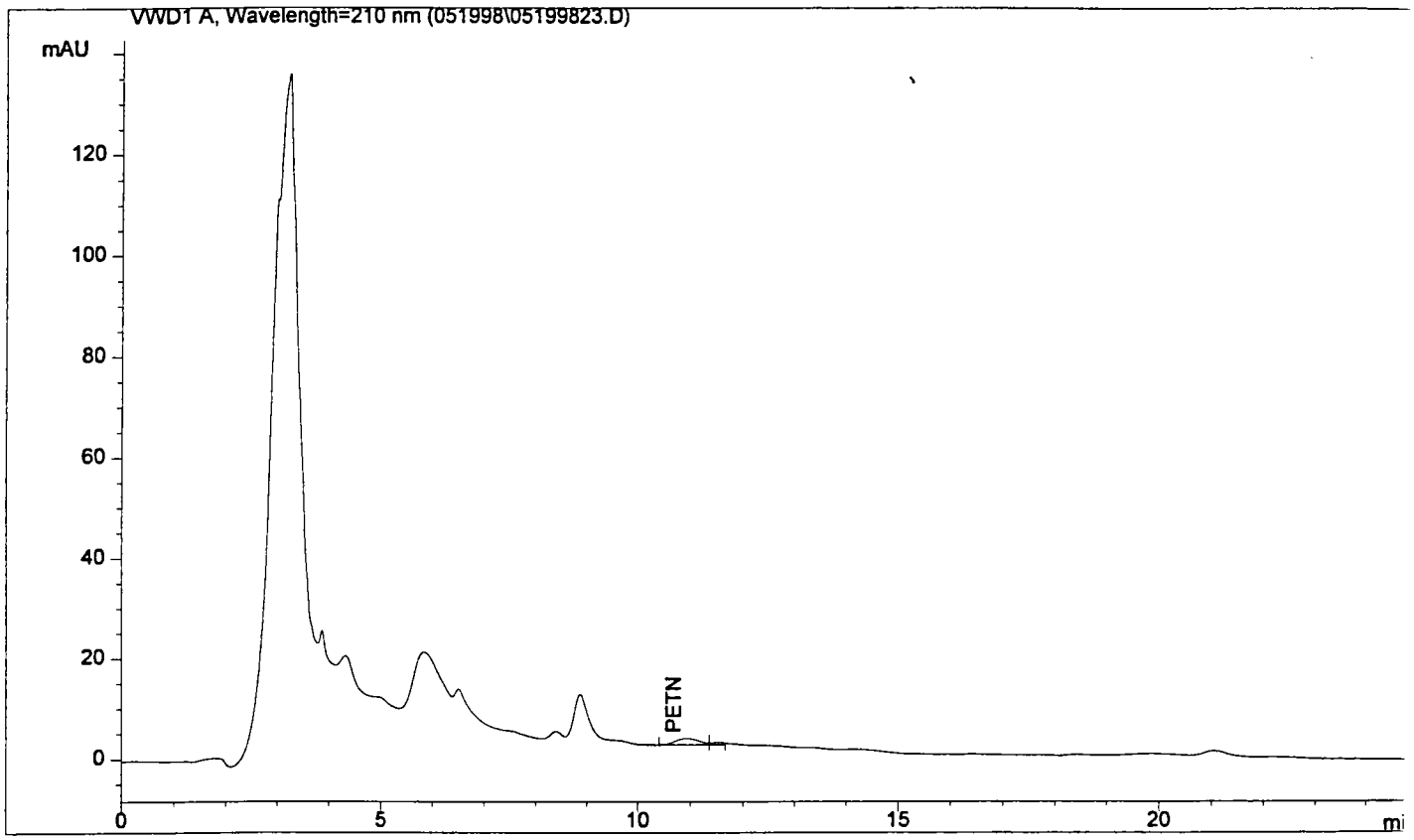
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 23
Sample Name	: 33946.05	Vial No.	: 23
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
10.931	BV	41.80113	2.67910	1119.89198	PETN
11.531	VBA	8.14647	0.00000	0.00000	
Totals:				1119.89198	

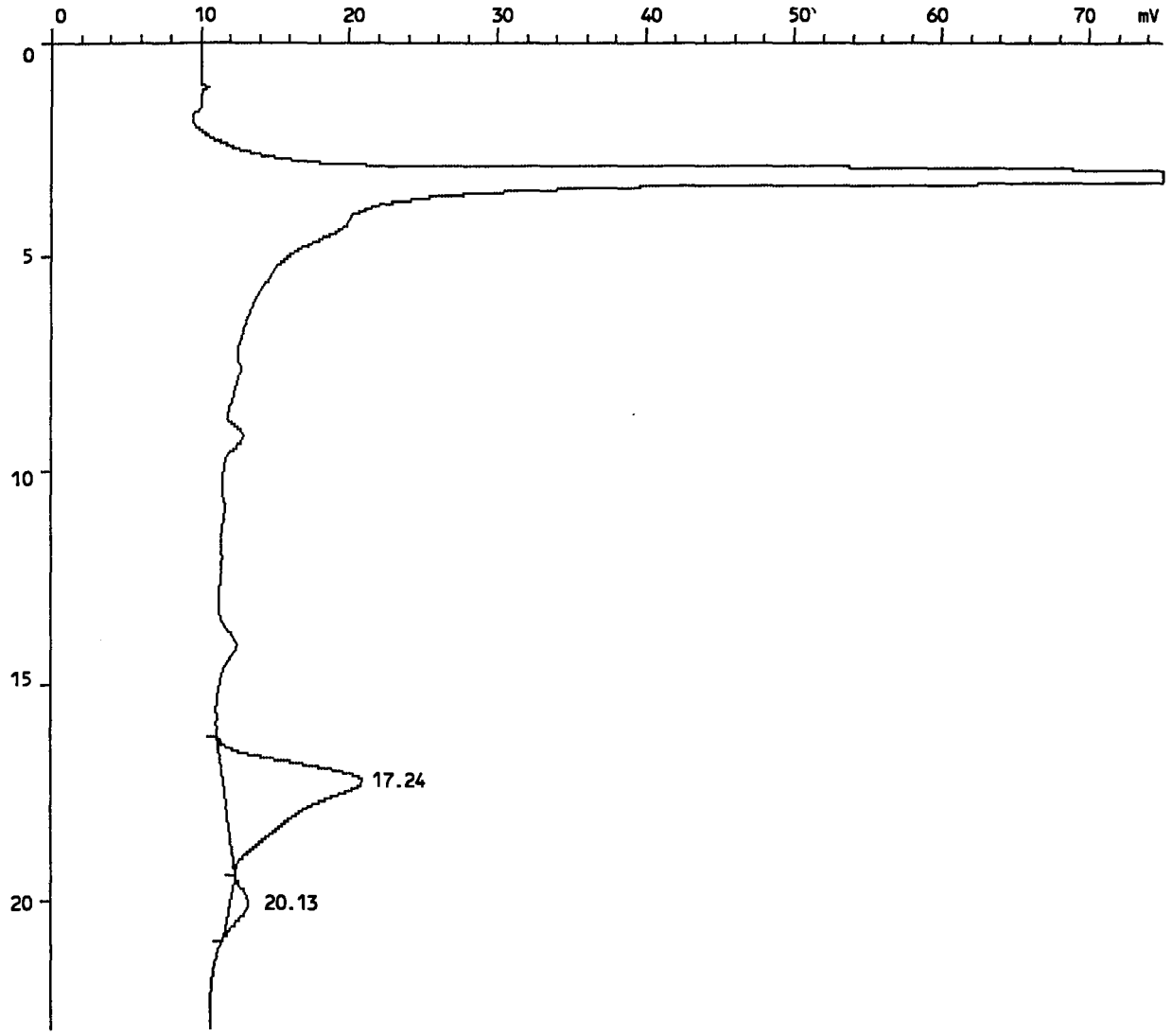
047

LONG PLOT

Injection F: <MC3> 3 3PC0601,17,1

Sample name.....: BIO-S-001-26-03-3
Sample ID.....: 33946.05
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-11, INJ:100, UV

Acquired on 02-Jun-98 at 01:42:41
Reported on 02-Jun-98 at 15:57:49



INJECTION REPORT

Injection F: <MC3> 3 3PC0601,17,1

Acquired on 02-Jun-98 at 01:42:41
Modified on 02-Jun-82 at 15:57:50
Reported on 02-Jun-98 at 15:57:30

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC 200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: ODS-II, ID: LC-CN-11, INJ:100, UV
Number of samples.: 29
Calibration file..: 3PC0601 Last modified on 02-Jun-82 at 14:33:06
Method file.....: LCCN1 Last modified on 02-Jun-82 at 15:54:00
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-03-3
Sample ID.....: 33946.05
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak RT mins	Hght uV	Area uVs	ug/Kg	Peak name
Total	0	0	0.000	
Residual	10624	805677	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-05-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.06

Sample Amt: 2g % Moisture 22.82 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	592	
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

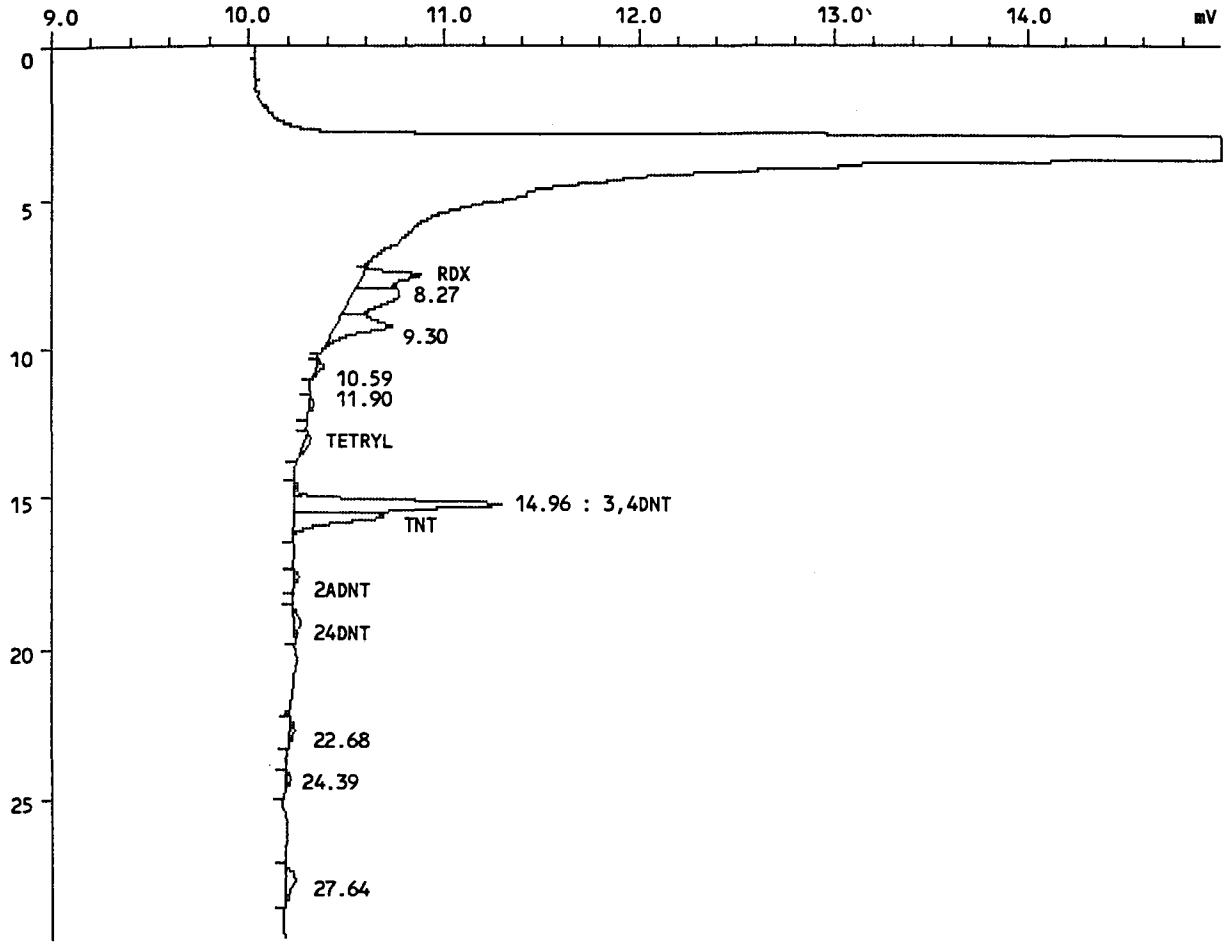
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,23,1

Sample name.....: BIO-S-001-26-05-1
Sample ID.....: 33946.06
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 14:10:13
Reported on 21-May-98 at 13:16:23



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,23,1

Acquired on 17-May-98 at 14:10:13
Modified on 21-May-82 at 13:16:16
Reported on 21-May-98 at 13:16:04

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 13:07:16
Method file.....: EXPLOS Last modified on 21-May-82 at 13:15:16
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-1
Sample ID.....: 33946.06
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

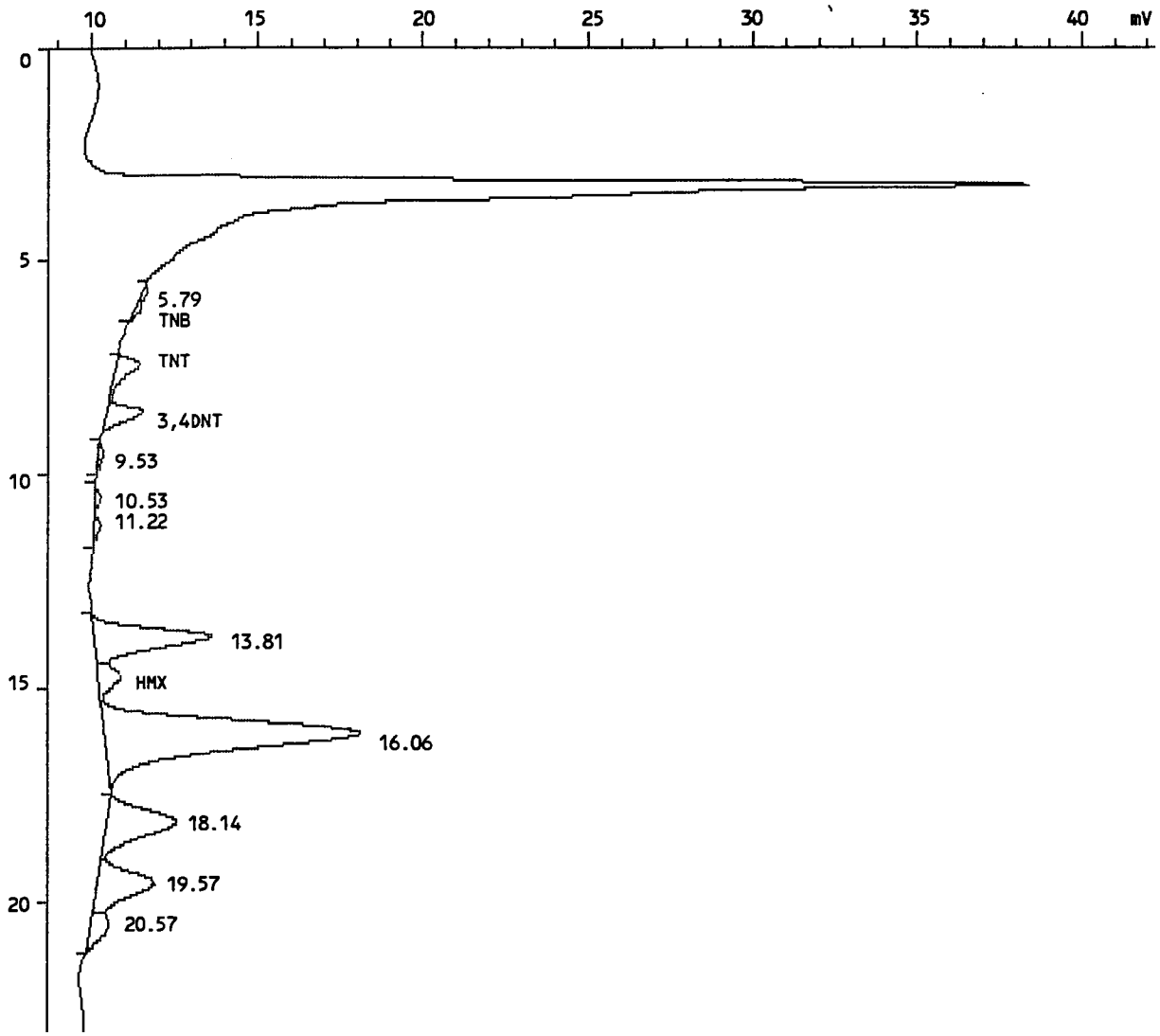
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	7.568	317	7295	769.471	RDX
6	13.264	35	1292	157.231	TETRYL
8	15.301	1054	21138	2312.702	3,4DNT 116
9	15.723	465	11003	591.554	TNT *
10	17.696	30	610	37.028	2ADNT
11	19.152	38	1319	57.996	24DNT
Total		1939	42657	3925.982	
Residual		766	26758	2599.384	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,9,1

Sample name.....: BIO-S-001-26-05-1
Sample ID.....: 33946.06
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 22-May-98 at 22:27:48
Reported on 01-Jun-98 at 20:50:08



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,9,1

Acquired on 22-May-98 at 22:27:48
Modified on 01-Jun-82 at 20:37:04
Reported on 01-Jun-98 at 20:37:03

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 01-Jun-82 at 20:32:42
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-1
Sample ID.....: 33946.06
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

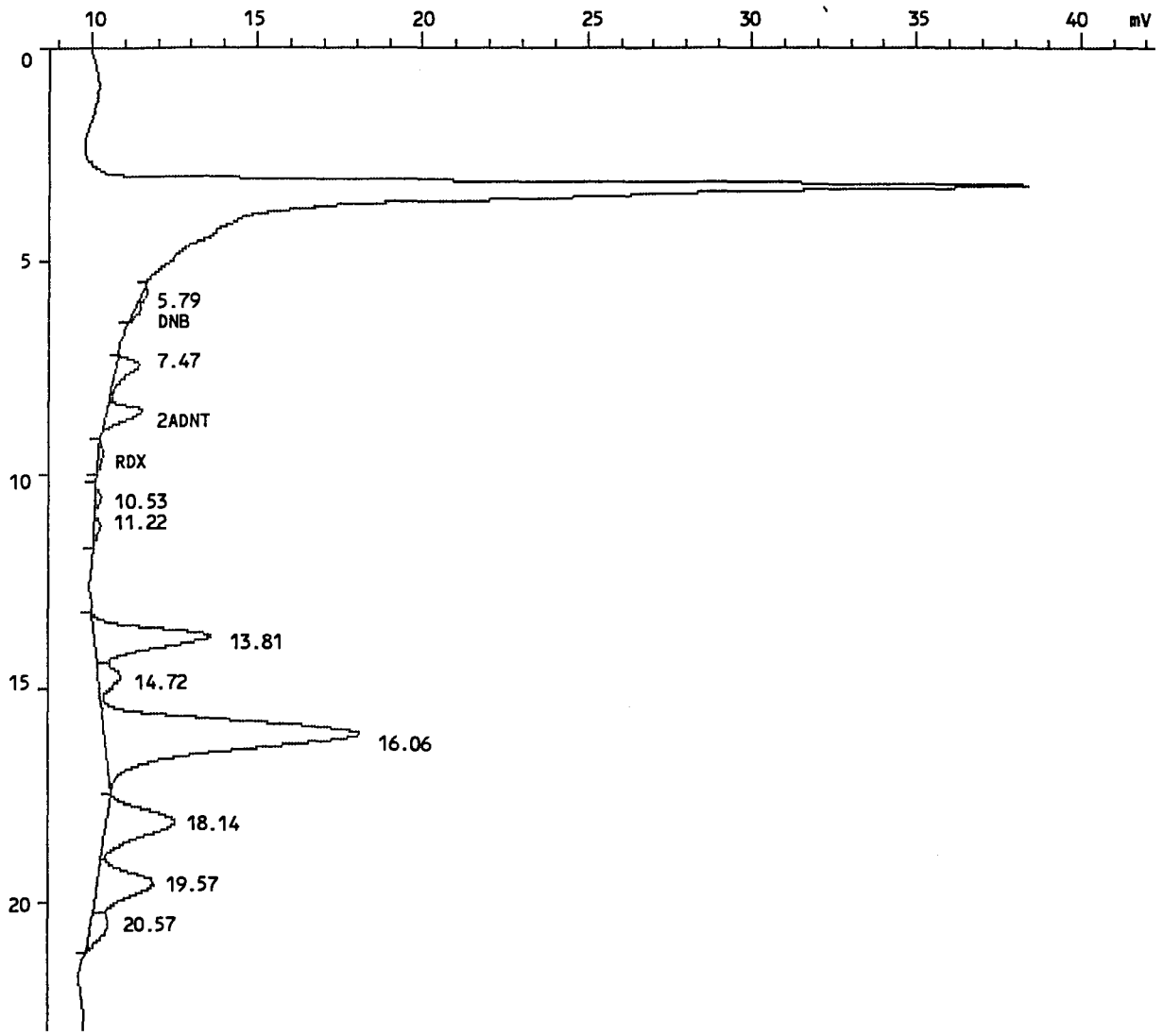
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.176	227	4503	178.839	TNB
3	7.472	711	20074	821.006	TNT
4	8.544	1142	27456	1973.798	3,4DNT
9	14.720	698	21567	2073.782	HMX
Total		2777	73600	5047.425	
Residual		16410	668773	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,9,1

Sample name.....: BIO-S-001-26-05-1
Sample ID.....: 33946.06
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 22-May-98 at 22:27:48
Reported on 01-Jun-98 at 20:27:24



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,9,1

Acquired on 22-May-98 at 22:27:48
Modified on 01-Jun-82 at 18:29:10
Reported on 01-Jun-98 at 18:29:09

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 01-Jun-82 at 18:22:48
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-1
Sample ID.....: 33946.06
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.176	227	4503	121.510	DNB
4	8.544	1142	27456	1038.802	2ADNT
5	9.525	150	4188	305.923	RDX
Total		1519	36147	1466.234	
Residual		17668	706226	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-05-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.06

Sample Amt: 2g % Moisture 22.82 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

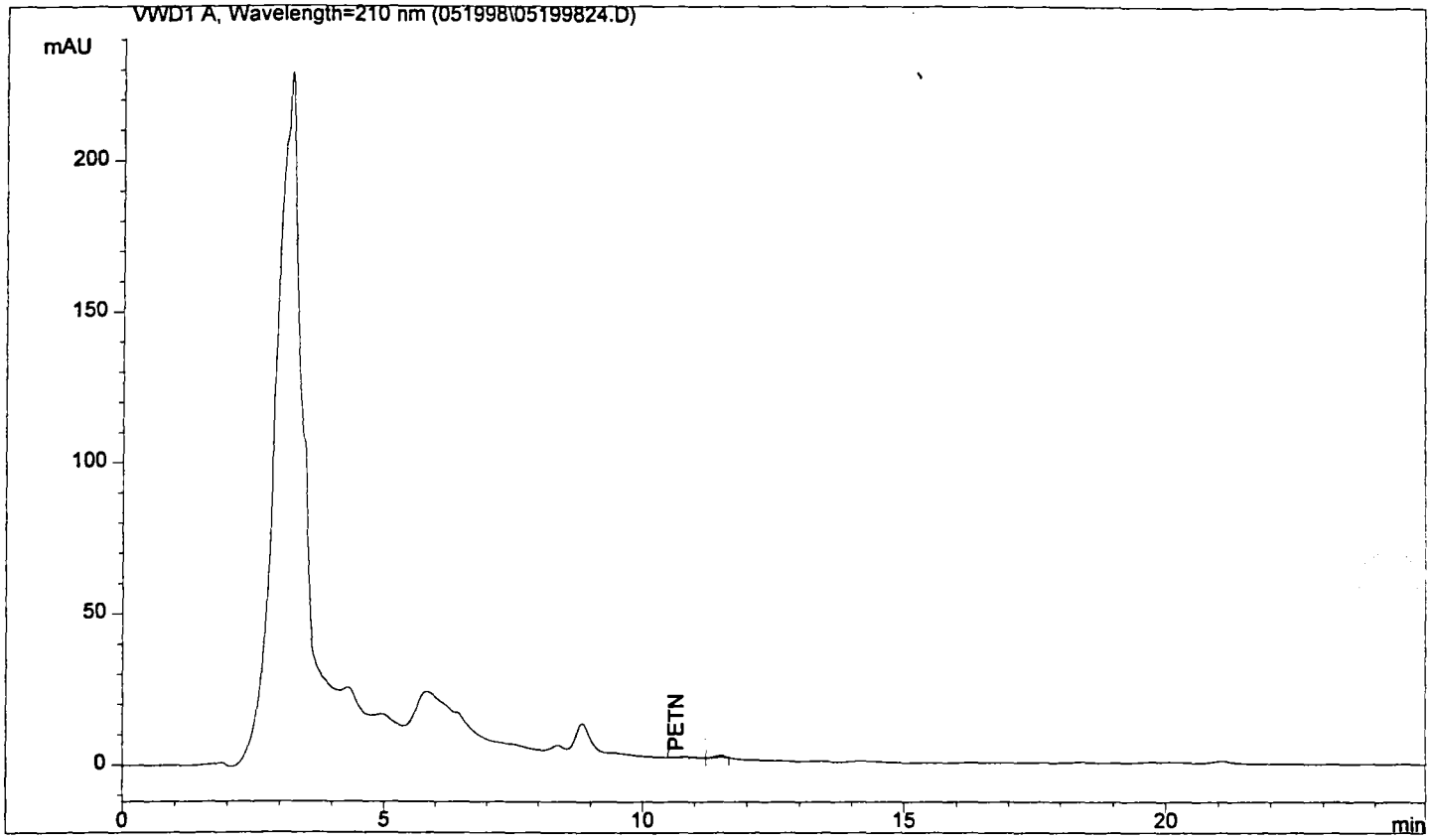
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg)	ug/kg	Q
75-11-5	PETN	250		U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 24
Sample Name	: 33946.06	Vial No.	: 24
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µ

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp
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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
10.899	BP	8.64327	2.67910	231.56146	PETN
11.503	VBA	11.21542	0.00000	0.00000	
Totals:				231.56146	

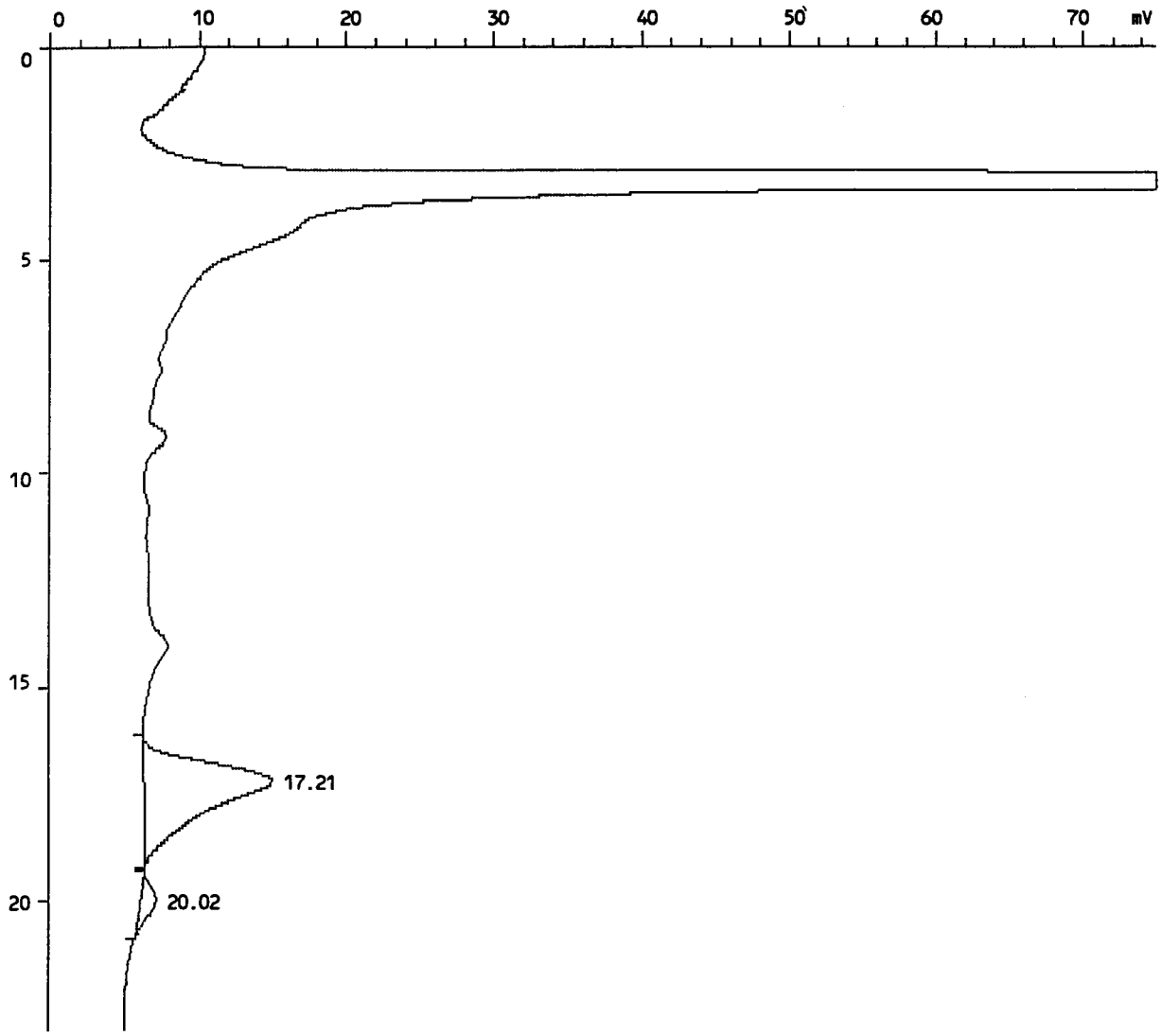
058

LONG PLOT

Injection F: <MC3> 3 3PC0601,18,1

Sample name.....: BBIO-S-001-26-05-1
Sample ID.....: 33946.06
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-11, INJ:100, UV

Acquired on 02-Jun-98 at 02:09:02
Reported on 02-Jun-98 at 16:07:43



INJECTION REPORT

Injection F: <MC3> 3 3PC0601,18,1

Acquired on 02-Jun-98 at 02:09:02
Modified on 02-Jun-82 at 15:58:44
Reported on 02-Jun-98 at 15:58:25

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC 200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: ODS-II, ID: LC-CN-11, INJ:100, UV
Number of samples.: 29
Calibration file..: 3PC0601 Last modified on 02-Jun-82 at 14:33:06
Method file.....: LCCN1 Last modified on 02-Jun-82 at 15:54:00
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BBIO-S-001-26-05-1
Sample ID.....: 33946.06
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak RT mins	Hght uV	Area uVs	ug/Kg	Peak name
Total	0	0	0.000	
Residual	9781	706913	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-05-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.07

Sample Amt: 2g % Moisture 18.54 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	274	
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

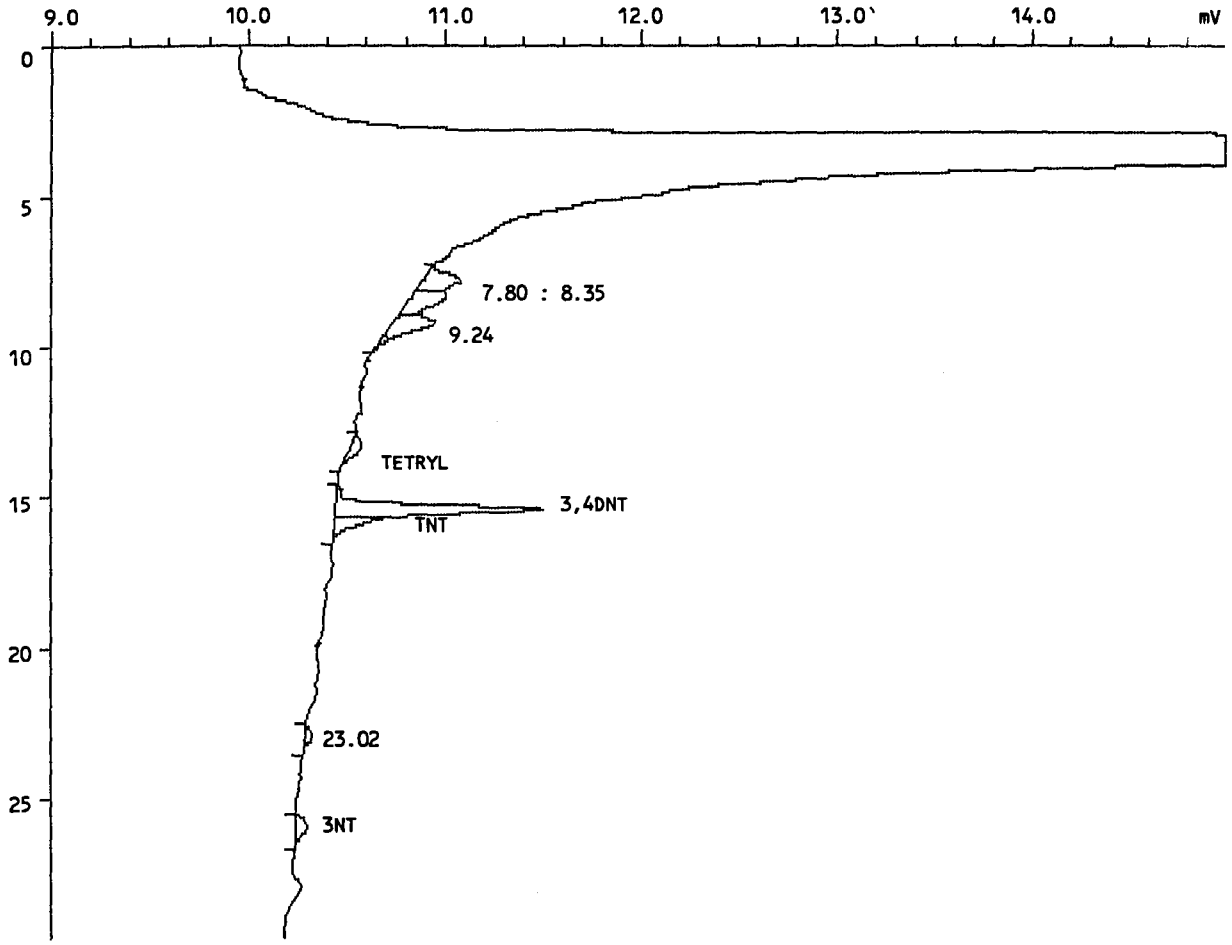
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,24,1

Sample name.....: BIO-S-001-26-05-2
Sample ID.....: 33946.07
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 14:54:53
Reported on 21-May-98 at 13:12:59



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,24,1

Acquired on 17-May-98 at 14:54:53
Modified on 21-May-82 at 13:07:02
Reported on 21-May-98 at 13:06:45

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 12:54:36
Method file.....: EXPLOS Last modified on 21-May-82 at 13:06:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-2
Sample ID.....: 33946.07
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

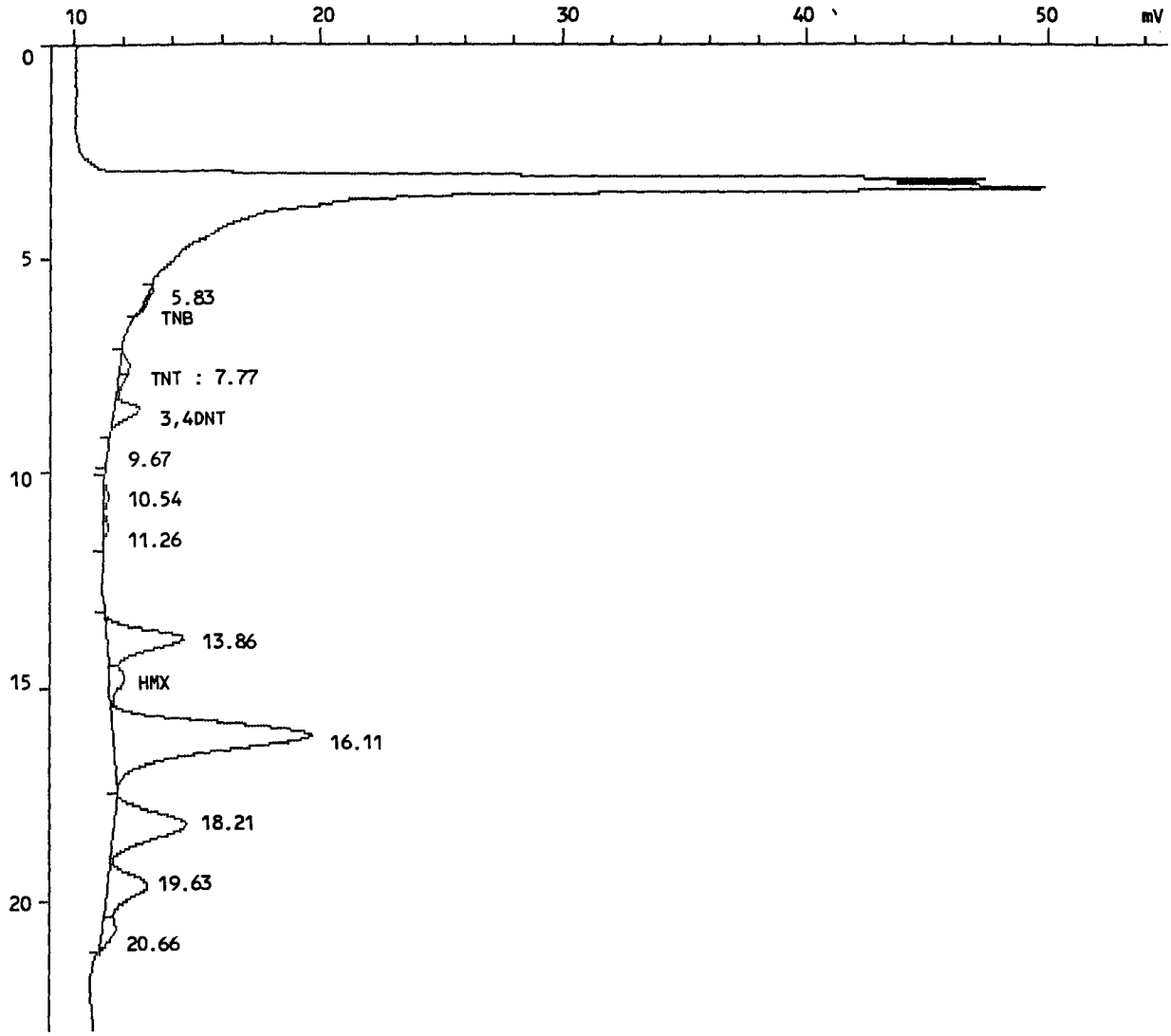
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
4	13.467	56	2122	258.091	TETRYL
5	15.451	1054	22000	2406.979	3,4DNT 120
6	15.707	333	5097	274.006	TNT *
8	25.856	59	2087	197.289	3NT
Total		1501	31305	3136.366	
Residual		649	22695	1220.152	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,12,1

Sample name.....: BIO-S-001-26-05-2
Sample ID.....: 33946.07
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 00:40:59
Reported on 01-Jun-98 at 20:49:39



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,12,1

Acquired on 23-May-98 at 00:40:59
Modified on 01-Jun-82 at 20:37:20
Reported on 01-Jun-98 at 20:37:18

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 01-Jun-82 at 20:32:42
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-2
Sample ID.....: 33946.07
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

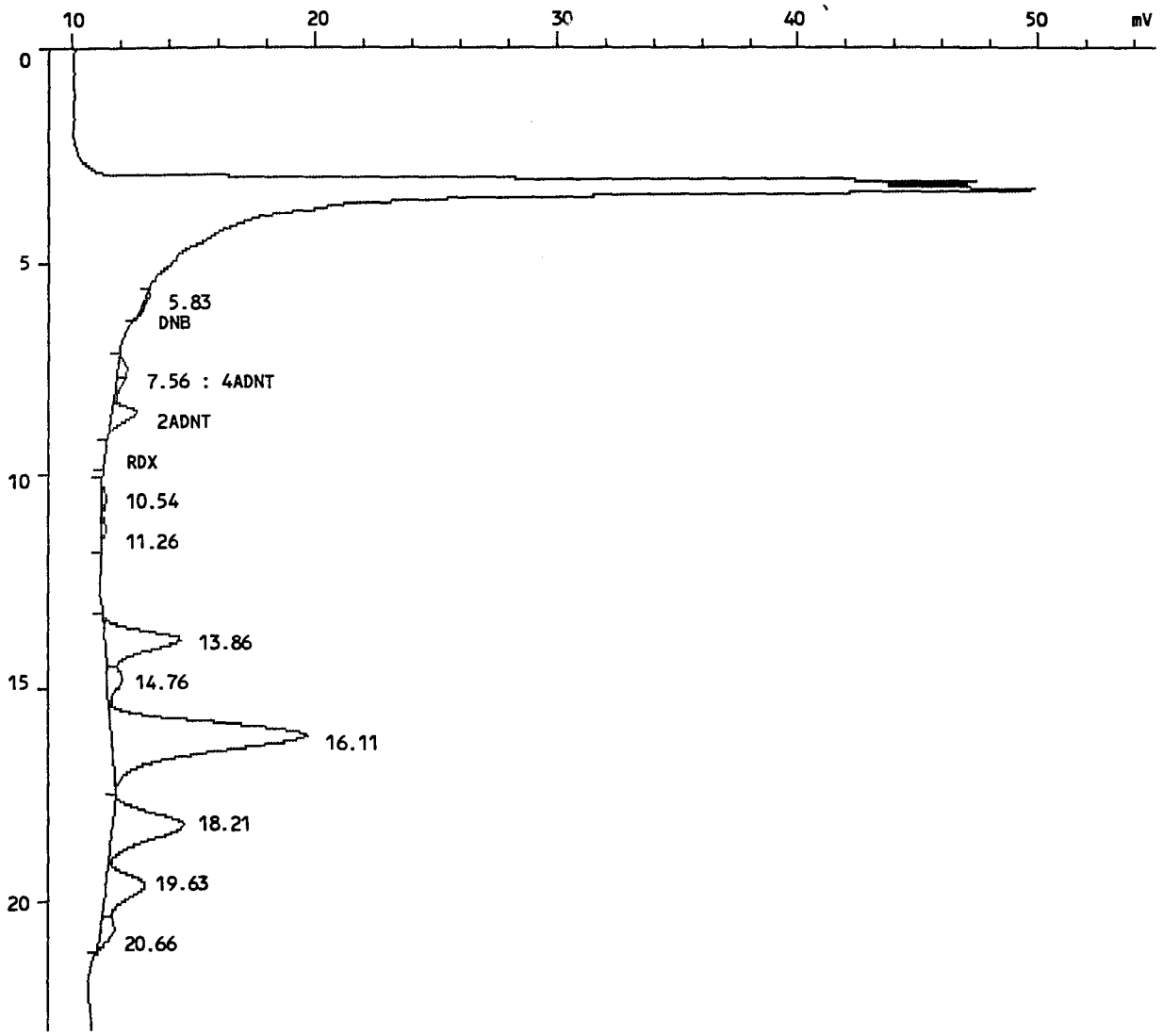
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.144	138	1690	67.126	TNB
3	7.557	420	9373	383.352	TNT
5	8.539	1107	28310	2035.227	3,4DNT
10	14.763	630	20499	1971.010	HMX
Total		2295	59872	4456.714	
Residual		17578	724519	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,12,1

Sample name.....: BIO-S-001-26-05-2
Sample ID.....: 33946.07
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 00:40:59
Reported on 01-Jun-98 at 20:27:44



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,12,1

Acquired on 23-May-98 at 00:40:59
Modified on 01-Jun-82 at 18:29:24
Reported on 01-Jun-98 at 18:29:24

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 01-Jun-82 at 18:22:48
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-2
Sample ID.....: 33946.07
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.144	138	1690	45.608	DNB
4	7.771	353	7261	419.242	4ADNT
5	8.539	1107	28310	1071.132	2ADNT
6	9.675	47	1150	84.001	RDX
Total		1645	38411	1619.983	
Residual		18228	745980	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-05-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.07

Sample Amt: 2g % Moisture 18.54 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

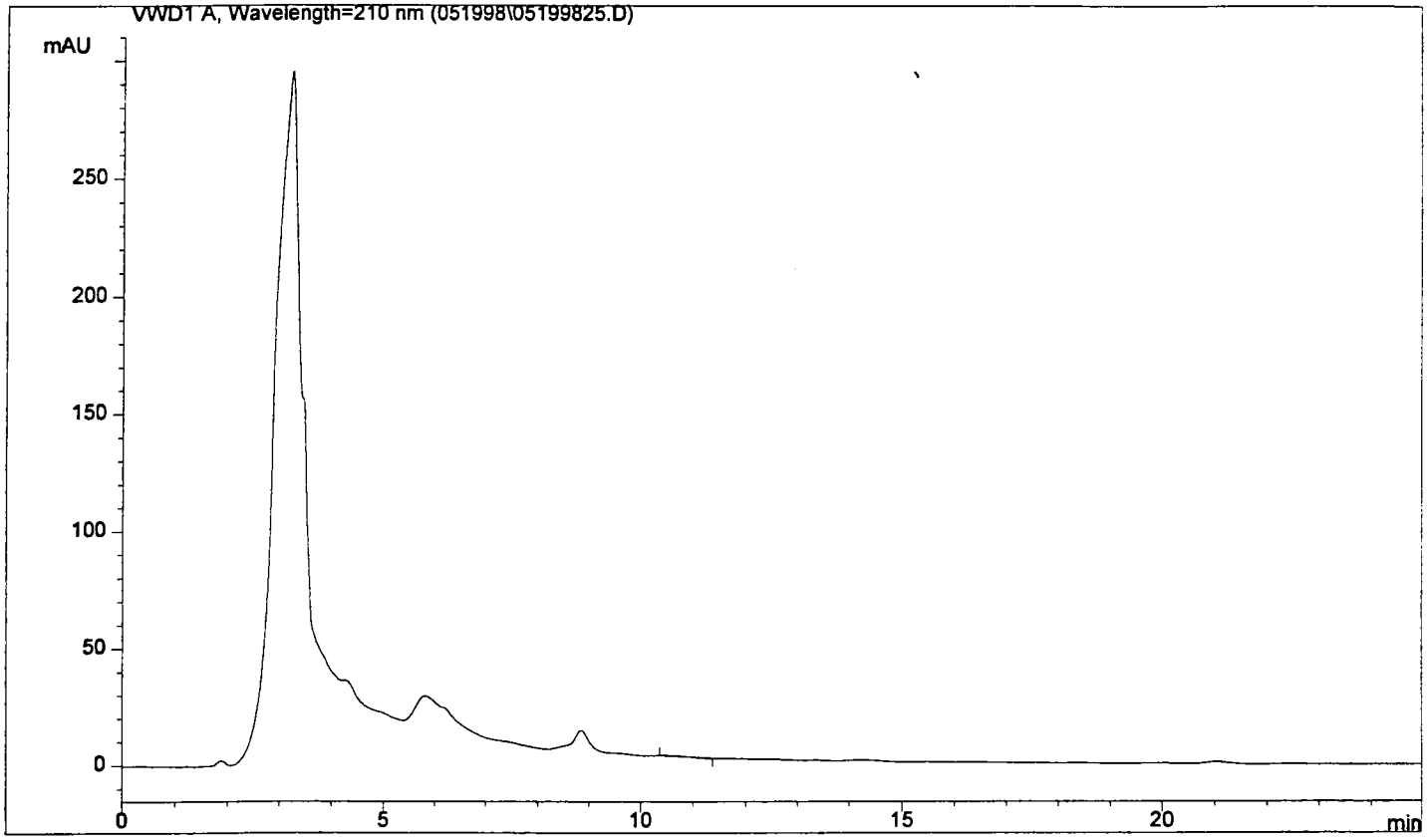
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 25
Sample Name	: 33946.07	Vial No.	: 25
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp
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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
10.413	BP	5.21974	0.00000	0.00000	
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

069

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-05-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.08

Sample Amt: 2g % Moisture 20.60 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	457	P
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

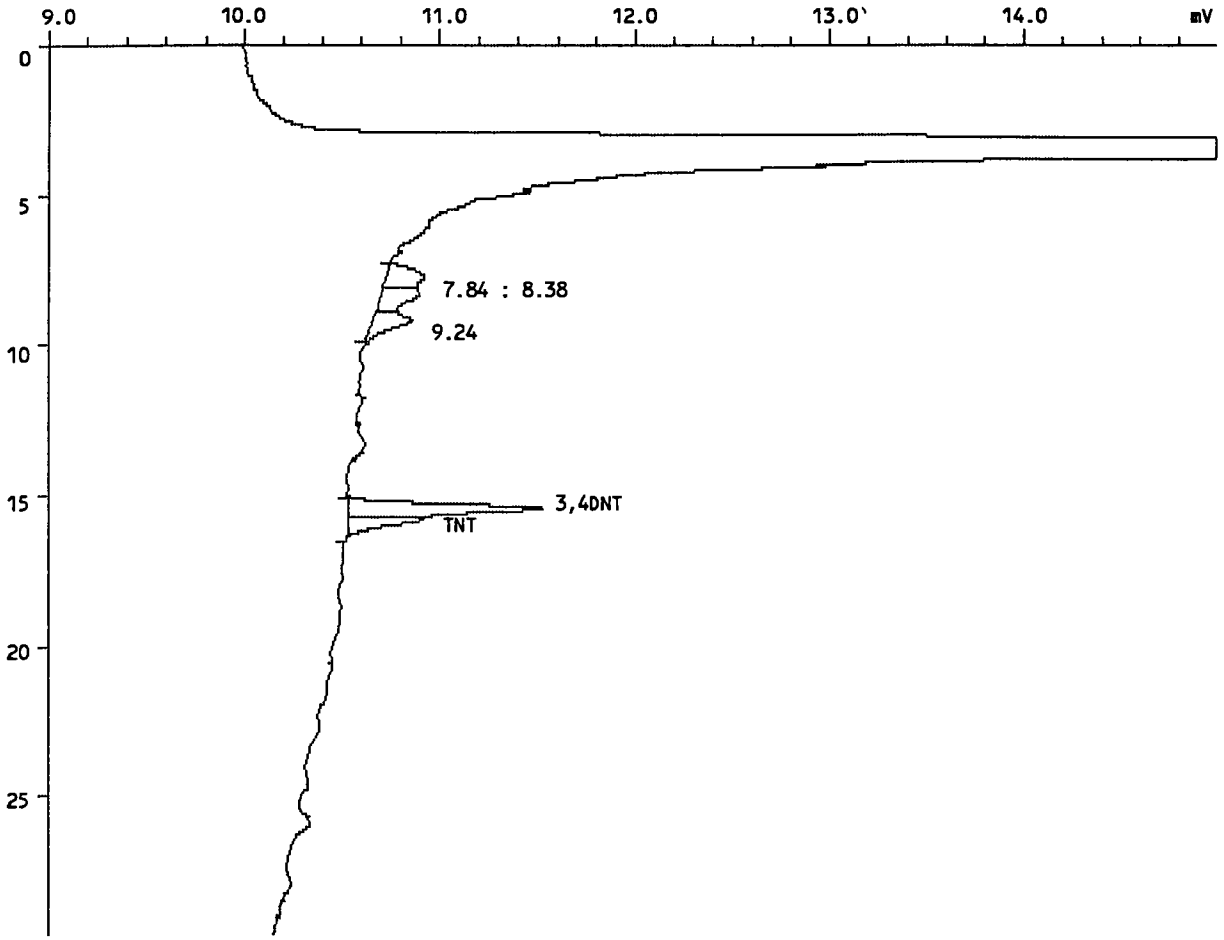
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,25,1

Sample name.....: BIO-S-001-26-05-3
Sample ID.....: 33946.08
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 15:39:32
Reported on 21-May-98 at 13:12:40



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,25,1

Acquired on 17-May-98 at 15:39:32
Modified on 21-May-82 at 13:07:16
Reported on 21-May-98 at 13:07:00

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 13:07:16
Method file.....: EXPLOS Last modified on 21-May-82 at 13:06:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-3
Sample ID.....: 33946.08
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

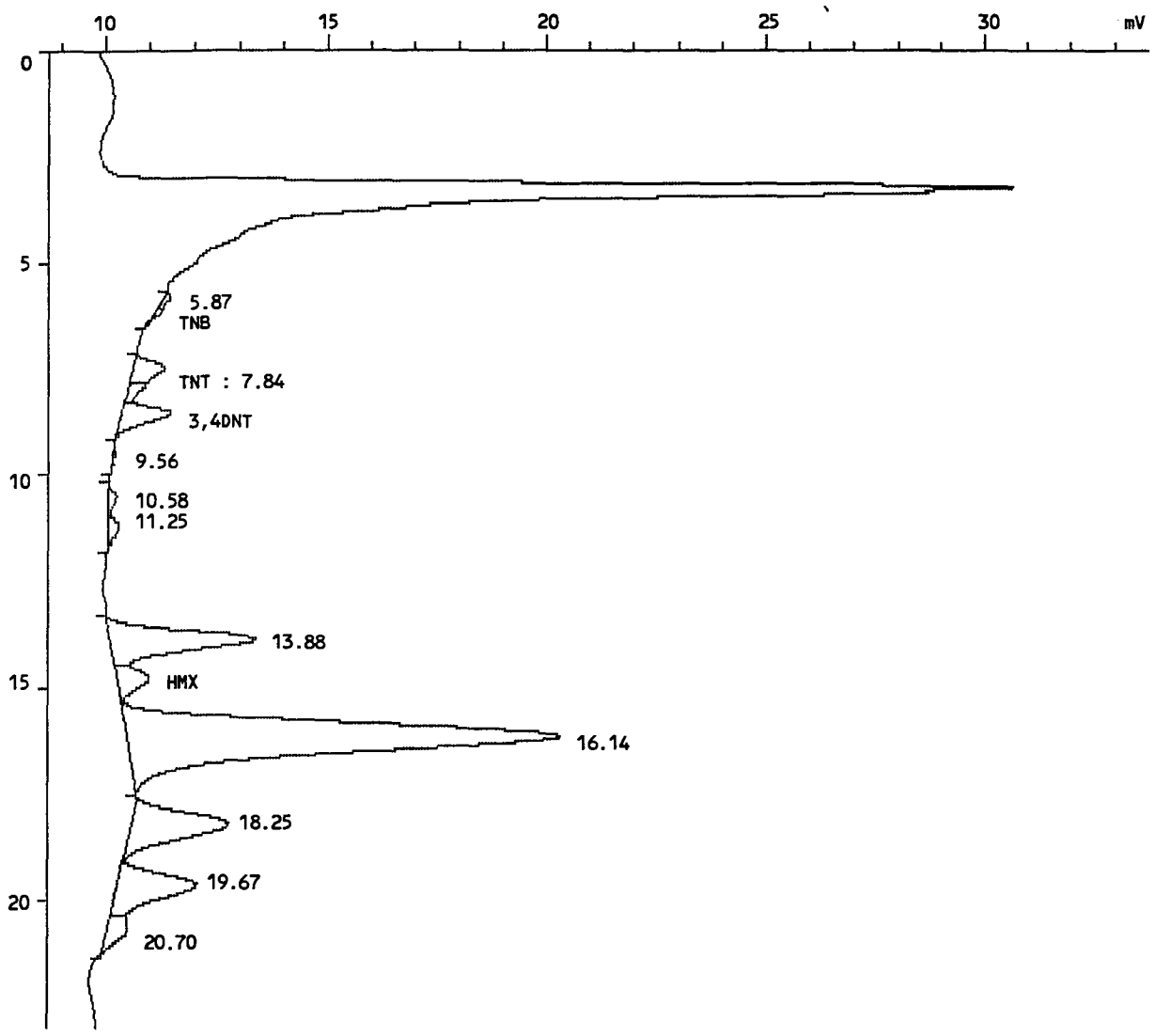
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
4	15.451	1002	20184	2208.336	3,4DNT 110
5	15.691	423	8506	457.311	TNT * P
Total		1425	28690	2665.647	
Residual		609	22181	-173.288	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,13,1

Sample name.....: BIO-S-001-26-05-3
Sample ID.....: 33946.08
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 01:25:23
Reported on 01-Jun-98 at 20:49:18



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,13,1

Acquired on 23-May-98 at 01:25:23
Modified on 01-Jun-82 at 20:37:34
Reported on 01-Jun-98 at 20:37:33

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 01-Jun-82 at 20:32:42
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-3
Sample ID.....: 33946.08
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

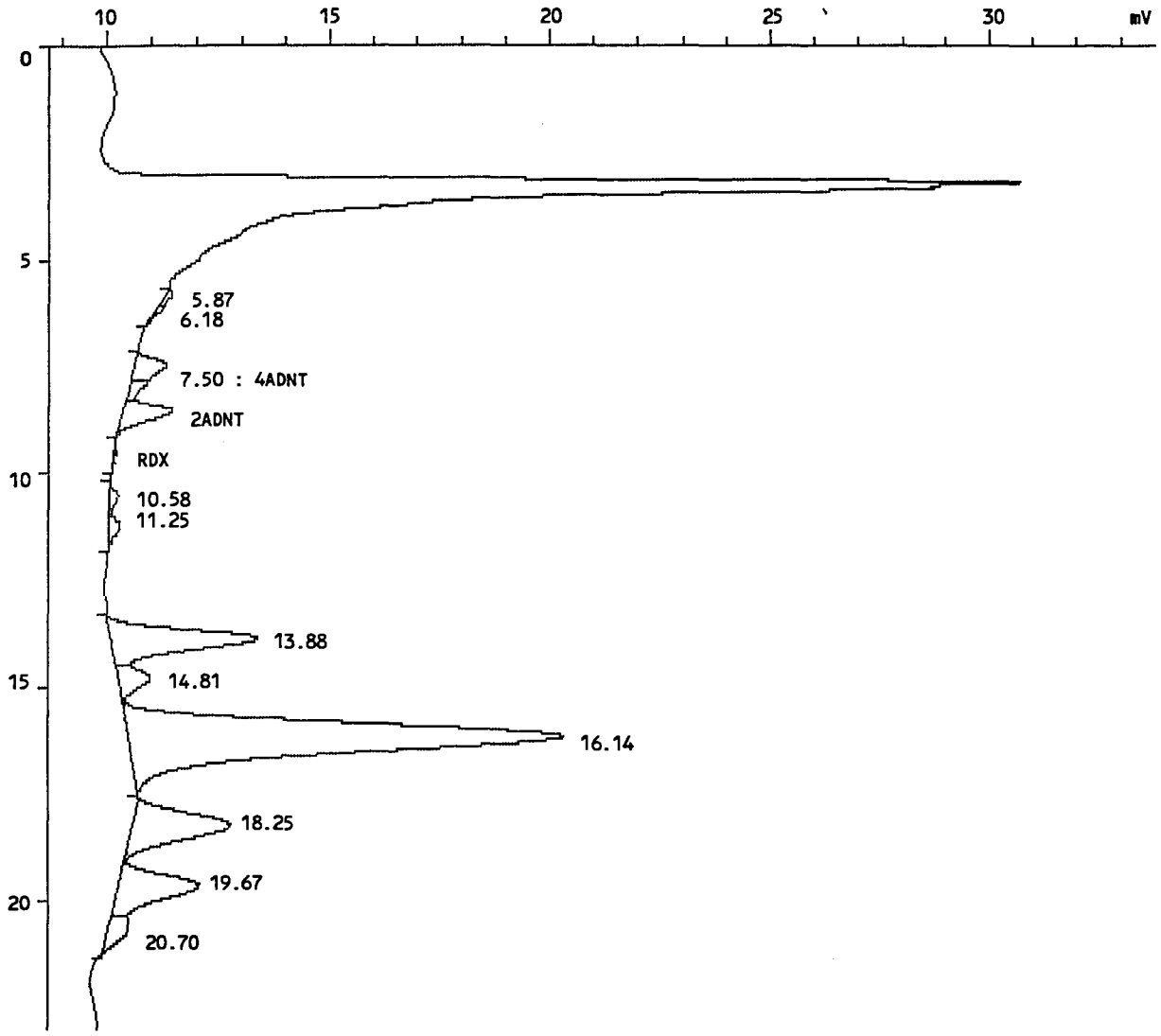
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.181	180	3009	119.488	TNB
3	7.504	703	18820	769.742	TNT
5	8.571	1134	28542	2051.902	3,4DNT
10	14.805	729	22158	2130.549	HMX
Total		2745	72529	5071.682	
Residual		18802	771204	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,13,1

Sample name.....: BIO-S-001-26-05-3
Sample ID.....: 33946.08
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 01:25:23
Reported on 01-Jun-98 at 20:28:04



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,13,1

Acquired on 23-May-98 at 01:25:23
Modified on 01-Jun-82 at 18:29:40
Reported on 01-Jun-98 at 18:29:38

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 01-Jun-82 at 18:29:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-3
Sample ID.....: 33946.08
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
4	7.840	424	7016	405.080	4ADNT
5	8.571	1134	28542	1079.908	2ADNT
6	9.557	44	1085	79.270	RDX
Total		1601	36643	1564.257	
Residual		19946	807089	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-05-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.08

Sample Amt: 2g % Moisture 20.60 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

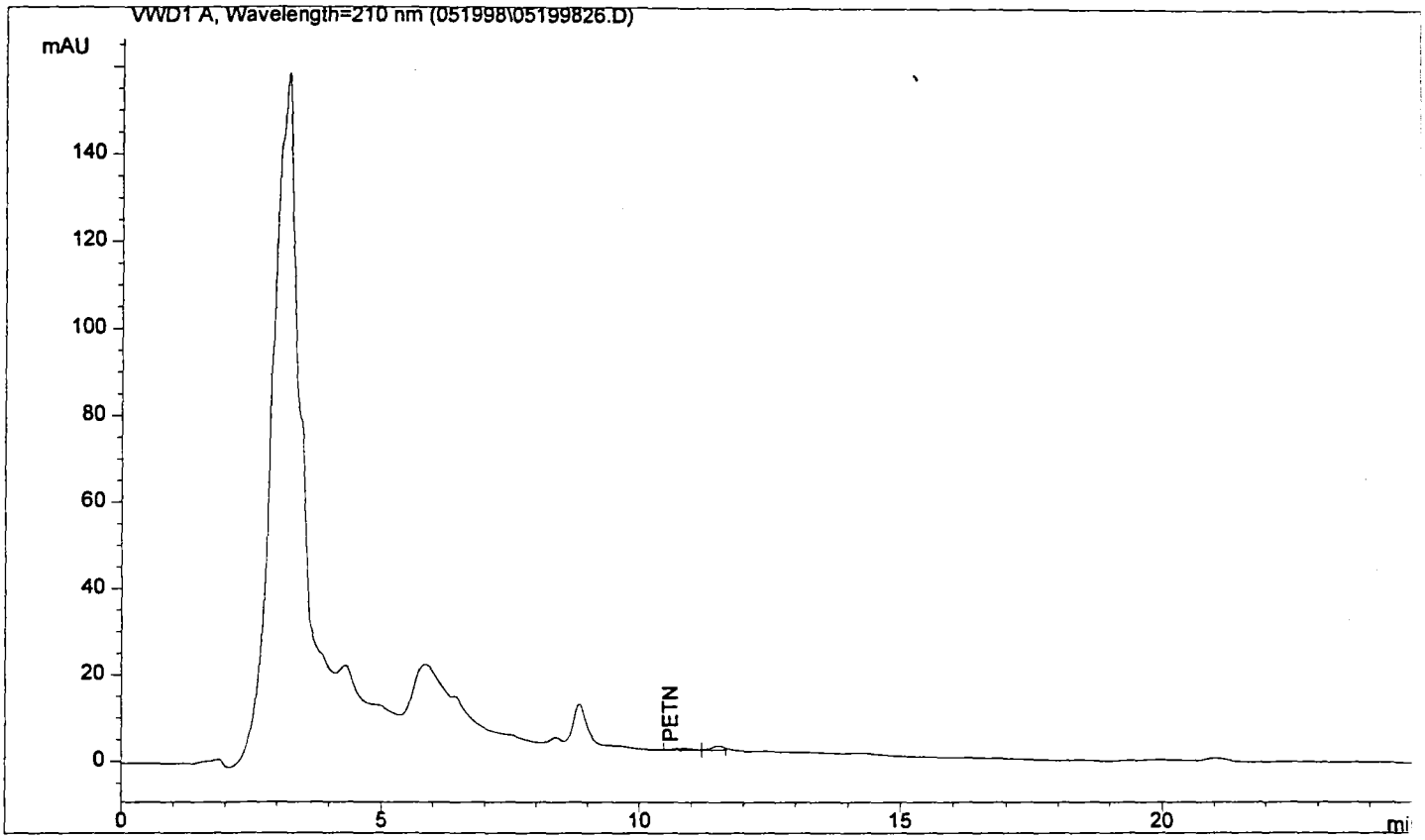
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 26
Sample Name	: 33946.08	Vial No.	: 26
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µ

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
10.846	BP	9.88970	2.67910	264.95436	PETN
11.512	VBA	15.08395	0.00000	0.00000	
Totals:				264.95436	

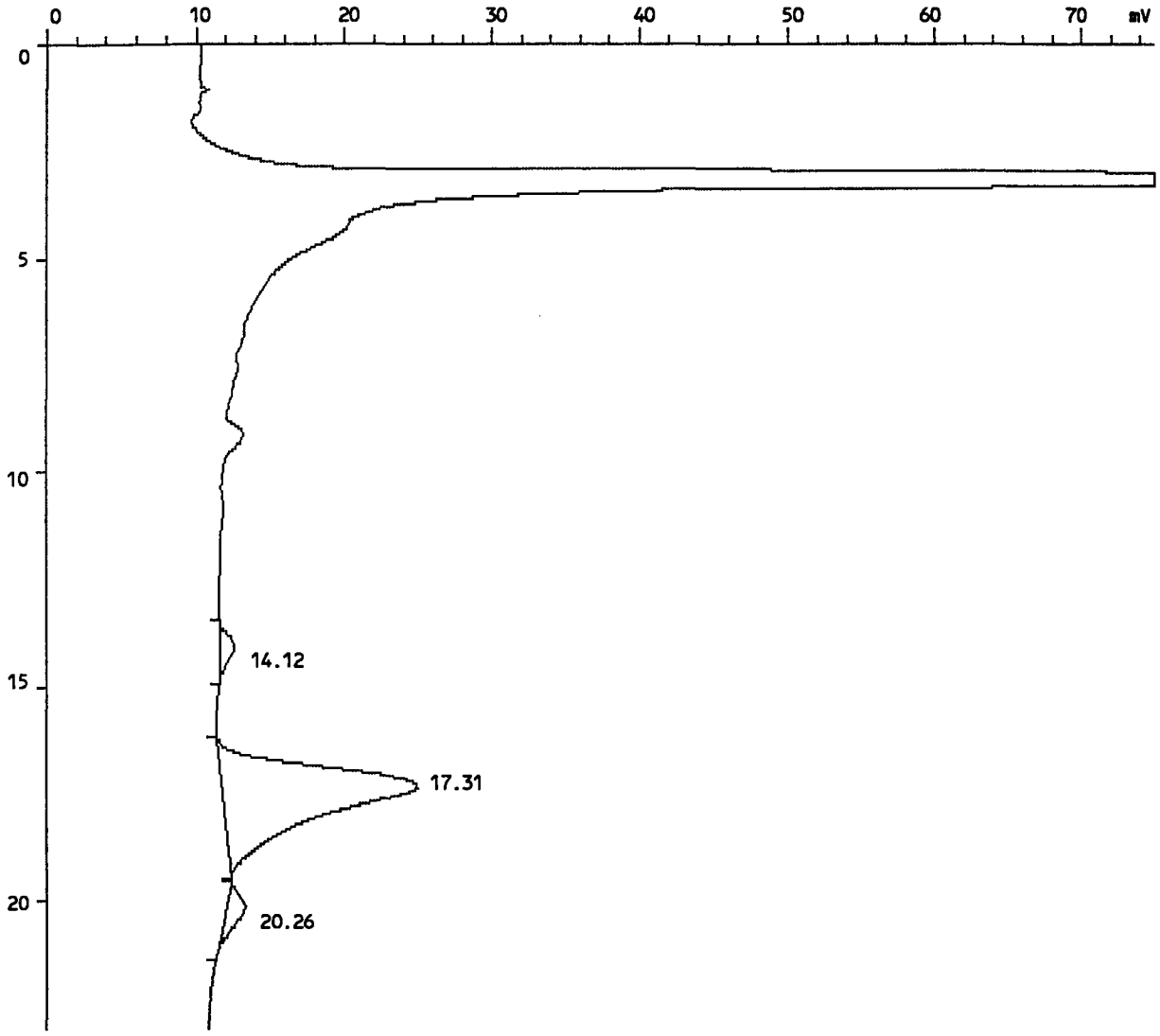
078

LONG PLOT

Injection F: <MC3> 3 3PC0601,21,1

Sample name.....: BIO-S-001-26-05-3
Sample ID.....: 33946.08
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-11, INJ:100, UV

Acquired on 02-Jun-98 at 03:28:07
Reported on 02-Jun-98 at 16:00:33



INJECTION REPORT

Injection F: <MC3> 3 3PC0601,21,1

Acquired on 02-Jun-98 at 03:28:07
Modified on 02-Jun-82 at 15:59:08
Reported on 02-Jun-98 at 15:58:48

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC 200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: ODS-II, ID: LC-CN-11, INJ:100, UV
Number of samples.: 29
Calibration file..: 3PC0601 Last modified on 02-Jun-82 at 14:33:06
Method file.....: LCCN1 Last modified on 02-Jun-82 at 15:54:00
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-3
Sample ID.....: 33946.08
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak RT mins	Hght uV	Area uVs	ug/Kg	Peak name
Total	0	0	0.000	
Residual	15494	1110585	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-05-3FD

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.09

Sample Amt: 2g % Moisture 20.69 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	887	PJ
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	575	
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

FORM I

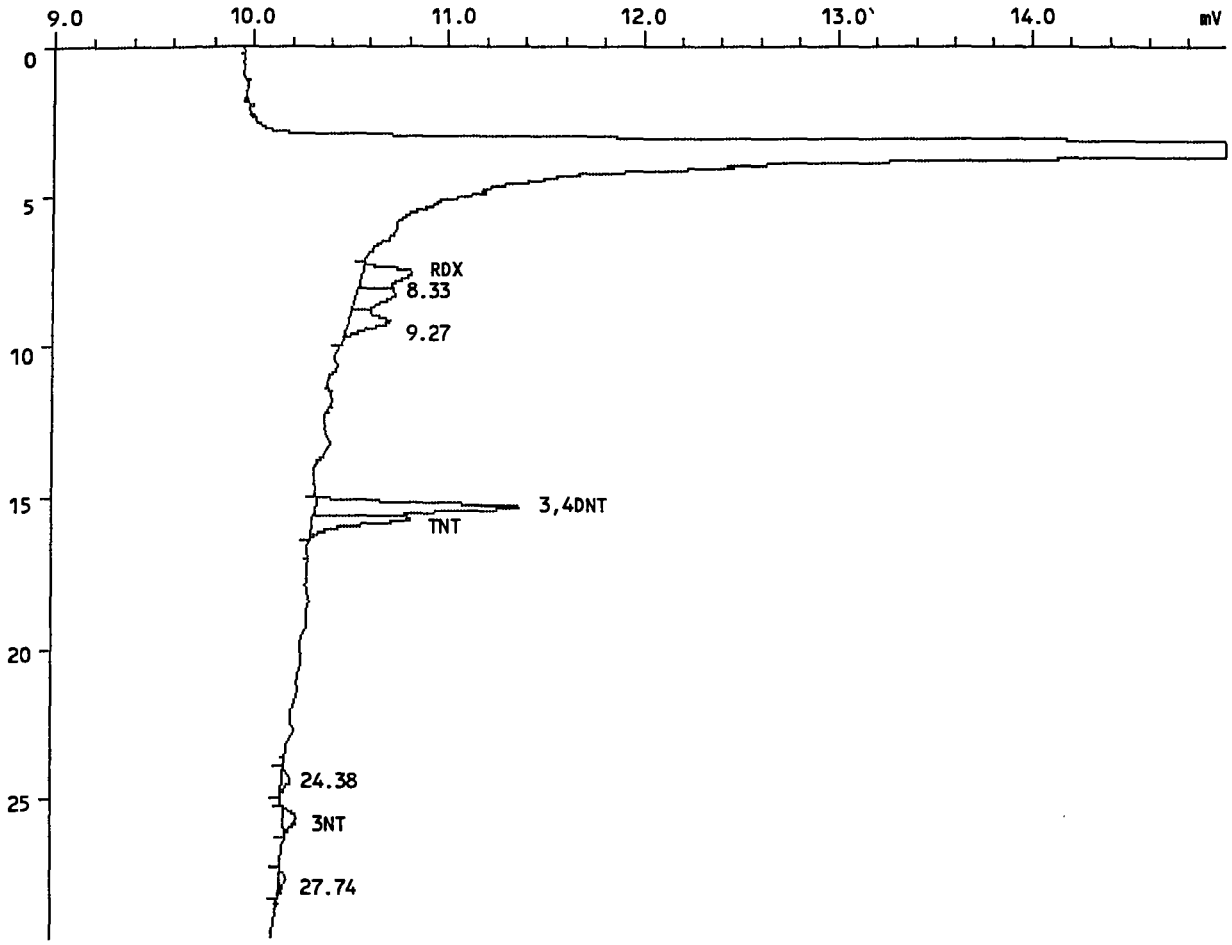
80A

LONG PLOT

Injection F: <MC3> 5 5EX0516,26,1

Sample name.....: BIO-S-001-26-05-3FD
Sample ID.....: 33946.09
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 16:24:13
Reported on 21-May-98 at 13:12:20



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,26,1

Acquired on 17-May-98 at 16:24:13
Modified on 21-May-82 at 13:07:30
Reported on 21-May-98 at 13:07:14

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 13:07:16
Method file.....: EXPLOS Last modified on 21-May-82 at 13:06:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-3FD
Sample ID.....: 33946.09
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

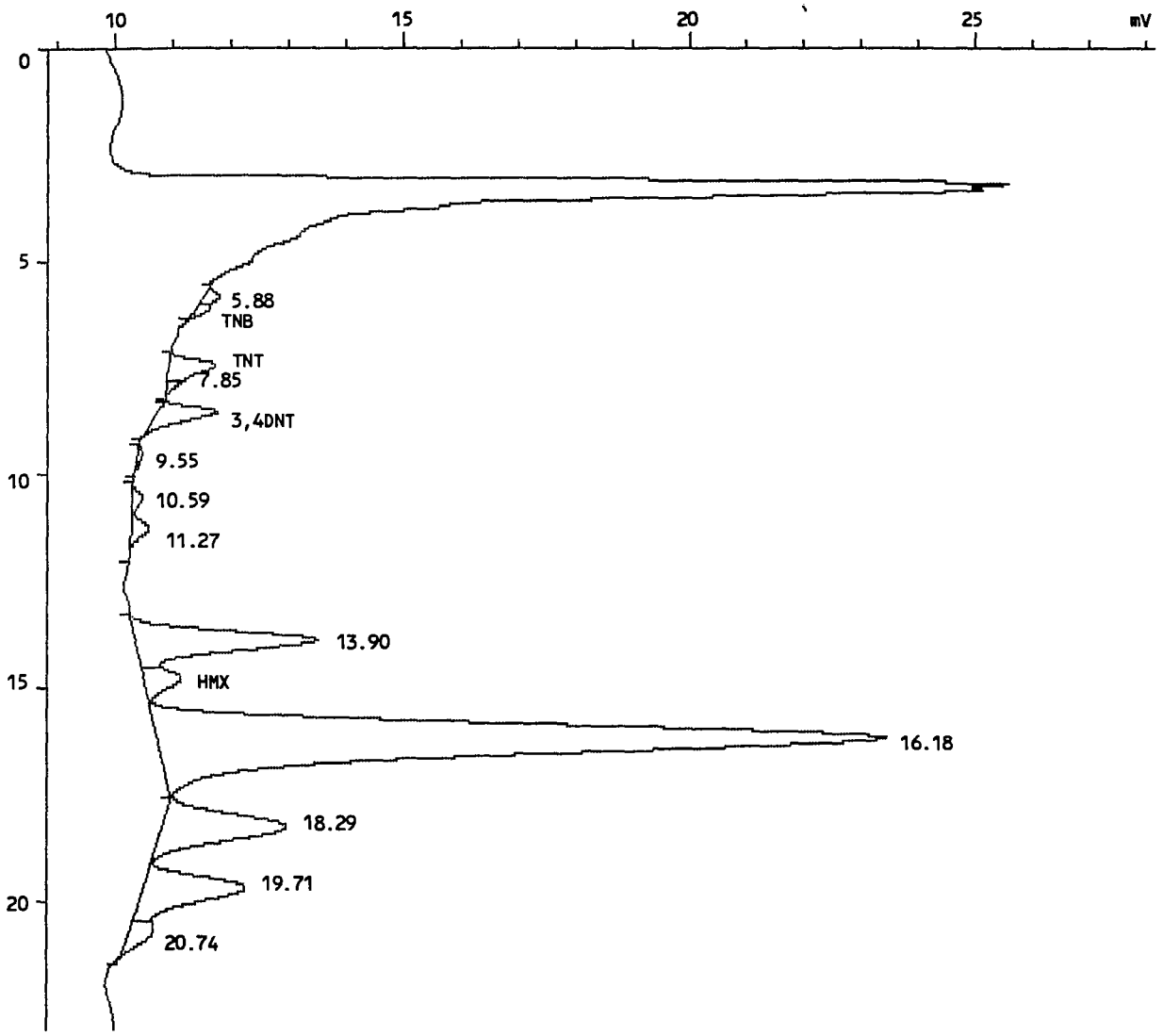
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	7.632	257	8405	886.635	RDX*JP
4	15.360	1048	21460	2347.901	3,4DNT 117
5	15.760	496	10703	575.457	TNT*
7	25.675	66	2149	203.087	3NT
Total		1867	42717	4013.080	
Residual		502	17220	1736.150	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,14,1

Sample name.....: BIO-S-001-26-05-3FD
Sample ID.....: 33946.09
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 02:09:48
Reported on 02-Jun-98 at 12:50:19



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,14,1

Acquired on 23-May-98 at 02:09:48
Modified on 02-Jun-82 at 12:49:44
Reported on 02-Jun-98 at 12:49:51

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 02-Jun-82 at 12:37:24
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-3FD
Sample ID.....: 33946.09
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

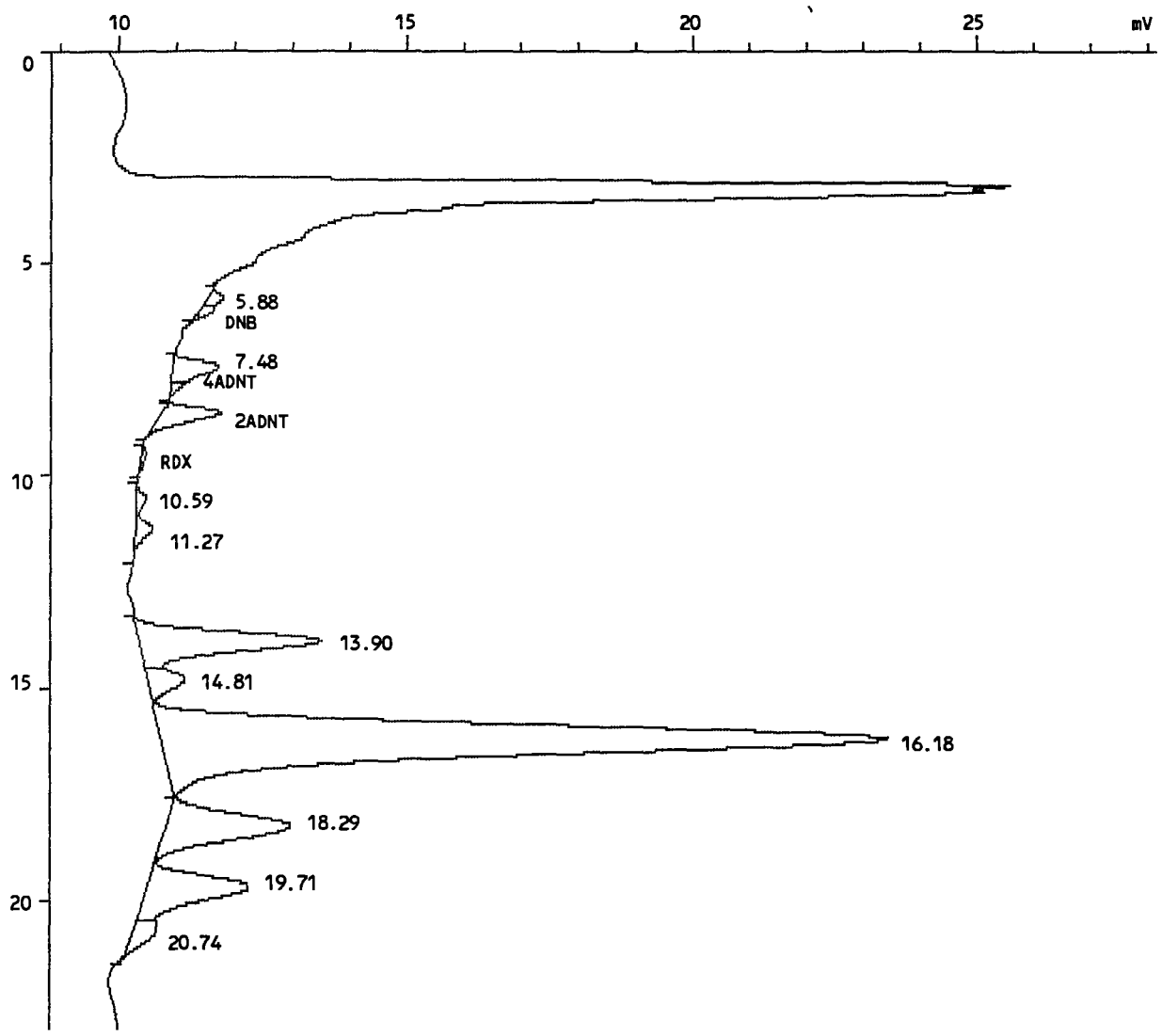
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.171	261	4939	196.130	TNB
3	7.477	807	19485	796.925	TNT
5	8.581	1038	24361	1751.352	3,4DNT
10	14.805	655	19556	1880.387	HMX
Total		2761	68341	4624.794	
Residual		21360	901371	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,14,1

Sample name.....: BIO-S-001-26-05-3FD
Sample ID.....: 33946.09
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 02:09:48
Reported on 02-Jun-98 at 12:51:07



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,14,1

Acquired on 23-May-98 at 02:09:48
Modified on 02-Jun-82 at 12:50:46
Reported on 02-Jun-98 at 12:50:50

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 02-Jun-82 at 12:37:24
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-3FD
Sample ID.....: 33946.09
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.171	261	4939	133.258	DNB
4	7.845	291	2756	159.127	4ADNT
5	8.581	1038	24361	921.729	2ADNT
6	9.547	88	2193	160.198	RDX
Total		1679	34249	1374.312	
Residual		22442	935462	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-05-3FD

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.09

Sample Amt: 2g % Moisture 20.69 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

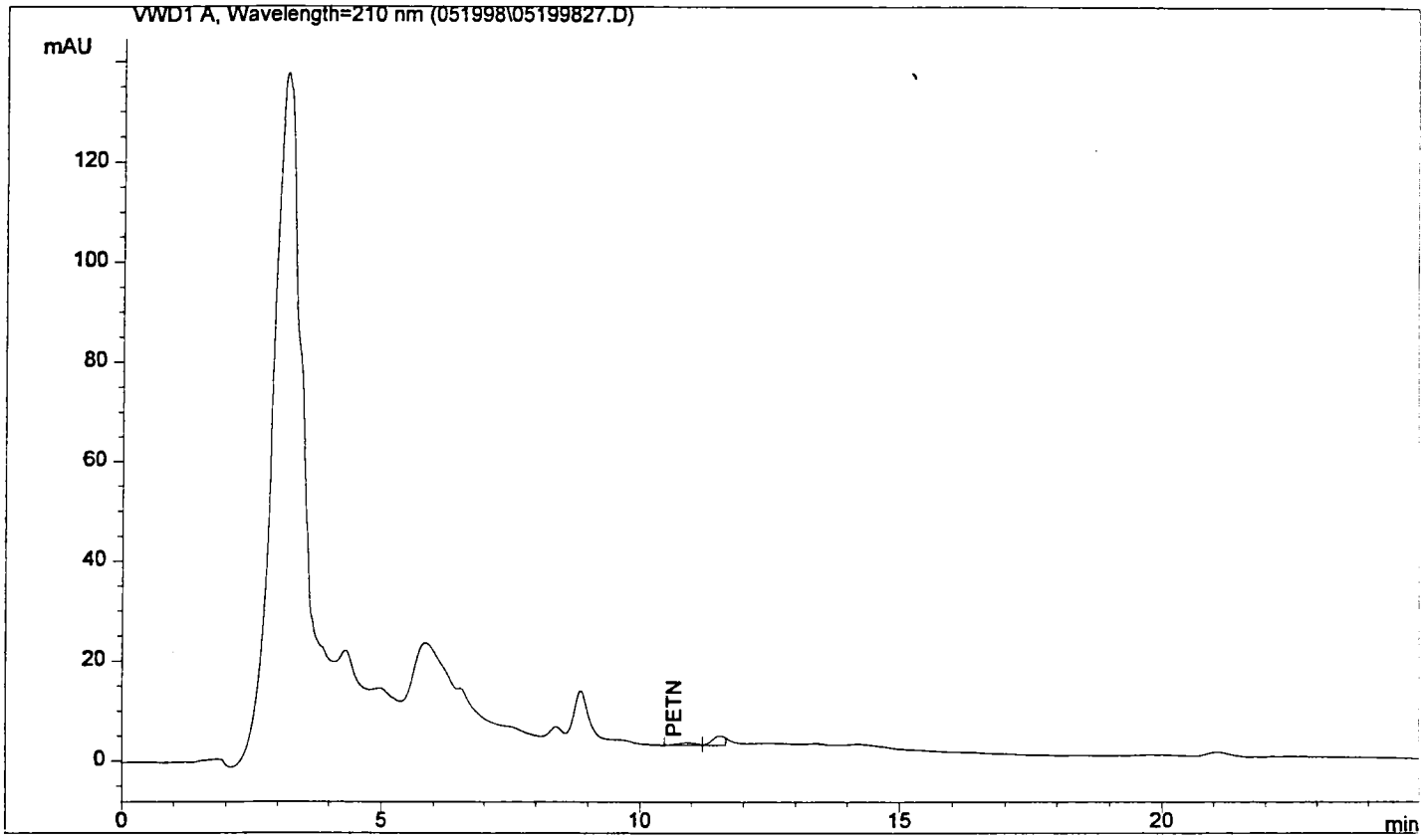
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 27
Sample Name	: 33946.09	Vial No.	: 27
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp
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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
10.913	BV	13.38904	2.67910	358.70506	PETN
11.547	VBA	31.14430	0.00000	0.00000	
Totals:				358.70506	

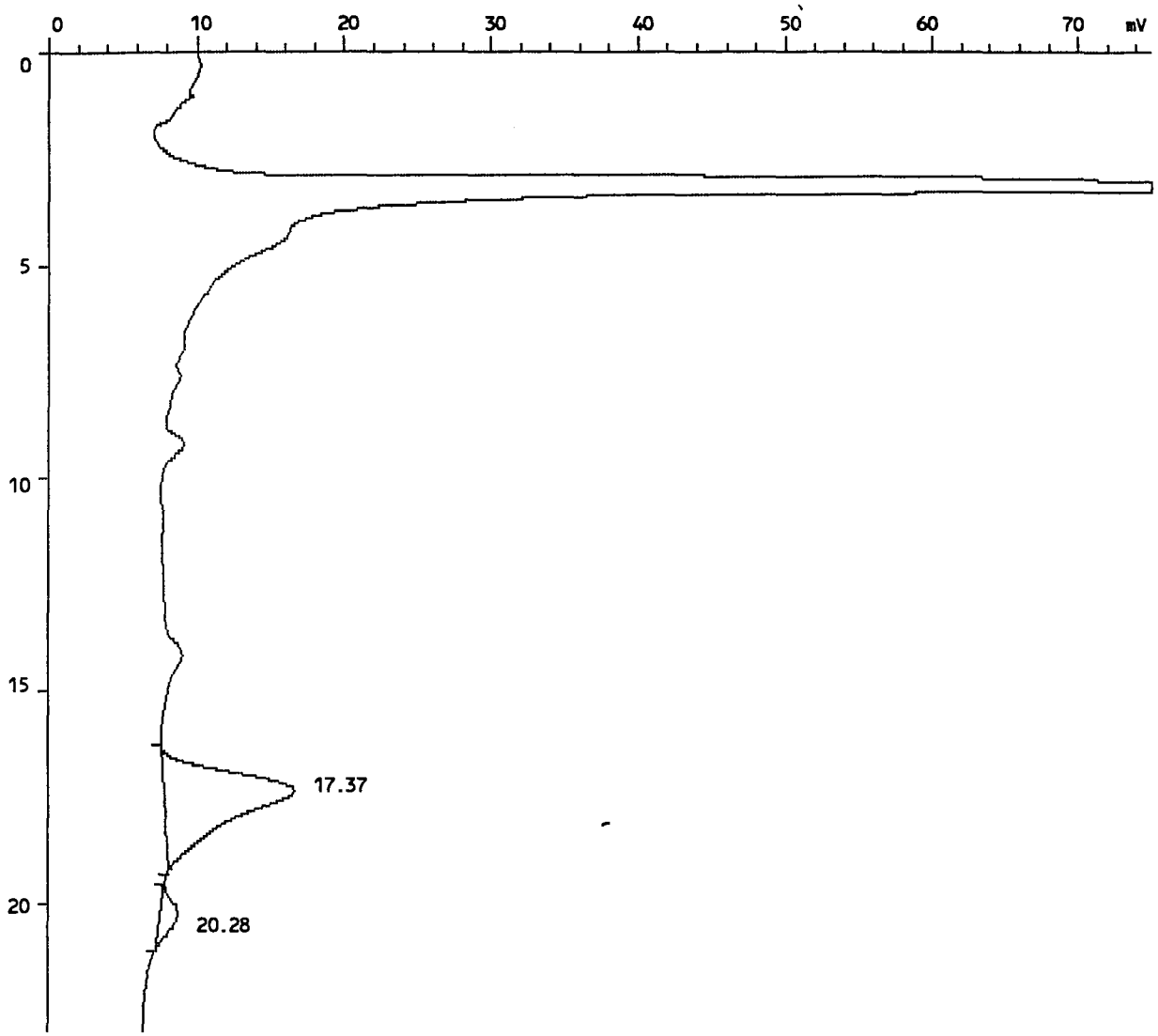
068

LONG PLOT

Injection F: <MC3> 3 3PC0601,22,1

Sample name.....: BIO-S-001-26-05-3FD
Sample ID.....: 33946.09
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-11, INJ:100, UV

Acquired on 02-Jun-98 at 03:54:28
Reported on 02-Jun-98 at 16:08:08



INJECTION REPORT

Injection F: <MC3> 3 3PC0601,22,1

Acquired on 02-Jun-98 at 03:54:28
Modified on 02-Jun-82 at 16:01:30
Reported on 02-Jun-98 at 16:01:10

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC 200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: ODS-II, ID: LC-CN-11, INJ:100, UV
Number of samples.: 29
Calibration file..: 3PC0601 Last modified on 02-Jun-82 at 14:33:06
Method file.....: LCCN1 Last modified on 02-Jun-82 at 15:54:00
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-05-3FD
Sample ID.....: 33946.09
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak RT mins	Hght uV	Area uVs	ug/Kg	Peak name
Total	0	0	0.000	
Residual	10100	722184	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-07-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.10

Sample Amt: 2g % Moisture 25.66 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	250	U
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

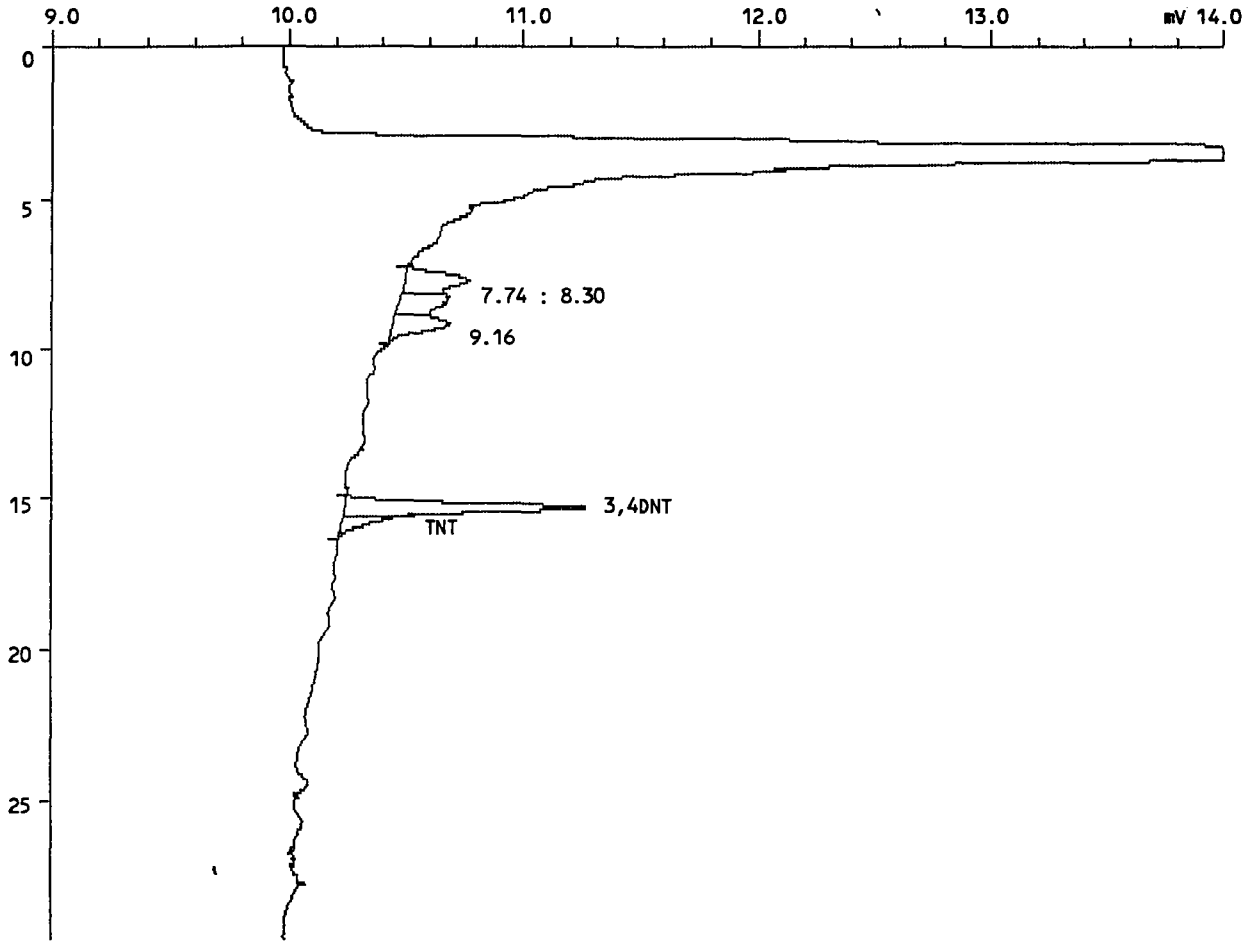
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,27,1

Sample name.....: BIO-S-001-26-07-1
Sample ID.....: 33946.10
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 17:08:53
Reported on 21-May-98 at 15:21:56



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,27,1

Acquired on 17-May-98 at 17:08:53
Modified on 21-May-82 at 15:21:54
Reported on 21-May-98 at 15:21:41

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 15:21:54
Method file.....: EXPLOS Last modified on 21-May-82 at 15:20:38
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-07-1
Sample ID.....: 33946.10
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

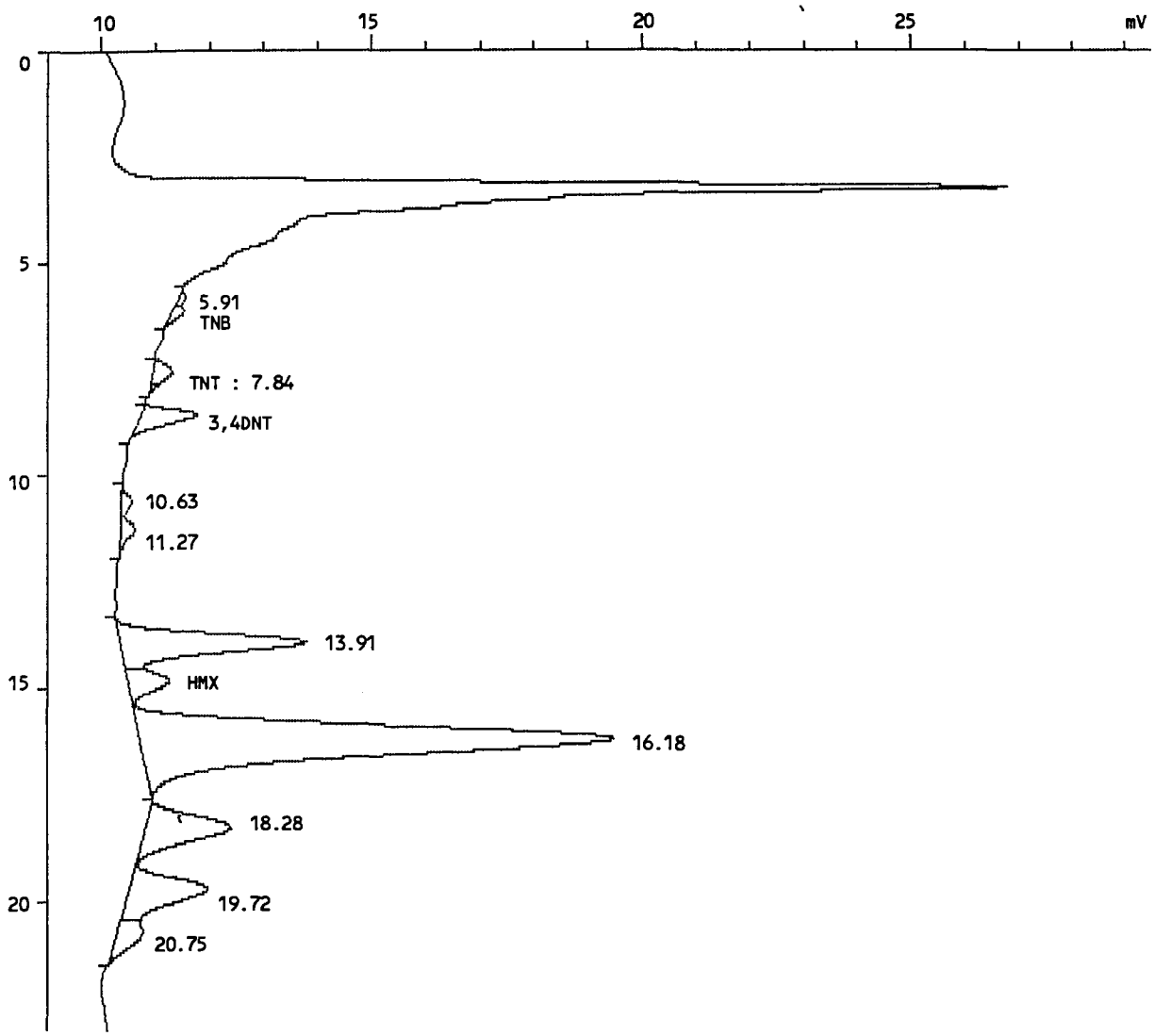
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
4	15.333	1034	20610	2254.871	3,4DNT
5	15.600	292	4442	238.804	TNT
Total		1326	25051	2493.675	
Residual		745	25690	-200.705	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,15,1

Sample name.....: BIO-S-001-26-07-1
Sample ID.....: 33946.10
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 02:54:11
Reported on 02-Jun-98 at 12:56:43



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,15,1

Acquired on 23-May-98 at 02:54:11
Modified on 02-Jun-82 at 12:56:26
Reported on 02-Jun-98 at 12:56:27

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 02-Jun-82 at 12:37:24
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-07-1
Sample ID.....: 33946.10
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

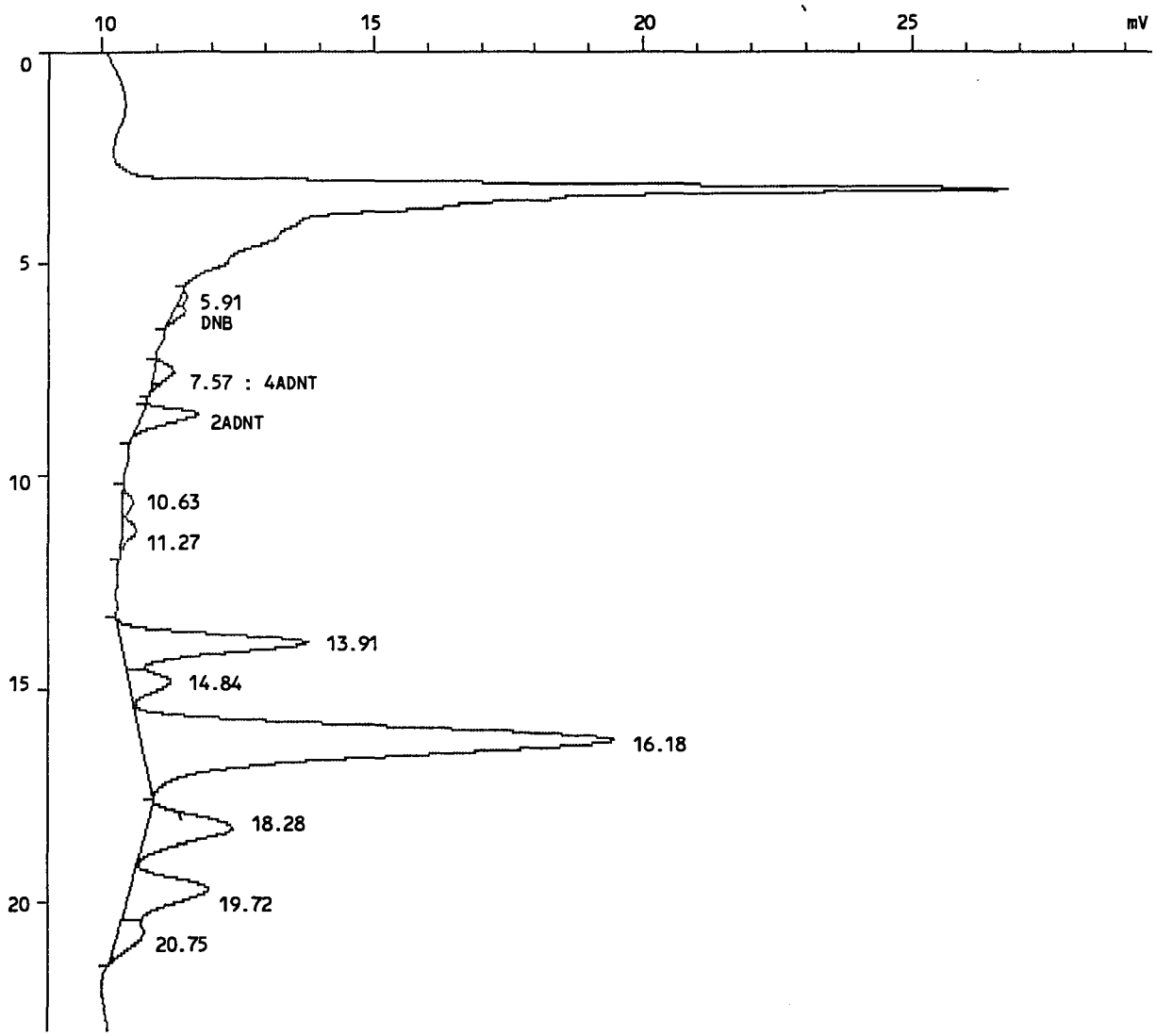
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.176	234	4564	181.261	TNB
3	7.568	368	8853	362.101	TNT
5	8.576	1056	24812	1783.781	3,4DNT
9	14.837	747	22060	2121.114	HMX
Total		2404	60290	4448.258	
Residual		16561	681744	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,15,1

Sample name.....: BIO-S-001-26-07-1
Sample ID.....: 33946.10
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 02:54:11
Reported on 02-Jun-98 at 12:54:22



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,15,1

Acquired on 23-May-98 at 02:54:11
Modified on 02-Jun-82 at 12:54:02
Reported on 02-Jun-98 at 12:54:06

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 02-Jun-82 at 12:37:24
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-07-1
Sample ID.....: 33946.10
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.176	234	4564	123.156	DNB
4	7.840	175	1129	65.199	4ADNT
5	8.576	1056	24812	938.797	2ADNT
Total		1464	30506	1127.152	
Residual		17501	711528	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-07-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.10

Sample Amt: 2g % Moisture 25.66 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

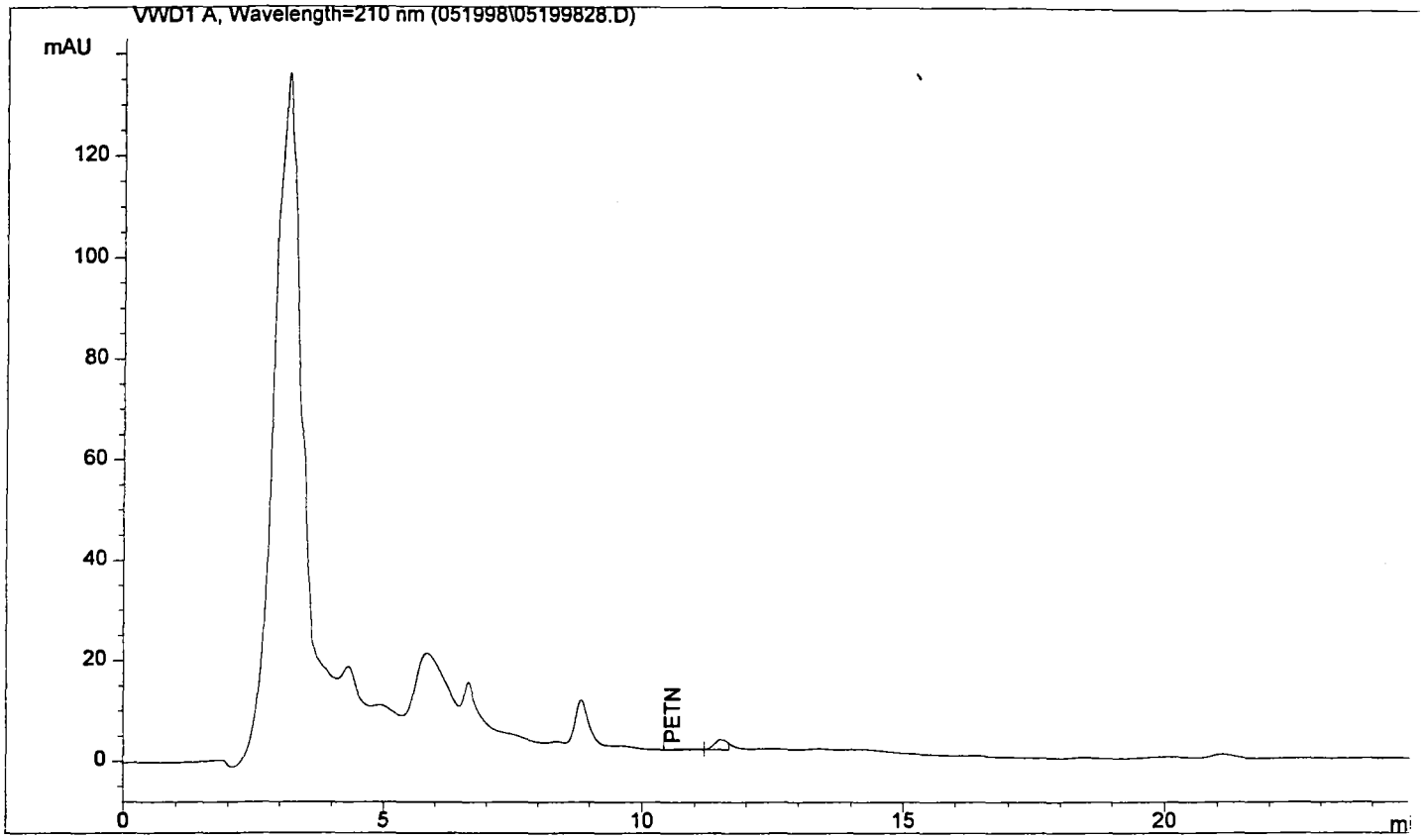
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 28
Sample Name	: 33946.10	Vial No.	: 28
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
10.832	BV	7.12767	2.67910	190.95717	PETN
11.526	VBA	35.44641	0.00000	0.00000	
Totals:				190.95717	

099

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-07-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.11

Sample Amt: 2g % Moisture 20.57 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	434	
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

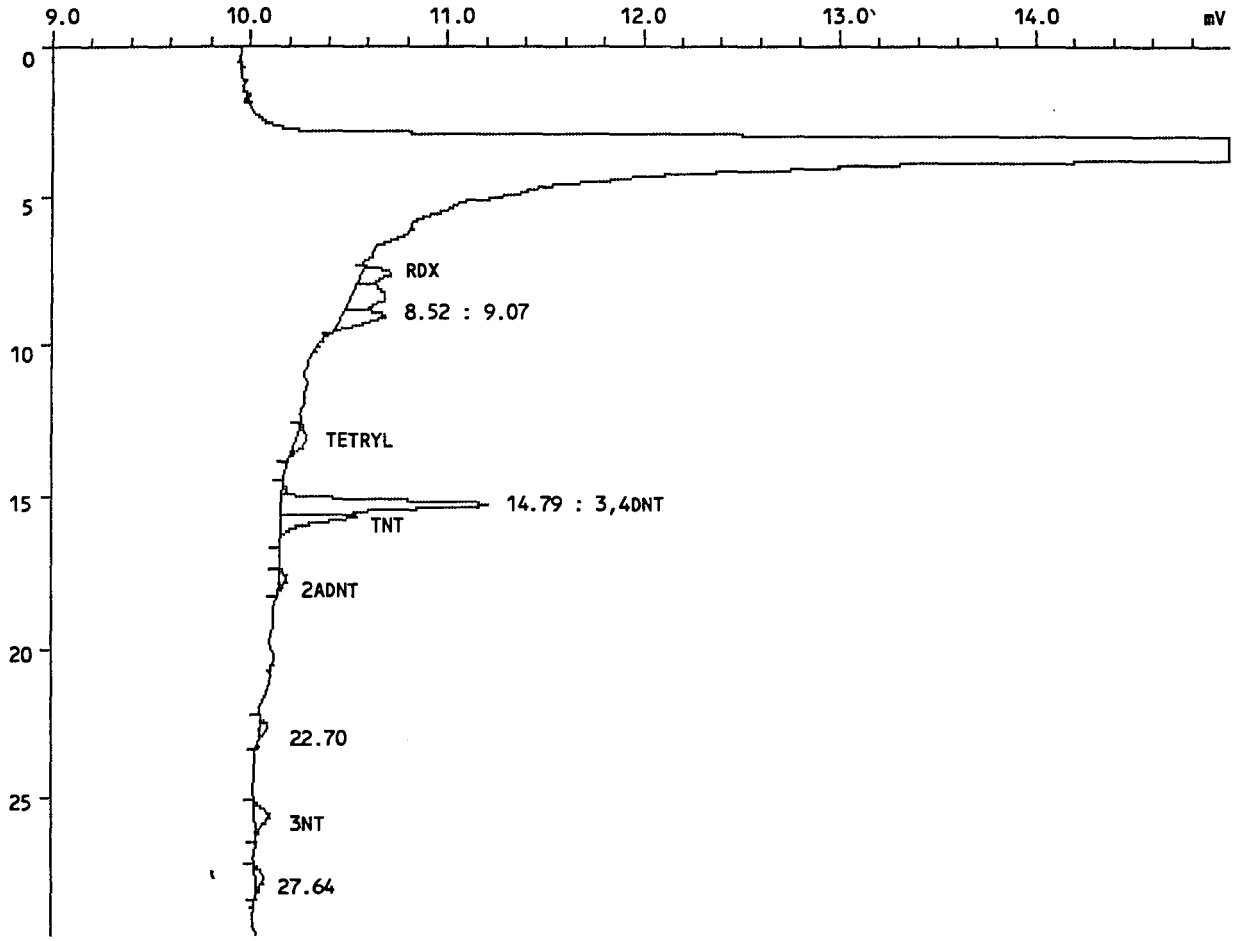
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,30,1

Sample name.....: BIO-S-001-26-07-2
Sample ID.....: 33946.11
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 19:22:56
Reported on 21-May-98 at 13:11:29



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,30,1

Acquired on 17-May-98 at 19:22:56
Modified on 21-May-82 at 13:07:58
Reported on 21-May-98 at 13:07:42

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 13:07:16
Method file.....: EXPLOS Last modified on 21-May-82 at 13:06:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-07-2
Sample ID.....: 33946.11
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

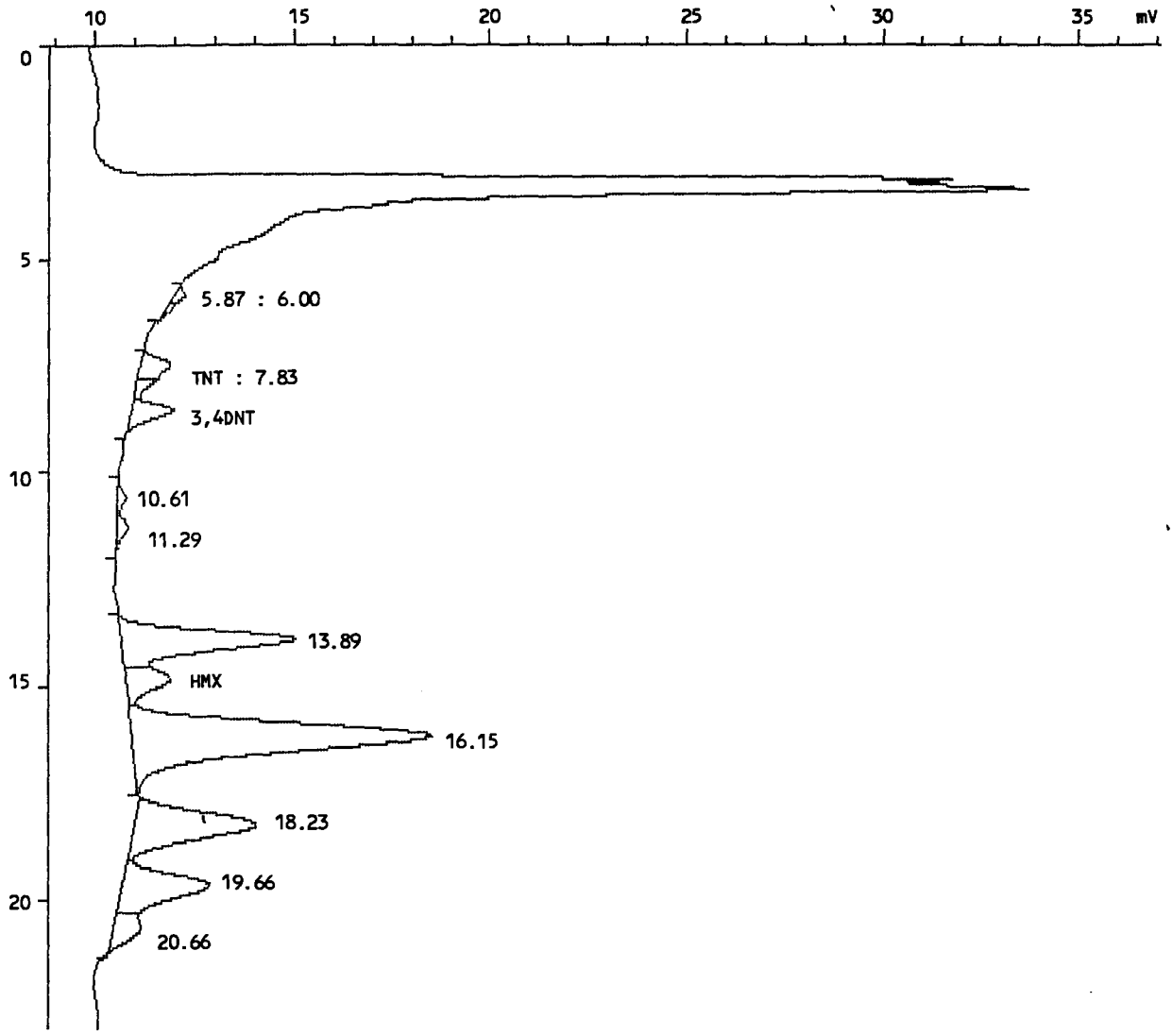
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	7.621	153	3670	387.152	RDX
4	13.179	59	2547	309.888	TETRYL
6	15.296	1048	22265	2435.991	3,4DNT 122
7	15.696	383	8081	434.483	TNT *
8	17.808	43	1132	68.675	2ADNT
10	25.659	72	2682	253.529	3NT
Total		1758	40378	3889.719	
Residual		523	17384	1760.469	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,16,1

Sample name.....: BIO-S-001-26-07-2
Sample ID.....: 33946.11
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 03:38:35
Reported on 01-Jun-98 at 20:47:27



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,16,1

Acquired on 23-May-98 at 03:38:35
Modified on 01-Jun-82 at 20:38:18
Reported on 01-Jun-98 at 20:38:17

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 01-Jun-82 at 20:32:42
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-07-2
Sample ID.....: 33946.11
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

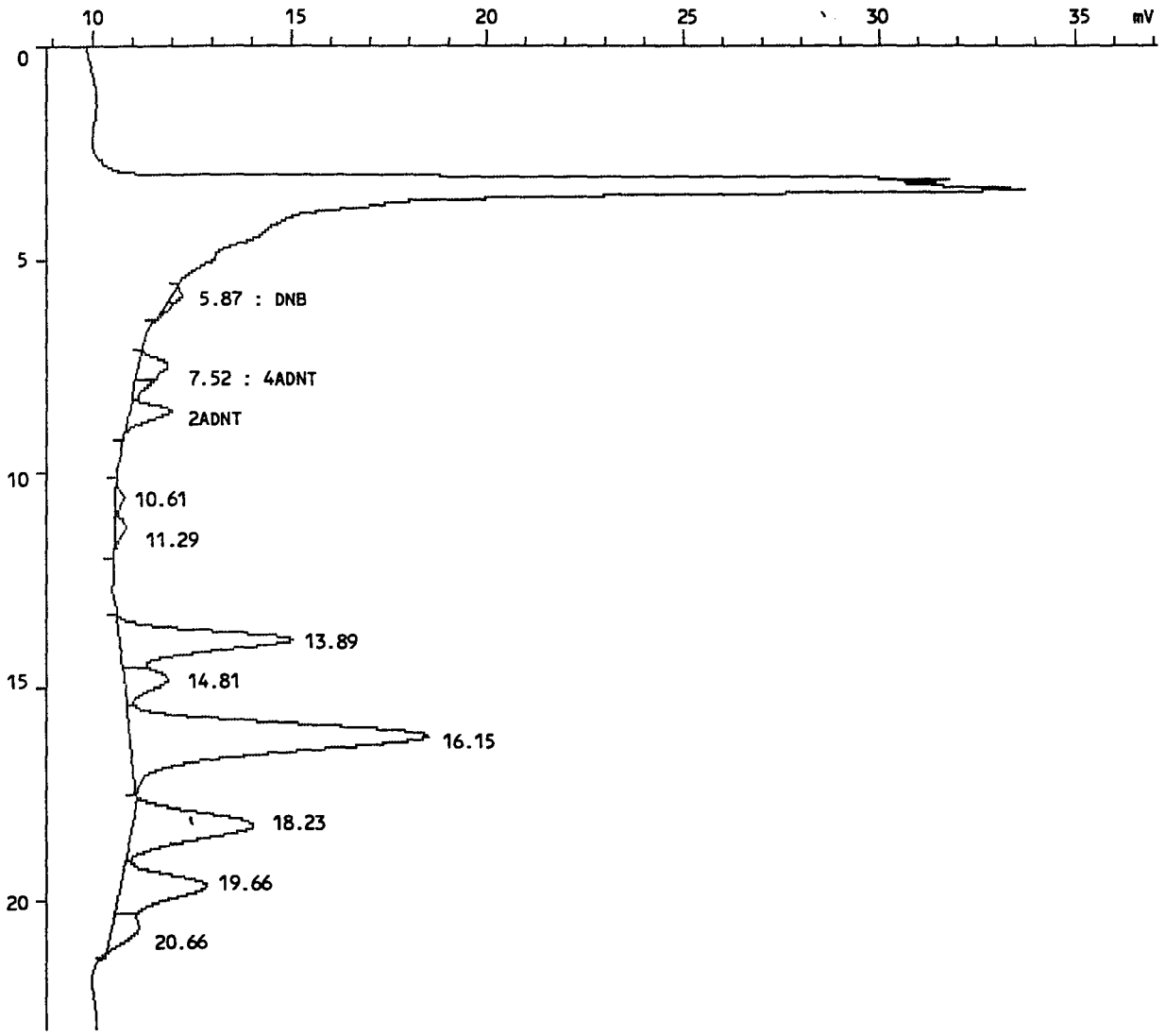
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	7.520	751	20585	841.928	TNT
5	8.581	1083	27346	1965.911	3,4DNT
9	14.805	1144	38929	3743.169	HMX
Total		2978	86860	6551.009	
Residual		19654	778179	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,16,1

Sample name.....: BIO-S-001-26-07-2
Sample ID.....: 33946.11
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 03:38:35
Reported on 01-Jun-98 at 20:29:06



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,16,1

Acquired on 23-May-98 at 03:38:35
Modified on 01-Jun-82 at 18:30:22
Reported on 01-Jun-98 at 18:30:20

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 01-Jun-82 at 18:29:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-07-2
Sample ID.....: 33946.11
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.000	235	4197	113.238	DNB
4	7.835	503	7625	440.219	4ADNT
5	8.581	1083	27346	1034.651	2ADNT
Total		1822	39167	1588.108	
Residual		20811	825872	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-07-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.11

Sample Amt: 2g % Moisture 20.57 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

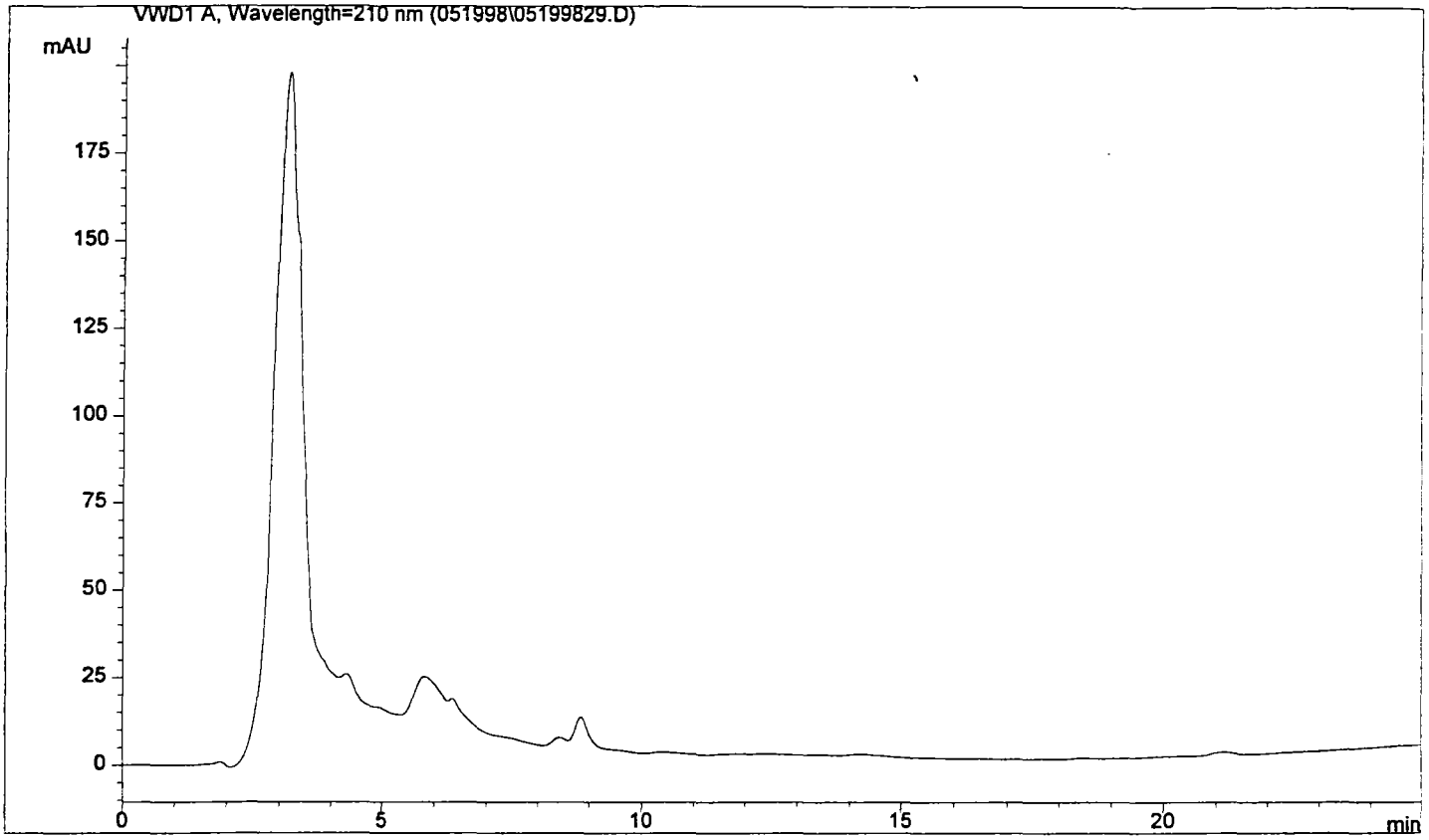
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 29
Sample Name	: 33946.11	Vial No.	: 29
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp
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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-07-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.12

Sample Amt: 2g % Moisture 18.35 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	571	J
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	250	U
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

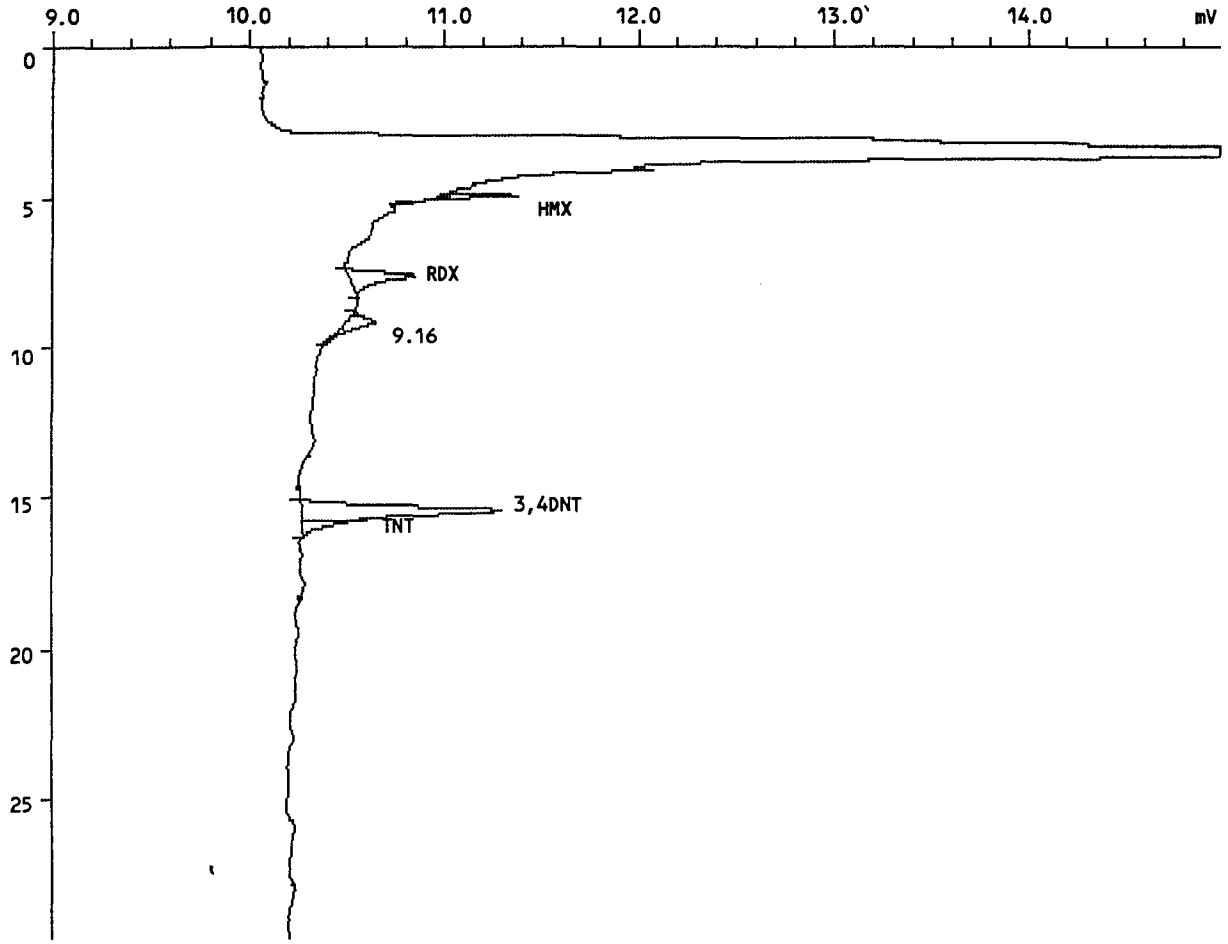
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,31,1

Sample name.....: BIO-S-001-26-07-3
Sample ID.....: 33946.12
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 20:07:38
Reported on 21-May-98 at 13:11:05



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,31,1

Acquired on 17-May-98 at 20:07:38
Modified on 21-May-82 at 13:08:16
Reported on 21-May-98 at 13:07:59

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 13:07:16
Method file.....: EXPLOS Last modified on 21-May-82 at 13:06:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-07-3
Sample ID.....: 33946.12
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

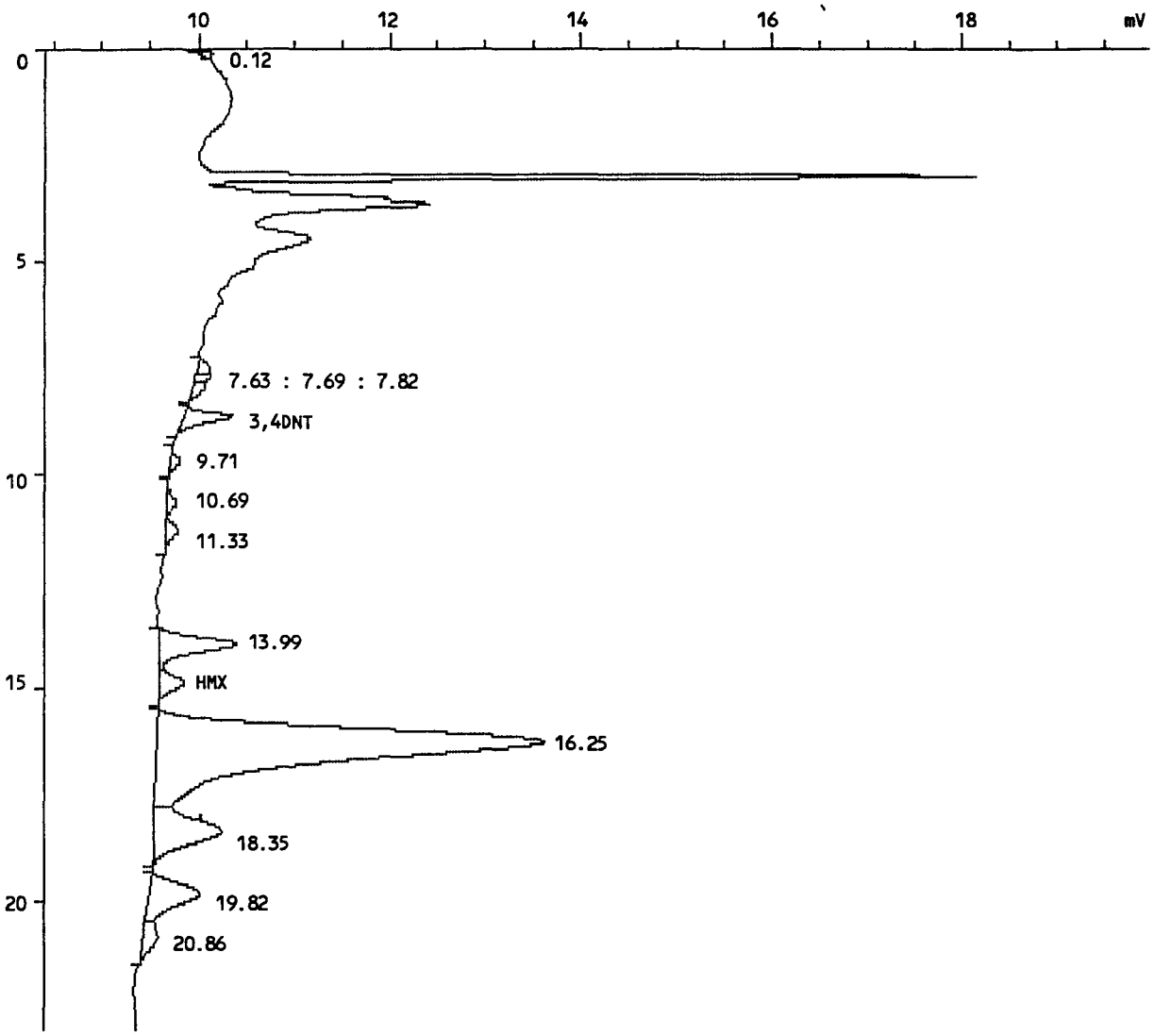
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.960	440	3664	570.649	HMX
2	7.600	338	6694	706.153	RDX
4	15.472	1035	21382	2339.381	3,4DNT
5	15.755	321	4258	228.905	TNT
Total		2133	35997	3845.089	
Residual		151	3956	417.266	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,17,1

Sample name.....: BIO-S-001-26-07-3
Sample ID.....: 33946.12
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 04:22:59
Reported on 01-Jun-98 at 20:45:53



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,17,1

Acquired on 23-May-98 at 04:22:59
Modified on 01-Jun-82 at 20:38:32
Reported on 01-Jun-98 at 20:38:31

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 01-Jun-82 at 20:32:42
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-07-3
Sample ID.....: 33946.12
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

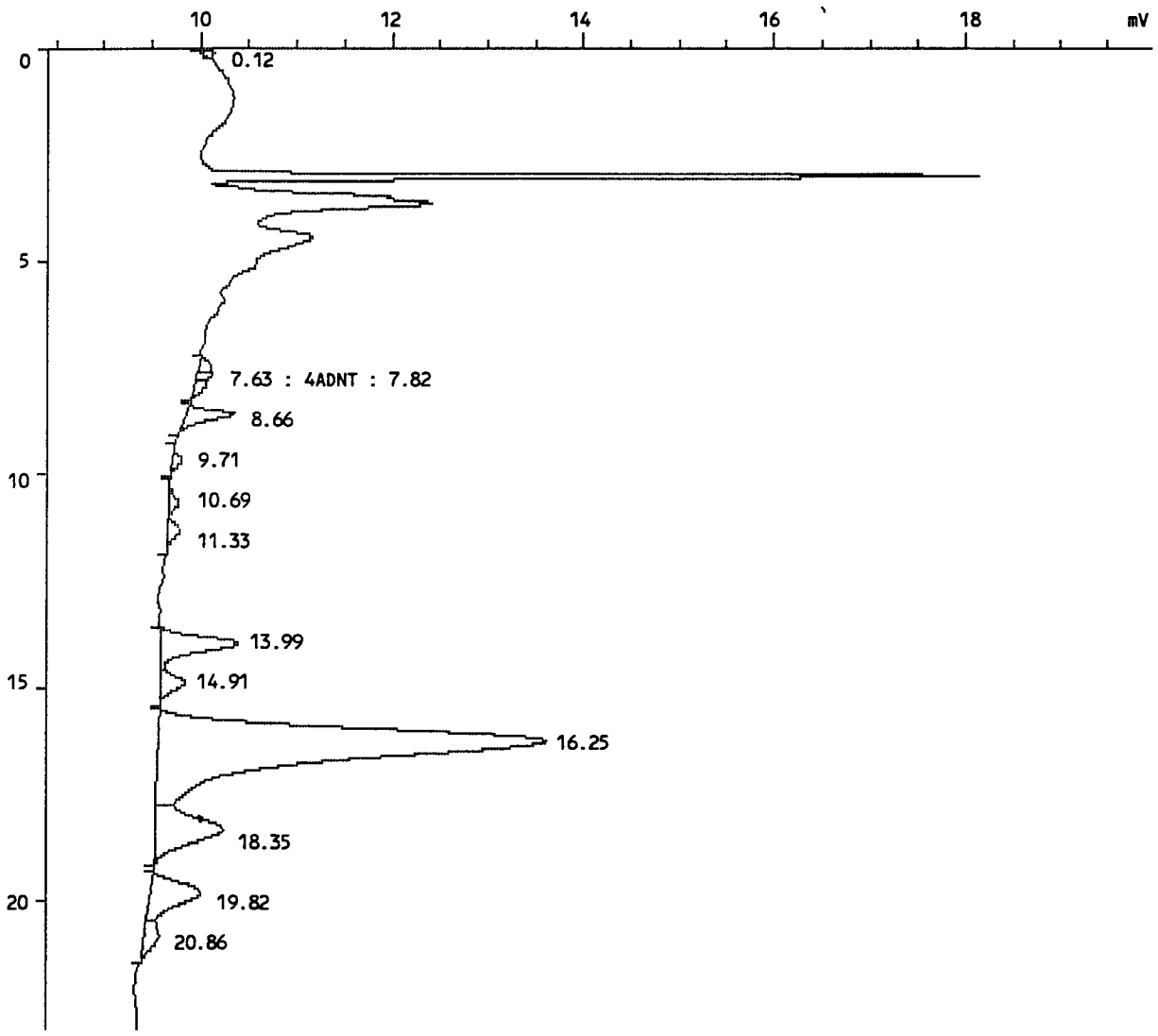
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
5	8.661	509	8451	607.536	3,4DNT
10	14.907	263	6446	619.798	HMX
Total		771	14897	1227.334	
Residual		7178	300101	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,17,1

Sample name.....: BIO-S-001-26-07-3
Sample ID.....: 33946.12
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 04:22:59
Reported on 01-Jun-98 at 20:29:25



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,17,1

Acquired on 23-May-98 at 04:22:59
Modified on 01-Jun-82 at 18:30:36
Reported on 01-Jun-98 at 18:30:35

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 01-Jun-82 at 18:29:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-07-3
Sample ID.....: 33946.12
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	7.691	178	1837	106.075	4ADNT
Total		178	1837	106.075	
Residual		7772	313161	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-07-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.12

Sample Amt: 2g % Moisture 18.35 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

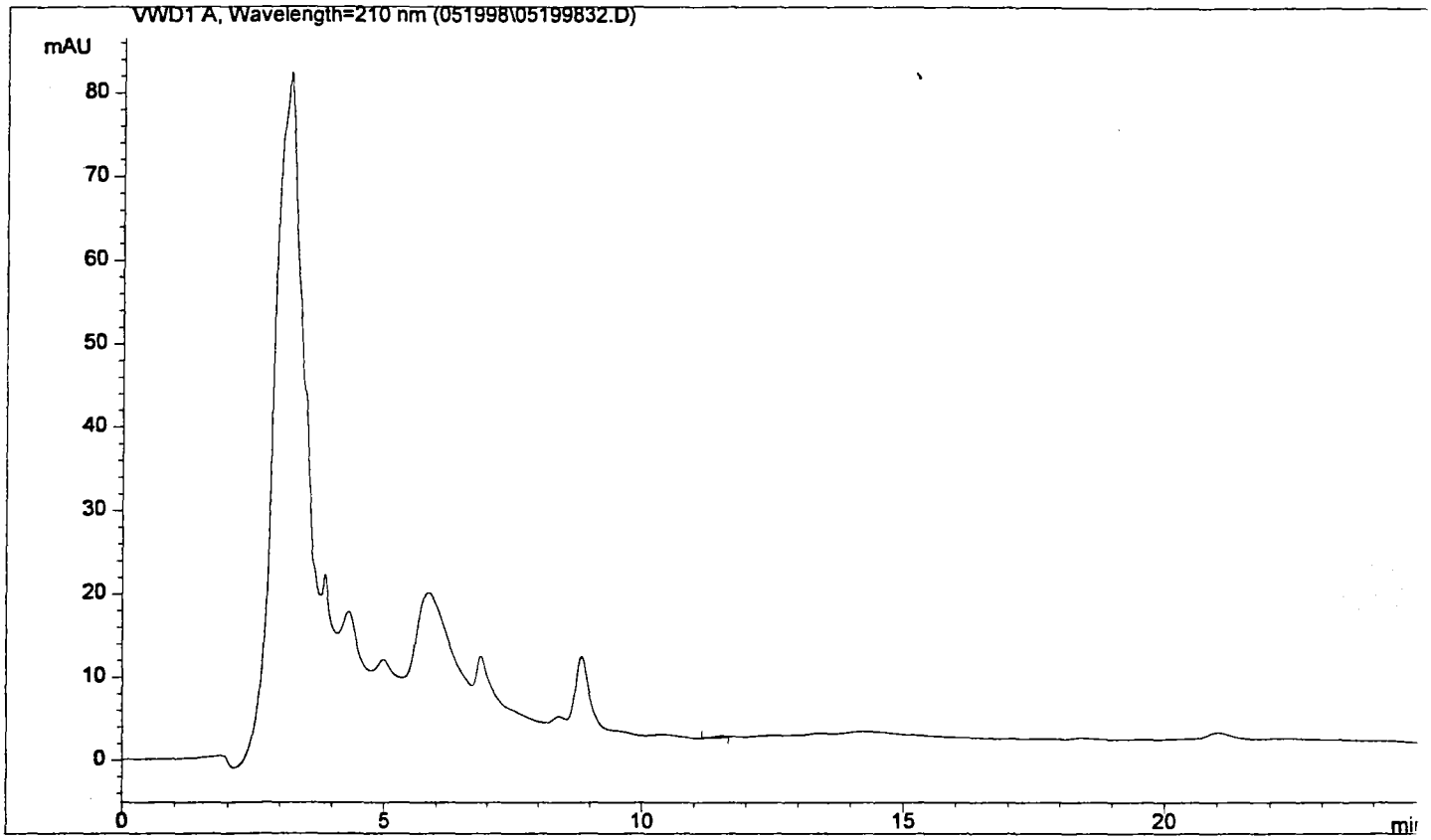
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 32
Sample Name	: 33946.12	Vial No.	: 32
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
0.000		0.00000	0.00000	0.00000	PETN
11.533	BBA	4.20133	0.00000	0.00000	
Totals:				0.00000	

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1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-09-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.13

Sample Amt: 2g % Moisture 30.07 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	241	J
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

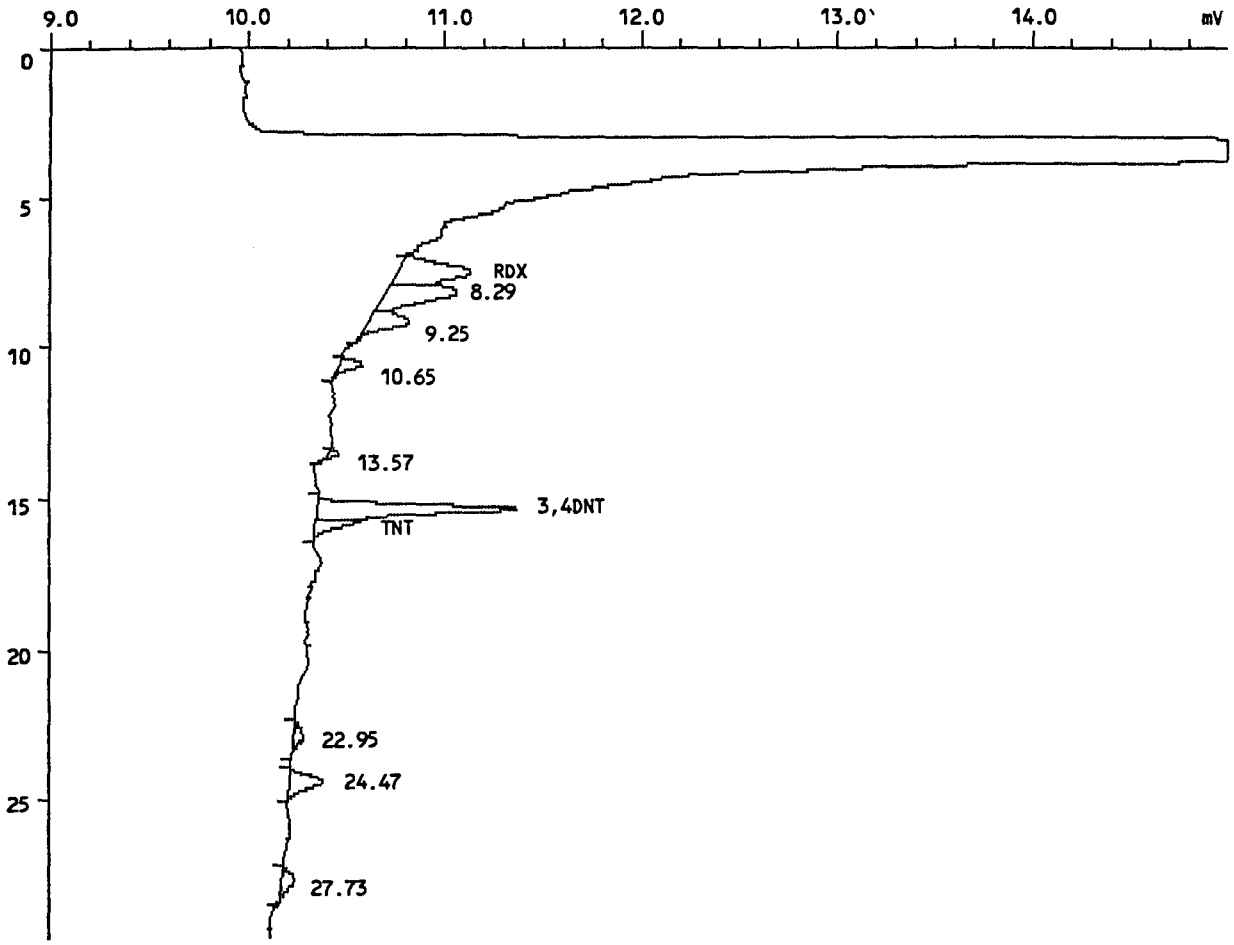
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,32,1

Sample name.....: BIO-S-001-26-09-1
Sample ID.....: 33946.13
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 20:52:20
Reported on 21-May-98 at 13:17:56



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,32,1

Acquired on 17-May-98 at 20:52:20
Modified on 21-May-82 at 13:08:32
Reported on 21-May-98 at 13:08:15

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 13:07:16
Method file.....: EXPLOS Last modified on 21-May-82 at 13:06:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-09-1
Sample ID.....: 33946.13
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

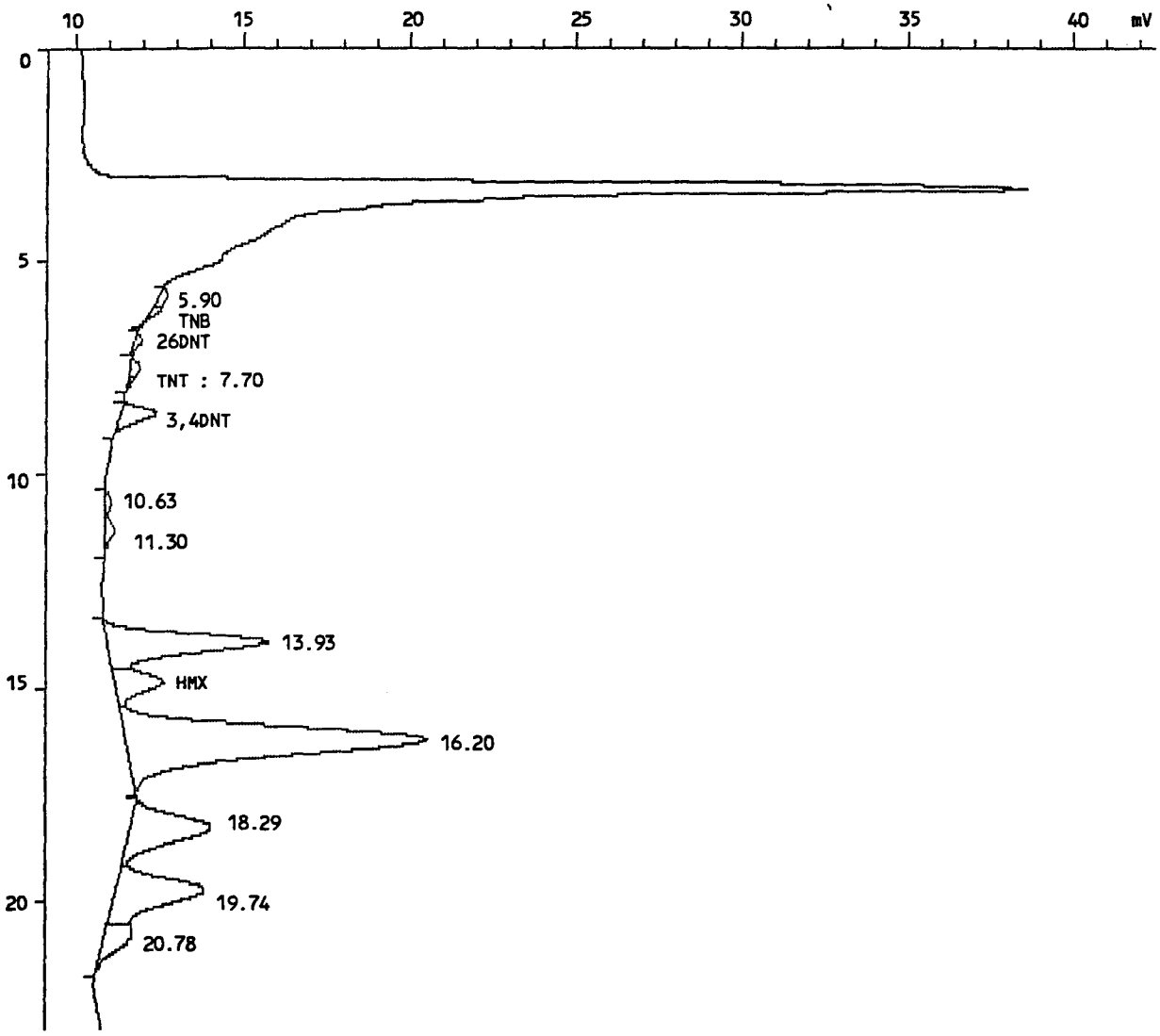
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	7.536	385	13896	1465.848	RDX
6	15.371	1025	21710	2375.228	3,4DNT 119
7	15.696	257	4491	241.464	TNT *5
Total		1667	40097	4082.540	
Residual		1074	35875	3249.492	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,18,1

Sample name.....: BIO-S-001-26-09-1
Sample ID.....: 33946.13
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 05:07:23
Reported on 01-Jun-98 at 20:45:30



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,18,1

Acquired on 23-May-98 at 05:07:23
Modified on 01-Jun-82 at 20:38:46
Reported on 01-Jun-98 at 20:38:44

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 01-Jun-82 at 20:32:42
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-09-1
Sample ID.....: 33946.13
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

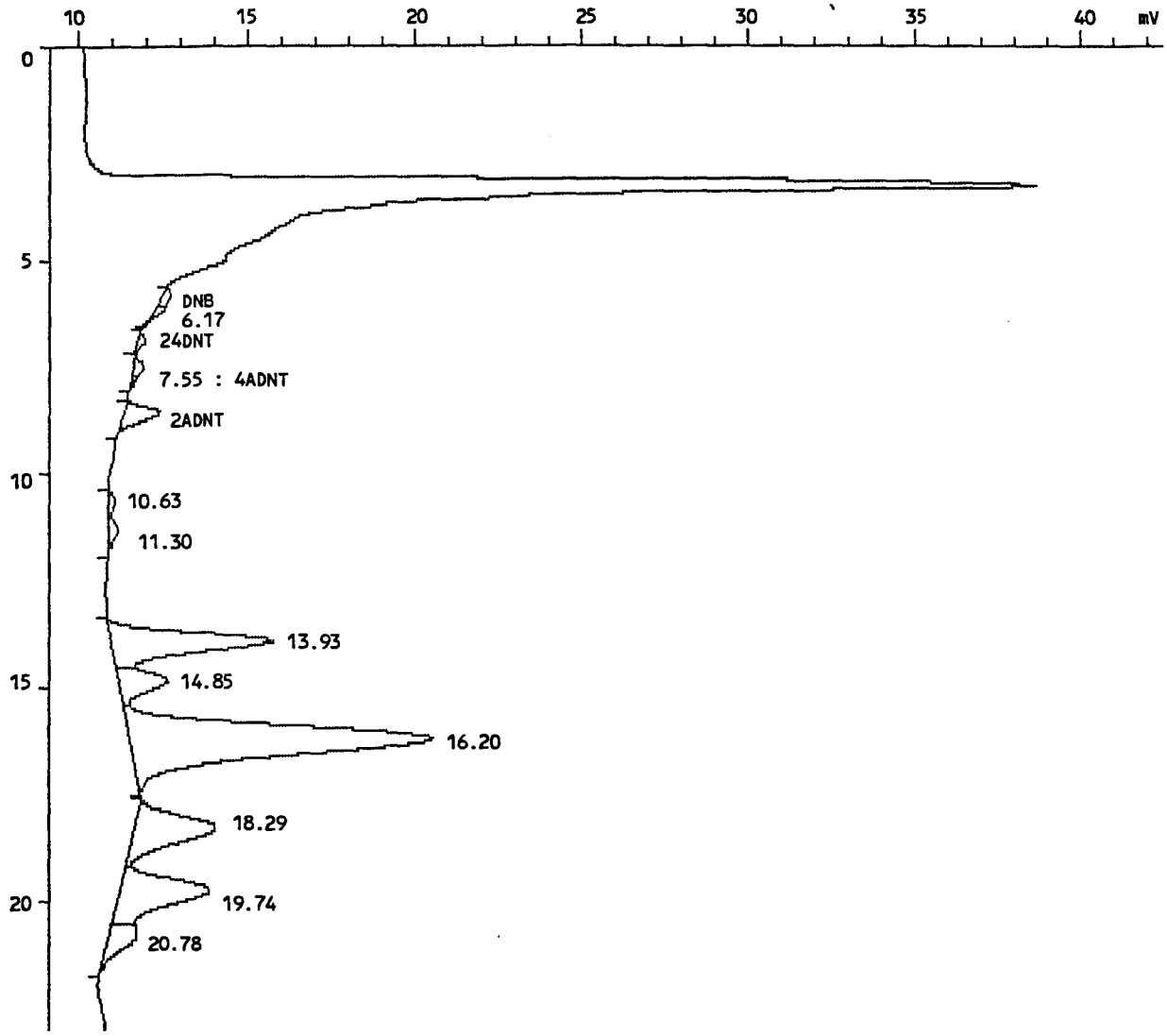
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.171	306	4855	192.799	TNB
3	6.885	212	3601	209.504	26DNT
4	7.547	305	5754	235.327	TNT
6	8.581	1079	25374	1824.189	3,4DNT
10	14.848	1442	44915	4318.780	HMX
Total		3344	84500	6780.599	
Residual		20918	858298	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,18,1

Sample name.....: BIO-S-001-26-09-1
Sample ID.....: 33946.13
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 05:07:23
Reported on 01-Jun-98 at 20:29:47



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,18,1

Acquired on 23-May-98 at 05:07:23
Modified on 01-Jun-82 at 18:30:48
Reported on 01-Jun-98 at 18:30:48

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 01-Jun-82 at 18:29:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-09-1
Sample ID.....: 33946.13
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	5.899	314	5774	155.804	DNB
3	6.885	212	3601	109.698	24DNT
5	7.701	207	2542	146.776	4ADNT
6	8.581	1079	25374	960.063	2ADNT
Total		1813	37292	1372.341	
Residual		22449	905506	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-09-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.13

Sample Amt: 2g % Moisture 30.07 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

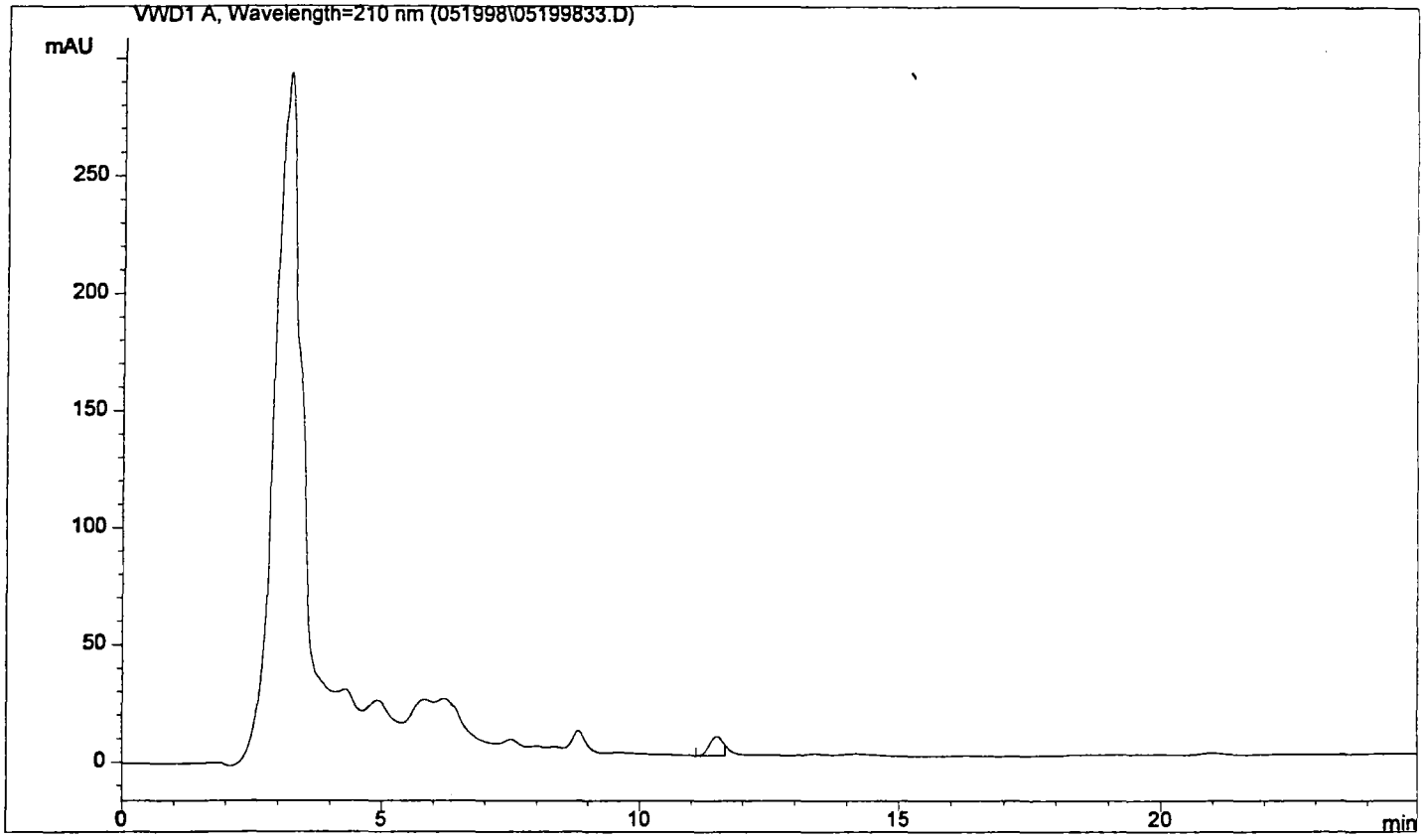
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	:
Sample Name	: 33946.13	Vial No.	:
Acq Operator	: SS	Inj. No.	:
		Inj. Vol.	: 200 µl

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp
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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
0.000		0.00000	0.00000	0.00000	PETN
11.495	BBA	146.21269	0.00000	0.00000	
Totals:				0.00000	

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1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-09-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.14

Sample Amt: 2g % Moisture 27.75 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	310	
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

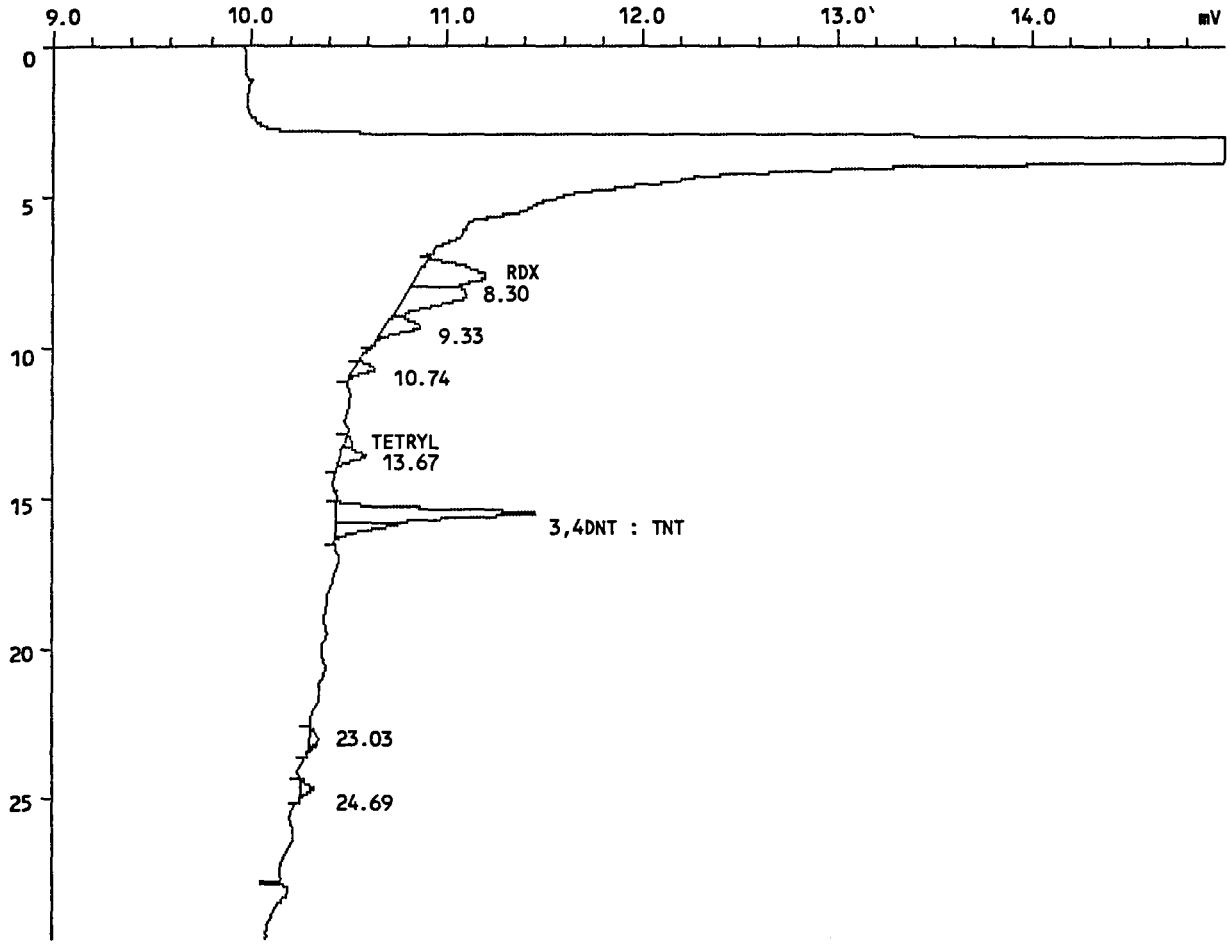
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,33,1

Sample name.....: BIO-S-001-26-09-2
Sample ID.....: 33946.14
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 21:37:03
Reported on 21-May-98 at 13:18:16



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,33,1

Acquired on 17-May-98 at 21:37:03
Modified on 21-May-82 at 13:08:46
Reported on 21-May-98 at 13:08:30

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 13:07:16
Method file.....: EXPLOS Last modified on 21-May-82 at 13:06:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-09-2
Sample ID.....: 33946.14
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

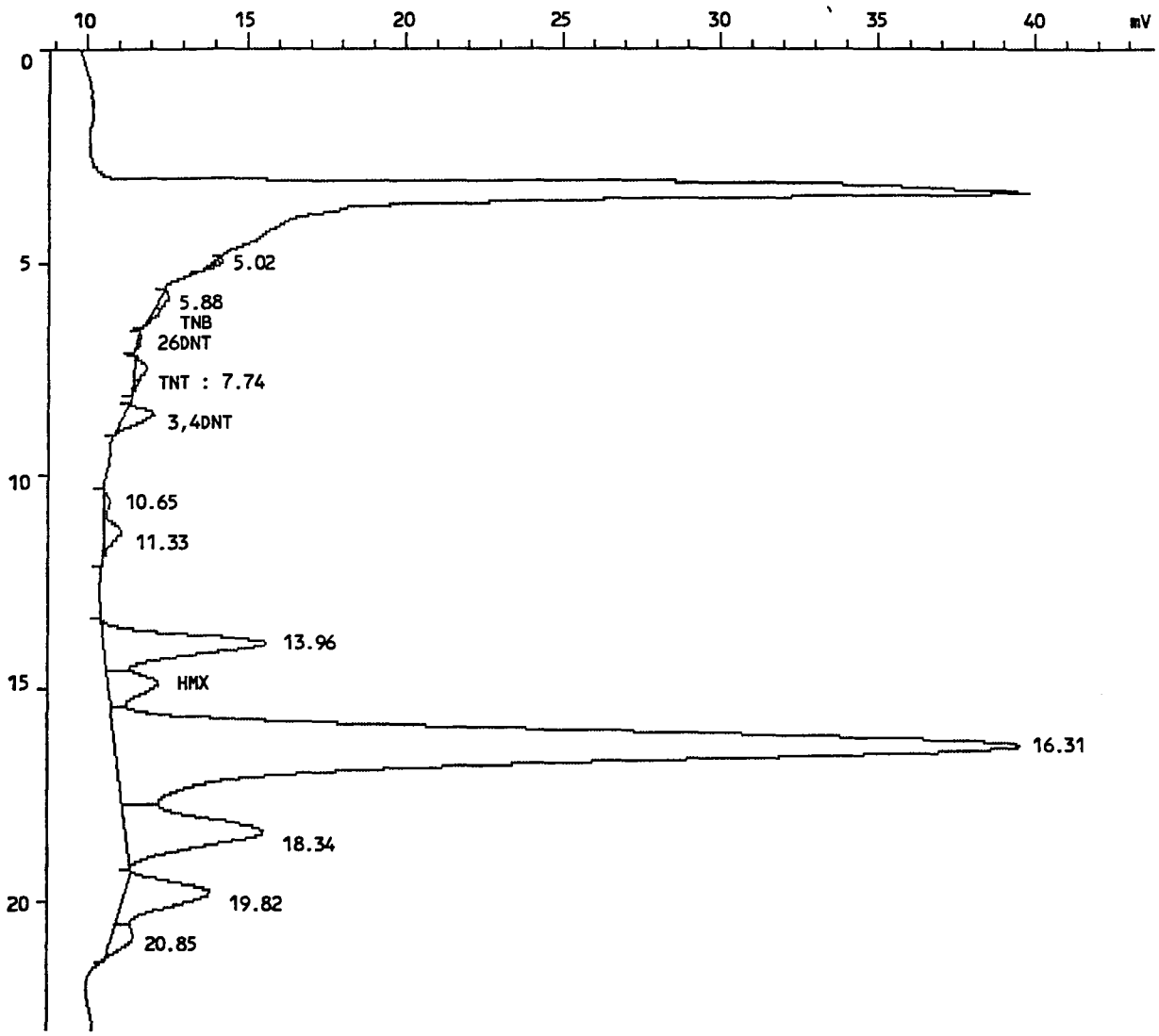
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	7.632	362	13857	1461.682	RDX
5	13.323	49	945	114.920	TETRYL
7	15.520	1022	21339	2334.702	3,4DNT 117
8	15.797	350	5773	310.358	TNT*
Total		1783	41913	4221.662	
Residual		890	27357	2771.323	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,19,1

Sample name.....: BIO-S-001-26-09-2
Sample ID.....: 33946.14
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 05:51:47
Reported on 01-Jun-98 at 20:45:09



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,19,1

Acquired on 23-May-98 at 05:51:47
Modified on 01-Jun-82 at 20:39:02
Reported on 01-Jun-98 at 20:39:00

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 01-Jun-82 at 20:32:42
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-09-2
Sample ID.....: 33946.14
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

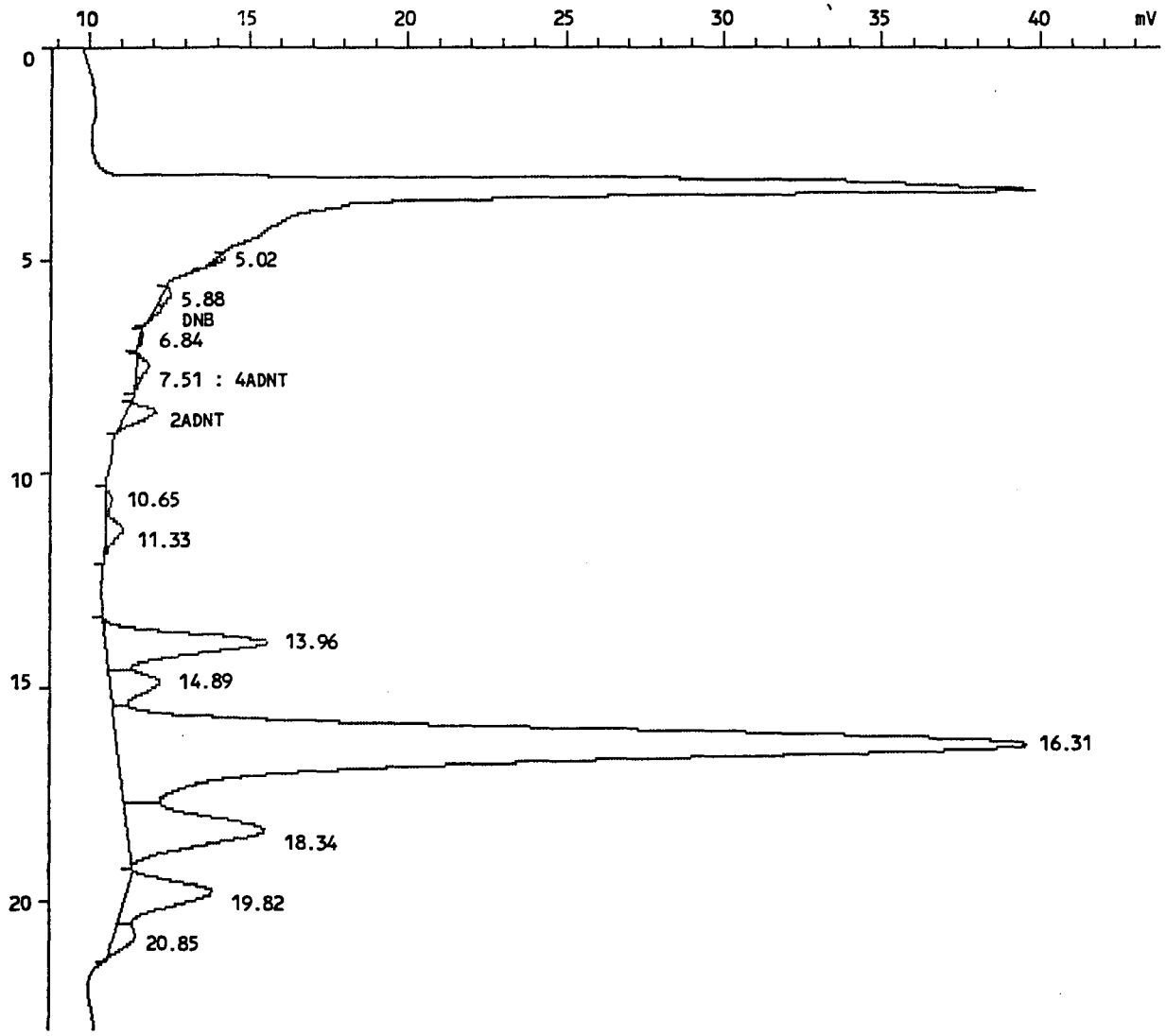
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	6.144	235	3442	136.696	TNB
4	6.843	106	1859	108.137	26DNT
5	7.509	374	7534	308.133	TNT
7	8.597	941	21074	1515.011	3,4DNT
11	14.891	1563	53473	5141.651	HMX
Total		3220	87382	7209.627	
Residual		43225	2007145	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,19,1

Sample name.....: BIO-S-001-26-09-2
Sample ID.....: 33946.14
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 05:51:47
Reported on 01-Jun-98 at 20:30:09



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,19,1

Acquired on 23-May-98 at 05:51:47
Modified on 01-Jun-82 at 18:31:04
Reported on 01-Jun-98 at 18:31:03

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 01-Jun-82 at 18:29:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-09-2
Sample ID.....: 33946.14
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	6.144	235	3442	92.876	DNB
6	7.739	170	2171	125.323	4ADNT
7	8.597	941	21074	797.344	2ADNT
Total		1346	26686	1015.543	
Residual		45099	2067841	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-09-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.14

Sample Amt: 2g % Moisture 27.75 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

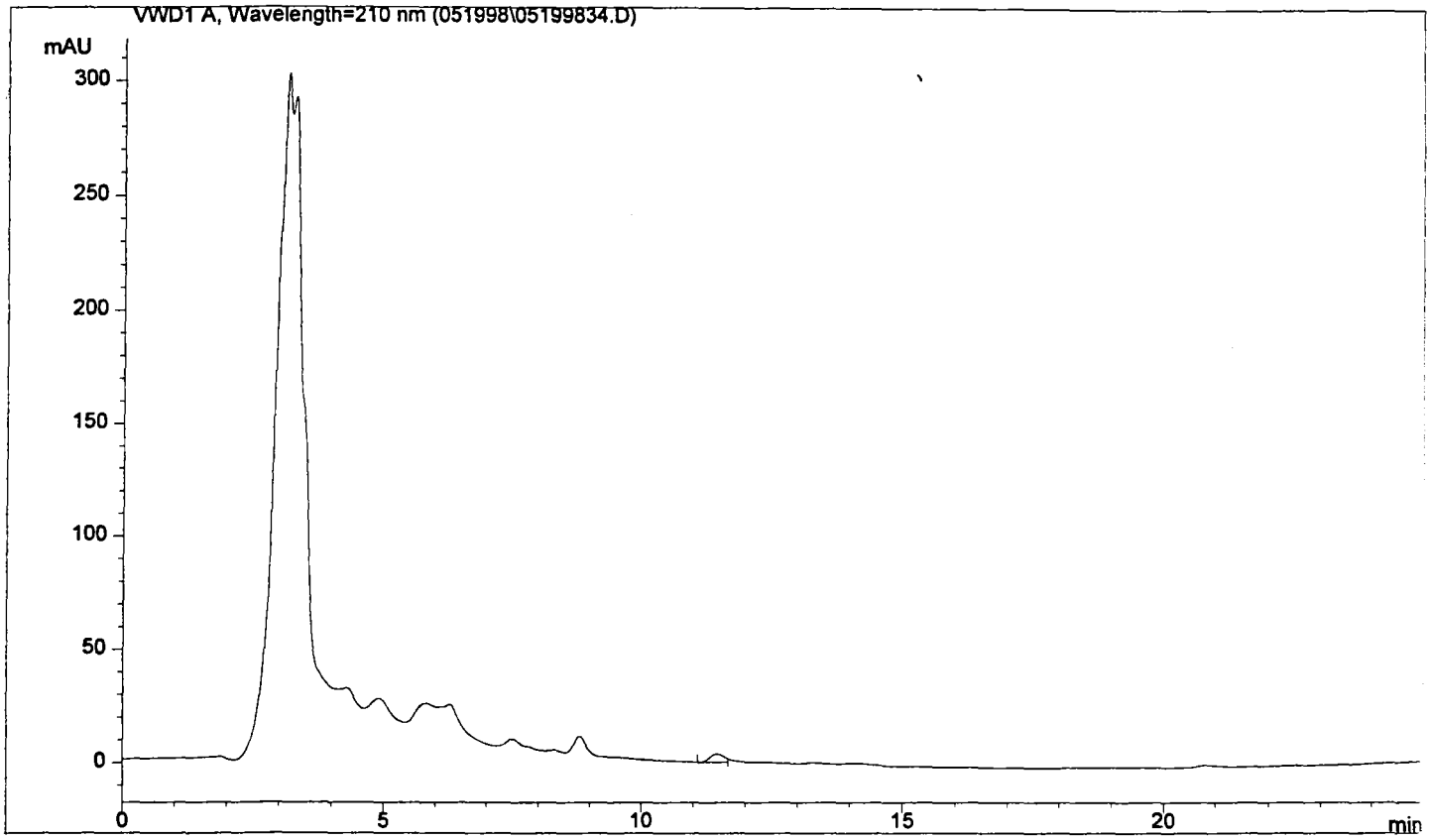
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 34
Sample Name	: 33946.14	Vial No.	: 34
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µ

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp
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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
0.000		0.00000	0.00000	0.00000	PETN
11.456	BBA	69.53854	0.00000	0.00000	
Totals:				0.00000	

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1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-09-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.15

Sample Amt: 2g % Moisture 23.22 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	250	U
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

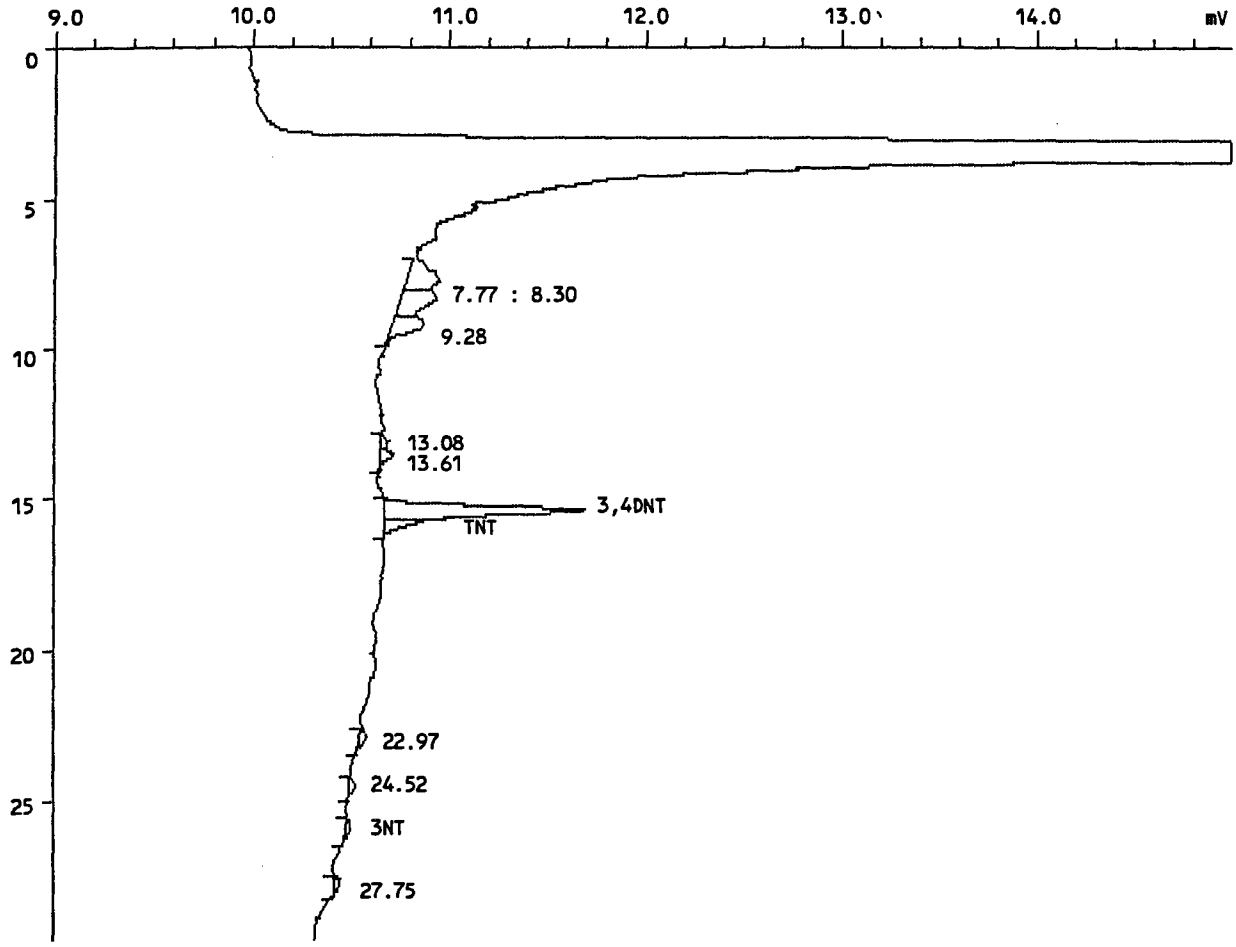
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,34,1

Sample name.....: BIO-S-001-26-09-3
Sample ID.....: 33946.15
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 22:21:45
Reported on 21-May-98 at 13:18:38



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,34,1

Acquired on 17-May-98 at 22:21:45
Modified on 21-May-82 at 13:09:02
Reported on 21-May-98 at 13:08:45

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 13:07:16
Method file.....: EXPLOS Last modified on 21-May-82 at 13:06:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-09-3
Sample ID.....: 33946.15
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

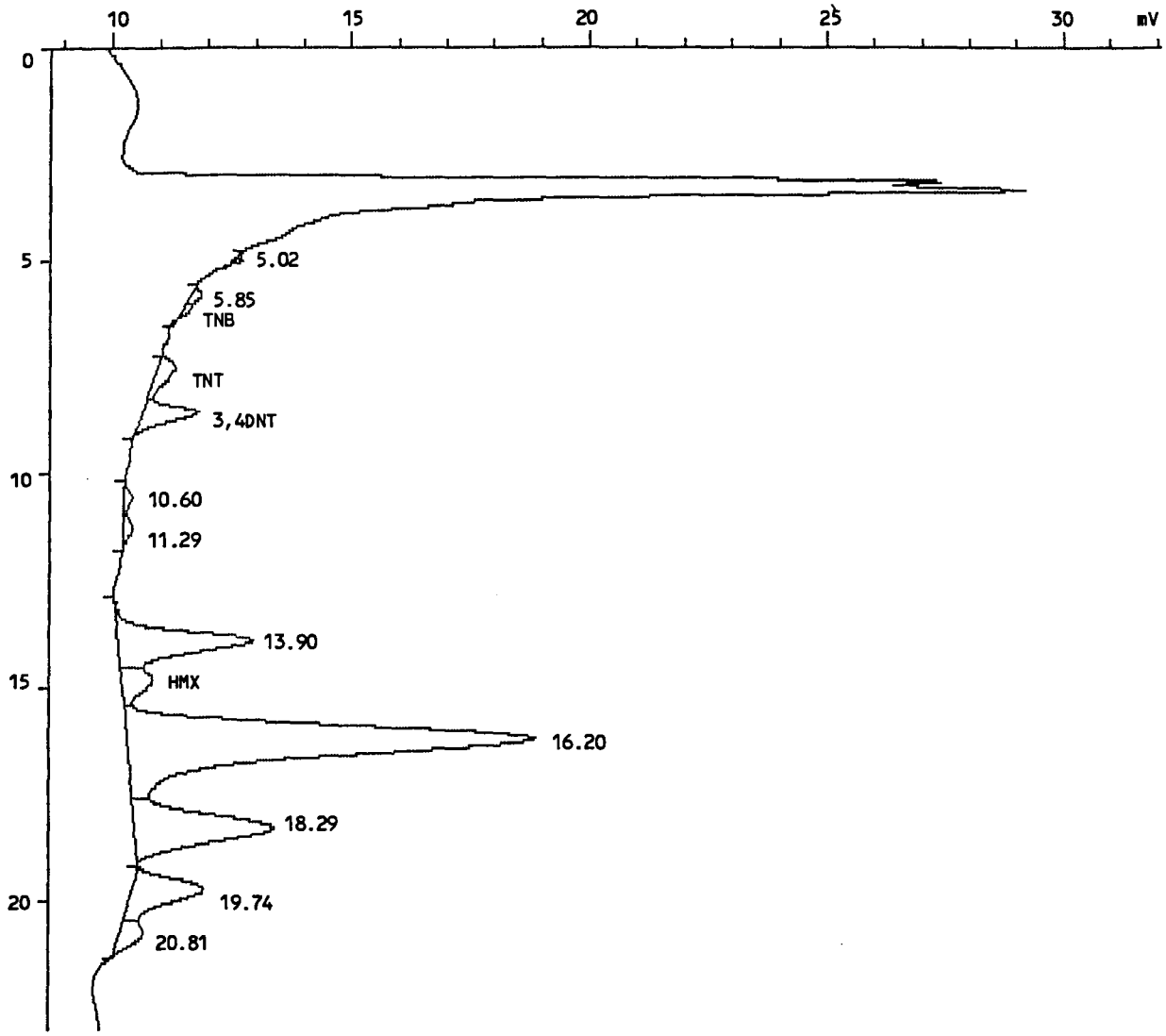
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
6	15.424	1025	20489	2241.676	3,4DNT 112
7	15.685	313	4157	223.479	TNT
10	25.888	31	1001	94.573	3NT
Total		1369	25646	2559.728	
Residual		755	26168	1439.667	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,20,1

Sample name.....: BIO-S-001-26-09-3
Sample ID.....: 33946.15
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 06:36:12
Reported on 01-Jun-98 at 20:53:44



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,20,1

Acquired on 23-May-98 at 06:36:12
Modified on 01-Jun-82 at 20:39:16
Reported on 01-Jun-98 at 20:39:15

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 01-Jun-82 at 20:32:42
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-09-3
Sample ID.....: 33946.15
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

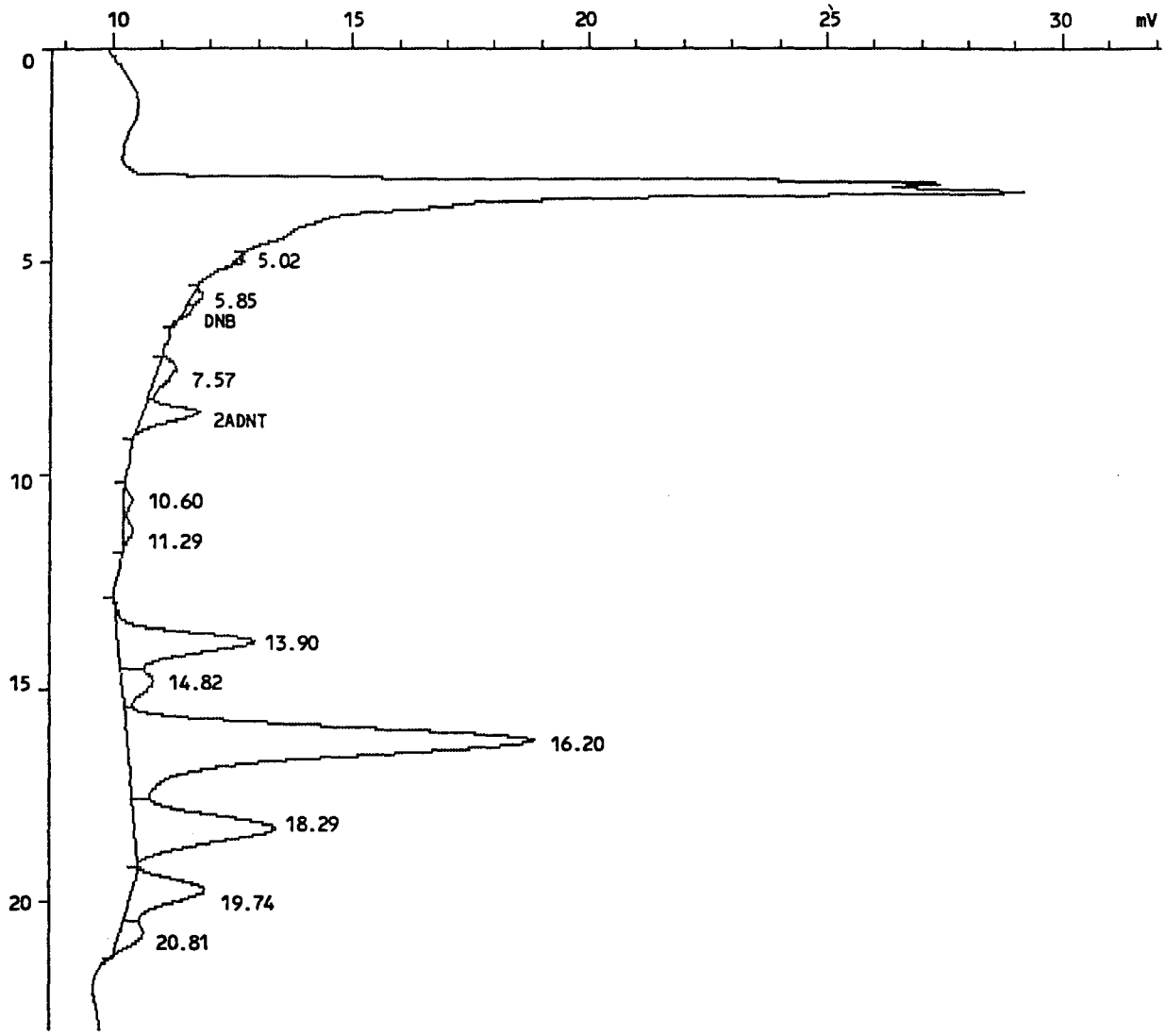
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	6.160	183	2987	118.627	TNB
4	7.573	389	14316	585.503	TNT
5	8.576	1177	29750	2138.746	3,4DNT
9	14.816	673	24293	2335.883	HMX
Total		2422	71346	5178.758	
Residual		17196	749190	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,20,1

Sample name.....: BIO-S-001-26-09-3
Sample ID.....: 33946.15
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 06:36:12
Reported on 01-Jun-98 at 20:30:29



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,20,1

Acquired on 23-May-98 at 06:36:12
Modified on 01-Jun-82 at 18:31:18
Reported on 01-Jun-98 at 18:31:17

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 01-Jun-82 at 18:29:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-09-3
Sample ID.....: 33946.15
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	6.160	183	2987	80.600	DNB
5	8.576	1177	29750	1125.613	2ADNT
Total		1360	32737	1206.213	
Residual		18258	787799	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-09-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.15

Sample Amt: 2g % Moisture 23.22 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

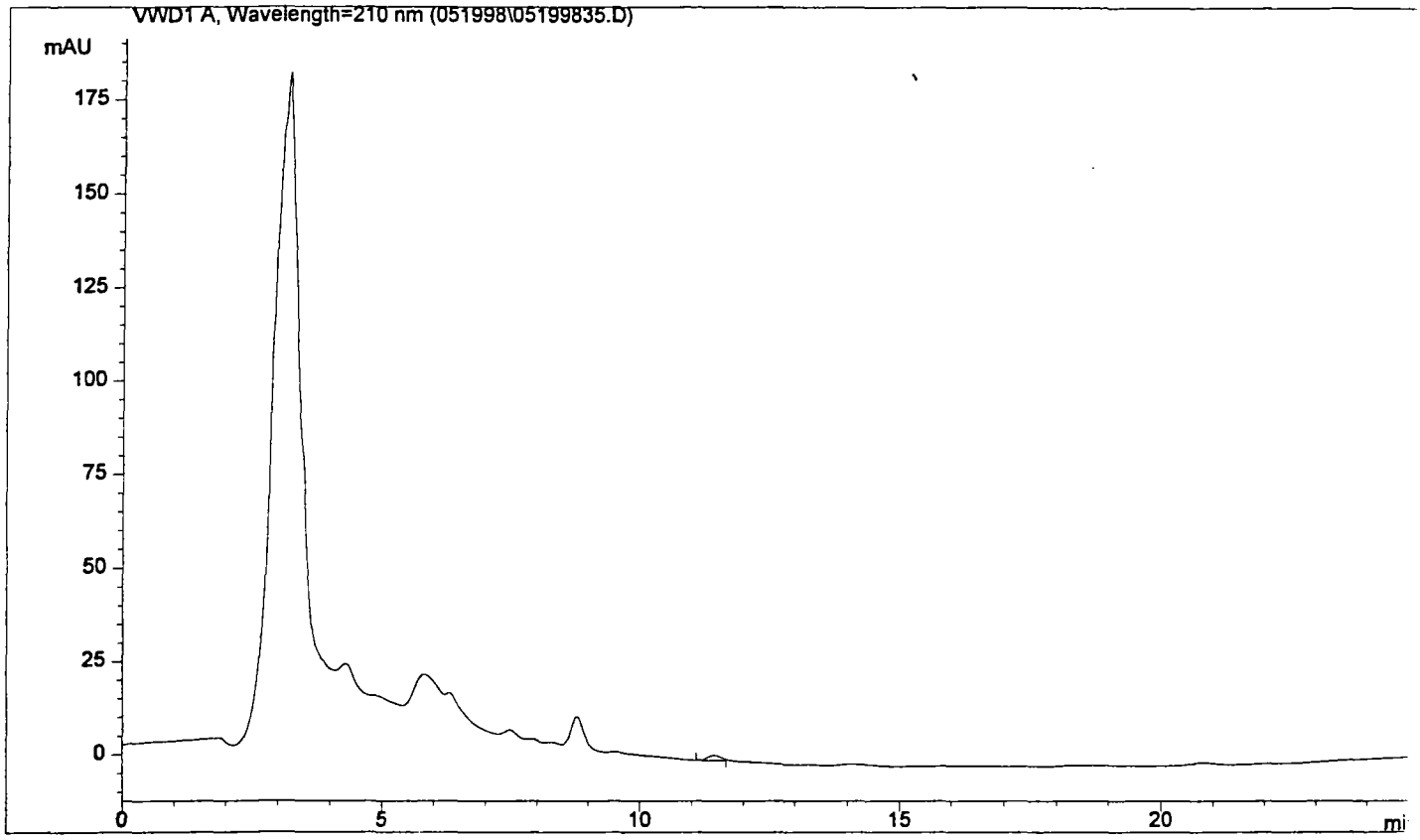
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 35
Sample Name	: 33946.15	Vial No.	: 35
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
0.000		0.00000	0.00000	0.00000	PETN
11.430	BBA	25.47514	0.00000	0.00000	
Totals:				0.00000	

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1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-11-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.16

Sample Amt: 2g % Moisture 25.66 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	250	U
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

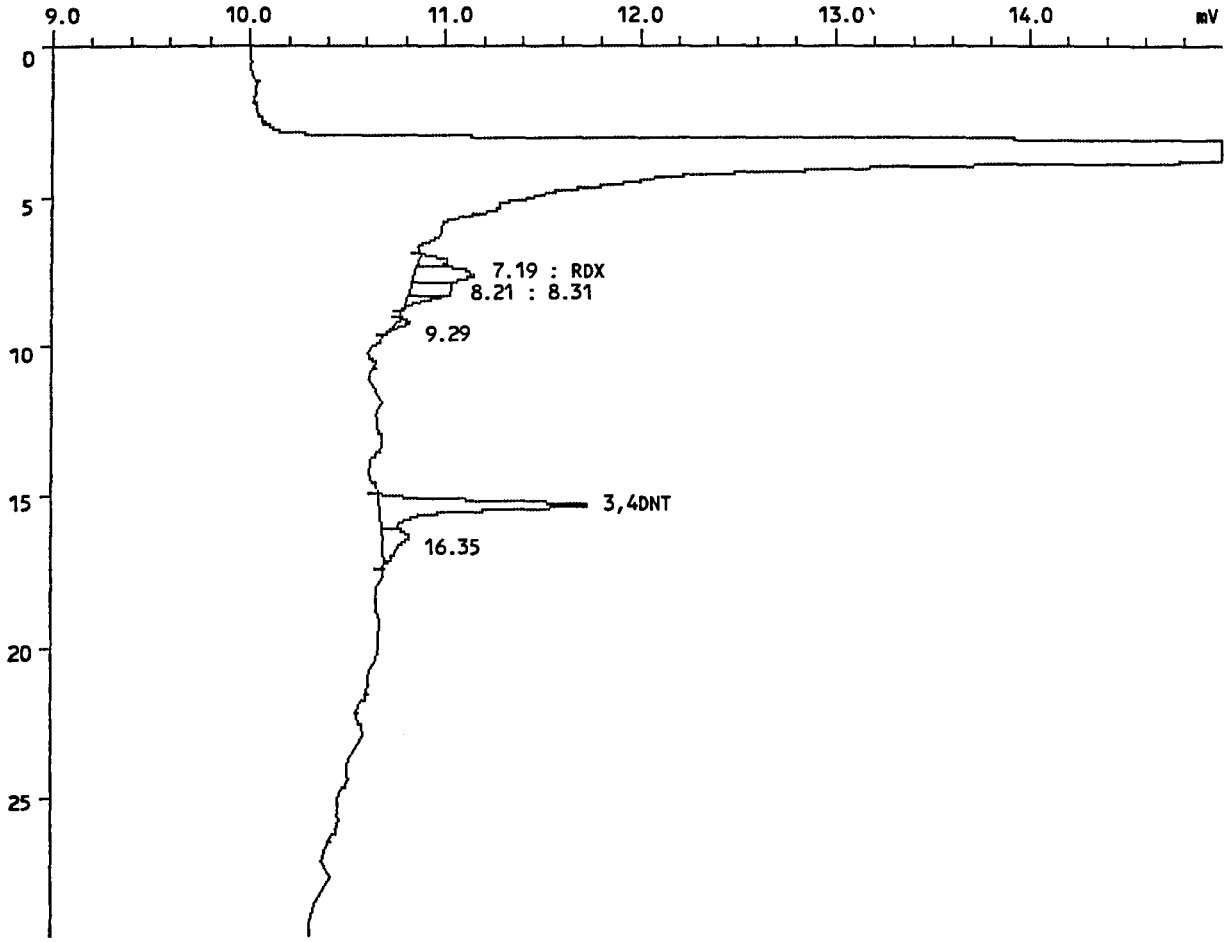
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,35,1

Sample name.....: BIO-S-001-26-11-1
Sample ID.....: 33946.16
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 23:06:28
Reported on 21-May-98 at 13:18:59



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,35,1

Acquired on 17-May-98 at 23:06:28
Modified on 21-May-82 at 13:09:16
Reported on 21-May-98 at 13:09:00

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 13:07:16
Method file.....: EXPLOS Last modified on 21-May-82 at 13:06:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-11-1
Sample ID.....: 33946.16
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

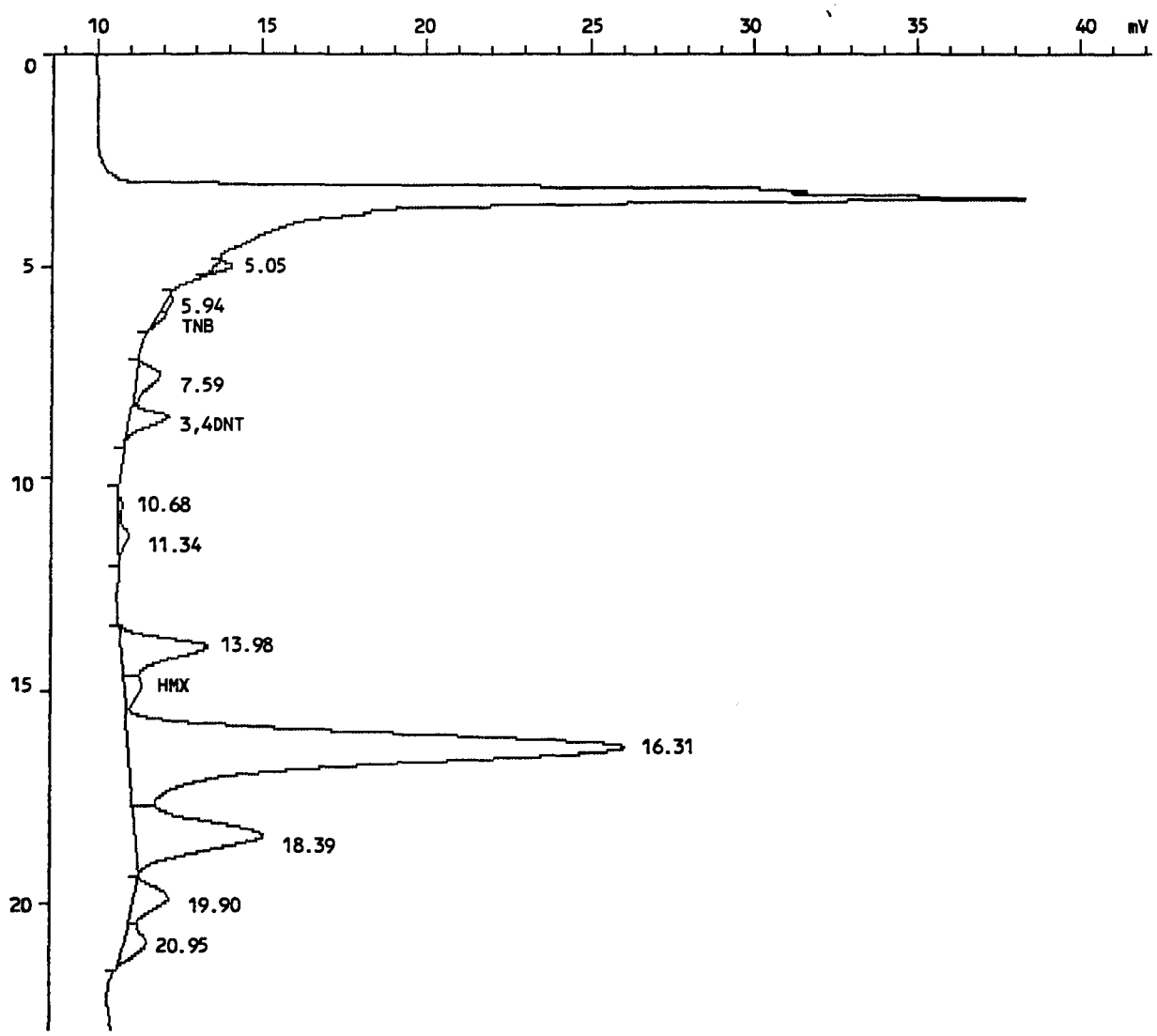
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	7.680	307	8635	910.854	RDX
6	15.339	1066	25500	2789.967	3,4DNT 139
Total		1373	34135	3700.821	
Residual		794	17589	1877.392	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,23,1

Sample name.....: BIO-S-001-26-11-1
Sample ID.....: 33946.16
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 08:49:23
Reported on 01-Jun-98 at 20:54:10



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,23,1

Acquired on 23-May-98 at 08:49:23
Modified on 01-Jun-82 at 20:39:32
Reported on 01-Jun-98 at 20:39:30

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 01-Jun-82 at 20:32:42
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-11-1
Sample ID.....: 33946.16
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

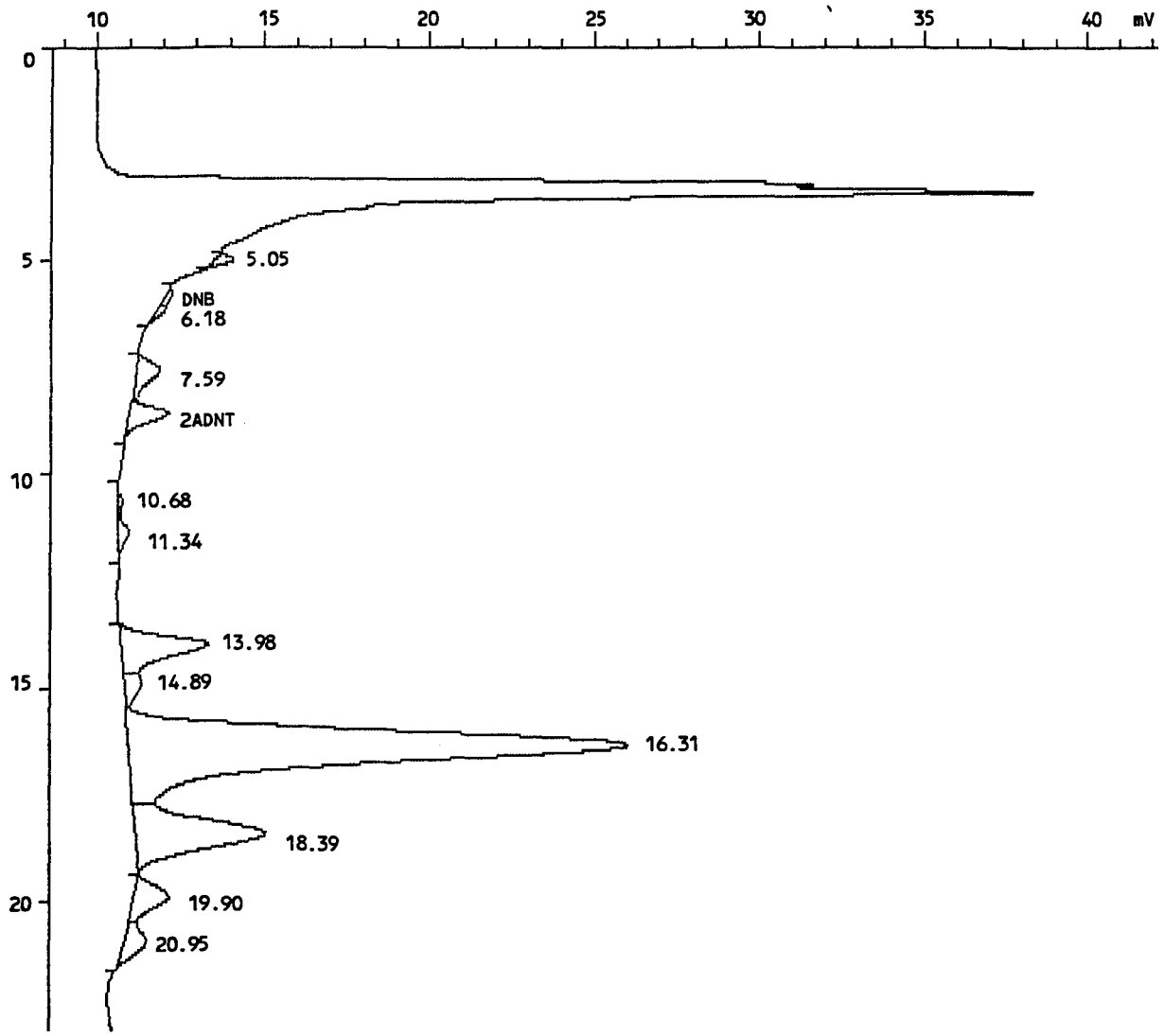
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	6.181	279	5259	208.860	TNB
5	8.592	1220	30261	2175.453	3,4DNT
9	14.885	556	19993	1922.440	HMX
Total		2054	55513	4306.753	
Residual		25432	1158416	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,23,1

Sample name.....: BIO-S-001-26-11-1
Sample ID.....: 33946.16
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 08:49:23
Reported on 01-Jun-98 at 20:30:50



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,23,1

Acquired on 23-May-98 at 08:49:23
Modified on 01-Jun-82 at 18:31:32
Reported on 01-Jun-98 at 18:31:31

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 01-Jun-82 at 18:29:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-11-1
Sample ID.....: 33946.16
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	5.941	245	4726	127.531	DNB
5	8.592	1220	30261	1144.932	2ADNT
Total		1465	34987	1272.463	
Residual		26021	1178943	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-11-1

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.16

Sample Amt: 2g % Moisture 25.66 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

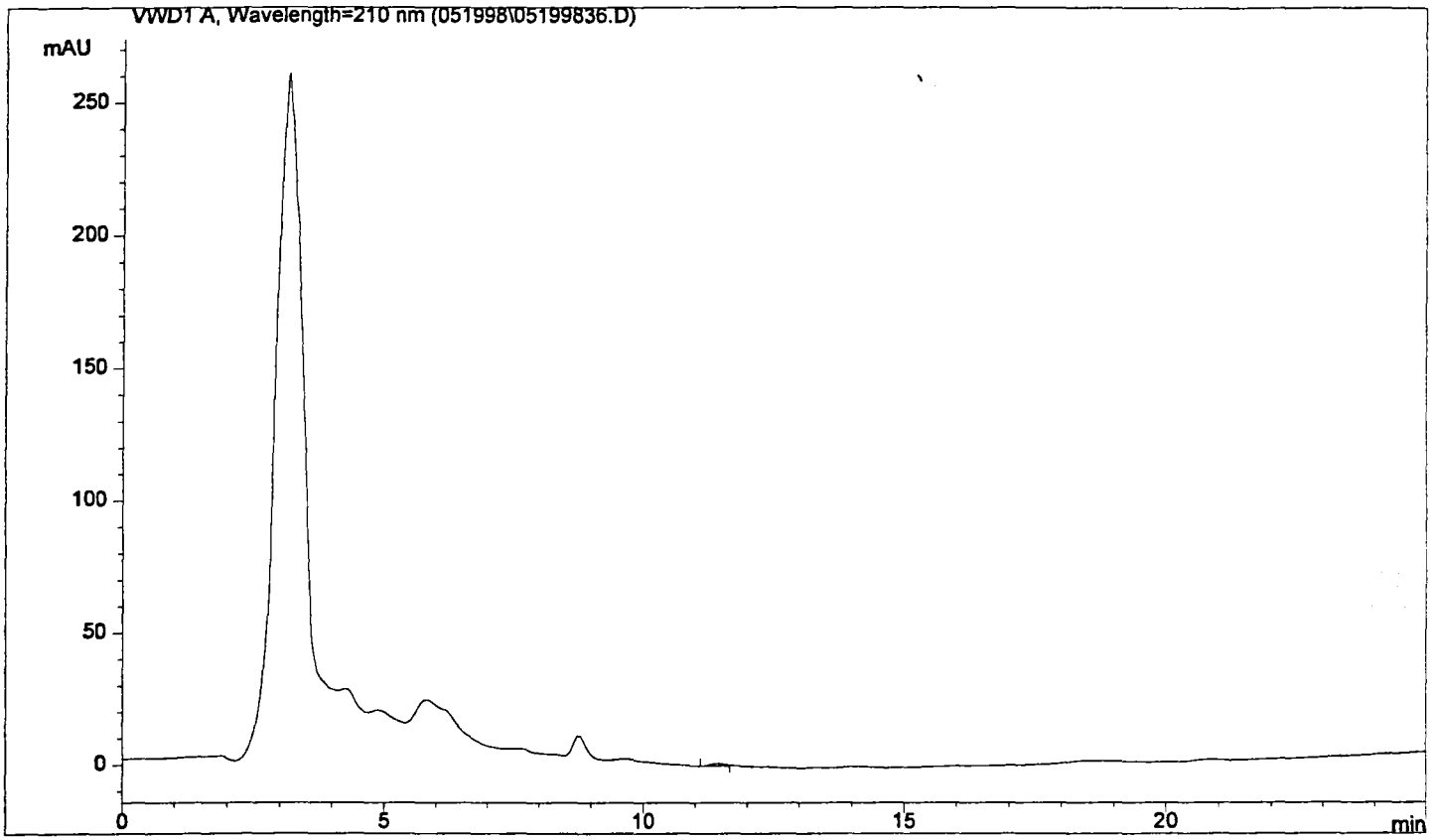
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 36
Sample Name	: 33946.16	Vial No.	: 36
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µ

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp
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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
0.000		0.00000	0.00000	0.00000	PETN
11.421	BBA	20.21890	0.00000	0.00000	
Totals:				0.00000	

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1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-11-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.17

Sample Amt: 2g % Moisture 21.58 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/17/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	250	U
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

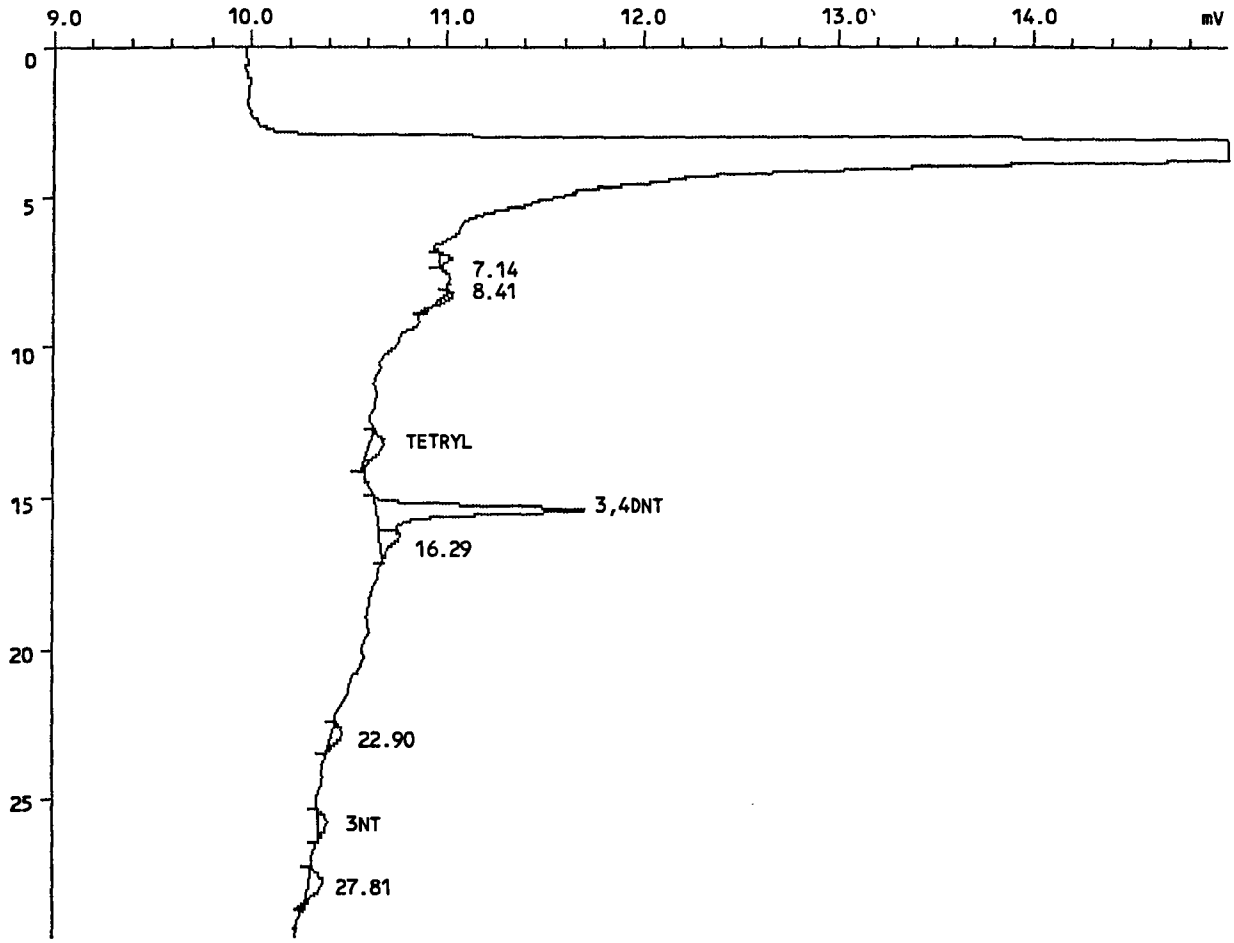
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,36,1

Sample name.....: BIO-S-001-26-11-2
Sample ID.....: 33946.17
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 17-May-98 at 23:51:12
Reported on 21-May-98 at 13:19:19



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,36,1

Acquired on 17-May-98 at 23:51:12
Modified on 21-May-82 at 13:09:30
Reported on 21-May-98 at 13:09:14

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 21-May-82 at 13:07:16
Method file.....: EXPLOS Last modified on 21-May-82 at 13:06:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-11-2
Sample ID.....: 33946.17
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

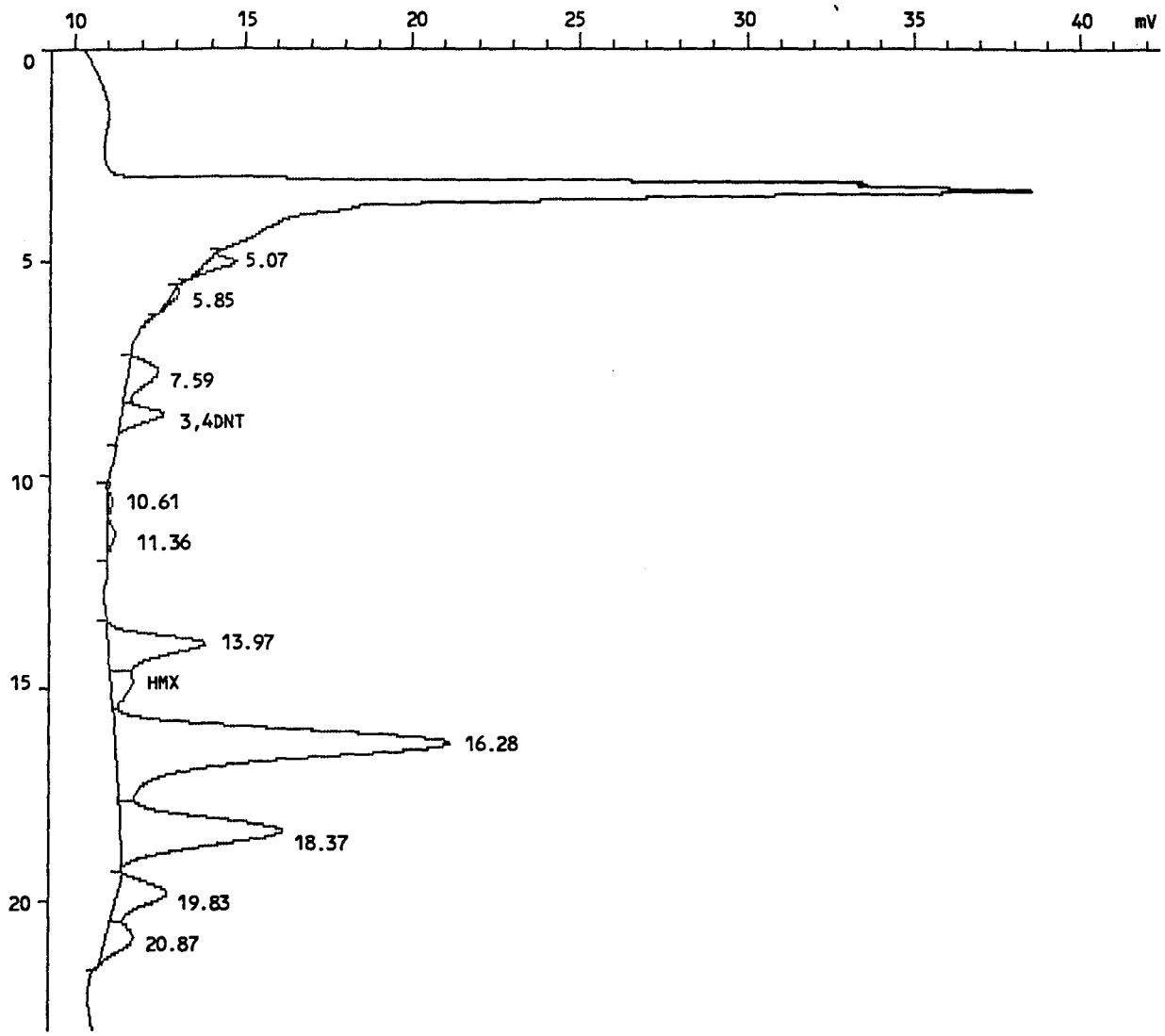
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	13.323	77	3712	451.559	TETRYL
4	15.419	1056	24002	2626.028	3,4DNT 131
7	25.760	50	1728	163.335	3NT
Total		1183	29442	3240.922	
Residual		369	10726	1130.963	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,24,1

Sample name.....: BIO-S-001-26-11-2
Sample ID.....: 33946.17
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 09:33:47
Reported on 01-Jun-98 at 20:54:31



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,24,1

Acquired on 23-May-98 at 09:33:47
Modified on 01-Jun-82 at 20:39:46
Reported on 01-Jun-98 at 20:39:44

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 01-Jun-82 at 20:32:42
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-11-2
Sample ID.....: 33946.17
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

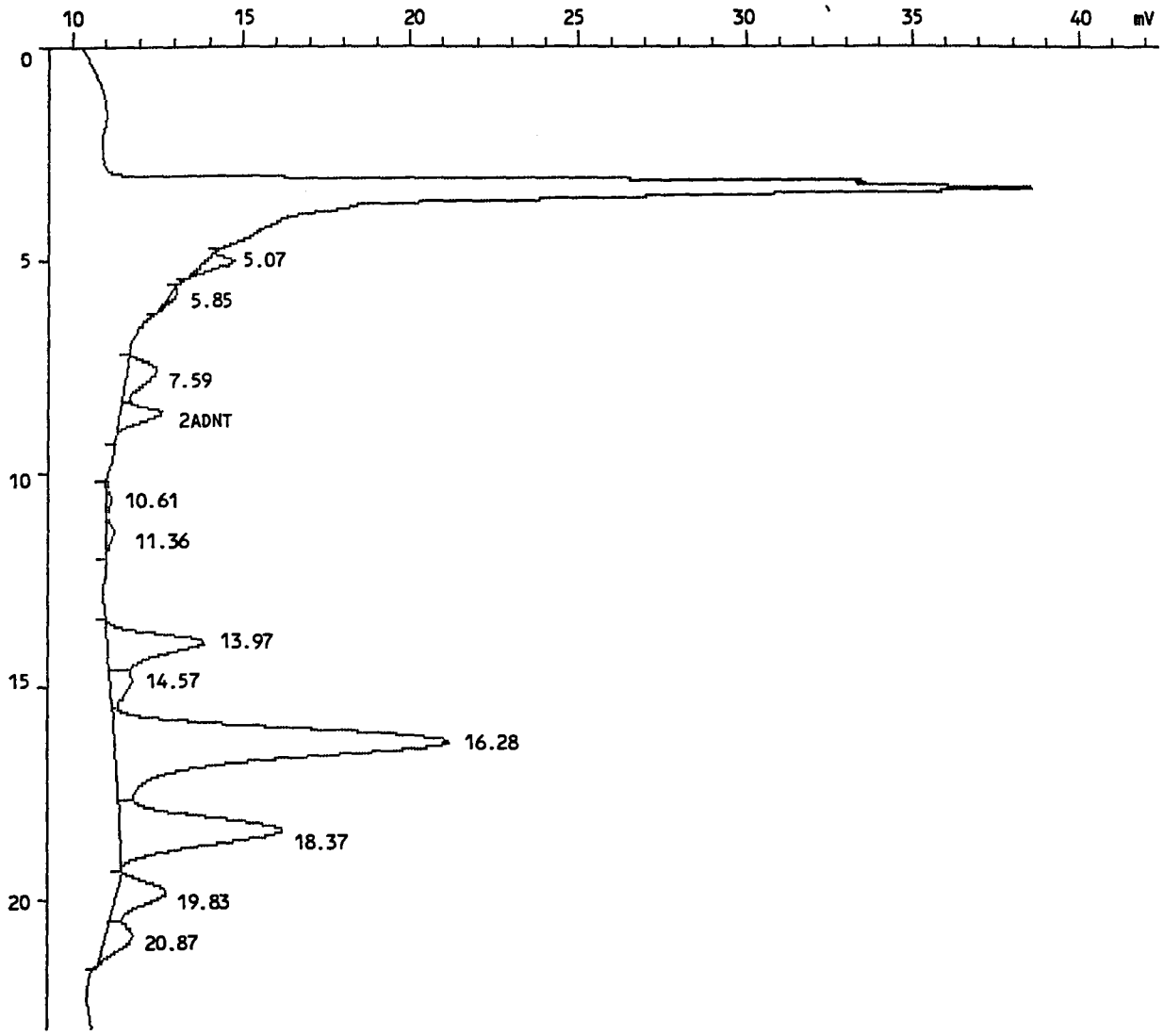
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
4	8.592	1259	31021	2230.141	3,4DNT
8	14.571	664	26220	2521.165	HMX
Total		1923	57241	4751.307	
Residual		22514	970537	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,24,1

Sample name.....: BIO-S-001-26-11-2
Sample ID.....: 33946.17
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 09:33:47
Reported on 01-Jun-98 at 20:31:10



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,24,1

Acquired on 23-May-98 at 09:33:47
Modified on 01-Jun-82 at 18:31:46
Reported on 01-Jun-98 at 18:31:44

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 01-Jun-82 at 18:29:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-11-2
Sample ID.....: 33946.17
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
4	8.592	1259	31021	1173.714	2ADNT
Total		1259	31021	1173.714	
Residual		23178	996757	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-11-2

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.17

Sample Amt: 2g % Moisture 21.58 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

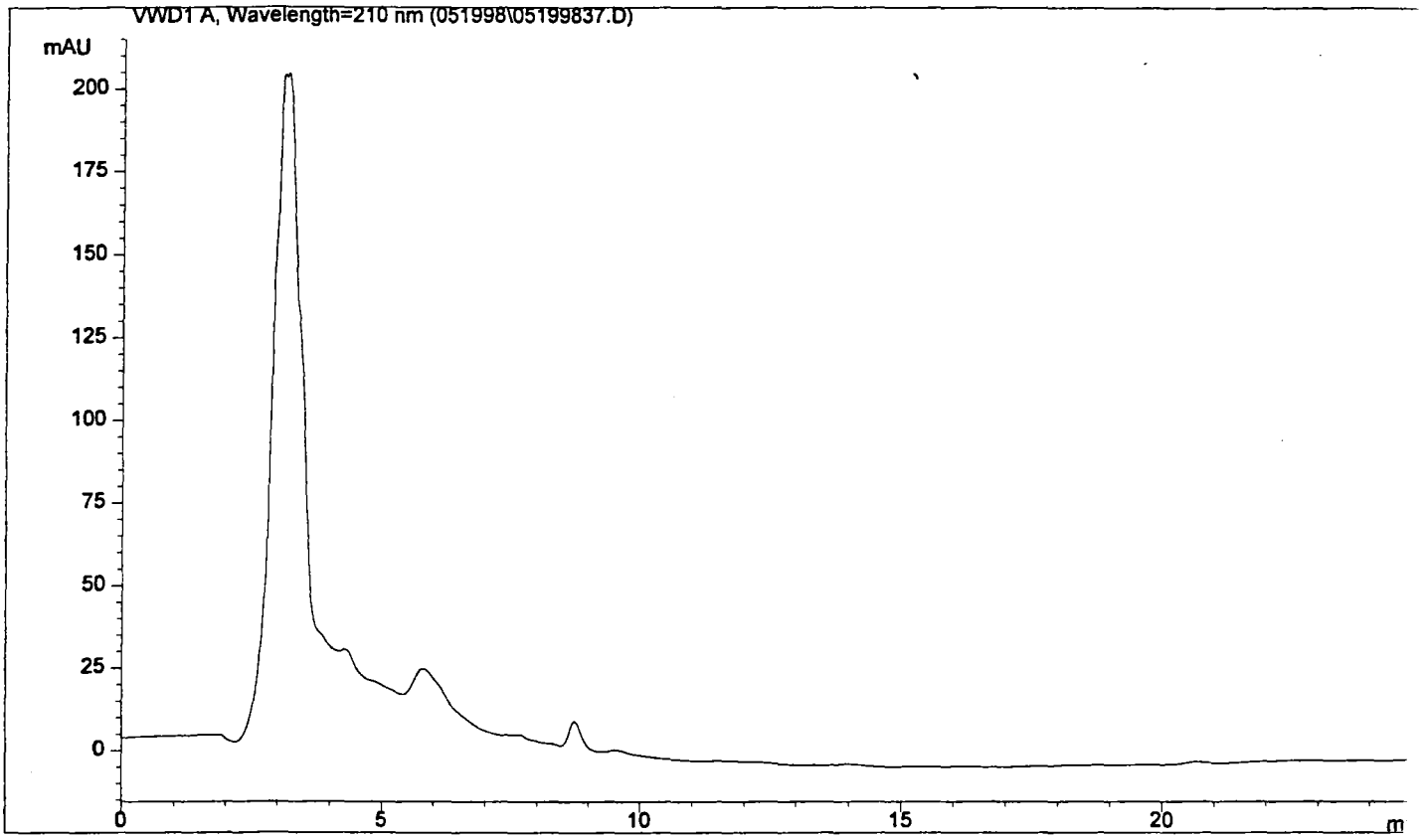
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN----------	250	U

FORM I

Injection Date	: Wed, 20. May. 1998	Seq Line	: 37
Sample Name	: 33946.17	Vial No.	: 37
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 051998.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 30. May. 1998, 00:43:58 pm

PETN SOIL



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Customized Report: extstd.frp
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Sorted By Signal
Calib. Data Modified : Sat, 30. May. 1998,00:43:45 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-11-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.18

Sample Amt: 2g % Moisture 18.92 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/18/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	1000	U
99-35-4	TNB	250	U
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	259	
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	250	U
606-20-2	26DNT	260	U
121-14-2	24DNT	250	U
88-72-2	2NT	250	U
99-99-0	4NT	250	U
99-08-1	3NT	250	U

SURROGATE AMOUNT SPIKED (ug/kg dry wt.) 2000
3,4-DNT

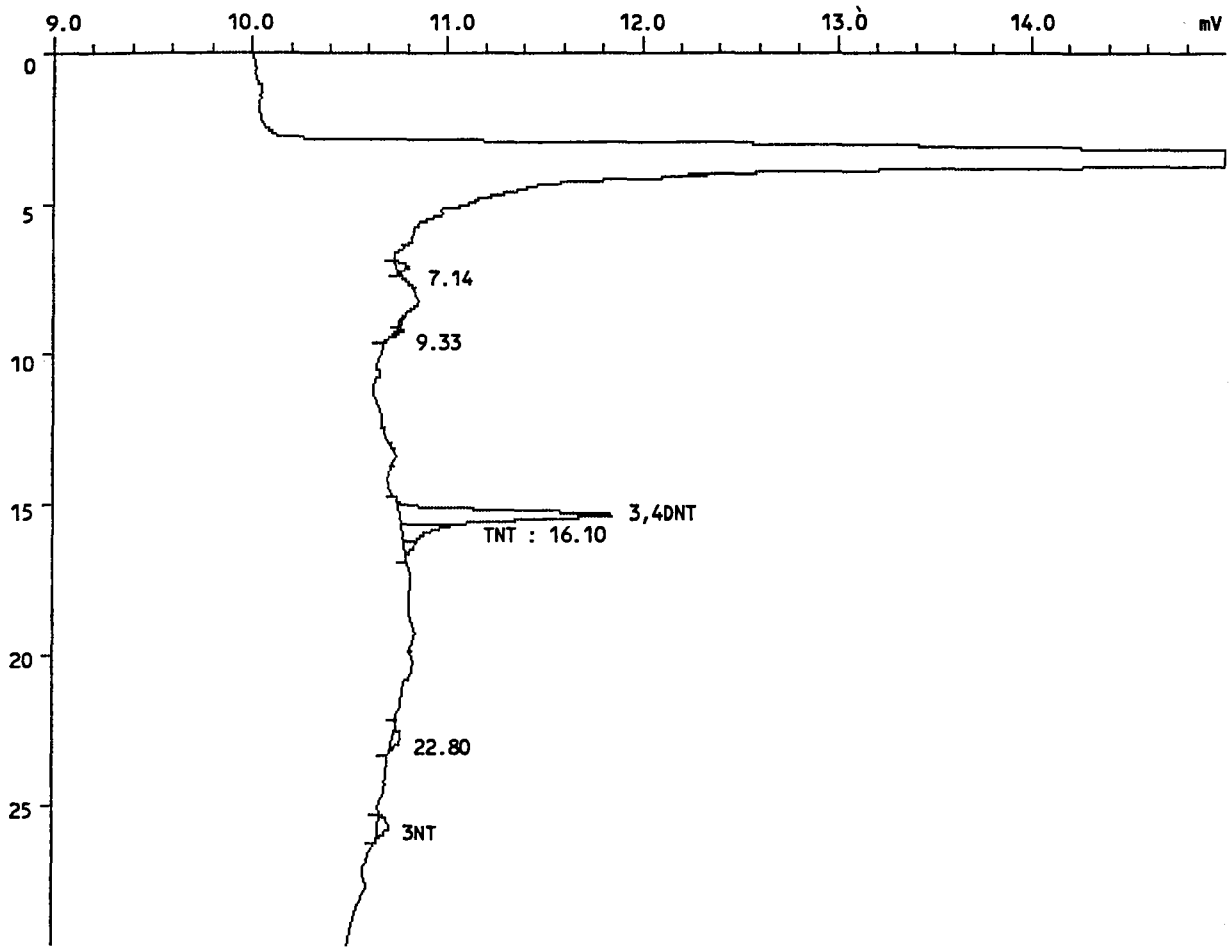
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0516,37,1

Sample name.....: BIO-S-001-26-11-3
Sample ID.....: 33946.18
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 18-May-98 at 00:35:55
Reported on 02-Jun-98 at 13:10:39



INJECTION REPORT

Injection F: <MC3> 5 5EX0516,37,1

Acquired on 18-May-98 at 00:35:55
Modified on 02-Jun-82 at 13:09:50
Reported on 02-Jun-98 at 13:09:53

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 40
Calibration file..: 5EX0516 Last modified on 22-May-82 at 15:51:16
Method file.....: EXPLOS Last modified on 02-Jun-82 at 11:50:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-11-3
Sample ID.....: 33946.18
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

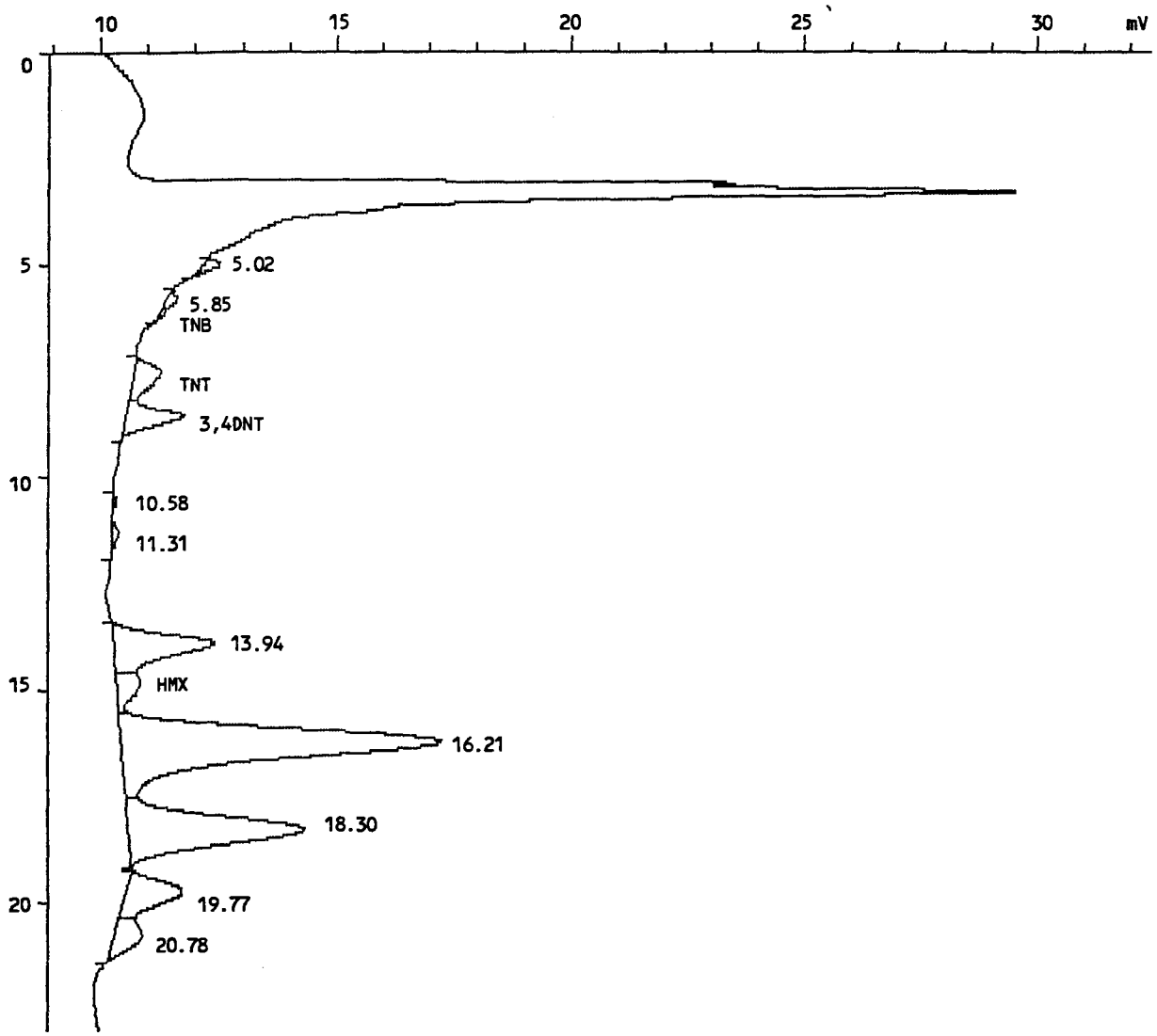
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	15.339	1079	21781	2383.030	3,4DNT
4	15.611	329	4823	259.283	TNT *
7	25.627	58	1810	109.850	3NT
Total		1465	28414	2752.163	
Residual		230	4493	241.563	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,25,1

Sample name.....: BIO-S-001-26-11-3
Sample ID.....: 33946.18
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 10:18:12
Reported on 01-Jun-98 at 20:54:50



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,25,1

Acquired on 23-May-98 at 10:18:12
Modified on 01-Jun-82 at 20:39:58
Reported on 01-Jun-98 at 20:39:57

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521A Last modified on 01-Jun-82 at 17:46:48
Method file.....: LCCN Last modified on 01-Jun-82 at 20:32:42
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-11-3
Sample ID.....: 33946.18
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

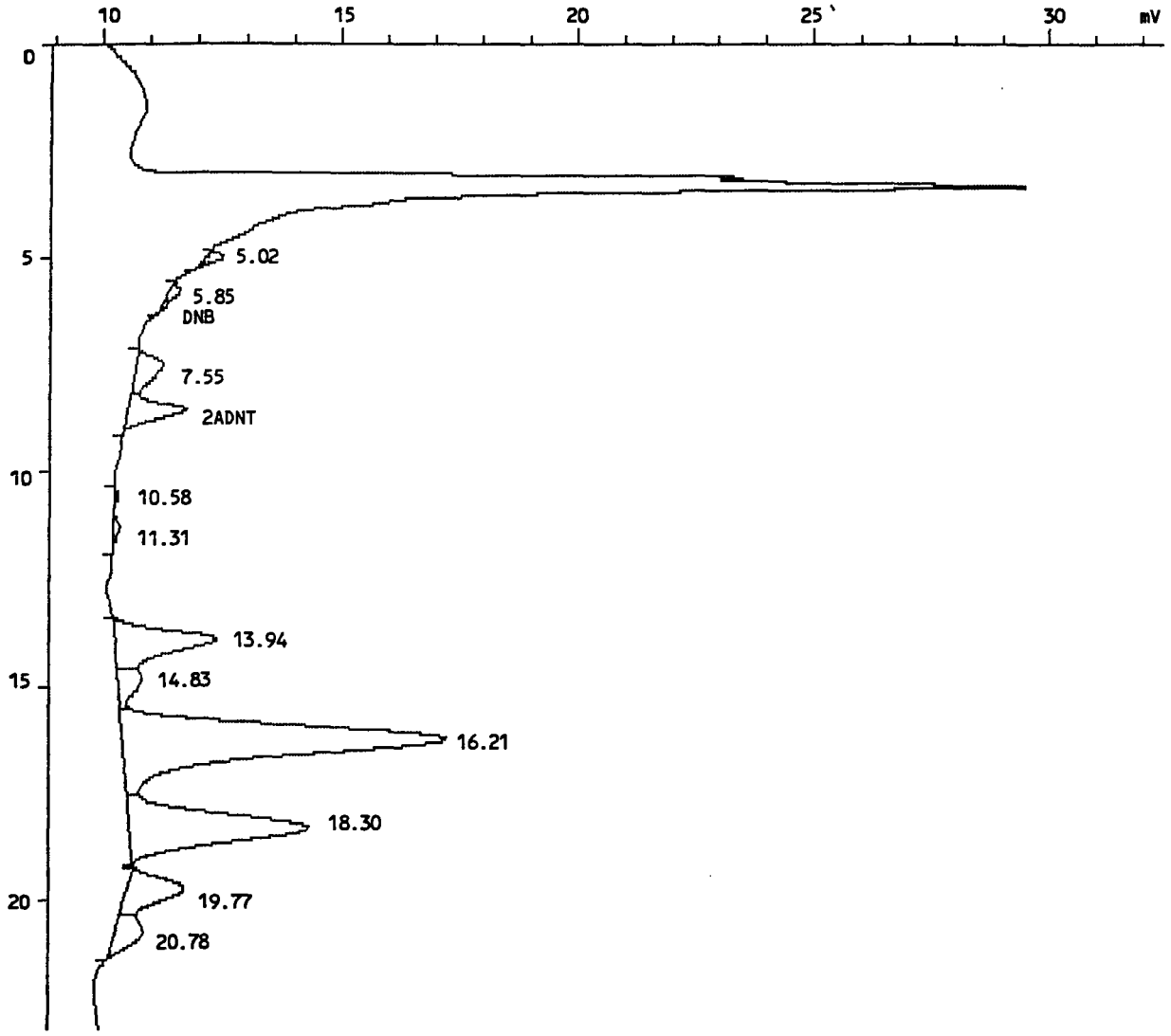
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	6.117	133	1810	71.881	TNB
4	7.547	606	23389	956.610	TNT
5	8.560	1254	33585	2414.430	3,4DNT
9	14.827	500	18788	1806.555	HMX
Total		2493	77572	5249.475	
Residual		15440	665029	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0521C,25,1

Sample name.....: BIO-S-001-26-11-3
Sample ID.....: 33946.18
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 23-May-98 at 10:18:12
Reported on 01-Jun-98 at 20:31:34



INJECTION REPORT

Injection F: <MC3> 3 3CN0521C,25,1

Acquired on 23-May-98 at 10:18:12
Modified on 01-Jun-82 at 18:31:58
Reported on 01-Jun-98 at 18:31:57

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09,INJ:100, UV
Number of samples.: 28
Calibration file..: 3CN0521B Last modified on 01-Jun-82 at 18:22:28
Method file.....: LCCN Last modified on 01-Jun-82 at 18:29:32
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-S-001-26-11-3
Sample ID.....: 33946.18
Sample type.....: Sample
Sample amount.....: 2.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	6.117	133	1810	48.839	DNB
5	8.560	1254	33585	1270.705	2ADNT
Total		1387	35395	1319.543	
Residual		16546	707206	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-S-001-26-11-3

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) SOIL Lab Sample ID: 33946.18

Sample Amt: 2g % Moisture 18.92 Date Received: 05/13/98

Extraction Volume: 10ml Date Extracted: 05/14/98

Extraction Method: SONC Date Analyzed: 05/20/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-11-5	PETN	250	U

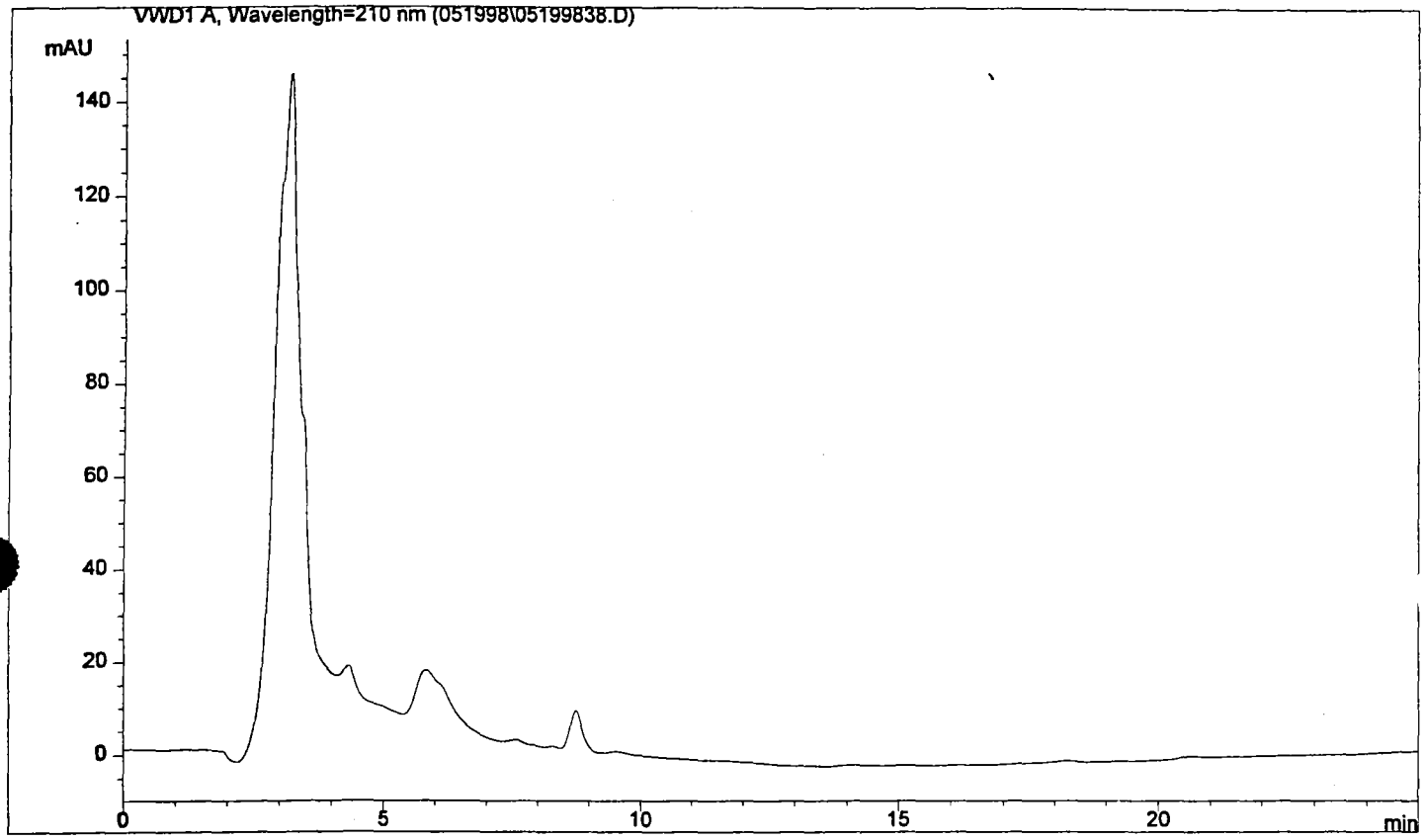
FORM I

Data file : C:\HPCHEM\1\DATA\051998\05199838.D
Sample Name: 33946.18 1

Injection Date	: Wed, 20. May. 1998	Seq Line	: 38
Sample Name	: 33946.18	Vial No.	: 38
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 051898.M
Analysis Method : C:\HPCHEM\1\METHODS\051998.M
Last Changed : Sat, 6. Jun. 1998, 01:30:48 pm
(modified after loading)

PETN SOIL



Customized Report: extstd.frp

Sorted By Signal
Calib. Data Modified : Sat, 6. Jun. 1998, 01:30:48 pm
Multiplier : 5.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

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*** End of Report ***

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-RB051198

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) WATER Lab Sample ID: 33946.19

Sample Amt: 1ml % Moisture Date Received: 05/13/98

Extraction Volume: 1ml Date Extracted: DIRECT INJ

Extraction Method: DIRECT Date Analyzed: 05/16/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
2691-41-0	HMX	13.0	U
121-82-4	RDX	14.0	U
99-35-4	TNB	7.30	U
99-65-0	DNB	4.00	U
479-45-8	TETRYL	10.0	U
98-95-3	NB	7.00	U
118-96-7	TNT	6.40	U
1946-51-0	4ADNT	7.00	U
35572-78-2	2ADNT	12.0	U
606-20-2	26DNT	9.40	U
121-14-2	24DNT	5.70	U
88-72-2	2NT	12.0	U
99-99-0	4NT	8.00	U
99-08-1	3NT	7.90	U

SURROGATE AMOUNT SPIKED (ug/L) 200
3,4-DNT

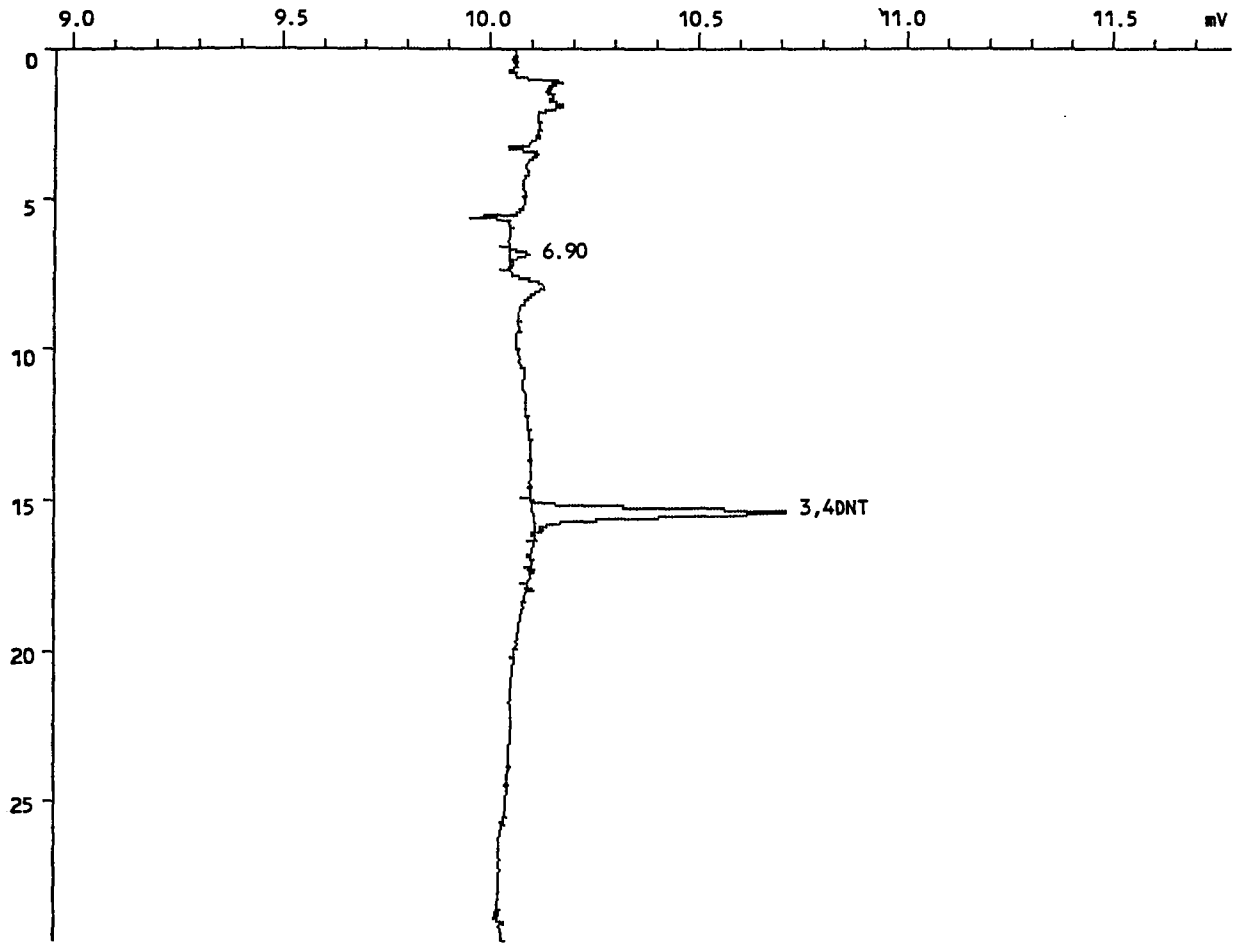
FORM I

LONG PLOT

Injection F: <MC3> 5 5E0514WB,5,1

Sample name.....: BIO-RB051198
Sample ID.....: 33946.19
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 16-May-98 at 01:12:24
Reported on 21-May-98 at 15:55:06



INJECTION REPORT

Injection F: <MC3> 5 5E0514WB,5,1

Acquired on 16-May-98 at 01:12:24
Modified on 21-May-82 at 15:54:42
Reported on 21-May-98 at 15:54:29

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC 200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08,INJ:200,COL#1
Number of samples.: 19
Calibration file..: 5E0514W Last modified on 21-May-82 at 15:54:42
Method file.....: EXPLOS Last modified on 21-May-82 at 15:20:38
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIO-RB051198
Sample ID.....: 33946.19
Sample type.....: Sample
Sample amount.....: 1.0000
Number of injections.....: 1
Bottle Number.....: 1

Dilution factor amounts:
PERCENT MOISTURE.....: 0.000

User factors:
Volume (mL).....: 1.000
Dilution.....: 2.000
Amount (g or mL).....: 1.000

PEAK INFORMATION

Peak	RT mins	Hght uV	Area uVs	ug/L	Peak name
2	15.429	607	12851	250.024	3,4DNT 125%
Total		607	12851	250.024	
Residual		47	700	-1.094	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIO-RB051198

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33946

Matrix: (soil/water) WATER Lab Sample ID: 33946.19

Sample Amt: 1ml % Moisture Date Received: 05/13/98

Extraction Volume: 1ml Date Extracted: DIRECT INJ

Extraction Method: DIRECT Date Analyzed: 05/26/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-11-5	PETN----------	20.0	U

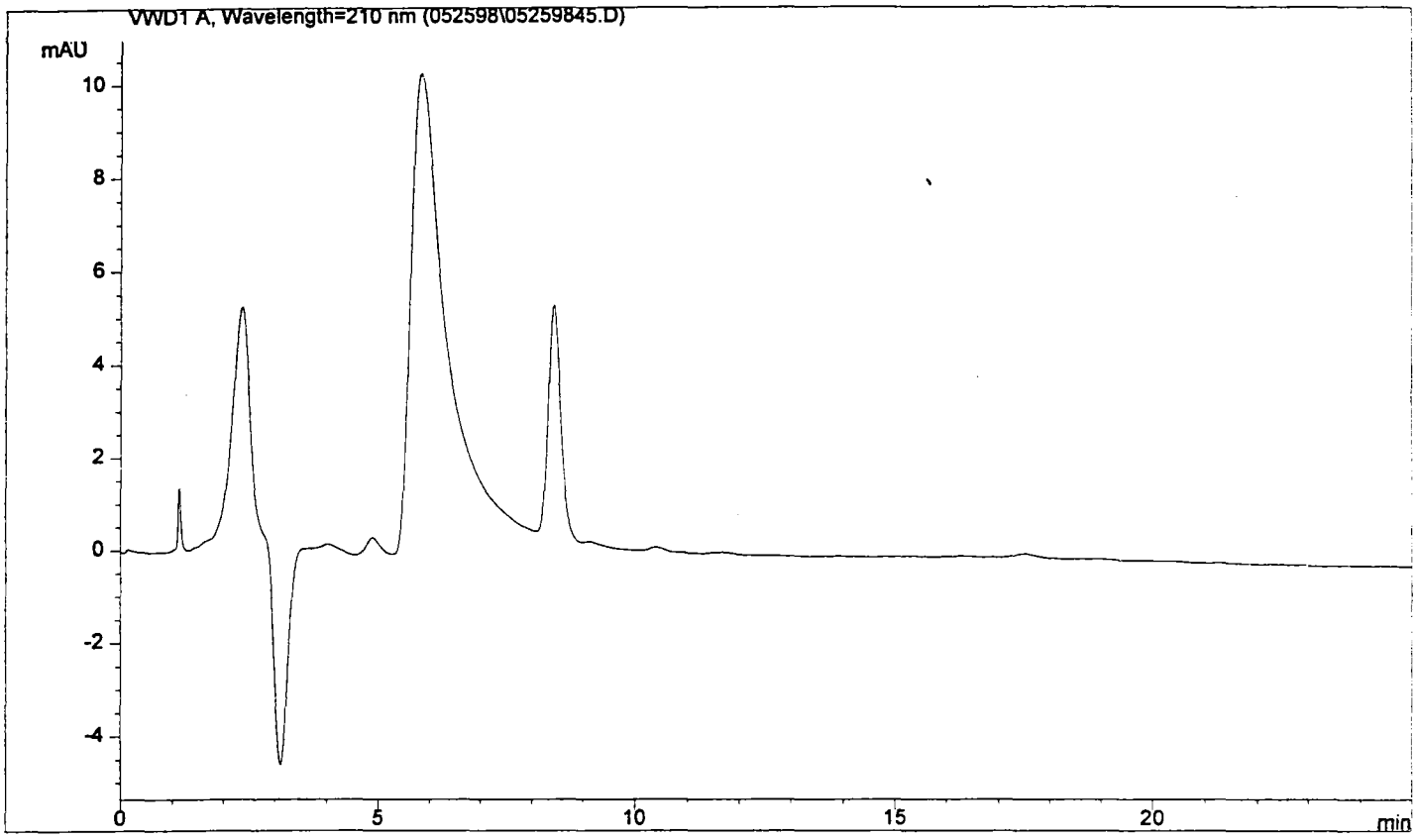
FORM I

Sample Name : 33946.19
Acq Operator : SS

Vial No. : 45
Inj. No. : 1
Inj. Vol. : 200 µl

Acq. Method : 052598W.M
Analysis Method : C:\HPCHEM\1\METHODS\052598W.M
Last Changed : Wed, 27. May. 1998, 03:05:25 pm

RE-ANALYZED PETN WATER



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Wed, 27. May. 1998,03:04:56 pm
Multiplier : 1.000000
Dilution : 2.000000
Uncalibrated Peaks : not reported

Signal Description : VWD1 A, Wavelength=210 nm

RT [min]	Type	Area	Amt/Area	Amount [ug/L]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

==========

*** End of Report ***

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ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33946
Instrument ID: IN13 Column ID: CARB-08

Dates of Anlayses: 05/14/98 to 05/16/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
INST. BLK.	INST.BLK.	05/16/98	19:11
EXP L1 SOIL STD	2-254:IA1	05/16/98	21:25
EXP L2 SOIL STD	2-253:IA2	05/16/98	22:10
EXP L3 SOIL STD	2-252:IA3	05/16/98	22:54
EXP L4 SOIL STD	2-251:IA4	05/16/98	23:39
EXP L5 SOIL STD	2-250:IA5	05/17/98	00:24
BL0514SB	BL0514SB	05/17/98	01:08
LC0514SB	LC0514SB	05/17/98	02:38
LD0514SB	LD0514SB	05/17/98	03:23
BIO-S-001-26-03-1	33946.01	05/17/98	06:21
BIO-S-001-26-03-2	33946.02	05/17/98	07:06
EXP L3 SOIL STD	2-252:CA1	05/17/98	07:51
BIO-S-001-26-03-2 MS	33946.03MS	05/17/98	09:20
BIO-S-001-26-03-2 MS	33946.04MSD	05/17/98	10:05
BIO-S-001-26-03-3	33946.05	05/17/98	13:25
BIO-S-001-26-05-1	33946.06	05/17/98	14:10
BIO-S-001-26-05-2	33946.07	05/17/98	14:54
BIO-S-001-26-05-3	33946.08	05/17/98	15:39
BIO-S-001-26-05-3FD	33946.09	05/17/98	16:24

FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33946
Instrument ID: IN13 Column ID: CARB-08

Dates of Anlayses: 05/14/98 to 05/16/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
BIO-S-001-26-07-1	33946.10	05/17/98	17:08
EXP L3 SOIL STD	2-252:CA2	05/17/98	17:53
BIO-S-001-26-07-2	33946.11	05/17/98	19:22
BIO-S-001-26-07-3	33946.12	05/17/98	20:07
BIO-S-001-26-09-1	33946.13	05/17/98	20:52
BIO-S-001-26-09-2	33946.14	05/17/98	21:37
BIO-S-001-26-09-3	33946.15	05/17/98	22:21
BIO-S-001-26-11-1	33946.16	05/17/98	23:06
BIO-S-001-26-11-2	33946.17	05/17/98	23:51
BIO-S-001-26-11-3	33946.18	05/18/98	00:35
EXP L3 SOIL STD	2-252:CA3	05/18/98	02:05

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN13
Column ID : CARB-08

Inj 1

Injection File Name Level 1 : 5EX0516,4
Injection File Name Level 2 : 5EX0516,5
Injection File Name Level 3 : 5EX0516,6
Injection File Name Level 4 : 5EX0516,7
Injection File Name Level 5 : 5EX0516,8

Calibration Date : 05/16/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	CAL FACTOR Level 1	Area Level 2	CAL FACTOR Level 2	Area Level 3	CAL FACTOR Level 3	Area Level 4	CAL FACTOR Level 4	Area Level 5	CAL FACTOR Level 5
HMX	3185	314	80959	319	212096	321	319925	323	433267	328
RDX	2562	607	47318	448	121686	441	177678	431	244475	445
TNB	2361	782	64320	851	168450	855	252321	852	344737	875
DNB	1652	1020	48143	1186	125321	1187	186463	1177	257446	1214
TETRYL	1310	352	38818	417	103188	426	153054	420	212765	440
NB	2679	812	69765	847	183000	855	272331	846	380373	885
3,4-DNT	2028	399	59508	469	154315	468	231245	466	318163	482
TNT	2390	885	62945	931	163589	929	246328	933	341504	970
4ADNT	1242	526	39465	667	101954	662	151673	654	211970	688
2ADNT	1852	785	49243	832	127339	827	191356	825	262183	851
26DNT	2171	560	59502	612	152127	599	229086	603	313573	620
24DNT	2452	1039	69529	1174	176586	1147	266620	1149	362597	1177
2NT	1384	409	42045	497	109715	499	165754	502	226147	514
[illegible]	1145	339	35270	417	92983	423	140871	427	190888	434
[illegible]	1619	503	42675	531	111710	532	167287	533	228114	546

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN13
Column ID : CARB-08

Inj 1

Injection File Name Level 1 : 5EX0516,4
Injection File Name Level 2 : 5EX0516,5
Injection File Name Level 3 : 5EX0516,6
Injection File Name Level 4 : 5EX0516,7
Injection File Name Level 5 : 5EX0516,8

Calibration Date : 05/16/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Cal Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
HMX	321	1.63	0.99991	326	0.000
RDX	474	15.70	0.99975	440	0.000
TNB	843	4.22	0.99982	865	0.000
DNB	1157	6.73	0.99975	1199	0.000
TETRYL	411	8.29	0.99951	432	0.000
NB	849	3.06	0.99948	868	0.000
3,4-DNT	457	7.19	0.99969	475	0.000
TNT	930	3.24	0.99954	953	0.000
[illegible]NT	639	10.09	0.99932	674	0.000
[illegible]DNT	824	2.94	0.99972	840	0.000
26DNT	599	3.89	0.99974	612	0.000
24DNT	1137	4.99	0.99981	1165	0.000
2NT	484	8.74	0.99983	508	0.000
4NT	408	9.59	0.99989	430	0.000
3NT	529	2.98	0.99983	540	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/16/1998
Continuing Calibration #: 1
Continuing Cal Date : 05/17/1998
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-08
Injection File Name : 5EX0516,18
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	213593	324	321	0.78	326	0.61
RDX	119130	432	474	9.01	440	1.94
TNB	168285	854	843	1.33	865	1.25
DNB	126339	1196	1157	3.43	1199	0.22
TETRYL	98340	406	411	1.18	432	5.87
NB	183478	857	849	1.01	868	1.28
3,4-DNT	151695	460	457	0.61	475	3.26
TNT	166278	945	930	1.61	953	0.86
4ADNT	103148	670	639	4.76	674	0.64
2ADNT	126476	821	824	0.32	840	2.19
26DNT	153922	606	599	1.23	612	0.94
24DNT	176392	1145	1137	0.71	1165	1.65
2NT	112252	510	484	5.36	508	0.42
4NT	93639	426	408	4.37	430	1.00
3NT	111623	532	529	0.52	540	1.51

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/16/1998
Continuing Calibration #: 2
Continuing Cal Date : 05/17/1998
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-08
Injection File Name : 5EX0516,28
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	212386	322	321	0.21	326	1.17
RDX	117833	427	474	10.00	440	3.00
TNB	168725	856	843	1.60	865	0.99
DNB	125155	1185	1157	2.46	1199	1.16
TETRYL	101638	420	411	2.14	432	2.72
NB	183864	859	849	1.22	868	1.07
3,4-DNT	153457	465	457	1.78	475	2.13
TNT	166972	949	930	2.03	953	0.45
4ADNT	103444	672	639	5.06	674	0.35
2ADNT	130417	847	824	2.79	840	0.86
26DNT	151941	598	599	0.07	612	2.21
24DNT	177577	1153	1137	1.39	1165	0.99
2NT	109716	499	484	2.98	508	1.85
4NT	93568	425	408	4.29	430	1.07
3NT	112127	534	529	0.97	540	1.07

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/16/1998
Continuing Calibration #: 3
tinuing Cal Date : 05/18/1998
tinuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-08
Injection File Name : 5EX0516,39
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	214913	326	321	1.40	326	0.01
RDX	122802	445	474	6.20	440	1.09
TNB	169884	862	843	2.29	865	0.31
DNB	127384	1206	1157	4.28	1199	0.60
TETRYL	94936	392	411	4.60	432	9.13
NB	185071	865	849	1.89	868	0.42
3,4-DNT	154208	467	457	2.28	475	1.65
TNT	168336	956	930	2.87	953	0.36
4ADNT	104514	679	639	6.14	674	0.68
2ADNT	129461	841	824	2.03	840	0.12
26DNT	155260	611	599	2.11	612	0.08
24DNT	180106	1170	1137	2.83	1165	0.42
2NT	111732	508	484	4.87	508	0.04
4NT	94882	431	408	5.76	430	0.32
3NT	112718	537	529	1.50	540	0.54

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

jection volume = 200uL

Amount Units = ng

COMPONENT NAME	AMT ON COL Level 1	AMT ON COL Level 2	AMT ON COL Level 3	AMT ON COL Level 4	AMT ON COL Level 5
HMX	10.140	254.000	660.000	990.000	1320.000
RDX	4.220	105.600	276.000	412.000	550.000
TNB	3.020	75.600	197.000	296.000	394.000
DNB	1.620	40.600	105.600	158.400	212.000
TETRYL	3.720	93.000	242.000	364.000	484.000
NB	3.300	82.400	214.000	322.000	430.000
3,4-DNT	5.080	126.800	330.000	496.000	660.000
TNT	2.700	67.600	176.000	264.000	352.000
4ADNT	2.360	59.200	154.000	232.000	308.000
2ADNT	2.360	59.200	154.000	232.000	308.000
26DNT	3.880	97.200	254.000	380.000	506.000
24DNT	2.360	59.200	154.000	232.000	308.000
2NT	3.380	84.600	220.000	330.000	440.000
4NT	3.380	84.600	220.000	330.000	440.000
3NT	3.220	80.400	210.000	314.000	418.000

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

··trument ID : IN13
.umn ID : CARB-08
Calibration Date : 05/16/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	4.98	4.96	4.96	4.97	4.95
RDX	7.63	7.56	7.57	7.57	7.56
TNB	10.14	10.09	10.10	10.09	10.08
DNB	12.44	12.38	12.40	12.37	12.36
TETRYL	13.37	13.30	13.33	13.28	13.28
NB	14.03	13.98	14.03	13.97	13.96
3,4-DNT	15.42	15.33	15.40	15.32	15.31
TNT	15.82	15.75	15.80	15.73	15.72
4ADNT	16.88	16.73	16.81	16.73	16.73
2ADNT	17.83	17.72	17.79	17.72	17.71
26DNT	18.49	18.38	18.46	18.38	18.36
24DNT	19.22	19.11	19.18	19.11	19.09
2NT	22.33	22.16	22.27	22.16	22.14
4NT	23.88	23.70	23.83	23.70	23.69
3NT	25.68	25.50	25.65	25.49	25.50

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3
HMX	4.98	4.97	4.97
RDX	7.59	7.60	7.61
TNB	10.11	10.13	10.12
DNB	12.43	12.44	12.44
TETRYL	13.37	13.38	13.36
NB	14.04	14.08	14.07
3,4-DNT	15.44	15.47	15.46
TNT	15.81	15.85	15.82
4ADNT	16.88	16.85	16.88
2ADNT	17.87	17.83	17.87
26DNT	18.50	18.54	18.52
24DNT	19.24	19.26	19.24
2NT	22.32	22.39	22.34
4NT	23.89	23.96	23.92
3NT	25.72	25.79	25.73

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	4.97	0.009	0.027	4.94 - 4.99
RDX	7.59	0.024	0.072	7.51 - 7.66
	10.11	0.025	0.075	10.03 - 10.18
	12.41	0.034	0.102	12.31 - 12.51
TETRYL	13.33	0.042	0.126	13.20 - 13.46
NB	14.02	0.044	0.131	13.89 - 14.15
3,4-DNT	15.39	0.065	0.195	15.20 - 15.59
TNT	15.79	0.048	0.144	15.65 - 15.93

4ADNT	16.81	0.070	0.209	16.60 - 17.02
2ADNT	17.79	0.067	0.202	17.59 - 17.99
26DNT	18.45	0.071	0.212	18.24 - 18.67
24DNT	19.18	0.068	0.205	18.98 - 19.39
2NT	22.26	0.098	0.293	21.97 - 22.56
4NT	23.82	0.109	0.326	23.49 - 24.15
[illegible]T	25.63	0.120	0.359	25.28 - 25.99

8D

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33946
Instrument ID: LC4 Column ID:

Dates of Anlayses: 05/19/98 to 05/20/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
Instrument blank	Instrument bla	05/19/98	18:49
L1 2-249:IA1	L1 2-249:IA1	05/19/98	20:13
L2 2-248:IA2	L2 2-248:IA2	05/19/98	20:41
L3 2-247:IA3	L3 2-247:IA3	05/19/98	21:09
L4 2-246:IA4	L4 2-246:IA4	05/19/98	21:37
L5 2-245:IA5	L5 2-245:IA5	05/19/98	22:06
ICV	ICV	05/19/98	22:34
BL0514SD	BL0514SD	05/19/98	23:02
LC0514SD	LC0514SD	05/19/98	23:58
LD0514SD	LD0514SD	05/20/98	00:26
BIO-S-001-26-03-1	33946.01	05/20/98	02:19
BIO-S-001-26-03-2	33946.02	05/20/98	02:47
L3 2-247:CA1	L3 2-247:CA1	05/20/98	03:15
BIO-S-001-26-03-2	33946.03MS	05/20/98	04:12
BIO-S-001-26-03-2	33946.04MSD	05/20/98	04:40
BIO-S-001-26-03-3	33946.05	05/20/98	05:08
BIO-S-001-26-05-1	33946.06	05/20/98	05:36
BIO-S-001-26-05-2	33946.07	05/20/98	06:04
BIO-S-001-26-05-3	33946.08	05/20/98	06:32

FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33946
Instrument ID: LC4 Column ID:

Dates of Anlayses: 05/19/98 to 05/20/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
BIO-S-001-26-05-3FD	33946.09	05/20/98	07:00
BIO-S-001-26-07-1	33946.10	05/20/98	07:29
BIO-S-001-26-07-2	33946.11	05/20/98	07:57
L3 2-247:CA2	L3 2-247:CA2	05/20/98	08:25
BIO-S-001-26-07-3	33946.12	05/20/98	09:21
BIO-S-001-26-09-1	33946.13	05/20/98	09:49
BIO-S-001-26-09-2	33946.14	05/20/98	10:18
BIO-S-001-26-09-3	33946.15	05/20/98	10:46
BIO-S-001-26-11-1	33946.16	05/20/98	11:14
BIO-S-001-26-11-2	33946.17	05/20/98	11:42
BIO-S-001-26-11-3	33946.18	05/20/98	12:11
L3 2-247:CA3	L3 2-247:CA3	05/20/98	13:07

FORM VIII

.tial calibration 051998
Acq. method 051998

levels	conc.	area	cf	mean cf	%rsd
1	20	8.55	2.339181	2.700208	9.820641
2	160	60.07	2.663559		
4	1280	443.06	2.888999		
5	2560	880	2.909091		

continue	area	cf	%d
L3 CA1	109.44	2.923977	-8.2871
L3 CA2	106.93	2.992612	-10.829
L3 CA3	111.27	2.875887	-6.50616

ICV	area	cf	%d	con.
	101.74	3.145272	-16.4826	320

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Injection volume = 200ul

Amount Units = ug/L

COMPONENT NAME	SPIKE AMT Level 1	SPIKE AMT Level 2	SPIKE AMT Level 3	SPIKE AMT Level 4	SPIKE AMT Level 5
PETN	20	160	320	1280	2560

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

strument ID : LC4
lumn ID :
Calibration Date : 05/19/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
PETN	10.88	10.90	10.94	10.96	10.98

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3
PETN	11.20	11.28	11.10

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
PETN	11.03	0.147	0.442	10.58 - 11.47

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33946
Instrument ID: IN13 Column ID: CARB-08

Dates of Anlayses: 05/14/98 to 05/16/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
INST. BLANK	INST.BLK.	05/14/98	20:50
EXP HIGH WATER L1 ST	2-199:IA1	05/14/98	23:04
EXP HIGH WATER L2 ST	2-198:IA2	05/14/98	23:48
EXP HIGH WATER L3 ST	2-197:IA3	05/15/98	00:33
EXP HIGH WATER L4 ST	2-196:IA4	05/15/98	01:18
EXP HIGH WATER L5 ST	2-195:IA5	05/15/98	02:02
EXP HIGH WATER L3 ST	2-240:CA2	05/15/98	20:52
BL0514WB	BL0514WB	05/15/98	22:13
LC0514WB	LC0514WB	05/15/98	23:43
LD0514WB	LD0514WB	05/16/98	00:27
BIO-RB051198	33946.19	05/16/98	01:12
BIO-RB051198 MS	33946.19MS	05/16/98	01:57
BIO-RB-RB051198 MSD	33946.19MSD	05/16/98	02:41
EXP HIGH WATER L3 ST	2-240:CA3	05/16/98	03:26

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN13
Column ID : CARB-08

Inj 1

Injection File Name Level 1 : 5E0514W,4
Injection File Name Level 2 : 5E0514W,5
Injection File Name Level 3 : 5E0514W,6
Injection File Name Level 4 : 5E0514W,7
Injection File Name Level 5 : 5E0514W,8

Calibration Date : 05/14/98
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	CAL FACTOR Level 1	Area Level 2	CAL FACTOR Level 2	Area Level 3	CAL FACTOR Level 3	Area Level 4	CAL FACTOR Level 4	Area Level 5	CAL FACTOR Level 5
HMX	957	748	1297	408	55595	350	112582	354	232163	365
RDX	384	369	1538	592	58338	449	117473	452	237359	458
TNB	553	768	1701	945	86724	968	177209	990	361357	1009
DNB	371	976	1125	1172	62388	1311	127556	1343	261800	1378
TETRYL	417	463	968	428	61596	545	125626	556	267650	595
NB	580	853	1279	752	77069	907	156913	923	327007	962
3,4-DNT	649	507	1582	491	81113	507	167740	524	346999	542
TNT	813	1270	1686	1054	93303	1166	182825	1143	381325	1192
4ADNT	498	498	1335	530	79668	637	162881	652	341699	683
2ADNT	522	932	1040	743	60157	859	123087	879	255996	914
26DNT	694	723	1551	646	73241	637	149241	649	308425	670
24DNT	766	1368	1496	1069	85900	1227	175011	1250	363824	1299
2NT	408	364	1485	530	77727	536	157931	545	327959	565
4NT	268	335	772	386	44492	445	91029	455	189458	474
[illegible]	320	400	1298	649	59515	626	120956	637	248018	653

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN13
Column ID : CARB-08

Inj 1

Injection File Name Level 1 : 5E0514W,4
Injection File Name Level 2 : 5E0514W,5
Injection File Name Level 3 : 5E0514W,6
Injection File Name Level 4 : 5E0514W,7
Injection File Name Level 5 : 5E0514W,8

Calibration Date : 05/14/98
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Cal Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
HMX	445	38.40	0.99984	362	0.000
RDX	464	17.27	0.99996	457	0.000
TNB	936	10.36	0.99992	1004	0.000
DNB	1236	13.33	0.99987	1368	0.000
TETRYL	517	13.35	0.99936	585	0.000
NB	879	9.22	0.99975	952	0.000
3,4-DNT	514	3.78	0.99977	537	0.000
TNT	1165	6.74	0.99978	1181	0.000
DNT	600	13.53	0.99966	675	0.000
DNT	866	8.58	0.99975	905	0.000
26DNT	665	5.20	0.99982	665	0.000
24DNT	1243	8.95	0.99977	1287	0.000
2NT	508	16.04	0.99979	560	0.000
4NT	419	13.66	0.99975	469	0.000
3NT	593	18.27	0.99990	648	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/14/98
Continuing Calibration #: 2
Continuing Cal Date : 05/15/98
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-08
Injection File Name : 5E0514WA,21
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	55056	346	445	22.16	362	4.42
RDX	58164	447	464	3.56	457	2.00
TNB	88301	986	936	5.28	1004	1.83
DNB	63467	1333	1236	7.88	1368	2.55
TETRYL	58712	520	517	0.41	585	11.25
NB	77355	910	879	3.49	952	4.42
3,4-DNT	88337	552	514	7.34	537	2.76
TNT	88536	1107	1165	5.00	1181	6.32
4ADNT	82190	658	600	9.59	675	2.66
2ADNT	62351	891	866	2.91	905	1.61
26DNT	74071	644	665	3.16	665	3.13
24DNT	86620	1237	1243	0.42	1287	3.85
2NT	78409	541	508	6.42	560	3.48
4NT	44527	445	419	6.28	469	5.04
3NT	60025	632	593	6.56	648	2.56

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/14/98
Continuing Calibration #: 3
Continuing Cal Date : 05/16/98
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-08
Injection File Name : 5E0514WB,8
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	57199	360	445	19.13	362	0.70
RDX	59782	460	464	0.87	457	0.72
TNB	90000	1004	936	7.31	1004	0.06
DNB	64146	1348	1236	9.04	1368	1.51
TETRYL	55204	489	517	5.59	585	16.56
NB	79017	930	879	5.71	952	2.36
3,4-DNT	91255	570	514	10.89	537	6.16
TNT	90031	1125	1165	3.39	1181	4.74
4ADNT	82396	659	600	9.86	675	2.41
2ADNT	62415	892	866	3.01	905	1.51
26DNT	73595	640	665	3.78	665	3.76
24DNT	86416	1235	1243	0.65	1287	4.08
2NT	78033	538	508	5.91	560	3.94
4NT	44985	450	419	7.38	469	4.07
3NT	59433	626	593	5.51	648	3.52

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

ıjection volume = 200uL

Amount Units = ng

COMPONENT NAME	AMT ON COL Level 1	AMT ON COL Level 2	AMT ON COL Level 3	AMT ON COL Level 4	AMT ON COL Level 5
HMX	1.280	3.180	159.000	318.000	636.000
RDX	1.040	2.600	130.000	260.000	518.000
TNB	0.720	1.800	89.600	179.000	358.000
DNB	0.380	0.960	47.600	95.000	190.000
TETRYL	0.900	2.260	113.000	226.000	450.000
NB	0.680	1.700	85.000	170.000	340.000
3,4-DNT	1.280	3.220	160.000	320.000	640.000
TNT	0.640	1.600	80.000	160.000	320.000
4ADNT	1.000	2.520	125.000	250.000	500.000
2ADNT	0.560	1.400	70.000	140.000	280.000
26DNT	0.960	2.400	115.000	230.000	460.000
24DNT	0.560	1.400	70.000	140.000	280.000
2NT	1.120	2.800	145.000	290.000	580.000
4NT	0.800	2.000	100.000	200.000	400.000
3NT	0.800	2.000	95.000	190.000	380.000

page1

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

nstrument ID : IN13
olumn ID : CARB-08
Calibration Date : 05/14/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	4.97	4.93	4.88	4.90	4.86
RDX	7.64	7.67	7.61	7.65	7.58
TNB	10.19	10.21	10.12	10.19	10.10
DNB	12.45	12.53	12.45	12.53	12.41
TETRYL	13.47	13.45	13.37	13.49	13.31
NB	14.10	14.17	14.06	14.17	14.01
3,4-DNT	15.49	15.54	15.41	15.57	15.33
TNT	15.88	15.96	15.82	15.96	15.75
4ADNT	16.94	16.99	16.87	17.06	16.78
2ADNT	17.94	18.04	17.86	18.06	17.77
26DNT	18.52	18.63	18.49	18.70	18.40
24DNT	19.28	19.40	19.22	19.44	19.13
2NT	22.35	22.47	22.27	22.54	22.17
4NT	23.97	24.03	23.81	24.10	23.71
3NT	25.62	25.94	25.62	25.94	25.52

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4
HMX	4.89	4.90	4.87	4.87
RDX	7.59	7.63	7.57	7.58
TNB	10.13	10.16	10.07	10.10
DNB	12.45	12.49	12.38	12.43
TETRYL	13.34	13.41	13.27	13.35
NB	14.07	14.11	13.98	14.04
3,4-DNT	15.41	15.47	15.30	15.40
TNT	15.83	15.88	15.72	15.80
4ADNT	16.85	16.91	16.77	16.86
2ADNT	17.84	17.90	17.77	17.85
26DNT	18.49	18.55	18.37	18.47
24DNT	19.23	19.27	19.10	19.20
2NT	22.29	22.34	22.13	22.25
4NT	23.84	23.87	23.66	23.80
3NT	25.66	25.68	25.46	25.61

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	4.90	0.035	0.105	4.79 - 5.00
RDX	7.61	0.034	0.101	7.51 - 7.71
TNB	10.14	0.048	0.145	10.00 - 10.29
DNB	12.46	0.051	0.154	12.30 - 12.61
TETRYL	13.38	0.074	0.223	13.16 - 13.61
NB	14.08	0.066	0.197	13.88 - 14.28
3,4-DNT	15.44	0.090	0.271	15.16 - 15.71
TNT	15.85	0.085	0.256	15.59 - 16.10

page 2

4ADNT	16.89	0.095	0.284	16.61 - 17.18
2ADNT	17.89	0.106	0.319	17.57 - 18.21
26DNT	18.51	0.104	0.313	18.20 - 18.83
24DNT	19.25	0.112	0.335	18.92 - 19.59
2NT	22.31	0.132	0.395	21.92 - 22.71
4NT	23.87	0.144	0.431	23.44 - 24.30
NT	25.67	0.165	0.495	25.18 - 26.17

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33946
Instrument ID: LC4 Column ID:

Dates of Anlayses: 05/19/98 to 05/20/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
Instrument blank	Instrument bla	05/25/98	19:33
L1 2-210:IA1	L1 2-210:IA1	05/25/98	20:57
L2 2-209:IA2	L2 2-209:IA2	05/25/98	21:25
L3 2-208:IA3	L3 2-208:IA3	05/25/98	21:53
L4 2-207:IA4	L4 2-207:IA4	05/25/98	22:21
L5 2-180:IA5	L5 2-180:IA5	05/25/98	22:49
ICV 2-238:CA1	ICV 2-238:CA1	05/25/98	23:18
L3 2-208:CA4	L3 2-208:CA4	05/26/98	13:22
BL0514WC	BL0514WC	05/26/98	18:25
LC0514WC	LC0514WC	05/26/98	19:21
LD0514WC	LD0514WC	05/26/98	19:50
BIO-RB051198	33946.19	05/26/98	20:18
BIO-RB051198	33946.19MS	05/26/98	20:46
BIO-RB051198	33946.19MSD	05/26/98	21:14
L3 2-208:CA5	L3 2-208:CA5	05/26/98	22:11

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: LC4
Column ID :

Inj 1

Injection File Name Level 1 : 052598W,4
Injection File Name Level 2 : 052598W,5
Injection File Name Level 3 : 052598W,6
Injection File Name Level 4 : 052598W,7
Injection File Name Level 5 : 052598W,8

Calibration Date : 05/25/98
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	RESP. FACT Level 1	Area Level 2	RESP. FACT Level 2	Area Level 3	RESP. FACT Level 3	Area Level 4	RESP. FACT Level 4	Area Level 5	RESP. FACT Level 5
PETN	6.10623	3.28E0	50.6415	3.16E0	103.482	3.09E0	412.643	3.10E0	836.09	3.06E0

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: LC4
lumn ID :

Inj 1

Injection File Name Level 1 : 052598W,4
Injection File Name Level 2 : 052598W,5
Injection File Name Level 3 : 052598W,6
Injection File Name Level 4 : 052598W,7
Injection File Name Level 5 : 052598W,8

Calibration Date : 05/25/98
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Resp Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
PETN	3.14E0	2.69	0.99998	3.07E0	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/25/98
Continuing Calibration #: 4
Continuing Cal Date : 05/26/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 052598W,39
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	103.579	3.09E0	3.14E0	1.55	3.07E0	0.62

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/25/98
Continuing Calibration #: 5
Continuing Cal Date : 05/26/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 052598W,49
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	102.784	3.11E0	3.14E0	0.79	3.07E0	1.40

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Injection volume = 200ul

Amount Units = ug/L

COMPONENT NAME	SPIKE AMT Level 1	SPIKE AMT Level 2	SPIKE AMT Level 3	SPIKE AMT Level 4	SPIKE AMT Level 5
PETN	20	160	320	1280	2560

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : LC4
Column ID :
Calibration Date : 05/25/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
PETN	10.68	10.66	10.64	10.68	10.67

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
PETN	10.67	10.69	10.77	10.78	10.80

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
PETN	10.72	0.067	0.200	10.52 - 10.92

8D

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33946
Instrument ID: IN10 Column ID: LC-CN-09

Dates of Anlayses: 05/21/98 to 05/23/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
INST. BLK.	INST. BLK.	05/21/98	10:13
EXP L1A STD	2-231:IA1	05/21/98	12:26
EXP L2A STD	2-230:IA2	05/21/98	13:11
EXP L3A STD	2-229:IA3	05/21/98	13:55
EXP L4A STD	2-228:IA4	05/21/98	14:39
EXP L5A STD	2-227:IA5	05/21/98	15:24
EXP L1B STD	1-236:IB1	05/21/98	16:08
EXP L2B STD	2-235:IB2	05/21/98	16:53
EXP L3B STD	2-234:IB3	05/21/98	17:37
EXP L4B STD	2-233:IB4	05/21/98	18:21
EXP L5B STD	2-232:IB5	05/21/98	19:06
EXP L3A STD	2-229:CA3	05/22/98	15:03
EXP L3B STD	2-234:CB3	05/22/98	15:48
BL0514SB	BL0514SB	05/22/98	16:32
BIO-S-001-26-03-1	33946.01	05/22/98	20:14
BIO-S-001-26-03-2	33946.02	05/22/98	20:59
BIO-S-001-26-03-3	33946.05	05/22/98	21:43
BIO-S-001-26-05-1	33946.06	05/22/98	22:27
EXP L3A STD	2-229:CA4	05/22/98	23:12

FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33946
Instrument ID: IN10 Column ID: LC-CN-09

Dates of Anlayses: 05/21/98 to 05/23/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
EXP L3B STD	2-234:CB4	05/22/98	23:56
BIO-S-001-26-05-2	33946.07	05/23/98	00:40
BIO-S-001-26-05-3	33946.08	05/23/98	01:25
BIO-S-001-26-05-3FD	33946.09	05/23/98	02:09
BIO-S-001-26-07-1	33946.10	05/23/98	02:54
BIO-S-001-26-07-2	33946.11	05/23/98	03:38
BIO-S-001-26-07-3	33946.12	05/23/98	04:22
BIO-S-001-26-09-1	33946.13	05/23/98	05:07
BIO-S-001-26-09-2	33946.14	05/23/98	05:51
BIO-S-001-26-09-3	33946.15	05/23/98	06:36
EXP L3A STD	2-229:CA5	05/23/98	07:20
EXP L3B STD	2-234:CB5	05/23/98	08:04
BIO-S-001-26-11-1	33946.16	05/23/98	08:49
BIO-S-001-26-11-2	33946.17	05/23/98	09:33
BIO-S-001-26-11-3	33946.18	05/23/98	10:18
EXP L3A STD	2-229:CA6	05/23/98	11:47
EXP L3B STD	2-234:CB6	05/23/98	12:31

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : LC-CN-09

Inj 1

Injection File Name Level 1 : 3CN0521,4
Injection File Name Level 2 : 3CN0521,5
Injection File Name Level 3 : 3CN0521,6
Injection File Name Level 4 : 3CN0521,7
Injection File Name Level 5 : 3CN0521,8

Calibration Date : 05/21/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	CAL FACTOR Level 1	Area Level 2	CAL FACTOR Level 2	Area Level 3	CAL FACTOR Level 3	Area Level 4	CAL FACTOR Level 4	Area Level 5	CAL FACTOR Level 5
TNB	11883	2583	58123	2527	145406	2529	284314	2472	569860	2478
26DNT	7439	1488	43707	1748	110998	1776	222469	1780	450789	1803
TNT	9828	2137	56760	2468	144247	2509	291584	2536	592775	2577
3,4DNT	8743	1249	46908	1340	118968	1442	238984	1448	486653	1475
TETRYL	11700	1300	66185	1471	166762	1482	312996	1391	620402	1379
HMX	7514	1073	37364	1068	90389	1033	176477	1008	355388	1015

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : LC-CN-09

Inj 1

Injection File Name Level 1 : 3CN0521,9
Injection File Name Level 2 : 3CN0521,10
Injection File Name Level 3 : 3CN0521,11
Injection File Name Level 4 : 3CN0521,12
Injection File Name Level 5 : 3CN0521,13

Calibration Date : 05/21/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	CAL FACTOR Level 1	Area Level 2	CAL FACTOR Level 2	Area Level 3	CAL FACTOR Level 3	Area Level 4	CAL FACTOR Level 4	Area Level 5	CAL FACTOR Level 5
NB	9195	1839	53249	2130	130748	2092	264919	2119	508956	2036
DNB	14356	3589	74347	3717	185619	3712	369439	3694	763374	3817
24DNT	15648	3130	83668	3347	205870	3294	409143	3273	842446	3370
4ADNT	15323	1666	82124	1785	199988	1739	389960	1695	815228	1772
2ADNT	26599	2660	133985	2680	323153	2585	641594	2566	1362052	2724
RDX	7673	1535	35290	1412	79159	1267	156572	1253	345239	1381

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : LC-CN-09

Inj 1

Injection File Name Level 1 : 3CN0521,4
Injection File Name Level 2 : 3CN0521,5
Injection File Name Level 3 : 3CN0521,6
Injection File Name Level 4 : 3CN0521,7
Injection File Name Level 5 : 3CN0521,8

Calibration Date : 05/21/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Cal Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
TNB	2518	1.80	0.99998	2480	0.000
26DNT	1719	7.60	0.99999	1797	0.000
TNT	2445	7.24	0.99997	2565	0.000
3,4DNT	1391	6.79	0.99996	1467	0.000
TETRYL	1405	5.31	0.99981	1387	0.000
HMX	1040	2.86	0.99997	1015	0.000

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
lumn ID : LC-CN-09

Inj 1

Injection File Name Level 1 : 3CN0521,9
Injection File Name Level 2 : 3CN0521,10
Injection File Name Level 3 : 3CN0521,11
Injection File Name Level 4 : 3CN0521,12
Injection File Name Level 5 : 3CN0521,13

Calibration Date : 05/21/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Cal Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
NB	2043	5.87	0.99976	2055	0.000
DNB	3706	2.19	0.99986	3789	0.000
24DNT	3283	2.86	0.99989	3348	0.000
4ADNT	1732	2.92	0.99973	1757	0.000
2ADNT	2643	2.50	0.99951	2689	0.000
RDX	1369	8.44	0.99859	1354	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/21/1998
Continuing Calibration #: 3
Continuing Cal Date : 05/22/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0521B,4
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	141898	2468	2518	1.99	2480	0.47
26DNT	113144	1810	1719	5.31	1797	0.74
TNT	149030	2592	2445	6.00	2565	1.03
3,4DNT	119216	1445	1391	3.89	1467	1.51
TETRYL	130671	1162	1405	17.30	1387	16.26
HMX	90640	1036	1040	0.35	1015	2.02

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/21/1998
Continuing Calibration #: 3
Continuing Cal Date : 05/22/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0521B,5
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	130904	2094	2043	2.51	2055	1.90
DNB	186938	3739	3706	0.88	3789	1.32
24DNT	208257	3332	3283	1.51	3348	0.48
4ADNT	199097	1731	1732	0.01	1757	1.45
2ADNT	327218	2618	2643	0.96	2689	2.65
RDX	84458	1351	1369	1.31	1354	0.18

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/21/1998
Continuing Calibration #: 4
Continuing Cal Date : 05/22/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0521C,10
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	145989	2539	2518	0.84	2480	2.40
26DNT	114291	1829	1719	6.38	1797	1.76
TNT	147646	2568	2445	5.01	2565	0.09
3,4DNT	117547	1425	1391	2.44	1467	2.89
TETRYL	161942	1439	1405	2.49	1387	3.79
HMX	88941	1016	1040	2.22	1015	0.11

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/21/1998
Continuing Calibration #: 4
Continuing Cal Date : 05/22/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0521C,11
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	127313	2037	2043	0.30	2055	0.90
DNB	182574	3651	3706	1.47	3789	3.62
24DNT	204417	3271	3283	0.36	3348	2.31
4ADNT	195497	1700	1732	1.82	1757	3.23
2ADNT	331021	2648	2643	0.19	2689	1.52
RDX	88902	1422	1369	3.88	1354	5.08

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/21/1998
Continuing Calibration #: 5
Continuing Cal Date : 05/23/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0521C,21
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	147786	2570	2518	2.08	2480	3.66
26DNT	117668	1883	1719	9.52	1797	4.77
TNT	154877	2694	2445	10.16	2565	4.99
3,4DNT	122544	1485	1391	6.80	1467	1.24
TETRYL	141971	1262	1405	10.15	1387	9.01
HMX	90788	1038	1040	0.19	1015	2.19

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/21/1998
Continuing Calibration #: 5
Continuing Cal Date : 05/23/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0521C,22
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	129467	2071	2043	1.38	2055	0.78
DNB	185909	3718	3706	0.33	3789	1.86
24DNT	206979	3312	3283	0.88	3348	1.09
4ADNT	196155	1706	1732	1.49	1757	2.91
2ADNT	327326	2619	2643	0.93	2689	2.62
RDX	84888	1358	1369	0.81	1354	0.33

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/21/1998
Continuing Calibration #: 6
tinuing Cal Date : 05/23/1998
tinuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0521C,27
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	142506	2478	2518	1.57	2480	0.05
26DNT	115068	1841	1719	7.10	1797	2.45
TNT	151515	2635	2445	7.77	2565	2.71
3,4DNT	122763	1488	1391	6.99	1467	1.42
TETRYL	126528	1125	1405	19.93	1387	18.91
HMX	92593	1058	1040	1.79	1015	4.22

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/21/1998
Continuing Calibration #: 6
Continuing Cal Date : 05/23/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0521C,28
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	118089	1889	2043	7.53	2055	8.08
DNB	178205	3564	3706	3.83	3789	5.93
24DNT	199194	3187	3283	2.91	3348	4.81
4ADNT	196925	1712	1732	1.10	1757	2.52
2ADNT	330110	2641	2643	0.08	2689	1.79
RDX	98240	1572	1369	14.80	1354	16.11

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Injection volume = 100uL

Amount Units = ng

COMPONENT NAME	AMT ON COL Level 1	AMT ON COL Level 2	AMT ON COL Level 3	AMT ON COL Level 4	AMT ON COL Level 5
TNB	4.600	23.000	57.500	115.000	230.000
26DNT	5.000	25.000	62.500	125.000	250.000
TNT	4.600	23.000	57.500	115.000	230.000
3,4DNT	7.000	35.000	82.500	165.000	330.000
TETRYL	9.000	45.000	112.500	225.000	450.000
HMX	7.000	35.000	87.500	175.000	350.000

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Injection volume = 100uL

Amount Units = ng

COMPONENT NAME	AMT ON COL Level 1	AMT ON COL Level 2	AMT ON COL Level 3	AMT ON COL Level 4	AMT ON COL Level 5
NB	5.000	25.000	62.500	125.000	250.000
DNB	4.000	20.000	50.000	100.000	200.000
24DNT	5.000	25.000	62.500	125.000	250.000
4ADNT	9.200	46.000	115.000	230.000	460.000
2ADNT	10.000	50.000	125.000	250.000	500.000
RDX	5.000	25.000	62.500	125.000	250.000

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-09
Calibration Date : 05/21/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
TNB	6.19	6.20	6.19	6.16	6.17
26DNT	6.75	6.76	6.75	6.71	6.72
TNT	7.42	7.43	7.42	7.38	7.39
3,4DNT	8.52	8.55	8.53	8.48	8.49
TETRYL	12.00	12.01	12.00	11.92	11.94
HMX	14.70	14.71	14.69	14.58	14.61

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
TNB	6.20	6.21	6.21	6.19	6.20
26DNT	6.77	6.80	6.78	6.76	6.78
TNT	7.44	7.46	7.45	7.42	7.44
3,4DNT	8.57	8.60	8.58	8.54	8.58
TETRYL	12.06	12.10	12.06	12.02	12.04
HMX	14.78	14.85	14.76	14.65	14.68

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
TNB	6.19	0.017	0.050	6.14 - 6.24
26DNT	6.76	0.027	0.081	6.67 - 6.84
TNT	7.42	0.025	0.075	7.35 - 7.49
3,4DNT	8.54	0.038	0.115	8.43 - 8.66
TETRYL	12.01	0.057	0.171	11.84 - 12.18
HMX	14.69	0.093	0.279	14.41 - 14.96

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-09
Calibration Date : 05/21/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
NB	5.37	5.38	5.37	5.36	5.37
DNB	6.02	6.02	6.01	6.01	6.01
24DNT	7.03	7.04	7.02	7.02	7.03
4ADNT	7.79	7.79	7.77	7.78	7.78
2ADNT	8.41	8.42	8.39	8.41	8.41
RDX	9.44	9.45	9.42	9.46	9.45

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
NB	5.40	5.42	5.39	5.40	5.40
DNB	6.05	6.07	6.04	6.04	6.05
24DNT	7.09	7.11	7.07	7.08	7.10
4ADNT	7.87	7.90	7.86	7.86	7.88
2ADNT	8.50	8.53	8.47	8.48	8.51
RDX	9.55	9.58	9.52	9.53	9.55

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
NB	5.38	0.020	0.061	5.32 - 5.44
DNB	6.03	0.020	0.061	5.97 - 6.09
24DNT	7.06	0.032	0.096	6.96 - 7.16
4ADNT	7.83	0.046	0.139	7.69 - 7.97
2ADNT	8.45	0.049	0.147	8.31 - 8.60
RDX	9.49	0.055	0.164	9.33 - 9.66

CALIBRATION FACTOR DAT
FORM 9E

A-STD

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
lumn ID : LC-CN-09
Calibration Date : 05/21/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
TNB	6.19	6.20	6.19	6.16	6.17
26DNT	6.75	6.76	6.75	6.71	6.72
TNT	7.42	7.43	7.42	7.38	7.39
3,4DNT	8.52	8.55	8.53	8.48	8.49
TETRYL	12.00	12.01	12.00	11.92	11.94
HMX	14.70	14.71	14.69	14.58	14.61

COMPONENT NAME	RT Cont CA6
TNB	6.17
26DNT	6.74
TNT	7.40
3,4DNT	8.52
TETRYL	11.95
HMX	14.53

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
TNB	6.19	0.017	0.050	6.14 - 6.24
26DNT	6.76	0.027	0.081	6.67 - 6.84
TNT	7.42	0.025	0.075	7.35 - 7.49
3,4DNT	8.54	0.038	0.115	8.43 - 8.66
TETRYL	12.01	0.057	0.171	11.84 - 12.18
HMX	14.69	0.093	0.279	14.41 - 14.96

B STD

CALIBRATION FACTOR DAT
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-09
Calibration Date : 05/21/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
NB	5.37	5.38	5.37	5.36	5.37
DNB	6.02	6.02	6.01	6.01	6.01
24DNT	7.03	7.04	7.02	7.02	7.03
4ADNT	7.79	7.79	7.77	7.78	7.78
2ADNT	8.41	8.42	8.39	8.41	8.41
RDX	9.44	9.45	9.42	9.46	9.45

COMPONENT NAME	RT Cont CA6
NB	5.40
DNB	6.04
24DNT	7.07
4ADNT	7.84
2ADNT	8.47
RDX	9.48

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
NB	5.38	0.020	0.061	5.32 - 5.44
DNB	6.03	0.020	0.061	5.97 - 6.09
24DNT	7.06	0.032	0.096	6.96 - 7.16
4ADNT	7.83	0.046	0.139	7.69 - 7.97
2ADNT	8.45	0.049	0.147	8.31 - 8.60
RDX	9.49	0.055	0.164	9.33 - 9.66

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33946
Instrument ID: IN10 Column ID: LC-CN-11

Dates of Anlayses: 06/01/98 to 06/02/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
INST. BLK.	INST.BLK.	06/01/98	18:40
PETN L1 SOIL STD	2-249:IA1	06/01/98	20:00
PETN L2 SOIL STD	2-248:IA2	06/01/98	20:26
PETN L3 SOIL STD	2-288:IA3	06/01/98	20:52
PETN L4 SOIL STD	2-246:IA4	06/01/98	21:19
PETN L5 SOIL STD	2-245:IA5	06/01/98	21:45
BL0514SD	BL0514SD	06/02/98	00:49
BIO-S-001-26-03-3	33946.05	06/02/98	01:42
BBIO-S-001-26-05-1	33946.06	06/02/98	02:09
PETN L3 SOIL STD	2-288:CA1	06/02/98	03:01
BIO-S-001-26-05-3	33946.08	06/02/98	03:28
BIO-S-001-26-05-3FD	33946.09	06/02/98	03:54
PETN L3 SOIL STD	2-288:CA2	06/02/98	06:58

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
umn ID : LC-CN-11

Inj 1

Injection File Name Level 1 : 3PC0601,4
Injection File Name Level 2 : 3PC0601,5
Injection File Name Level 3 : 3PC0601,6
Injection File Name Level 4 : 3PC0601,7
Injection File Name Level 5 : 3PC0601,8

Calibration Date : 06/01/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

COMPONENT NAME	Area Level 1	CAL FACTOR Level 1	Area Level 2	CAL FACTOR Level 2	Area Level 3	CAL FACTOR Level 3	Area Level 4	CAL FACTOR Level 4	Area Level 5	CAL FACTOR Level 5
PETN	1826	913	18196	1137	32352	1011	150688	1177	321611	1256

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
lumn ID : LC-CN-11

Inj 1

Injection File Name Level 1 : 3PC0601,4
Injection File Name Level 2 : 3PC0601,5
Injection File Name Level 3 : 3PC0601,6
Injection File Name Level 4 : 3PC0601,7
Injection File Name Level 5 : 3PC0601,8

Calibration Date : 06/01/1998
Number of Calibration Levels: 5
Line forced thru zero : Yes
Calculation Method : Area

Component Name	Mean Cal Factor	% RSD	Corr. Coeff.	Slope area/amt	Intercept
PETN	1099	12.43	0.99942	1239	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 06/01/1998
Continuing Calibration #: 1
Continuing Cal Date : 06/02/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-11
Injection File Name : 3PC0601,20
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
PETN	38691	1209	1099	10.02	1239	2.39

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 06/01/1998
Continuing Calibration #: 2
Continuing Cal Date : 06/02/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-11
Injection File Name : 3PC0601,29
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
PETN	38271	1196	1099	8.83	1239	3.45

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Injection volume = 100uL

Amount Units = ng

COMPONENT NAME	AMT ON COL Level 1	AMT ON COL Level 2	AMT ON COL Level 3	AMT ON COL Level 4	AMT ON COL Level 5
PETN	2.000	16.000	32.000	128.000	256.000

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

trument ID : IN10
umn ID : LC-CN-11
Calibration Date : 06/01/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
PETN	18.18	17.90	17.97	17.95	17.95

COMPONENT NAME	RT Cont CA1	RT Cont CA2
PETN	18.34	18.37

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
PETN	18.09	0.199	0.598	17.49 - 18.69