DEPARTMENT OF THE NAVY
CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
300 HIGHWAY 361
CRANE, INDIANA 47522-5000

IN REPLY REFER TO:

5090
Ser 095/0254

28 MAY 2000

U.S. Environmental Protection Agency, Region V
Waste, Pesticides, & Toxics Division
Waste Management Branch
Illinois, Indiana, and Michigan Section
Attn: Mr. Peter Ramanauskas (DW-8J)
77 West Jackson Blvd.
Chicago, IL 60604

Dear Mr. Ramanauskas:

Crane Division, Naval Surface Warfare Center (NAVSURFWARCENDIV Crane) submits for review and incorporation two copies of the response to comments dated June 2000 and replacement pages for the Draft Interim Measures Report (IMR) for Mine Fill A (MFA), dated August 2000, as enclosure (1). Enclosure (2) is the required certification statement.

NAVSURFWARCENDIV Crane point of contact is Ms. Christine D. Freeman, Code 09511, telephone 812-854-4423.

Sincerely,

James M. Hunsicker

JAMES M. HUNSICKER
Director Environmental Protection Department
By Direction
Of The Commander

Encl:
(1) Response to Comments/Replacement pages- MFA Draft IMR
(2) Certification Statement

Copy to:
Administrative Record
IDEM (D. Griffin)
MK Cleveland
SOUTHNAVFACENGCOM (Code 1864)(w/o encls)
TOLTEST Crane

5090
Ser 095/0254

28 NOV 2000

The letter Ser 095/0254 was for the submittal of response to comments and replacement pages for the Mine Fill A Bioremediation Interim Measures Report. The replacement pages have been incorporated into the previously submitted plan on 08/29/00.

DRAFT INTERIM MEASURES REPORT
REMOVAL AND BIOREMEDIATION OF MINE FILL A MATERIAL
NAVAL SURFACE WARFARE CENTER CRANE, INDIANA

ERRATA SHEET

1. Remove cover page and binder spine, dated 6/26/2000 and replace with revised cover and binder spine, dated 10/27/2000.
2. Remove inside cover and signature page, dated 6/26/2000 and replace with inside cover and signed signature page, dated 10/27/2000.
3. Remove cover page from Appendix I (second 5 inch binder), dated June 2000, and replace with revised cover, dated October 2000.
4. Remove pages 2-1 through 2-3, dated 6/26/2000 and replace with revised pages 2-1 through 2-3, dated 10/27/2000.
5. Remove pages 3-1 and 3-2, dated 6/26/2000 and replace with revised pages 3-1 and 3-2 dated 10/27/2000.
6. Remove page 5-1, dated 6/26/2000 and replace with revised page 5-1 dated 10/27/2000.
7. Remove all of Section 6.0, pages 6-1 through 6-12, dated 6/26/2000 and replace with revised Section 6.0 pages 6-1 through 6-13, dated 10/27/2000.
8. Remove the Table of Contents of Appendix F and replace with revised Table of Contents, dated 10/27/2000.
9. In the 5th drawing sleve, add the supplemental drawing for Building 158/159 which provides sample numbers and coordinates for the April 13, 1999.
10. To the end of Appendix F, add the as-built drawings in sleeves for Buildings 158/159, Building 153/154, and Building 152.
11. Remove Drawing J1 page 1 of 4 in Appendix J and replace with revised drawing J1, dated 10/27/2000.

ATTACHMENTS TO THE RESPONSE TO COMMENTS

Attachment 1 to the response to comments provides Southwest Laboratories SOP for method 5035.

Attachment 2 to the response to comments provides analytical data sets for EPA review as discussed in Comment 7.

Attachment 3 to the response to comments provides analytical data which demonstrates the TNT interference seen in the surrogate recovery as discussed in Comment 10.

RESPONSES TO COMMENTS ON
DRAFT INTERIM MEASURES REPORT
REMOVAL AND BIOREMEDIATION OF MINE FILL A MATERIAL
NAVAL SURFACE WARFARE CENTER CRANE, INDIANA
DATED JUNE 2000

Commentor: Peter Ramanauskas - United States Environmental Protection Agency

Comment 1: In the second paragraph of Section 2.1, in addition to the explanation of the reactivity characteristic, note if tests were done on the soils to determine other hazardous waste characteristics (i.e., corrosivity, flammability, and toxicity).

Response 1: Section 2.1 has been revised to reflect that corrosivity and flammability were not performed based on review of in-situ soil analysis. Toxicity analysis has been performed on SWMU specific contaminants and others identified by the US EPA on a total basis with a correction factor of 20 used to check if the values were below the toxicity characteristic leaching procedure (TCLP) regulatory limits.

Comment 2: In sections 3.1.2 and 3.1.3, reference is made to totals/arsenic results not exceeding "20 times the TCLP limit." This should be clarified to state that the totals results multiplied by an estimation factor of 20 did not exceed the TCLP regulatory limit. If the TCLP limit is exceeded, the material is classified as possessing the hazardous waste characteristic of toxicity. As it is currently written, it would appear that the multiplication factor of 20 is improperly being applied to the TCLP regulatory limit.

Response 2: Text in Sections 3.1.2 and 3.1.3 have been revised to clarify how the estimation factor of 20 was used.

Comment 3: In Section 5.1, please provide a brief description of the hydroseeding process and why it was unsuccessful at the permanent storage areas near Building 154 and 157.

Response 3: Section 5.1 has been revised with the following text:

Hydroseeding was performed at Crane using a seed and cellulose binder mix. This mix was sprayed directly onto the compost mixture. The cellulose binder holds the seeds in place and prevents erosion, and should decrease the rate of water evaporation from the soil. However, hydroseeding at the first permanent storage areas, north of Building 154 and around Building 157 was unsuccessful. The hydroseeding was attempted in the summer when it was hot and dry, so insufficient watering may have caused poor germination. Also, there is a possibility that it may have been a bad batch of seed or not enough seed was applied. Both of these areas, in addition to a third area near Building 152, were subsequently seeded and watered. Grass is now growing at all of these locations.

Comment 4: Generally, throughout Section 6.0, the Navy cites results for soil VOCs which were undetectable, or negligible compared to soil screening levels. Efforts were made in early 1998 to incorporate the concepts of Norm Niedergang's Directive for Change (December 1997) memorandum for using Method 5035 for reporting soil VOCs data. Accordingly, the approved QAPP contains references to use of EnCore samplers for performing proper

VOCs sample collection and the field SOP was modified to include the use of EnCore samplers.

However, the Southwest Laboratory seems not to have been updated to include Method 5535, Section 8.8 of this SOP, written for analysis of soils, describes the Method 5030 technique, which is the one that Method 5035 effectively replaced in June of 1997. The Southwest SOP is dated July 23, 1997. We would like to verify that Southwest Laboratories have analyzed EnCore samples appropriately even though the SOP does not reflect this. Please document how the soil VOC data has, and is, being generated by Southwest Laboratories.

Response 4: Southwest incorporated method 5035 into their SOP in September of 1998. All Initial Characterization Samples (ICS) and Post Excavation Samples (PES) collected during full scale operations were collected using EnCore samplers. Appendix A to the lab SOP which incorporates provisions for VOC analysis based on a closed system purge and trap GC/MS method has been attached for your review.

Comment 5: Metals results were frequently imprecise. The Navy is referred to the 1996 memorandum by Dave Payne on the improvement of soil samples intended for metals analysis by sample particle reduction and homogenization prior to sample digestion (Appendix Q of the Region 5 Model QAPP).

Response 5: Precision of the laboratory for metal compounds were assessed through the analysis of laboratory duplicates and the calculation of RPD. RPD criteria was established at 0 - 25% for soils and compost.

In the evaluation of ICS, 14% of the batches (or 28 batches) had levels which exceeded this 25% for soil. In the 200 batches of samples for metals analysis, there were 617 samples and 4570 actual separate metals analyzed. Only 241 metals compounds were flagged as exceeding the RPD criteria which represents 5% of the metals reported. Of course, only one replicate is performed in a batch, and all results of that batch are flagged accordingly. Similar evaluation of PES finds comparable numbers. There were 299 samples analyzed for PES metals, which represents 1702 different metal results reported. Of these, only 89 resulted in "*" flags which represent RPD values in excess of 25%.

The recommendation which Dave Payne makes in his memorandum is for drying soil samples prior to collecting aliquots for analysis. This recommendation provides some interesting ideas for "wet" soil samples, however, most ICS samples and PES samples do not usually contain a sufficient amount of water which would alter the precision of the result to a significant level.

Comment 6: While numerous paragraphs throughout Section 6.0 indicate that there were cases where QC acceptance ranges were exceeded for certain analyses, there is very little indication

as to how far out of range the off spec QC data actually was. Please provide further definition of the ranges for off spec data.

Response 6: Additional data has been provided throughout Section 6.0 to provide data ranges for the small percentage of data which was out of QC specifications.

Comment 7: Please submit the following data sets for EPA review:

1. Initial characterization samples MFA1CS503, MFA1CS519, MFA1CS570, and MFA1CS574FD for explosives compounds (8330 analysis). Include sample collection documentation sheets/holding time information, extraction logs, continuing calibration results, raw data and chromatograms including confirmatory column data, and all supporting sample QC data (including field duplicates) for respective sample data groups.

2. Initial characterization samples MFAICCS588, MFAICCS589, and MFAICCS590 for metals analysis (including mercury), Data should be provided for all analytes and all supporting QC sample data (including field duplicate data) for the respective metals.

3. For Post-Excavation Samples MFAPES274, MFAPES276, and MFAPES278, submit data packages as outline in item #1 above for the explosives parameters.

4. For Windrow #13, submit sample data constituting the "Day Last" determination (i.e., all the individual cross-sections that were analyzed) for the explosives determination. Level of QC documentation should be at the level of item # 1 above.

5. Submit the sample data package for BIO-S-061 "Day Last" [Day 8] (i.e., all the individual cross sections that were analyzed) for the explosives determination. Level of QC documentation should be at the level of item # 1 above.

6. Select 3 of the 7 Windrow Monitoring samples reported as estimated values as described in the third paragraph of page 6-10, Section 6.2.5.2. Submit the explosives data packages as outlined in item #1 above.

Response 7:

1. ICS samples for explosives has been provided for EPA review in the following order:
   a) MFAICS503 and associated Rinse Blank
   b) MFAICS519
   c) Rinse Blank (CRAR0406) associated with sample MFAICS519
   d) Field Duplicate (MFAICS555)associate with MFAICS503 and MFAICS519
   e) MFAICS570 and MFAICS574FD

f) Rinse Blank (MFAICSRB042498) associated with samples MFAICS570 and MFAICS574FD

2. MFAICS588 and MFAICS590 have been provided for your review for metals analysis. Note however, sample MFAICS589 was only analyzed for Volatiles. The remaining samples from the analytical batch have been included for your review for metals including mercury (MFAICS582, MFAICS584, MFAICS585, MFAICS587, MFAICS591, and MFAICS593).

3. Data has been submitted.

4. Data has been submitted. Analytical data package contains a field duplicate and a rinse blank.

5. Data has been submitted.

6. Data has been submitted.

Comment 8: In sections 6.2.4.1 and 6.2.5.2, it is mentioned that noted temperature blank exceedances (i.e., exceeding 4 degrees C) should not impact results. However, this may not be true, especially in the case of Method 8330 nitroaromatic or volatile aromatic compounds. In these cases, it would be of interest to know what the overall holding time was from time of sample collection to time of analysis (or extraction). Perhaps some of this data could be flagged as "low bias" as well.

Response 8: Section 6.2.4.1 pertains to PES soil samples collected by MK. There were 41 of 209 samples that were received at a temperature range between 6.2 and 6.8°C. These samples did not remain at this temperature from time of collection to time of extraction. They left the site, iced and cooled to approximately 4°C, but by the time they reached the laboratory were at temperatures greater than 6.0°C. The lab would have then stored these samples in a refrigerator bringing their temperature back down to approximately 4°C. The samples were analyzed for metals by Method 6010B, Explosives by Method 8330, and/or Volatiles by Method 8260. Method 6010B makes no provisions for temperature preservation of samples, therefore; the metal results are not impacted by the elevated temperature. The first step in the preparation of soil samples for analysis by Method 8330 requires samples to be dried at room temperature or colder to a constant weight. The lab air dries samples at room temperature, approximately 21°C, so receiving samples between 6.2°C and 6.8°C will not affect this analysis either. VOC analysis by method 8260 would be affected by temperature, however the impact of 0.8°C outside of temperature limits seems negligible when considering that all analytes were at least four orders of magnitude below the cleanup objectives.

Section 6.2.5.2 pertains to the Windrow samples collected by Toltest for the analysis of Explosives. As stated above, the first step in the preparation of soil samples for analysis by Method 8330 requires samples to be air dried at room temperature or colder to a

constant weight. The lab air dries samples at room temperature, therefore, the samples are not maintained at 4± 2°C once they reach the lab so the slightly elevated temperature of the samples when received would not likely impact the analytical results.

Comment 9: In Section 6.2.4.2, it is stated that only one rinsate blank was collected for the field samples. The Navy must follow the rinsate blank collection frequency noted in the approved QAPP Section 4.6.2.

Response 9: The required frequency of one rinse blank for every 20 samples has been followed. There were 105 PES samples collected by Toltest, of these 14 were trip blanks, 1 was a rinse blank, 10 were field duplicates (which are not included because they don't require a separate rinse between samples), and 41 were collected by Encore samplers that are considered disposal equipment. Therefore, 39 Toltest samples collected with non-disposable equipment, which requires rinsing between samples are included in this report. Rinsate blanks are collected every 20 samples (ie. After sample 20, 40, 60, etc.). The next PES sample collected for analysis (40th sample) is scheduled to have a rinse blank collected with it.

Comment 10: On page 6-11, the third paragraph mentions that surrogate recoveries were low in cases where high TNT concentrations were found. These results are attributed to a matrix effect. However, if the samples had to be diluted, what is the possibility of this being an effect of dilution?

Response 10: In many of these cases, TNT concentrations were still within the linear range of the instrument, and subsequent dilutions were not required. As an example, the results of analysis for sample BIOS06100032 have been included for your review. From the primary column chromatographic report it is apparent that the surrogate; 3,4-DNT suffers from interference from the TNT peak. Both compounds have response times within 0.61 minutes of each other. Second column confirmation has retention times that do not provide as much overlapping of peaks, however, the lab consistently reports all surrogate recoveries from the primary column, thus resulting in the elevated surrogate recovery when high concentrations of TNT exist.

Comment 11: Please provide a brief description of the rationale for the Initial Characterization Sampling around buildings 151 and 160 as these areas are not included in the Soil Excavation Plan for Mine Fill A (FSOP Appendix E1) dated 02/09/1998.

Response 11: Characterization Sampling near Building 151 and Building 160 was done at the Navy's request on 3/30/98. Due to construction activities scheduled near those buildings, characterization sampling was performed using the grid sampling procedure in areas of potential contamination: near vents, roof drains, and swales. This was not done to characterize the entire building, but rather to identify possible sources of contamination in

the area before other site work could be performed.

Comment 12: Please provide figures in Appendix J showing final disposition of Windrows 9, 11, 13, 14, 24, and 36. Also provide a figure showing location of the staging area containing Windrows 92, 93, 98, 101, and 102.

Response 12: Windrows 9 and 36: Drawing J1 page 1 of 4 has been revised to reflect the placement of these windrows.

Windrows 11, 13, 14, and 24: These four windrows were field applied. As stated in Section 5.1, "some compost material was field applied to promote vegetative growth." Compost was added to the front berm at Building 154 and to the area near Building 158 prior to seeding in the spring. The disposal and field application of these four windrows took place on 3/21/99.

Windrows 92, 93, 98, 101, and 102: These windrows were staged at the temporary staging area, and at this time are still awaiting final placement. Until final placement is made, or the temporary staging area is re-identified as the final staging area, these windrows will not be placed on the figures.

Comment 13: Figure J1 (Page 1 of 4) shows the Grid #40 has been backfilled with Windrow #97. However, as noted on Figure G1 and in Table 3-2, Grid #40 is still awaiting excavation along with 16 other grids. Please clarify this. Note that the remaining grids (23, 24, 26, 29, 33, 34, 35, 36, 38, 40, 131, 132, 133, 135, 171, 172, 173) may be excavated and processed at the Navy's discretion.

Response 13: Initially, Windrow 97 was placed in the permanent placement area. However, it was later dug out and put on the berms at B-154 as top cover. This was done because the original compost which was placed in the berms had settled down approximately twelve inches. Windrow 97 was placed on top to bring it back up to the desired grade. The grids that it covered were initially reported as Grids 1, 2, 3, 13, 14, 39 and 40. However upon re-evaluation, it has been determined that Windrow 97 was placed on top of grids 1, 2, 3, 13, 14, & 122 - 127. Figure J1 has been corrected.

Interim Measures Report
Removal and Bioremediation of Mine Fill A Material

Attachments to the Responses to EPA Comments

NSWC Crane
Crane, Indiana

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

October 2000

Southern Division
Naval Facilities Engineering Command
North Charleston, South Carolina
29419-9010

ATTACHMENT 1

APPENDIX A—SW-846 METHOD 5035 FOR VOLATILES

1.0. SCOPE AND APPLICATION

1.1 The analytical method that follows is designed to analyze soil samples from sites for volatile compounds based on a closed-system purge and trap GC/MS method.

1.2 The reporting limits and compounds listed in Table 7 are normal limits and compounds analyzed by this method.

2.0. SUMMARY OF METHOD

2.1 Low-level volatile organic compounds are determined by collecting approximately 5g of sample, weighed in the field at the time of collection, and placing it in a pre-weighed vial with a septum-sealed screw-cap that already contains a stirring bar and 5mL of sodium bisulfate preservative solution. The entire vial is placed, unopened, onto the instrument. Immediately before analysis, organic-free reagent water, surrogates, and internal standarc are automatically added without opening the sample vial.

2.2 The sample introduction technique in Appendix Section 2.1 is not applicable to medium-level samples. Medium-level volatile organic compounds are determined by collecting approximately 5g of sample, weighed in the field at the time of collection, and placing it in a pre-weighed vial with a septum-sealed screw cap that already contains a stirring bar and 10mL of methanol preservative. Analysis of the medium level sample proceeds as stated earlier in the SOP in Section 8.

2.3 An alternative procedure to submitting sample vials to the laboratory is the submission o Encore Samplers. Transfer of the sample into the appropriate preservative is then performed at the laboratory.

3.0. HEALTH AND SAFETY

3.1 Some of the reagents solvents, and other chemicals used in this method have been clearl defined as toxic and/or carcinogenic. Most, however, remain in question or are not precisely defined with respect to the hazards of handling. All chemicals and samples, therefore, are treated as potentially hazardous, and exposure to them is minimized. Also the MSDS for all stock solutions, reagents, and solvents used are kept on file in an easily accessible place in the lab. Any spills that may occur are cleaned up immediately.

4.0. SAMPLE PRESERVAION, CONTAINERS, HANDLING & STORAGE

4.1 All soil samples are to be preserved, whether it is performed in the field or in the laboratory.

4.2 Samples are stored at 4 +/- 2 C. All samples must be allowed to warm to ambient temperature before analysis.

5.0. INTERFERENCES AND POTENTIAL PROBLEMS

5.1 The same sources of contamination stated in Section 5.0 of this SOP apply to Method 5035.

6.0. APPARATUS AND MATERIALS

6.1 Purge and Trap Device---The purge and trap device consists of the sample purger, the trap, and the desorber. The sample purger must be capable of analyzing a soil by means of a closed-system autosampler. It must also have the capability of automatically adding internal standard and surrogate without opening the sample vial. Sample purgers include the Tekmar Precept II and the Varian Archon.

6.2 Magnetic Stirring Bars—PTFE- or glass coated bars of the appropriate size to fit in the sample vials. Stirring bars may be reused, provided they are thoroughly cleaned between uses.

6.3 Encore Sample Extractor---Metal device used to extract soil sample out of Encore Samplers into VOA vials.

7.0 REAGENTS AND STANDARDS

7.1 Reagent water — Produced by filtering tap water through an organic filtration system containing activated charcoal prior to use.

7.2 Methanol — Pesticide quality or equivalent.

7.3 Secondary dilution standards — Using commercially prepared standard solutions, secondary dilution standards that contain the compounds of interest, either singly or mixed together, are prepared in methanol. Secondary dilution standards should be stored with minimal headspace and should be checked frequently for signs of degradation or evaporation especially just prior to preparing calibration standards from them. Secondary dilution standards are used until degradation is verified through daily calibration checks.

7.4 Internal Standard and Surrogate Spiking Solution — The internal standards are Pentafluorobenzene, 1,4-Difluorobenzene, Chlorobenzene-d_5, and 1,4-Dichlorobenzene-d_4. The surrogates are Dibromofluoromethane, Toluene-d_8, 4-Bromofluorobenzene, and 1,2-Dichloroethane d_4. One internal standard and surrogate standard solution is prepared containing the above at a concentration of 250 µg/mL in methanol.

7.5 Sodium Bisulfate—ACS reagent grade or equivalent

8.0 PROCEDURE

8.1 Sample Containers: Clients may submit samples to the laboratory in one of two ways; In preserved 40mL VOA vials or in a device such as the Encore sample.

8.1.1 Preserved 40mL VOA Vials

8.1.1.1 Before sampling, the 40mL VOA vials must be prepared. This preparation may be performed by our laboratory or the client responsible for sampling. The specific preparation procedure depends on the expected concentration range of the sample. If the concentration range is unknown, enough sample should be taken to prepare both low and high concentration vials.

8.1.1.2 Sample vials should be prepared in a controlled environment, sealed, and shipped to the field location. The vials containing preservative for low concentration soil samples should be prepared by the following steps:

- Add a clean magnetic stirring bar to each clean vial.
- Add 1g of NaHSO4 preservative to each vial.
- Add 5mL of organic-free reagent water to each vial.
- Seal the vial with the screw-cap and septum seal.
- Affix a label to each vial.
- Weigh the prepared vial to the nearest 0.01g, record the weight, and write it on the label.

8.1.1.3 The vials containing preservative for high concentration soil samples should be prepared using the following steps:

- Add 10mL of methanol to each vial.
- Seal the vial with the screw-cap and septum seal.
- Affix a label to each vial.
- Weigh the prepared vial to the nearest 0.01g, record the weight, and write it on the label.

8.2 Sample Collection: Samples may be collected in either an Encore sampler or in preserved VOA vials.

8.3 Sample Storage:

8.3.1 If samples arrive at the laboratory in Encore Samplers, they must be analyzed or preserved within 48 hours of sampling. Preservation is performed in the same manner as stated above, depending on the expected sample concentration level.

8.3.2 After the vial containing the preservative is weighed, the sample core is removed from the Encore Sampler and added to the vial.

8.3.3 The vial is weighed again to determine the precise weight of the sample.

8.4 Instrument Requirements: Low level samples requiring Method 5035 must be analyzed on the Tekmar Precept or Varian Archon to accommodate the "closed-system" requirements.

8.5 All other calibration and sample analysis procedures would be performed as stated in Sections 8.0 through Sections 12.0 of the SOP. with specific regards to the Teckmar Precept, Varian Archon. or equivalent.

ATTACHMENT 2

MORRISON KNUDSEN CORPORATION

CHAIN OF CUSTODY RECORD

COC #54

720 Park Blvd., P.O. Box 73
Boise, Idaho 83729
(208) 386-5000

Project No.: 4324-0007-047-35
Project Name: NSWC Crane Bioreactor Facility
Samplers: (Signature)
Sampler: (Print) Ryan H. Ewin

Analysis Required: 8330/Explosives; Cold Metals; TCLP Metals; 8240 VOC; RCRA Metals

Sample Type	Sampling Point Description	Sample Date	Time	Sample I.D. Number	Split Samples Yes	Split Samples No	8330/Explosives	Cold Metals	TCLP Metals	8240 VOC	RCRA Metals	Remarks
Soil	Grid 112 comp. 0-12"	3/27/98	1240	CRA/MFA ICS 501		✓	✓	✓	✓			Mine Fill A
	Grid 112 grab 12-18"		1249	CRA/MFA ICS 502		✓				✓		Pre-Excavation
	Grid 112 comp. 24-36"		1257	CRA/MFA ICS 503		✓	✓	✓	✓			Sampling
	Grid 113 comp. 0-12"		1415	CRA/MFA ICS 504		✓	✓	✓	✓			
	Grid 113 grab 12-18"		1420	CRA/MFA ICS 505		✓				✓		
	Grid 113 comp. 24-36"		1445	CRA/MFA ICS 506		✓	✓	✓	✓			
	Grid 101 comp 0-12"	3/30/98	0831	CRA/MFA ICS 507		✓	✓	✓	✓			
	Grid 101 grab 12-18"		0848	CRA/MFA ICS 508		✓				✓		
	Grid 101 comp 24-36"		0903	CRA/MFA ICS 509		✓	✓	✓	✓			
liquid	rinse blank		1102	CRA/MFA R0330		✓	✓				✓	
Soil	Grid 102 comp 0-12"	3/31/98	0815	CRA/MFA ICS 510		✓	✓	✓	✓			
	Grid 102 grab 12-18"		0820	CRA/MFA ICS 511		✓				✓		
	Grid 102 comp 24-36"		0840	CRA/MFA ICS 512		✓	✓	✓	✓			
	Grid 114 comp 0-12"		0940	CRA/MFA ICS 513		✓	✓	✓	✓			Southwest
	Grid 114 grab 12-18"		0954	CRA/MFA ICS 514		✓				✓		Labs
	Grid 114 comp 24-36"		1008	CRA/MFA ICS 515		✓	✓	✓	✓			
liquid	trip blank		1530	CRA/MFA ~~ICS~~ T0331		✓				✓		

Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:	Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:
Ryan H. Ewin	3/31/98 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:	Date/Time	Total No. Samples This Shipping Container: / Company:
				4/1/98 0900	
Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:	Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:

Sa #c 2110 2110

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2.WB1) / SWL-GA-115 Rev. 5.0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA / AMERICAN ANALYTICAL & TECH. SRVS.

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): KIM WILLISON / SARAH HODSON

RECEIVED BY (SIGNATURE): K Willison

LOGGED IN BY (SIGNATURE): K Willison

REC'D DATE: 4-1-98

TIME REC'D: 0900

LOG-IN DATE: 4-1-98

PROJECT:	EPISODE:	SAMPLE DELIVERY GROUP:
NSWC Crane	33393	33393

REMARKS:

1. CUSTODY SEAL(S): PRESENT / ABSENT; INTACT / BROKEN
2. CUSTODY SEALS NOS.: NA
3. CHAIN - OF- CUSTODY, PRESENT / ABSENT
   SEALED IN PLASTIC? YES / NO
   TAPED TO LID? YES / NO
   PROPERLY FILLED OUT (INK, SIGNED, ETC.)? YES / NO
4. AIRBILL: AIRBILL / STICKER PRESENT / ABSENT
5. AIRBILL NO: 8008118245 15
6. COOLER CONDITIONS
   ENOUGH ICE? YES / NO
   TYPE OF ICE? wet
   TYPE OF PACKING? bubbles
7. SAMPLE TAGS: PRESENT / ABSENT
8. SAMPLE CONDITION: INTACT / BROKEN* / LEAKING
   BOTTLES SEALED IN SEPARATE PLASTIC BAGS? YES / NO
   CORRECT CONTAINERS USED FOR FOR TESTS INDICATED ? YES / NO
   CORRECT PRESERVATIVE ? YES / NO
   SUFFICIENT SAMPLE ? YES / NO
   LABELS COMPLETE (I.D., DATE, TIME, SIGNATURE, PRESERVATIVE ? YES / NO
   VOA SAMPLES WITHOUT BUBBLES ? YES / NO~
9. DOES INFORMATION ON CUSTODY RECORDS, LABELS, TAGS AGREE? YES / NO*
10. RAD SCREEN WITH GIEGER COUNTER? YES / NO
11. P.O. CALLED ? YES* / NO

CLIENT SAMPLE #	SAMPLE FRACTION@	ASSIGNED LAB #	COOLER I.D.	pH CHECK	ACID / BASE LOT #:	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
CRA/MFAICS501	B,M	.01	MKF-01 4-1-98-2			3°
502	V	.02				
502 ms		.03				
502 msD		.04				
503	B,M	.05				
504		.06				
505	V	.07				
506	B,M	.08				
507		.09				
508	V	.10				
509	B,M	.11				
509 ms		.12				
509 msD		.13				
CRA/MFAR0330		.14		✓		
CRA/MFAICS510		.15				
511	V	.16				
512	B,M	.17				
513		.18				
514	V	.19				
515	B,M	.20				
CRA/MFAT0331	V	.21				

Bras +1.5

Contact PO and attach record of resolution

@ Sample Fractions: B= SV GC/MS, V= VOA GC/MS or GC , P=Pesticide,H=Herbicide, D= Dioxin, A=Air, I=inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.

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SDG NARRATIVE

April 28, 1998

CLIENT : MKF-OH
CASE : NSWC CRANE
SDG : 33393
EPISODE(S): 33393
FRACTION : EXPLOSIVES
SAMPLE(S) : CRA/MFAICS501, CRA/MFAICS503, CRA/MFAICS504, CRA/MFAICS506, CRA/MFAICS507, CRA/MFAICS509, CRA/MFAR0330, CRA/MFAICS510, CRA/MFAICS512, CRA/MFAICS513, CRA/MFAICS515

This SDG consisted of 10 soil and 1 water samples with applicable MS and MSD for explosives analysis. The samples, blanks and spikes were extracted and analyzed according to EPA protocol, SW-846, method 8330, REV. 0, 1994.

For soil samples, the percent moisture is determined by drying them at 105° C at the time of receipt. Additional portion of the samples is air-dried prior to analysis. The results are reported on the basis of the air-dried samples. For high-level water samples, direct injection method is used. For low-level water samples, salting out method is used. All of the extracts are diluted by a factor of two prior to analysis according to method 8330. The extracts are diluted in order to be the same consistency as the Mobile Phase.

"P" flags were used when the appropriate compound with sufficient response exceeded 40% deviation, possibly due to interference in the quantitation or confirmation columns.

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CASE SUMMARY:

SOIL:

Due to retention time shift in the quantitational analysis, all of the samples in the above SDG were re-analyzed. In the original analysis the retention window was enlarged to detect all of the analytes of interest.

In the preliminary data, HMX was reported with a "J" flag in the sample CRA/MFAICS503. The analyte was detected slightly above the PQL in the re-analyzed sample.

HMX was "JP" flagged and RDX was "J" flagged in the preliminary data of the sample CRA/MFAICS506. In the re-analyzed, sample HMX was "J" flagged and RDX was detected slightly above the PQL.

Due to concentration of analytes and possibly coelution of 4ADNT, the analyte was not reported in the preliminary data of the sample CRA/MFAICS507. The analyte was reported in the re-analyzed sample. In the re-analyzed sample, an interfering peak was detected as 2NT. Since the analyte was not detected in the original analysis, 2NT was not confirmed and this analyte was not reported.

The interfering peak was detected as 2NT in the re-analysis of the sample CRA/MFAICS510. Since the peak was not detected in the original sample, the analyte was not confirmed and it was not reported. With the exception of HMX and RDX, all of the analytes were diluted out in the 100X dilution of this sample. The surrogate (3,4DNT) was diluted out in the 100X dilution of this sample. The analyte was "D" flagged on the form 2E (the surrogate recovery form).

The interfering peak was detected as 2NT in the re-analysis of the sample CRA/MFAICS512. Since the peak was not detected in the original sample, the analyte was not confirmed and it was not reported. 4ADNT was not reported in the original sample. The analyte was reported in the re-analyzed sample.

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Due to concentration of analytes and possibly coelution of 4ADNT, the analyte was not reported in the preliminary data of the sample CRA/MFAICS513. The analyte was reported in the re-analyzed sample. 4ADNT was diluted out in the 10X dilution of the confirmational analysis of this sample and the analyte was detected below the PQL in the quantitational analysis. Therefore, the analyte was not reported.

Some of the analytes were out of the QC limits and RPD limits in the matrix spike and the matrix spike duplicate possibly due to non-homogeneity of the samples. These samples were within the QC limits in the laboratory control spike (LCS) and the laboratory control spike duplicate (LCSD).

Any reported 2ADNT might be a false positive hit since the analyte elutes at the same retention time as the surrogate (3,4DNT). Therefore, there is no positive way to confirm this analyte, unless the sample detecting such an analyte in the quantitation column is to be reextracted without a surrogate and analyzed for the confirmation for positive hit.

WATER:

TNT exceeded the QC limits in the matrix spike and matrix spike duplicate. The analyte was within the QC limits in the laboratory control spike (LCS) and the laboratory control spike duplicate (LCSD).

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The explosives referred to in the data package by the abbreviations found in method 8330 are as follows: HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine), RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine), TNB (1,3,5-Trinitrobenzene), DNB (1,3-Dinitrobenzene), Tetryl (Methyl-2,4,6-trinitrophenylnitramine), NB (Nitrobenzene), TNT (2,4,6- Trinitrotoluene), 24DNT (2,4-Dinitrotoluene), 26DNT (2,6-Dinitrotoluene), 2NT (o-Nitrotoluene), 3NT m-Nitrotoluene), 4NT (p-Nitrotoluene) , PETN (Pentaerythritol tetranitrate), 2ADNT (2-Amino-4,6-dinitrotoluene), 4ADNT (4-Amino-2,6-dinitrotoluene).

We use the following flags where appropriate. "J" - indicates a quantitated result, which is below the quantitation limit, but above the detection limit and has been confirmed by the second column. "E"- indicates an out of range value, i.e., a peak that is off-scale or out of the linear calibration range of the detector. The value reported is not to be used. The sample must be diluted and re-run. "D" - indicates a value derived from a secondary dilution. "U" - indicates the compound that is undetected above the quantitation limit. "X" - indicates a comment which is explained in the case narrative.

Shahriar Shahreza

LC Supervisor

2E

EXPLOSIVE SURROGATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33393

	SAMPLE NUMBER	S1 #	OTHER
1	CRA/MFAICS501	103	0
2	CRA/MFAICS501 10X	100D	0
3	CRA/MFAICS503	108	0
4	CRA/MFAICS504	110	0
5	CRA/MFAICS506	110	0
6	CRA/MFAICS507	95.5	0
7	CRA/MFAICS507 10X	108D	0
8	CRA/MFAICS509	96.7	0
9	CRA/MFAICS509 MS	100	0
10	CRA/MFAICS509 MSD	109	0
11	CRA/MFAR0330	107	0
12	CRA/MFAR0330 MS	121	0
13	CRA/MFAR0330 MSD	127	0
14	CRA/MFAICS510	91.4	0
15	CRA/MFAICS510 100X	D	0
16	CRA/MFAICS512	107	0
17	CRA/MFAICS512 5X	102D	0
18	CRA/MFAICS513	100	0
19	CRA/MFAICS513 10X	97.6D	0
20	CRA/MFAICS515	104	0
21	BL0401SD	112	0
22	BL0401WH	99.4	0
23	LC0401SD	111	0
24	LC0401WH	135	0
25	LD0401SD	113	0
26	LD0401WH	131	0
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

SOIL EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33393

Client Sample No: CRA/MFAICS509 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
HMX	9500	3970	11600	80	54-128
RDX	9500	15000	16500	16*	66-109
TNB	9500	838	8750	83	57-130
DNB	9500		9010	95	74-122
TETRYL	9500		8720	92	32-119
NB	9500		8730	92	70-135
TNT	9500	12600	9730	30*	44-124
4ADNT	9500	3040	9460	68	60-140
2ADNT	9500	3800	9260	58*	60-140
26DNT	9500		8810	93	58-125
24DNT	9500	317	8490	86	59-120
2NT	9500		9000	95	79-124
4NT	9500		9000	95	74-128
3NT	9500		8870	93	79-121

No of Analyte recoveries out of QC Advisory Limits = 3

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD#	QC LIMITS RPD	QC LIMITS REC.
HMX	9500	13500	100	22	30	54-128
RDX	9500	19700	50*	103*	30	66-109
TNB	9500	9970	96	14	30	57-130
DNB	9500	10400	109	14	45	74-122
TETRYL	9500	10000	105	13	30	32-119
NB	9500	10200	107	15	35	70-135
TNT	9500	9980	28*	9	30	44-124
4ADNT	9500	10600	80	16	40	60-140
2ADNT	9500	10300	68	17	40	60-140
26DNT	9500	9900	104	11	35	58-125
24DNT	9500	9920	101	16	35	59-120
2NT	9500	10300	108	13	35	79-124
4NT	9500	10300	108	13	35	74-128
3NT	9500	10200	107	14	35	79-121

No of Analyte recoveries out of QC Advisory Limits = 3
No of RPD's out of QC Limits 1

WATER EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33393

Client Sample No: CRA/MFAR0330 MSD

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
HMX	400		394	99	44-145
RDX	150		146	97	66-139
TNB	225		204	91	56-129
DNB	125		110	88	76-122
TETRYL	413		393	95	76-120
NB	213		194	91	82-111
TNT	188		286	152*	76-137
4ADNT	313		297	95	60-140
2ADNT	313		284	91	60-140
26DNT	288		266	92	80-118
24DNT	175		161	92	72-123
2NT	363		310	85	74-130
4NT	250		209	84	78-116
3NT	238		286	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	402	100	2	15	44-145
RDX	150	151	101	4	12	66-139
TNB	225	215	96	5	10	56-129
DNB	125	111	89	1	15	76-122
TETRYL	413	367	89	7	14	76-120
NB	213	201	94	4	13	82-111
TNT	188	292	155*	2	15	76-137
4ADNT	313	304	97	2	40	60-140
2ADNT	313	287	92	1	40	60-140
26DNT	288	268	93	1	13	80-118
24DNT	175	165	94	2	14	72-123
2NT	363	326	90	5	15	74-130
4NT	250	221	88	6	14	78-116
3NT	238	305	128*	6	15	72-126

No of Analyte recoveries out of QC Advisory Limits = 1
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:33393

Client Sample No: LC0401SD

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
HMX	9500		11200	118	57-137
RDX	9500		9760	103	77-113
TNB	9500		9710	102	64-125
DNB	9500		10500	110	82-118
TETRYL	9500		7030	74	23-124
NB	9500		10200	107	69-143
TNT	9500		9630	101	75-118
4ADNT	9500		10500	110	60-140
2ADNT	9500		10200	107	60-140
26DNT	9500		9930	104	78-117
24DNT	9500		9970	105	74-126
2NT	9500		10300	108	78-123
4NT	9500		10400	109	79-125
3NT	9500		10200	107	78-121

# 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:33393

Client Sample No: LD0401SD

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	QC LIMITS REC.
HMX	9500		10900	115	57-137
RDX	9500		9570	101	77-113
TNB	9500		9240	97	64-125
DNB	9500		10300	108	82-118
TETRYL	9500		6780	71	23-124
NB	9500		10100	106	69-143
TNT	9500		9580	101	75-118
4ADNT	9500		10400	109	60-140
2ADNT	9500		10000	105	60-140
26DNT	9500		9750	103	78-117
24DNT	9500		9760	103	74-126
2NT	9500		10200	107	78-123
4NT	9500		10300	108	79-125
3NT	9500		10200	107	78-121

# 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:33393

Client Sample No: LC0401WH

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC LIMITS REC.
HMX	400		404	101	46-151
RDX	150		148	99	72-129
TNB	225		212	94	74-118
DNB	125		109	87	76-132
TETRYL	413		278	67	58-120
NB	213		198	93	68-135
TNT	188		273	145	61-145
4ADNT	313		309	99	60-140
2ADNT	313		275	88	60-140
26DNT	288		263	91	77-125
24DNT	175		158	90	70-134
2NT	363		321	88	73-131
4NT	250		220	88	73-116
3NT	238		294	124	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:33393

Client Sample No: LD0401WH

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	QC LIMITS REC.
HMX	400		389	97	46-151
RDX	150		148	99	72-129
TNB	225		200	89	74-118
DNB	125		103	82	76-132
TETRYL	413		278	67	58-120
NB	213		188	88	68-135
TNT	188		270	144	61-145
4ADNT	313		277	89	60-140
2ADNT	313		253	81	60-140
26DNT	288		247	86	77-125
24DNT	175		150	86	70-134
2NT	363		302	83	73-131
4NT	250		206	82	73-116
3NT	238		280	118	71-127

# of Analyte recoveries out of QC Advisory Limits = 0

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0401SD

Lab Code: SWOK Case No: MKF-OH SDG No:33393

Matrix: (soil/water) Soil

Date Extracted: 04/01/98 Extn. Method: SONC

Date Analyzed (1): 04/11/98 Date Analyzed(2): 04/04/98

Time Analyzed (1): 20:10:31 Time Analyzed(2): 23:05:14

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

LC Column ID (1): CARB-04 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	LC0401SD	LC0401SD	04/11/98	
2	LD0401SD	LD0401SD	04/11/98	
3	CRA/MFAICS501	33393.01	04/11/98	04/05/98
4	CRA/MFAICS501 10X	33393.01DL	04/11/98	04/16/98
5	CRA/MFAICS503	33393.05	04/12/98	04/05/98
6	CRA/MFAICS504	33393.06	04/12/98	04/05/98
7	CRA/MFAICS506	33393.08	04/12/98	04/05/98
8	CRA/MFAICS507 10X	33393.09DL	04/12/98	04/16/98
9	CRA/MFAICS509	33393.11	04/12/98	04/05/98
10	CRA/MFAICS509 MS	33393.12MS	04/12/98	
11	CRA/MFAICS509 MSD	33393.13MSD	04/12/98	
12	CRA/MFAICS510	33393.15	04/12/98	04/05/98
13	CRA/MFAICS510 100X	33393.15DL	04/12/98	04/18/98
14	CRA/MFAICS512	33393.17	04/12/98	04/05/98
15	CRA/MFAICS512 5X	33393.17DL	04/12/98	04/18/98
16	CRA/MFAICS513	33393.18	04/12/98	04/05/98
17	CRA/MFAICS513 10X	33393.18DL	04/12/98	04/18/98
18	CRA/MFAICS515	33393.20	04/12/98	04/05/98
19	CRA/MFAICS507	33393.09	04/20/98	04/05/98
20				
21				
22				
23				
24				
25				

FORM IV

4C

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0401WH

Lab Code: SWOK Case No: MKF-OH SDG No:33393

Matrix: (soil/water) Water

Date Extracted: Extn. Method: DIRECT

Date Analyzed (1): 04/03/98 Date Analyzed(2): 04/09/98

Time Analyzed (1): 05:29:17 Time Analyzed(2): 10:06:20

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	LC0401WH	LC0401WH	04/03/98	
2	LD0401WH	LD0401WH	04/03/98	
3	CRA/MFAR0330	33393.14	04/03/98	
4	CRA/MFAR0330 MS	33393.14MS	04/03/98	
	CRA/MFAR0330 MSD	33393.14MSD	04/03/98	
7				
8				
9				
10				
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FORM IV

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

CRA/MFAICS503

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33393

Matrix: (soil/water) SOIL Lab Sample ID: 33393.05

Sample Amt: 2g % Moisture 16.67 Date Received: 04/01/98

Extraction Volume: 10ml Date Extracted: 04/01/98

Extraction Method: SONC Date Analyzed: 04/12/98

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	2220	
121-82-4	RDX	4850	
99-35-4	TNB	277	
99-65-0	DNB	250	U
479-45-8	TETRYL	650	U
98-95-3	NB	260	U
118-96-7	TNT	650	
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

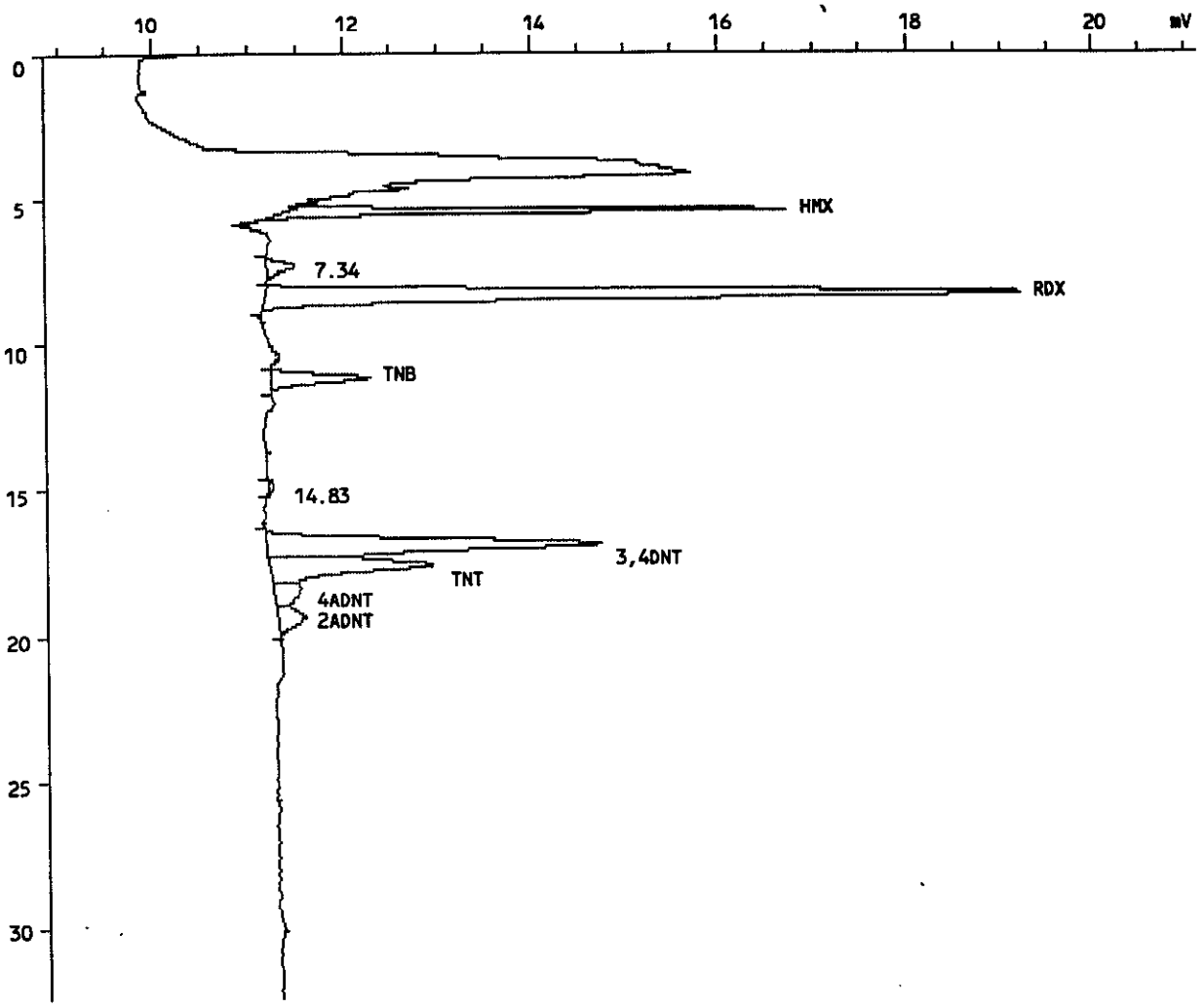
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0410,39,1

Sample name.....: CRA/MFAICS503
Sample ID.....: 33393.05
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-04, INJ:200,COL#1

Acquired on 12-Apr-98 at 00:38:17
Reported on 20-Apr-98 at 14:54:24



INJECTION REPORT

Injection F: <MC3> 2 2EX0410,39,1

Acquired on 12-Apr-98 at 00:38:17
Modified on 20-Apr-82 at 11:46:44
Reported on 20-Apr-98 at 11:46:45

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-04,INJ:200,COL#1
Number of samples.: 64
Calibration file..: 2EX0410 Last modified on 14-Apr-82 at 12:07:44
Method file.....: EXPLOS Last modified on 20-Apr-82 at 11:44:02
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: CRA/MFAICS503
Sample ID.....: 33393.05
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

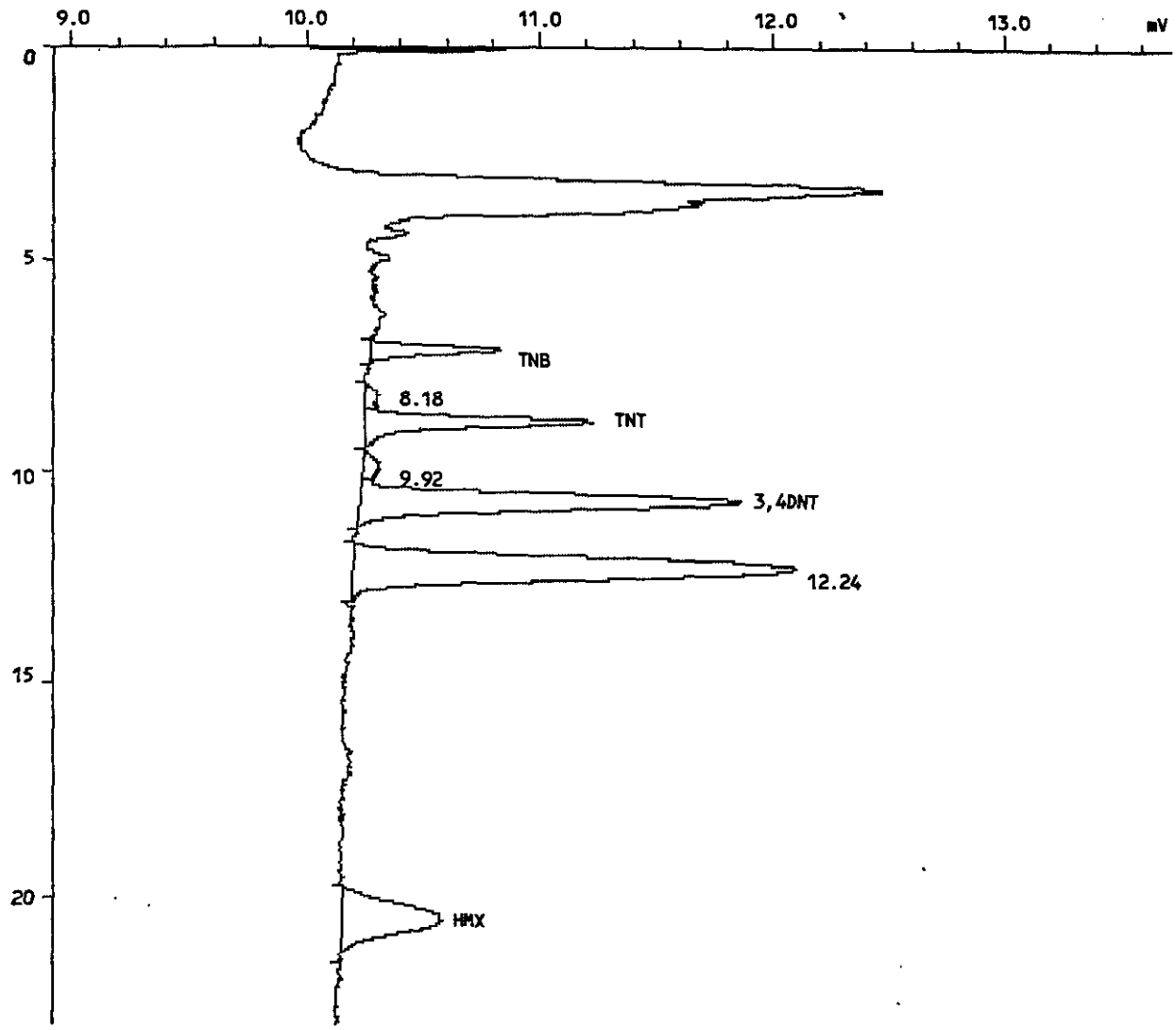
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	5.493	5415	56847	2225.803	HMX *
3	8.320	8053	172826	4854.663	RDX *
4	11.195	1035	21268	277.288	TNB *
6	16.928	3537	97263	2155.652	3,4DNT 108
7	17.643	1710	52881	650.121	TNT *
8	18.400	284	11058	193.799	4ADNT
9	19.424	279	10343	125.034	2ADNT
Total		20312	422486	10482.360	
Residual		376	8646	301.848	

LONG PLOT

Injection F: <MC3> 2 2CN0403A,4,1

Sample name.....: CRA/MFAICS503
Sample ID.....: 33393.05
INST ID: IN12, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 05-Apr-98 at 00:42:01
Reported on 07-Apr-98 at 14:23:56



INJECTION REPORT

Injection F: <MC3> 2 2CN0403A,4,1

Acquired on 05-Apr-98 at 00:42:01
Modified on 07-Apr-82 at 14:20:14
Reported on 07-Apr-98 at 14:20:16

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV
Number of samples.: 27
Calibration file..: 2CN0403A Last modified on 06-Apr-82 at 12:09:26
Method file.....: LCCN Last modified on 07-Apr-82 at 14:17:50
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: CRA/MFAICS503
Sample ID.....: 33393.05
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

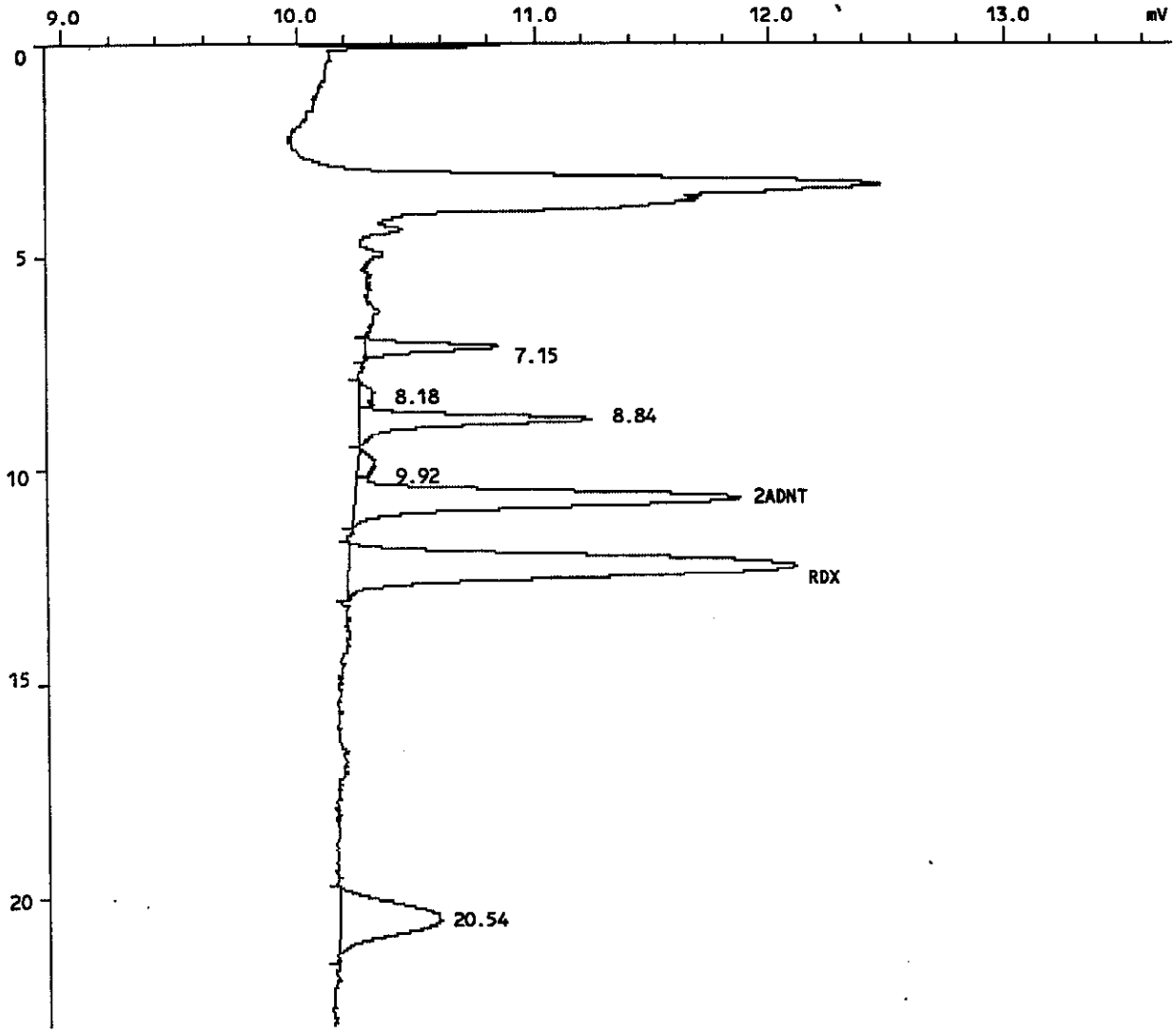
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	7.147	571	8009	277.616	TNB
3	8.837	983	17167	568.270	TNT
5	10.693	1630	40087	2280.263	3,4DNT
7	20.539	427	20986	2079.898	HMX
Total		3611	86250	5206.047	
Residual		2030	68630	0.000	

LONG PLOT

Injection F: <MC3> 2 2CN0403A,4,1

Sample name.....: CRA/MFAICS503
Sample ID.....: 33393.05
INST ID: IN12, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV

Acquired on 05-Apr-98 at 00:42:01
Reported on 07-Apr-98 at 14:31:00



INJECTION REPORT

Injection F: <MC3> 2 2CN0403A,4,1

Acquired on 05-Apr-98 at 00:42:01
Modified on 07-Apr-82 at 14:29:52
Reported on 07-Apr-98 at 14:29:53

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100, UV
Number of samples.: 27
Calibration file..: 2CN0403B Last modified on 06-Apr-82 at 12:09:56
Method file.....: LCCN Last modified on 07-Apr-82 at 14:17:50
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: CRA/MFAICS503
Sample ID.....: 33393.05
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
5	10.693	1630	40087	1210.357	2ADNT
6	12.240	1897	65247	4438.583	RDX
Total		3526	105334	5648.940	
Residual		2114	49546	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

CRA/MFAR0330

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33393

Matrix: (soil/water) WATER Lab Sample ID: 33393.14

Sample Amt: 1ml % Moisture Date Received: 04/01/98

Extraction Volume: 1ml Date Extracted: DIRECT INJ

Extraction Method: DIRECT Date Analyzed: 04/03/98

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

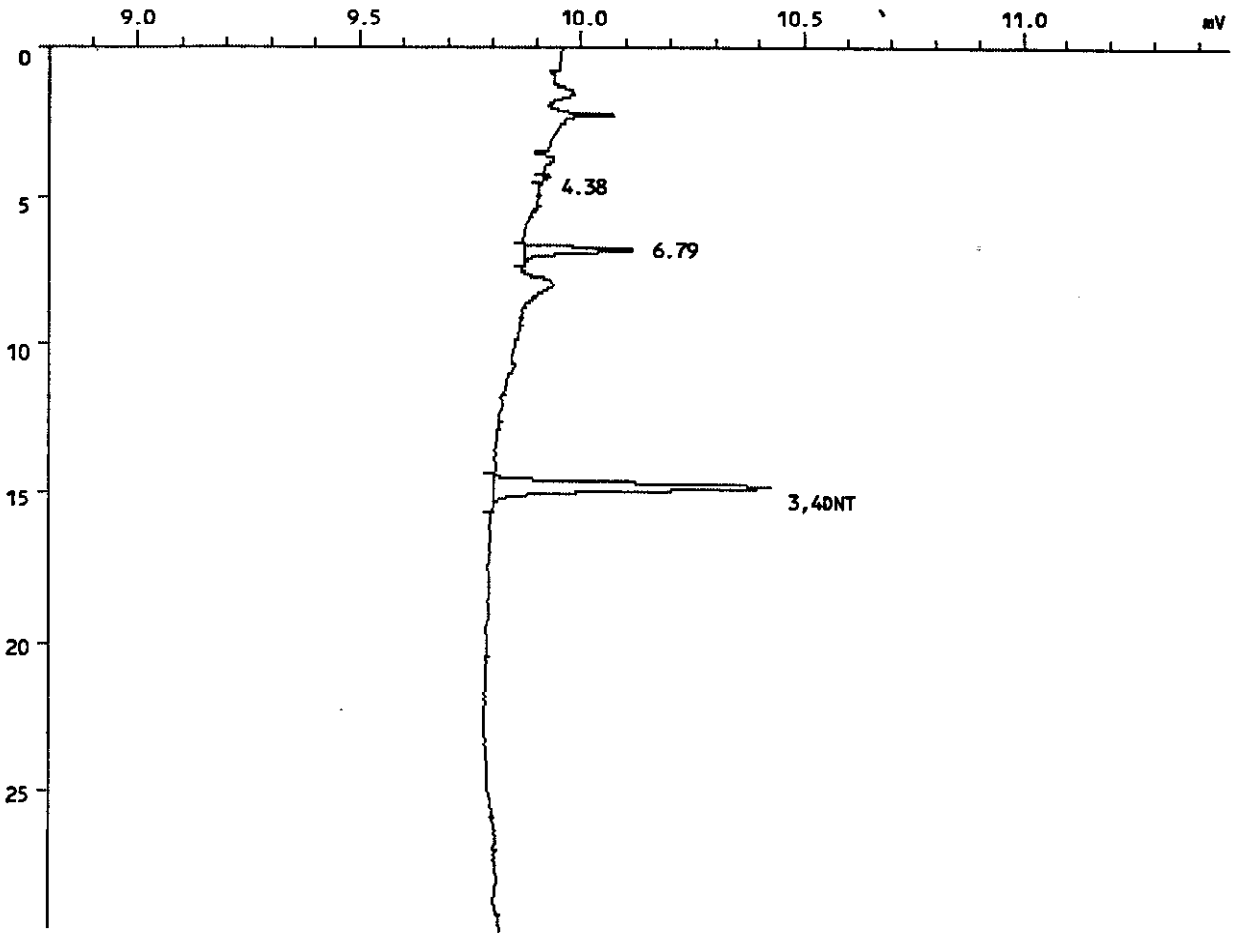
FORM I

LONG PLOT

Injection F: <MC3> 5 5E0402W,12,1

Sample name.....: CRA/MFAR0330
Sample ID.....: 33393.14
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 03-Apr-98 at 08:28:12
Reported on 07-Apr-98 at 15:41:36



INJECTION REPORT

Injection F: <MC3> 5 5E0402W,12,1

Acquired on 03-Apr-98 at 08:28:12
Modified on 07-Apr-82 at 15:38:22
Reported on 07-Apr-98 at 15:38:24

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.: 19
Calibration file..: 5E0402W Last modified on 07-Apr-82 at 15:38:22
Method file.....: EXPLOS Last modified on 07-Apr-82 at 15:37:18
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: CRA/MFAR0330
Sample ID.....: 33393.14
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
3	14.784	623	12145	214.962	3,4DNT108
Total		623	12145	214.962	
Residual		259	3396	-5.306	

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN12
Column ID : CARB-04

Inj 1

Injection File Name Level 1 : 2EX0410,4
Injection File Name Level 2 : 2EX0410,5
Injection File Name Level 3 : 2EX0410,6
Injection File Name Level 4 : 2EX0410,7
Injection File Name Level 5 : 2EX0410,8

Calibration Date : 04/10/1998
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	12016	1185	328296	1293	859300	1302	1292692	1306	1716157	1300
RDX	6911	1638	189214	1792	499956	1811	754713	1832	1006274	1830
TNB	10943	3624	294894	3901	762806	3872	1156633	3908	1526027	3873
DNB	8664	5348	223199	5498	575466	5449	883277	5576	1166988	5505
TETRYL	8971	2412	228072	2452	594332	2456	898118	2467	1180098	2438
NB	13325	4038	355881	4319	913821	4270	1403294	4358	1864342	4336
3,4-DNT	10774	2121	289884	2286	755530	2289	1138660	2296	1509255	2287
TNT	9834	3642	279842	4140	723982	4114	1112732	4215	1487586	4226
4ADNT	6221	2636	173617	2933	445879	2895	673358	2902	893342	2900
2ADNT	8955	3794	248354	4195	644153	4183	985856	4249	1311009	4257
26DNT	9129	2353	236848	2437	618725	2436	920134	2421	1202399	2376
24DNT	12405	5256	347016	5862	894997	5812	1397693	6025	1867320	6063
2NT	7582	2243	215537	2548	559860	2545	850978	2579	1125182	2557
T	6332	1873	196785	2326	519597	2362	795472	2411	1048376	2383
T	8375	2601	235671	2931	600554	2860	906269	2886	1213876	2904

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN12
Column ID : CARB-04

Inj 1

Injection File Name Level 1 : 2EX0410,4
Injection File Name Level 2 : 2EX0410,5
Injection File Name Level 3 : 2EX0410,6
Injection File Name Level 4 : 2EX0410,7
Injection File Name Level 5 : 2EX0410,8

Calibration Date : 04/10/1998
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	1277	4.05	0.99999	1302	0.000
RDX	1780	4.57	0.99998	1827	0.000
TNB	3835	3.12	0.99998	3884	0.000
DNB	5475	1.54	0.99992	5519	0.000
TETRYL	2445	0.88	0.99996	2450	0.000
NB	4264	3.06	0.99995	4334	0.000
3,4-DNT	2256	3.35	1.00000	2290	0.000
2NT	4067	5.96	0.99991	4206	0.000
2DNT	2853	4.29	1.00000	2901	0.000
2ADNT	4136	4.68	0.99996	4243	0.000
26DNT	2405	1.58	0.99987	2400	0.000
24DNT	5803	5.58	0.99979	6014	0.000
2NT	2494	5.65	0.99997	2562	0.000
4NT	2271	9.88	0.99993	2387	0.000
3NT	2836	4.73	0.99996	2893	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/10/1998
Continuing Calibration #: 2
Continuing Cal Date : 04/11/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-04
Injection File Name : 2EX0410,31
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	845721	1281	1277	0.34	1302	1.58
RDX	492166	1783	1780	0.15	1827	2.40
TNB	743020	3772	3835	1.66	3884	2.89
DNB	575295	5448	5475	0.50	5519	1.29
TETRYL	562251	2323	2445	4.98	2450	5.16
NB	896082	4187	4264	1.80	4334	3.37
3,4-DNT	752059	2279	2256	1.03	2290	0.47
TNT	711361	4042	4067	0.63	4206	3.91
4ADNT	444414	2886	2853	1.14	2901	0.52
2ADNT	638823	4148	4136	0.30	4243	2.24
26DNT	610545	2404	2405	0.04	2400	0.17
24DNT	884865	5746	5803	0.99	6014	4.46
2NT	539633	2453	2494	1.66	2562	4.26
4NT	496344	2256	2271	0.65	2387	5.50
NT	574143	2734	2836	3.61	2893	5.50

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/10/1998
Continuing Calibration #: 3
Continuing Cal Date : 04/12/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-04
Injection File Name : 2EX0410,43
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	847477	1284	1277	0.55	1302	1.37
RDX	495934	1797	1780	0.92	1827	1.65
TNB	747571	3795	3835	1.06	3884	2.30
DNB	582262	5514	5475	0.71	5519	0.09
TETRYL	535595	2213	2445	9.48	2450	9.66
NB	915626	4279	4264	0.34	4334	1.27
3,4-DNT	752377	2280	2256	1.07	2290	0.43
TNT	724840	4118	4067	1.26	4206	2.08
4ADNT	451340	2931	2853	2.71	2901	1.03
2ADNT	646455	4198	4136	1.50	4243	1.07
26DNT	616842	2429	2405	0.99	2400	1.20
24DNT	898586	5835	5803	0.54	6014	2.98
2NT	553704	2517	2494	0.90	2562	1.76
4NT	513793	2335	2271	2.84	2387	2.17
3NT	594735	2832	2836	0.15	2893	2.11

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/10/1998
Continuing Calibration #: 4
Continuing Cal Date : 04/12/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-04
Injection File Name : 2EX0410,54
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	850714	1289	1277	0.93	1302	1.00
RDX	496133	1798	1780	0.96	1827	1.61
TNB	739942	3756	3835	2.07	3884	3.30
DNB	577232	5466	5475	0.16	5519	0.96
TETRYL	507547	2097	2445	14.22	2450	14.39
NB	911380	4259	4264	0.13	4334	1.72
3,4-DNT	748391	2268	2256	0.53	2290	0.96
TNT	727070	4131	4067	1.57	4206	1.78
4ADNT	455229	2956	2853	3.60	2901	1.90
2ADNT	647710	4206	4136	1.70	4243	0.88
26DNT	607198	2391	2405	0.59	2400	0.38
24DNT	912843	5928	5803	2.14	6014	1.44
2NT	550099	2500	2494	0.25	2562	2.40
4NT	508211	2310	2271	1.72	2387	3.24
3NT	584743	2784	2836	1.83	2893	3.76

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/10/1998
Continuing Calibration #: 5
Continuing Cal Date : 04/12/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-04
Injection File Name : 2EX0410,61
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	847942	1285	1277	0.60	1302	1.32
RDX	490130	1776	1780	0.26	1827	2.80
TNB	734467	3728	3835	2.79	3884	4.01
DNB	571771	5414	5475	1.11	5519	1.90
TETRYL	534586	2209	2445	9.65	2450	9.83
NB	896202	4188	4264	1.79	4334	3.36
3,4-DNT	745796	2260	2256	0.19	2290	1.30
TNT	715089	4063	4067	0.11	4206	3.40
4ADNT	446243	2898	2853	1.55	2901	0.11
2ADNT	638369	4145	4136	0.23	4243	2.31
26DNT	610893	2405	2405	0.02	2400	0.23
24DNT	888043	5767	5803	0.64	6014	4.12
2NT	543043	2468	2494	1.04	2562	3.65
4NT	505765	2299	2271	1.23	2387	3.70
NT	583805	2780	2836	1.99	2893	3.91

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

2EX04IC page 1

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN12
Column ID : CARB-04
Calibration Date : 04/10/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	5.52	5.52	5.49	5.49	5.46
RDX	8.36	8.35	8.30	8.29	8.25
TNB	11.22	11.23	11.15	11.15	11.10
DNB	13.70	13.72	13.63	13.63	13.57
TETRYL	14.69	14.70	14.59	14.60	14.53
NB	15.54	15.56	15.46	15.46	15.40
3,4-DNT	16.96	16.97	16.84	16.84	16.77
TNT	17.69	17.69	17.56	17.57	17.50
4ADNT	18.50	18.50	18.35	18.35	18.27
2ADNT	19.50	19.49	19.35	19.36	19.29
26DNT	20.68	20.70	20.56	20.56	20.50
24DNT	21.41	21.38	21.23	21.23	21.16
2NT	25.15	25.14	24.96	24.98	24.91
4NT	26.90	26.86	26.67	26.70	26.62
3NT	29.01	28.96	28.76	28.78	28.70

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
HMX	5.48	5.51	5.47	5.50	5.50
RDX	8.29	8.26	8.29	8.32	8.34
TNB	11.14	11.12	11.14	11.18	11.22
DNB	13.62	13.58	13.62	13.68	13.72
TETRYL	14.59	14.54	14.59	14.66	14.72
NB	15.45	15.42	15.45	15.52	15.57
3,4-DNT	16.83	16.78	16.84	16.93	16.98
TNT	17.55	17.52	17.56	17.64	17.69
4ADNT	18.34	18.28	18.36	18.45	18.50
2ADNT	19.34	19.29	19.37	19.47	19.52
26DNT	20.54	20.50	20.56	20.67	20.72
24DNT	21.22	21.17	21.23	21.34	21.39
2NT	24.95	24.91	24.97	25.12	25.16
4NT	26.68	26.61	26.68	26.84	26.89
3NT	28.75	28.70	28.76	28.94	28.99

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	5.49	0.020	0.061	5.43 - 5.56
RDX	8.30	0.037	0.112	8.19 - 8.42
TNB	11.16	0.044	0.133	11.03 - 11.30
DNB	13.65	0.054	0.163	13.48 - 13.81
TETRYL	14.62	0.068	0.203	14.42 - 14.82
NB	15.48	0.059	0.178	15.31 - 15.66
3,4-DNT	16.87	0.077	0.230	16.64 - 17.10
TNT	17.60	0.073	0.218	17.38 - 17.81

2EX04, page 2

4ADNT	18.39	0.090	0.269	18.12 - 18.66
2ADNT	19.40	0.089	0.266	19.13 - 19.66
26DNT	20.60	0.085	0.254	20.34 - 20.85
24DNT	21.28	0.095	0.285	20.99 - 21.56
2NT	25.02	0.104	0.312	24.71 - 25.34
4NT	26.75	0.114	0.341	26.40 - 27.09
NT	28.83	0.124	0.371	28.46 - 29.21

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33393
Instrument ID: IN12 Column ID: CARB-04

Dates of Anlayses: 04/10/98 to 04/12/98

	CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
	INST. BLK.	INST. BLK.	04/10/98	20:19
calib	EXP L1 SOIL STD	2-156:IA1	04/10/98	22:33
calib	EXP L2 SOIL STD	2-155:IA2	04/10/98	23:17
calib	EXP L3 SOIL STD	2-154:IA3	04/11/98	00:02
calib	EXP L4 SOIL STD	2-153:IA4	04/11/98	00:47
calib	EXP L5 SOIL STD	2-152:IA5	04/11/98	01:31
calib	EXP L3 SOIL STD	2-154:CA2	04/11/98	18:41
	BL0401SD	BL0401SD	04/11/98	20:10
soil LCS/LCSD	LC0401SD	LC0401SD	04/11/98	21:39
soil LCS/LCSD	LD0401SD	LD0401SD	04/11/98	22:24
	CRA/MFAICS501	33393.01	04/11/98	23:09
	CRA/MFAICS501 10X	33393.01DL	04/11/98	23:53
	CRA/MFAICS503	33393.05	04/12/98	00:38
	CRA/MFAICS504	33393.06	04/12/98	01:22
	CRA/MFAICS506	33393.08	04/12/98	02:07
CCV	EXP L3 SOIL STD	2-154:CA3	04/12/98	03:36
	CRA/MFAICS507 10X	33393.09DL	04/12/98	05:06
	CRA/MFAICS509	33393.11	04/12/98	05:50
MS	CRA/MFAICS509 MS	33393.12MS	04/12/98	06:35

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FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33393
Instrument ID: IN12 Column ID: CARB-04

Dates of Anlayses: 04/10/98 to 04/12/98

	CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
MSD	CRA/MFAICS509 MSD	33393.13MSD	04/12/98	07:19
	CRA/MFAICS510	33393.15	04/12/98	08:04
	CRA/MFAICS510 100X	33393.15DL	04/12/98	08:49
	CRA/MFAICS512	33393.17	04/12/98	09:33
	CRA/MFAICS512 5X	33393.17DL	04/12/98	10:18
	CRA/MFAICS513	33393.18	04/12/98	11:03
CCV	EXP L3 SOIL STD	2-154:CA4	04/12/98	11:47
	CRA/MFAICS513 10X	33393.18DL	04/12/98	13:16
	CRA/MFAICS515	33393.20	04/12/98	14:01
	EXP L3 SOIL STD	2-154:CA5	04/12/98	17:00

FORM VIII

8D

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33393
Instrument ID: IN12 Column ID: LC-CN-09

Confirmation

Dates of Anlayses: 04/03/98 to 04/06/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
EXP L1A STD	2-102:IA1	04/03/98	18:15
EXP L2A STD	2-101:IA2	04/03/98	18:47
EXP L3A STD	2-100:IA3	04/03/98	19:24
EXP L4A STD	2-99:IA4	04/03/98	19:56
EXP L5A STD	2-98:IA5	04/03/98	20:29
EXP L1B STD	2-107:IB1	04/03/98	21:01
EXP L2B STD	2-106:IB2	04/03/98	21:33
EXP L3B STD	2-105:IB3	04/03/98	22:05
EXP L4B STD	2-104:IB4	04/03/98	22:38
EXP L5B STD	2-103:IB5	04/03/98	23:10
EXP L3A STD	2-100:CA4	04/04/98	22:00
EXP L3B STD	2-105:CB4	04/04/98	22:32
BL0401SD	BL0401SD	04/04/98	23:05
CRA/MFAICS501	33393.01	04/05/98	00:09
CRA/MFAICS503	33393.05	04/05/98	00:42
CRA/MFAICS504	33393.06	04/05/98	01:14
CRA/MFAICS506	33393.08	04/05/98	01:46
CRA/MFAICS507	33393.09	04/05/98	02:18
CRA/MFAICS509	33393.11	04/05/98	02:51

calib

page 1

FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33393
Instrument ID: IN12 Column ID: LC-CN-09

Dates of Anlayses: 04/03/98 to 04/06/98

CCV

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
EXP L3A STD	2-100:CA5	04/05/98	03:23
EXP L3B STD	2-105:CB5	04/05/98	03:55
CRA/MFAICS510	33393.15	04/05/98	04:27
CRA/MFAICS512	33393.17	04/05/98	05:00
CRA/MFAICS513	33393.18	04/05/98	05:32
CRA/MFAICS515	33393.20	04/05/98	06:04
EXP L3A STD	2-100:CA6	04/05/98	08:13
EXP L3B STD	2-105:CB6	04/05/98	08:45

FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33393
Instrument ID: IN13 Column ID: CARB-06

Dates of Anlayses: 04/03/98 to 04/03/98

	CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
	INST. BLANK	INST.BLK.	04/03/98	00:16
calib.	EXP HIGH WATER L1 ST	2-63:IA1	04/03/98	01:45
	EXP HIGH WATER L2 ST	2-62:IA2	04/03/98	02:30
	EXP HIGH WATER L3 ST	2-61:IA3	04/03/98	03:15
	EXP HIGH WATER L4 ST	2-60:IA4	04/03/98	03:59
	EXP HIGH WATER L5 ST	2-59:IA5	04/03/98	04:44
	BL0401WH	BL0401WH	04/03/98	05:29
LCS/LCSD	LC0401WH	LC0401WH	04/03/98	06:58
	LD0401WH	LD0401WH	04/03/98	07:43
	CRA/MFAR0330	33393.14	04/03/98	08:28
ms/msd	CRA/MFAR0330 MS	33393.14MS	04/03/98	09:57
	CRA/MFAR0330 MSD	33393.14MSD	04/03/98	10:42
CCV	EXP HIGH WATER L3 ST	2-61:CA1	04/03/98	11:27

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 : 5E0402W,3
Injection File Name Level 2 : 5E0402W,4
Injection File Name Level 3 : 5E0402W,5
Injection File Name Level 4 : 5E0402W,6
Injection File Name Level 5 : 5E0402W,7

Calibration Date : 04/03/1998
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 FACTO Level 5
HMX	336	263	843	265	56273	354	113675	357	233943	36
RDX	318	306	972	374	56773	437	117795	453	240718	46
TNB	607	843	1533	852	86130	961	176990	989	361403	101
DNB	568	1495	1066	1110	61576	1294	125847	1325	256396	134
TETRYL	683	759	1260	558	69547	615	140350	621	284431	63
NB	567	834	1464	861	72737	856	154974	912	316389	93
3,4-DNT	722	564	1699	528	89082	557	186278	582	380097	59
TNT	585	914	1347	842	74965	937	155352	971	317776	99
4ADNT	595	595	1442	572	80003	640	165278	661	341911	68
2ADNT	475	848	1271	908	63716	910	131715	941	274117	97
26DNT	495	516	1493	622	71868	625	147451	641	303614	66
24DNT	641	1145	1695	1211	85169	1217	174965	1250	360540	128
2NT	557	497	1579	564	78502	541	162412	560	332458	57
4NT	356	445	916	458	44908	449	93823	469	193042	48
	334	418	1118	559	57202	602	119196	627	244278	64

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN13
Column ID : CARB-06

Inj 1

Injection File Name Level 1 : 5E0402W,3
Injection File Name Level 2 : 5E0402W,4
Injection File Name Level 3 : 5E0402W,5
Injection File Name Level 4 : 5E0402W,6
Injection File Name Level 5 : 5E0402W,7

Calibration Date : 04/03/1998
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	16.43	0.99989	365	0.000
RDX	407	16.34	0.99985	461	0.000
TNB	931	8.40	0.99990	1003	0.000
DNB	1315	10.48	0.99992	1342	0.000
TETRYL	637	11.62	0.99995	629	0.000
NB	879	4.63	0.99977	924	0.000
3,4-DNT	565	4.51	0.99985	590	0.000
TNT	931	6.29	0.99987	986	0.000
[illegible]NT	630	7.32	0.99978	678	0.000
[illegible]DNT	917	5.25	0.99971	969	0.000
26DNT	613	9.20	0.99984	655	0.000
24DNT	1222	4.33	0.99983	1277	0.000
2NT	547	5.51	0.99986	569	0.000
4NT	461	3.33	0.99979	479	0.000
3NT	570	15.94	0.99984	638	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/03/1998
Continuing Calibration #: 1
Continuing Cal Date : 04/03/1998
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-06
Injection File Name : 5E0402W,16
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	56798	357	321	11.16	365	2.20
RDX	55681	428	407	5.28	461	7.14
TNB	86922	970	931	4.22	1003	3.32
DNB	60982	1281	1315	2.54	1342	4.55
TETRYL	67953	601	637	5.59	629	4.43
NB	72168	849	879	3.36	924	8.08
3,4-DNT	90858	568	565	0.52	590	3.75
TNT	73937	924	931	0.77	986	6.30
4ADNT	80580	645	630	2.25	678	4.87
2ADNT	63678	910	917	0.82	969	6.11
26DNT	71652	623	613	1.68	655	4.86
24DNT	85535	1222	1222	0.00	1277	4.34
2NT	79490	548	547	0.19	569	3.70
4NT	45444	454	461	1.37	479	5.05
3NT	58102	612	570	7.34	638	4.15

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

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN13
Column ID : CARB-06
Calibration Date : 04/03/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	4.79	4.78	4.76	4.76	4.77
RDX	7.38	7.34	7.33	7.34	7.33
TNB	9.96	9.95	9.92	9.94	9.92
DNB	12.21	12.19	12.17	12.18	12.14
TETRYL	12.82	12.80	12.81	12.81	12.77
NB	13.87	13.80	13.81	13.81	13.78
3,4-DNT	14.89	14.85	14.86	14.86	14.82
TNT	15.58	15.53	15.55	15.56	15.52
4ADNT	16.27	16.25	16.24	16.25	16.19
2ADNT	17.19	17.16	17.12	17.15	17.08
26DNT	18.22	18.18	18.17	18.20	18.13
24DNT	18.90	18.83	18.83	18.87	18.79
2NT	22.19	22.05	22.04	22.11	22.03
4NT	23.55	23.60	23.56	23.62	23.53
3NT	25.45	25.38	25.37	25.42	25.34

COMPONENT NAME	RT Cont CA1
HMX	4.77
RDX	7.30
TNB	9.84
DNB	12.04
TETRYL	12.59
NB	13.66
3,4-DNT	14.64
TNT	15.37
4ADNT	16.00
2ADNT	16.89
26DNT	17.97
24DNT	18.62
2NT	21.77
4NT	23.24
3NT	25.01

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	4.77	0.012	0.037	4.74 - 4.81
RDX	7.34	0.028	0.083	7.25 - 7.42
TNB	9.92	0.041	0.124	9.80 - 10.05
DNB	12.15	0.062	0.186	11.97 - 12.34
TETRYL	12.77	0.087	0.260	12.51 - 13.03
NB	13.79	0.069	0.207	13.58 - 14.00
3,4-DNT	14.82	0.091	0.274	14.55 - 15.09

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4ADNT	16.20	0.100	0.301	15.90 - 16.50
2ADNT	17.10	0.110	0.331	16.77 - 17.43
26DNT	18.15	0.092	0.276	17.87 - 18.42
24DNT	18.80	0.098	0.295	18.51 - 19.10
2NT	22.03	0.140	0.420	21.61 - 22.45
4NT	23.52	0.138	0.415	23.10 - 23.93
NT	25.33	0.161	0.483	24.84 - 25.81

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
nstrument ID: IN12
Column ID : LC-CN-09

Inj 1

Injection File Name Level 1 : 2CN0403,3
Injection File Name Level 2 : 2CN0403,4
Injection File Name Level 3 : 2CN0403,5
Injection File Name Level 4 : 2CN0403,6
Injection File Name Level 5 : 2CN0403,7

Calibration Date : 04/03/1998
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	11665	2536	66556	2894	165647	2881	341874	2973	722432	3141
26DNT	9538	1908	51842	2074	130024	2080	268479	2148	569728	2279
TNT	11998	2608	69071	3003	174731	3039	359530	3126	765170	3327
3,4DNT	9885	1412	59677	1705	151213	1833	307113	1861	653216	1979
TETRYL	14045	1561	82528	1834	202075	1796	426829	1897	879793	1955
HMX	6041	863	36667	1048	89515	1023	177333	1013	383468	1096

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN12
Column ID : LC-CN-09

Inj 1

Injection File Name Level 1 : 2CN0403,8
Injection File Name Level 2 : 2CN0403,9
Injection File Name Level 3 : 2CN0403,10
Injection File Name Level 4 : 2CN0403,11
Injection File Name Level 5 : 2CN0403,12

Calibration Date : 04/03/1998
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	17742	3548	79321	3173	193886	3102	413888	3311	837170	3349
DNB	17699	4425	91008	4550	258636	5173	493416	4934	982311	4912
24DNT	19247	3849	105639	4226	303272	4852	582016	4656	1158419	4634
4ADNT	16810	1827	91681	1993	264667	2301	506606	2203	1001308	2177
2ADNT	29499	2950	157638	3153	449191	3594	859302	3437	1713169	3426
RDX	6359	1272	35509	1420	99700	1595	192276	1538	381396	1526

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN12
Column ID : LC-CN-09

Inj 1

Injection File Name Level 1 : 2CN0403,3
Injection File Name Level 2 : 2CN0403,4
Injection File Name Level 3 : 2CN0403,5
Injection File Name Level 4 : 2CN0403,6
Injection File Name Level 5 : 2CN0403,7

Calibration Date : 04/03/1998
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	2885	7.66	0.99959	3097	0.000
26DNT	2098	6.41	0.99952	2245	0.000
TNT	3021	8.69	0.99951	3276	0.000
3,4DNT	1758	12.32	0.99959	1949	0.000
TETRYL	1809	8.37	0.99979	1936	0.000
HMX	1009	8.66	0.99926	1077	0.000

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN12
Column ID : LC-CN-09

Inj 1

Injection File Name Level 1 : 2CN0403,8
Injection File Name Level 2 : 2CN0403,9
Injection File Name Level 3 : 2CN0403,10
Injection File Name Level 4 : 2CN0403,11
Injection File Name Level 5 : 2CN0403,12

Calibration Date : 04/03/1998
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	3297	5.24	0.99982	3330	0.000
DNB	4799	6.36	0.99982	4926	0.000
24DNT	4443	9.07	0.99983	4646	0.000
4ADNT	2100	9.00	0.99977	2187	0.000
2ADNT	3312	7.76	0.99983	3435	0.000
RDX	1470	8.68	0.99985	1531	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/03/1998
Continuing Calibration #: 4
Continuing Cal Date : 04/04/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : LC-CN-09
Injection File Name : 2CN0403,53
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	153820	2675	2885	7.27	3097	13.63
26DNT	121560	1945	2098	7.28	2245	13.36
TNT	162553	2827	3021	6.41	3276	13.69
3,4DNT	139119	1686	1758	4.09	1949	13.50
TETRYL	187512	1667	1809	7.84	1936	13.92
HMX	81328	929	1009	7.84	1077	13.72

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/03/1998
Continuing Calibration #: 4
Continuing Cal Date : 04/04/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : LC-CN-09
Injection File Name : 2CN0403,54
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	195454	3127	3297	5.14	3330	6.08
DNB	225227	4505	4799	6.13	4926	8.56
24DNT	263951	4223	4443	4.96	4646	9.09
4ADNT	230064	2001	2100	4.75	2187	8.51
2ADNT	395005	3160	3312	4.59	3435	7.99
RDX	87139	1394	1470	5.17	1531	8.91

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/03/1998
Continuing Calibration #: 5
Continuing Cal Date : 04/05/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : LC-CN-09
Injection File Name : 2CN0403A,9
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	160356	2789	2885	3.33	3097	9.96
26DNT	127195	2035	2098	2.98	2245	9.35
TNT	170153	2959	3021	2.04	3276	9.66
3,4DNT	145705	1766	1758	0.45	1949	9.40
TETRYL	200450	1782	1809	1.48	1936	7.99
HMX	84628	967	1009	4.10	1077	10.22

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/03/1998
Continuing Calibration #: 5
Continuing Cal Date : 04/05/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : LC-CN-09
Injection File Name : 2CN0403A,10
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	193045	3089	3297	6.31	3330	7.23
DNB	220330	4407	4799	8.17	4926	10.55
24DNT	259580	4153	4443	6.53	4646	10.60
4ADNT	226185	1967	2100	6.35	2187	10.05
2ADNT	385383	3083	3312	6.91	3435	10.24
RDX	83555	1337	1470	9.07	1531	12.66

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/03/1998
Continuing Calibration #: 6
Continuing Cal Date : 04/05/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : LC-CN-09
Injection File Name : 2CN0403A,18
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	157989	2748	2885	4.76	3097	11.28
26DNT	123380	1974	2098	5.89	2245	12.07
TNT	164757	2865	3021	5.14	3276	12.52
3,4DNT	141069	1710	1758	2.74	1949	12.29
TETRYL	197456	1755	1809	2.95	1936	9.36
HMX	85212	974	1009	3.44	1077	9.60

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/03/1998
Continuing Calibration #: 6
Continuing Cal Date : 04/05/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : LC-CN-09
Injection File Name : 2CN0403A,19
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	195727	3132	3297	5.01	3330	5.94
DNB	223609	4472	4799	6.80	4926	9.22
24DNT	263534	4217	4443	5.11	4646	9.24
4ADNT	229913	1999	2100	4.81	2187	8.57
2ADNT	393447	3148	3312	4.96	3435	8.36
RDX	87427	1399	1470	4.86	1531	8.61

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 : IN12
Column ID : LC-CN-09
Calibration Date : 04/03/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
TNB	7.07	7.12	7.09	7.08	7.06
26DNT	8.02	8.06	8.04	8.03	8.00
TNT	8.76	8.82	8.80	8.77	8.75
3,4DNT	10.60	10.67	10.65	10.62	10.59
TETRYL	15.54	15.65	15.62	15.58	15.54
HMX	20.34	20.59	20.50	20.45	20.40

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
TNB	7.14	7.09	7.12	7.12	7.12
26DNT	8.09	8.04	8.08	8.06	8.07
TNT	8.84	8.78	8.82	8.82	8.83
3,4DNT	10.70	10.63	10.66	10.65	10.67
TETRYL	15.69	15.55	15.62	15.61	15.66
	20.63	20.38	20.45	20.48	20.52

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
TNB	7.10	0.024	0.073	7.03 - 7.18
26DNT	8.05	0.026	0.079	7.97 - 8.13
TNT	8.80	0.028	0.084	8.72 - 8.88
3,4DNT	10.64	0.032	0.097	10.55 - 10.74
TETRYL	15.60	0.057	0.172	15.43 - 15.77
HMX	20.45	0.109	0.326	20.12 - 20.77

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN12
Column ID : LC-CN-09
Calibration Date : 04/03/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
NB	6.14	6.18	6.21	6.14	6.12
DNB	6.97	7.01	7.05	6.98	6.96
24DNT	8.42	8.45	8.51	8.42	8.40
4ADNT	9.67	9.73	9.80	9.71	9.69
2ADNT	10.56	10.60	10.67	10.57	10.56
RDX	12.16	12.24	12.30	12.19	12.19

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
NB	6.16	6.18	6.19	6.17	6.18
DNB	7.01	7.01	7.03	7.00	7.02
24DNT	8.46	8.46	8.48	8.45	8.47
4ADNT	9.76	9.75	9.78	9.73	9.76
2ADNT	10.63	10.62	10.65	10.60	10.62
RDX	12.26	12.24	12.26	12.22	12.26

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
NB	6.17	0.025	0.074	6.10 - 6.25
DNB	7.01	0.028	0.083	6.92 - 7.09
24DNT	8.45	0.032	0.097	8.36 - 8.55
4ADNT	9.74	0.039	0.116	9.62 - 9.85
2ADNT	10.61	0.038	0.114	10.49 - 10.72
RDX	12.22	0.044	0.131	12.09 - 12.35

LCN0405
A STD

CALIBRATION FACTOR DAT
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

trument ID : IN12
umn ID : LC-CN-09
Calibration Date : 04/03/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
TNB	7.07	7.12	7.09	7.08	7.06
26DNT	8.02	8.06	8.04	8.03	8.00
TNT	8.76	8.82	8.80	8.77	8.75
3,4DNT	10.60	10.67	10.65	10.62	10.59
TETRYL	15.54	15.65	15.62	15.58	15.54
HMX	20.34	20.59	20.50	20.45	20.40

COMPONENT NAME	RT Cont CA6	RT Cont CA7	RT Cont CA8	RT Cont CA9
TNB	7.12	7.13	7.11	7.09
26DNT	8.07	8.08	8.05	8.03
TNT	8.82	8.83	8.80	8.77
3,4DNT	10.66	10.68	10.64	10.60
TETRYL	15.64	15.64	15.57	15.48
HMX	20.50	20.45	20.41	20.19

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
TNB	7.10	0.024	0.073	7.03 - 7.18
26DNT	8.05	0.026	0.079	7.97 - 8.13
TNT	8.80	0.028	0.084	8.72 - 8.88
3,4DNT	10.64	0.032	0.097	10.55 - 10.74
TETRYL	15.60	0.057	0.172	15.43 - 15.77
HMX	20.45	0.109	0.326	20.12 - 20.77

2CN0403
B STD

CALIBRATION FACTOR DAT
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN12
Column ID : LC-CN-09
Calibration Date : 04/03/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
NB	6.14	6.18	6.21	6.14	6.12
DNB	6.97	7.01	7.05	6.98	6.96
24DNT	8.42	8.45	8.51	8.42	8.40
4ADNT	9.67	9.73	9.80	9.71	9.69
2ADNT	10.56	10.60	10.67	10.57	10.56
RDX	12.16	12.24	12.30	12.19	12.19

COMPONENT NAME	RT Cont CA6	RT Cont CA7	RT Cont CA8	RT Cont CA9
NB	6.20	6.19	6.17	6.16
DNB	7.05	7.02	7.00	6.98
24DNT	8.50	8.47	8.45	8.42
4ADNT	9.78	9.76	9.73	9.69
2ADNT	10.65	10.62	10.59	10.55
RDX	12.25	12.24	12.18	12.16

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
NB	6.17	0.025	0.074	6.10 - 6.25
DNB	7.01	0.028	0.083	6.92 - 7.09
24DNT	8.45	0.032	0.097	8.36 - 8.55
4ADNT	9.74	0.039	0.116	9.62 - 9.85
2ADNT	10.61	0.038	0.114	10.49 - 10.72
RDX	12.22	0.044	0.131	12.09 - 12.35

	SV	T • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

[X] RUSH ☐ REEXTRACT ☐ TCLP ☐ DIOXIN

SAMPLE EXTRACTION LOG

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 980401SD

EXTRACT DATE: 1998-04-01 14:09

000926
Page: 1 of 2

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE %	DRY WEIGHT g	AMOUNT EXTRACTED g • ml	EXTRACTED VOLUME ml	GPC VOLUME ml	GPC ELUTE VOL ml	FLORISIL VOL CONC ml	FLORISIL FIN VOL CONC ml	VOL SV - P ml	FIN PROCESS VOLUME ml	SCREEN Y/N Y/N	MS SV - P µL	SURR SV - P µL	BASE pH CONFIRMATION	ACID pH CONFIRMATION
BL0401SD			S/L				2.0							10.0	N		1000		
BB0401SD			S/L				2.0							10.0	N		1000		
LC0401SD			S/L				2.0							10.0	N	500	1000		
LD0401SD			S/L				2.0							10.0	N	500	1000		
33393.01 GC200	MKF-OH	04/01/1998 12:39 CRA/MFAICS501	S/L				2.0							10.0	N		1000		
33393.05 GC200	MKF-OH	04/01/1998 12:39 CRA/MFAICS503	S/L				2.0							10.0	N		1000		
33393.06 GC200	MKF-OH	04/01/1998 12:39 CRA/MFAICS504	S/L				2.0							10.0	N		1000		
33393.08 GC200	MKF-OH	04/01/1998 12:39 CRA/MFAICS506	S/L				2.0							10.0	N		1000		
33393.09 GC200	MKF-OH	04/01/1998 12:39 CRA/MFAICS507	S/L				2.0							10.0	N		1000		
33393.11 GC200	MKF-OH	04/01/1998 12:39 CRA/MFAICS509	S/L				2.0							10.0	N		1000		
33393.12MS GC200	MKF-OH	04/01/1998 12:39 CRA/MFAICS509	S/L				2.0							10.0	N	500	1000		
33393.13MSD GC200	MKF-OH	04/01/1998 12:39 CRA/MFAICS509	S/L				2.0							10.0	N	500	1000		
33393.15 GC200	MKF-OH	04/01/1998 12:39 CRA/MFAICS510	S/L				2.0							10.0	N		1000		
33393.17 GC200	MKF-OH	04/01/1998 12:39 CRA/MFAICS512	S/L				2.0							10.0	N		1000		
33393.18 GC200	MKF-OH	04/01/1998 12:39 CRA/MFAICS513	S/L				2.0							10.0	N		1000		

INITIALS

WEIGHING:	MK	EXTRACTION:	MK	FLORISIL:	
CLEANUP:		KD:			
BLOWDOWN:	63 98	TV:			
SURROG. SPIKER:	PV	VERIFIER:	MK		
MATRIX SPIKER:	PV	VERIFIER:	MK		
SUBMITTED BY:		REVIEWED BY:			

ID NUMBERS

FLORISIL CARTRIDGE #:

GPC COLUMN #:

SURROGATES ID CONC #: 2-97

MATRIX SPIKE SOLID/CONC #(s): 2-96

SOP - METHOD # : SWL-OP-_____ Rev._____

COMMENTS

CH_3CN lot BR259

SAMPLE EXTRACTION LOG

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

[X] RUSH [ ] REEXTRACT [ ] TCLP [ ] DIOXIN

	SV	T • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

BATCH: 980401SD

EXTRACT DATE: 1998-04-01 14:09

000926
Page: 2 of 2

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	g • ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
33393.20 GC200	MKF-OH	04/01/1998 12:39 CRA/MFAICS515	S/L				2.0							10.0	N		1000		

INITIALS			
WEIGHING:		EXTRACTION:	MK
CLEANUP:		KD:	
BLOWDOWN:		TV:	
SURROG. SPIKER:	PV	VERIFIER:	MK
MATRIX SPIKER:	PV	VERIFIER:	MK
SUBMITTED BY:		REVIEWED BY:	

FLORISIL:

ID NUMBERS	
FLORISIL CARTRIDGE #:	
GPC COLUMN #:	
SURROGATES ID CONC #:	2-97
MATRIX SPIKE SOLID/CONC #(s):	2-96
SOP - METHOD # : SWL-OP-	

COMMENTS

	SV	OD / T • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			XXXXX
SONC. (3550)			
SOXHLET			

[X] RUSH ☐ REEXTRACT ☐ TCLP OXIN

SAMPLE EXTRACTION LOG

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 980401WH

EXTRACT DATE: 1998-04-01 15:08

000929
Page: 1 of 1

SAMPLE ID (EPISODE #)	CLIENT / CASE	DATE RECEIVED / CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	g • (ml)	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
BL0401WH			W/L					5.0						5.0	N		500		
BB0401WH			W/L					5.0						5.0	N		500		
LC0401WH			W/L					5.0						5.0	N	250	500		
LD0401WH			W/L					5.0						5.0	N	250	500		
33393.14 GC200	MKF-OH	04/01/1998 12:39 CRA/MFAR0330	W/L					5.0						5.0	N		500		
33394.01 GC200	MKF-OH	04/01/1998 12:55 CRA/BPSWWB15	W/L					5.0						5.0	N		500		
33393.14MS GC200	MKF-OH	04/01/1998 12:39 CRA/MFAR0330	W/L					5.0						5.0	N	250	500		
33393.14MSD GC200	MKF-OH	04/01/1998 12:39 CRA/MFAR0330	W/L					5.0						5.0	N	250	500		

INITIALS

WEIGHING:	EXTRACTION: MK	FLORISIL:
CLEANUP: 4	KD:	
BLOWDOWN: 0	TV:	
SURROG. SPIKER: PV	VERIFIER: MK	
MATRIX SPIKER: PV	VERIFIER: MK	
SUBMITTED BY:	REVIEWED BY:	

ID NUMBERS

FLORISIL CARTRIDGE #:

GPC COLUMN #:

SURROGATES ID CONC #: 2-95A

MATRIX SPIKE SOLID/CONC #(s): 2-85

SOP - METHOD # : SWL-OP-_____ Rev._____

COMMENTS

MORRISON KNUDSEN CORPORATION

CHAIN OF CUSTODY RECORD

CCIC # 55

720 Park Blvd., P.O. Box 73
Boise, Idaho 83729
(208) 386-5000

Project No.: 4324-0009-007-35

Project Name: NSWC Crane BioFacility

Samplers: (Signature) Ryan H. Erwin

Sampler: (Print)

Sample Type	Sampling Point Description	Sample Date	Time	Sample I.D. Number	Split Samples Yes	Split Samples No	8330 EXP.	6010 METALS	TCLP METALS	8240 VOC	Remarks
Soil	Grid 115 comp. 0-12"	4/1/98	1303	CRA/MFA ICS 516		✓	✓	✓	✓		Mine Fill A Re-Excavation
	Grid 115 grab 12-18"		1331	CRA/MFA ICS 517		✓				✓	
	Grid 115 comp. 24-36"		1346	CRA/MFA ICS 518		✓	✓	✓	✓		
	Grid 105 comp 0-12"		1445	CRA/MFA ICS 519		✓	✓	✓	✓		
	Grid 105 comp.		1450	CRA/MFA ICS 520		✓	✓	✓	✓		
	Grid 105 grab 12-18"		1500	CRA/MFA ICS 521		✓				✓	
	Grid 105 comp. 24-36"		1520	CRA/MFA ICS 522		✓	✓	✓	✓		
	Grid 104 Comp 0-12"	4/2/98	1300	CRA/MFA ICS 523		✓	✓	✓	✓		
	Grid 104 grab 12-18"		1318	CRA/MFA ICS 524		✓				✓	
	Grid 104 Comp 24-36"		1328	CRA/MFA ICS 525		✓	✓	✓	✓		
liquid	Trip Blank		1530	CRA/MFA T6401		✓				✓	Southwest Labs

Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:	Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:
Ryan H. Erwin	4/2/98 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: J. Hodson	Date/Time 4/3/98 9:15	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:

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2.WB1) / SWL-GA-115 Rev. 5.0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA / AMERICAN ANALYTICAL & TECH. SRVS.

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): KIM WILLISON / SARAH HODSON

REC'D DATE: 4-3-98

RECEIVED BY (SIGNATURE): S. Hodson.

TIME REC'D: 0915

LOGGED IN BY (SIGNATURE): K Willison

LOG-IN DATE: 4-3-98

PROJECT:	EPISODE:	SAMPLE DELIVERY GROUP:
NSWC CRANE	33437	33437

REMARKS:

1. CUSTODY SEAL(S): PRESENT / ABSENT; INTACT / BROKEN
2. CUSTODY SEALS NOS.:
3. CHAIN - OF- CUSTODY, PRESENT / ABSENT
   SEALED IN PLASTIC? YES / NO
   TAPED TO LID? YES / NO
   PROPERLY FILLED OUT (INK, SIGNED, ETC.)? YES / NO
4. AIRBILL: AIRBILL / STICKER PRESENT / ABSENT
5. AIRBILL NO: 800811824490
6. COOLER CONDITIONS
   ENOUGH ICE? YES / NO
   TYPE OF ICE? Wet
   TYPE OF PACKING? Bubble
7. SAMPLE TAGS: PRESENT / ABSENT
8. SAMPLE CONDITION: INTACT / BROKEN* / LEAKING
   BOTTLES SEALED IN SEPARATE PLASTIC BAGS? YES / NO
   CORRECT CONTAINERS USED FOR FOR TESTS INDICATED ? YES / NO
   CORRECT PRESERVATIVE ? YES / NO
   SUFFICIENT SAMPLE ? YES / NO
   LABELS COMPLETE (I.D., DATE, TIME, SIGNATURE, PRESERVATIVE ? YES / NO
   VOA SAMPLES WITHOUT BUBBLES ? YES / NO~
9. DOES INFORMATION ON CUSTODY RECORDS, LABELS, TAGS AGREE? YES / NO*
10. RAD SCREEN WITH GIEGER COUNTER? YES / NO
11. P.O. CALLED ? YES* / NO

CLIENT SAMPLE #	SAMPLE FRACTION@	ASSIGNED LAB #	COOLER I.D.	pH CHECK	ACID / BASE LOT #:	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
CRA/MFA1CS516	B,M	.01	MKE-01 4-3-98-2			3°C Bias +1.5
517		.04				
518		.07				
519		.08				
520		.09				
521		.10				
522		.11				
523		.12				
524		.13				
525		.14				
CRS/MFAT0401		.15				

* Contact PO and attach record of resolution

@ Sample Fractions: B= SV GC/MS, V= VOA GC/MS or GC , P=Pesticide,H=Herbicide, D= Dioxin, A=Air, I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

SDG NARRATIVE

April 24, 1998

CLIENT : MKF-OH
CASE : NSWC CRANE
SDG : 33437
EPISODE(S): 33437
FRACTION : EXPLOSIVES
SAMPLE(S) : CRA/MFAICS516, CRA/MFAICS518, CRA/MFAICS519, CRA/MFAICS520, CRA/MFAICS522, CRA/MFAICS523, CRA/MFAICS525

This SDG consisted of 7 soil samples with applicable MS and MSD for explosives analysis. The samples, blanks and spikes were extracted and analyzed according to EPA protocol, SW-846, method 8330, REV. 0, 1994.

For soil samples, the percent moisture is determined by drying them at 105° C at the time of receipt. Additional portion of the samples are air-dried prior to analysis. The results are reported on the basis of the air-dried samples. For high level water samples, direct injection method is used. For low level water samples, salting out method is used. All of the extracts are diluted by a factor of two prior to analysis according to method 8330. The extracts are diluted in order to be the same consistency as the Mobile Phase.

"P" flags were used when the appropriate compound with sufficient response exceeded 40% deviation, possibly due to interference in the quantitation or confirmation columns.

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2

CASE SUMMARY:

Due to retention time shift in the original quantitational analysis which had exceeded 2% within the calibration standard, all of the above samples were re-analyzed under a new initial calibration standard.

RDX was reported with a "J" flag in the data package of the sample CRA/MFAICS518. The analyte was not reported in the preliminary data.

2ADNT was reported with a "P" flag in the sample CRA/MFAICS520. The analyte was not reported in the preliminary data.

2ADNT was reported with a "P" flag in the sample CRA/MFAICS523. The analyte was not reported in the preliminary data.

2ADNT was reported with a "P" flag in the sample CRA/MFAICS525. The analyte was not reported in the preliminary data.

All of the analytes were within QC limits in the laboratory control spike (LCS) and the laboratory control spike duplicate (LCSD) and matrix spike (MS) and matrix spike duplicate (MSD).

Any reported 2ADNT might be a false positive hit since the analyte elutes at the same retention time as the surrogate (3,4DNT). Therefore, there is no positive way to confirm this analyte, unless the sample detecting such an analyte in the quantitation column is to be reextracted without a surrogate and analyzed for the confirmation for positive hit.

The explosives referred to in the data package by the abbreviations found in method 8330 are as follows: HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine), RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine), TNB (1,3,5-Trinitrobenzene), DNB (1,3-Dinitrobenzene), Tetryl (Methyl-2,4,6-trinitrophenylnitramine), NB (Nitrobenzene), TNT (2,4,6- Trinitrotoluene), 24DNT (2,4-Dinitrotoluene), 26DNT (2,6-Dinitrotoluene), 2NT (o-Nitrotoluene), 3NT m-Nitrotoluene), 4NT (p-Nitrotoluene) , PETN (Pentaerythritol tetranitrate), 2ADNT (2-Amino-4,6-dinitrotoluene), 4ADNT (4-Amino-2,6-dinitrotoluene).

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

We use the following flags where appropriate. "J" - indicates a quantitated result which is below the quantitation limit, but above the detection limit and has been confirmed by the second column. "E"- indicates an out of range value, i.e., a peak that is off-scale or out of the linear calibration range of the detector. The value reported is not to be used. The sample must be diluted and re-run. "D" - indicates a value derived from a secondary dilution. "U" - indicates the compound that is undetected above the quantitation limit. "X" - indicates a comment which is explained in the case narrative.

Shahriar Shahreza

LC Supervisor

2E

EXPLOSIVE SURROGATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33437

	SAMPLE NUMBER	S1 #	OTHER
1	CRA/MFAICS516	91.7	0
2	CRA/MFAICS516 MS	114	0
3	CRA/MFAICS516 MSD	121	0
4	CRA/MFAICS518	107	0
5	CRA/MFAICS519	96.8	0
6	CRA/MFAICS520	92.3	0
7	CRA/MFAICS520 10X	81.7D	0
8	CRA/MFAICS522	99.4	0
9	CRA/MFAICS522 10X	90.7D	0
10	CRA/MFAICS523	96.6	0
11	CRA/MFAICS523 10X	109D	0
12	CRA/MFAICS525	108	0
13	BL0406SA	107	0
14	LC0406SA	118	0
15	LD0406SA	120	0
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
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

SOIL EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No: MKF-OH SDG No:33437

Client Sample No: CRA/MFAICS516 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
HMX	9500		11000	116	54-128
RDX	9500		8990	95	66-109
TNB	9500		9840	104	57-130
DNB	9500		10700	113	74-122
TETRYL	9500		9040	95	32-119
NB	9500		10500	110	70-135
TNT	9500	720	10800	106	44-124
4ADNT	9500	290	9950	102	60-140
2ADNT	9500		10100	106	60-140
26DNT	9500		10000	105	58-125
24DNT	9500		9940	105	59-120
2NT	9500		10400	109	79-124
4NT	9500		10200	107	74-128
3NT	9500		10300	108	79-121

f 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	10500	110	5	30	54-128
RDX	9500	8600	91	4	30	66-109
TNB	9500	9460	100	4	30	57-130
DNB	9500	10200	107	5	45	74-122
TETRYL	9500	8580	90	5	30	32-119
NB	9500	9870	104	6	35	70-135
TNT	9500	10300	101	5	30	44-124
4ADNT	9500	9640	98	4	40	60-140
2ADNT	9500	9760	103	3	40	60-140
26DNT	9500	9740	102	3	35	58-125
24DNT	9500	9600	101	4	35	59-120
2NT	9500	10100	106	3	35	79-124
4NT	9500	9900	104	3	35	74-128
3NT	9500	9940	105	3	35	79-121

No of Analyte recoveries out of QC Advisory Limits = 0
No of RPD's out of QC Limits 0

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No: MKF-OH • SDG No:33437

Client Sample No: LC0406SA

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
HMX	9500		10600	112	57-137
RDX	9500		9470	100	77-113
TNB	9500		8680	91	64-125
DNB	9500		10000	105	82-118
TETRYL	9500		4050	43	23-124
NB	9500		9640	101	69-143
TNT	9500		9110	96	75-118
4ADNT	9500		10500	110	60-140
2ADNT	9500		9340	98	60-140
26DNT	9500		9290	98	78-117
24DNT	9500		9480	100	74-126
2NT	9500		9660	102	78-123
4NT	9500		9550	100	79-125
3NT	9500		9590	101	78-121

of Analyte recoveries out of QC Advisory Limits = 0

3G

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No: MKF-OH SDG No:33437

Client Sample No: LD0406SA

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	QC LIMITS REC.
HMX	9500		10700	113	57-137
RDX	9500		9530	100	77-113
TNB	9500		9030	95	64-125
DNB	9500		10300	108	82-118
TETRYL	9500		4270	45	23-124
NB	9500		10100	106	69-143
TNT	9500		9560	101	75-118
4ADNT	9500		11200	118	60-140
2ADNT	9500		9560	101	60-140
26DNT	9500		9770	103	78-117
24DNT	9500		9640	101	74-126
2NT	9500		10200	107	78-123
4NT	9500		10100	106	79-125
3NT	9500		10100	106	78-121

of Analyte recoveries out of QC Advisory Limits = 0

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0406SA

Code: SWOK Case No: MKF-OH SDG No:33437

Matrix: (soil/water) Soil

Date Extracted: 04/06/98 Extn. Method: SONC

Date Analyzed (1): 04/16/98 Date Analyzed(2): 04/12/98

Time Analyzed (1): 05:24:21 Time Analyzed(2): 01:57:18

Instrument ID (1): IN12 Instrument ID(2): IN10

LC Column ID (1): CARB-05 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	LC0406SA	LC0406SA	04/16/98	
2	CRA/MFAICS516	33437.01	04/16/98	04/12/98
3	CRA/MFAICS516 MS	33437.02MS	04/16/98	
4	CRA/MFAICS516 MSD	33437.03MSD	04/16/98	
5	CRA/MFAICS518	33437.07	04/16/98	04/12/98
	CRA/MFAICS519	33437.08	04/16/98	04/12/98
	CRA/MFAICS520	33437.09	04/16/98	04/18/98
8	CRA/MFAICS520 10X	33437.09DL	04/16/98	04/18/98
9	CRA/MFAICS522	33437.11	04/16/98	04/18/98
10	CRA/MFAICS522 10X	33437.11DL	04/16/98	04/18/98
11	CRA/MFAICS523	33437.12	04/16/98	04/18/98
12	CRA/MFAICS523 10X	33437.12DL	04/16/98	04/18/98
13	CRA/MFAICS525	33437.14	04/16/98	04/18/98
14	LD0406SA	LD0406SA	04/22/98	
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

FORM IV

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

CRA/MFAICS519

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33437

Matrix: (soil/water) SOIL Lab Sample ID: 33437.08

Sample Amt: 2g % Moisture 20.04 Date Received: 04/03/98

Extraction Volume: 10ml Date Extracted: 04/06/98

Extraction Method: SONC Date Analyzed: 04/16/98

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	6720	
121-82-4	RDX	9120	
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	438	
1946-51-0	4ADNT	404	
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

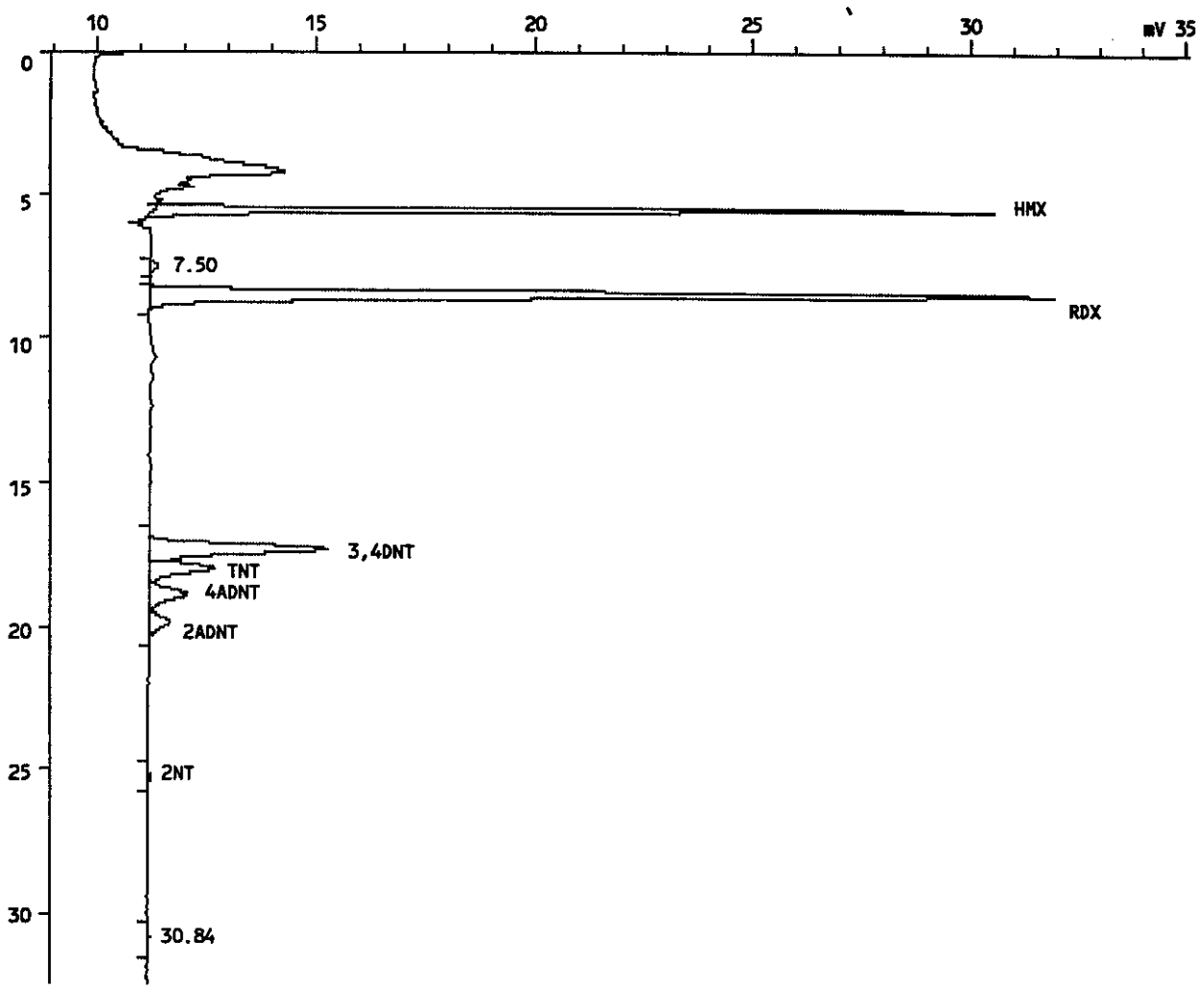
FORM I

LONG PLOT

Injection F: <MC3> 2 2EX0415,35,1

Sample name.....: CRA/MFAICS519
Sample ID.....: 33437.08
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-05, INJ:200,COL#1

Acquired on 16-Apr-98 at 12:50:37
Reported on 21-Apr-98 at 20:01:24



INJECTION REPORT

Injection F: <MC3> 2 2EX0415,35,1

Acquired on 16-Apr-98 at 12:50:37
Modified on 21-Apr-82 at 19:53:18
Reported on 21-Apr-98 at 19:53:20

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-05,INJ:200,COL#1
Number of samples.: 44
Calibration file..: 2EX0415 Last modified on 20-Apr-82 at 21:20:18
Method file.....: EXPLOS Last modified on 21-Apr-82 at 19:50:22
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: CRA/MFAICS519
Sample ID.....: 33437.08
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

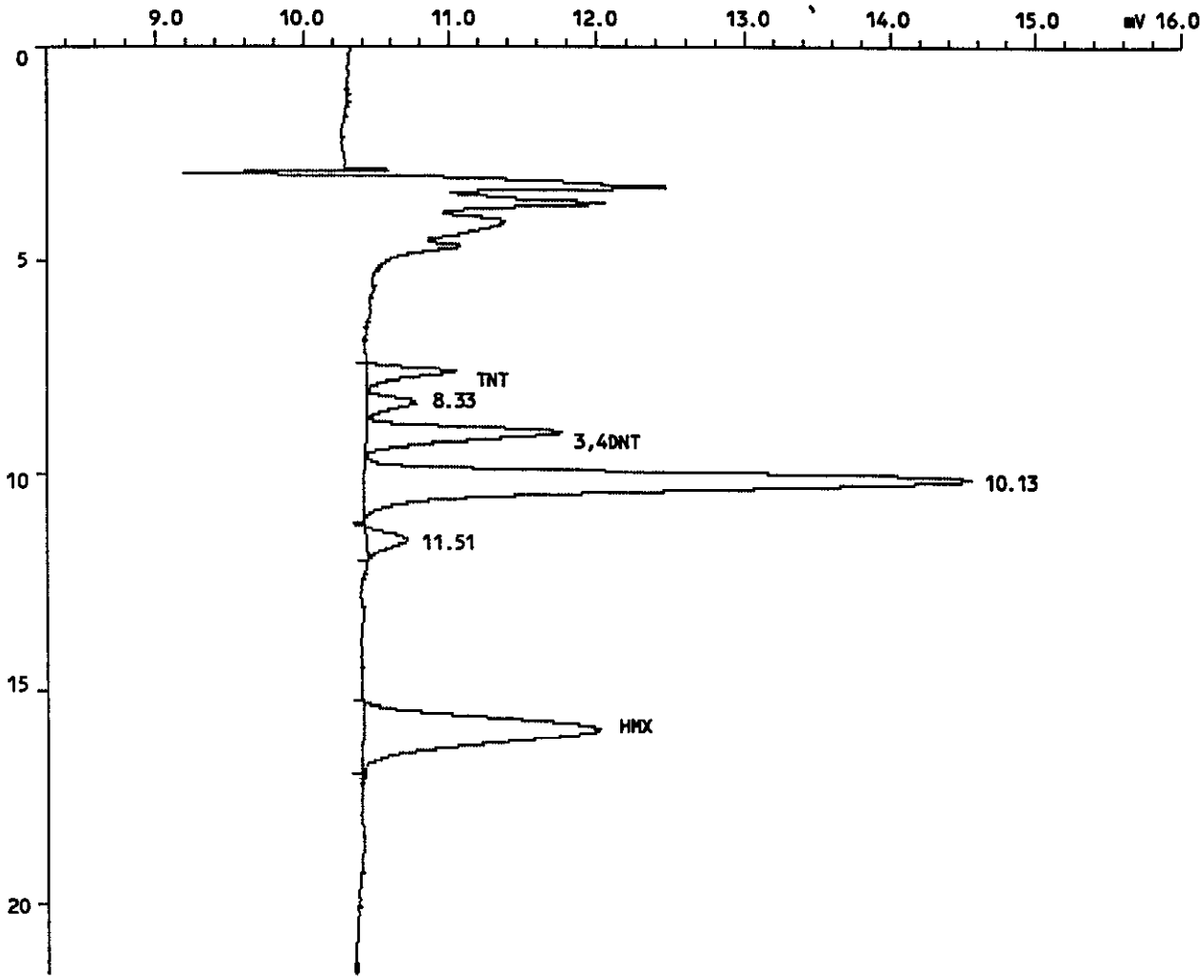
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	5.579	19300	177761	6723.193	HMX *
3	8.485	20674	334968	9117.262	RDX *
4	17.301	4073	93369	1935.504	3,4DNT 97
5	17.984	1500	36524	437.731	TNT *
6	18.869	856	24731	404.226	4ADNT *
7	19.851	495	14539	168.232	2ADNT
8	25.291	66	1746	34.117	2NT
Total		46965	683638	18820.266	
Residual		252	5172	155.614	

LONG PLOT

Injection F: <MC3> 3 3CN0411,18,1

Sample name.....: CRA/MFAICS519
Sample ID.....: 33437.08
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 12-Apr-98 at 04:54:43
Reported on 13-Apr-98 at 14:54:00



INJECTION REPORT

Injection F: <MC3> 3 3CN0411,18,1

Acquired on 12-Apr-98 at 04:54:43
Modified on 13-Apr-82 at 14:50:38
Reported on 13-Apr-98 at 14:50:38

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.: 46
Calibration file..: 3CN0411A Last modified on 13-Apr-82 at 14:20:10
Method file.....: LCCN Last modified on 13-Apr-82 at 14:50:26
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: CRA/MFAICS519
Sample ID.....: 33437.08
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

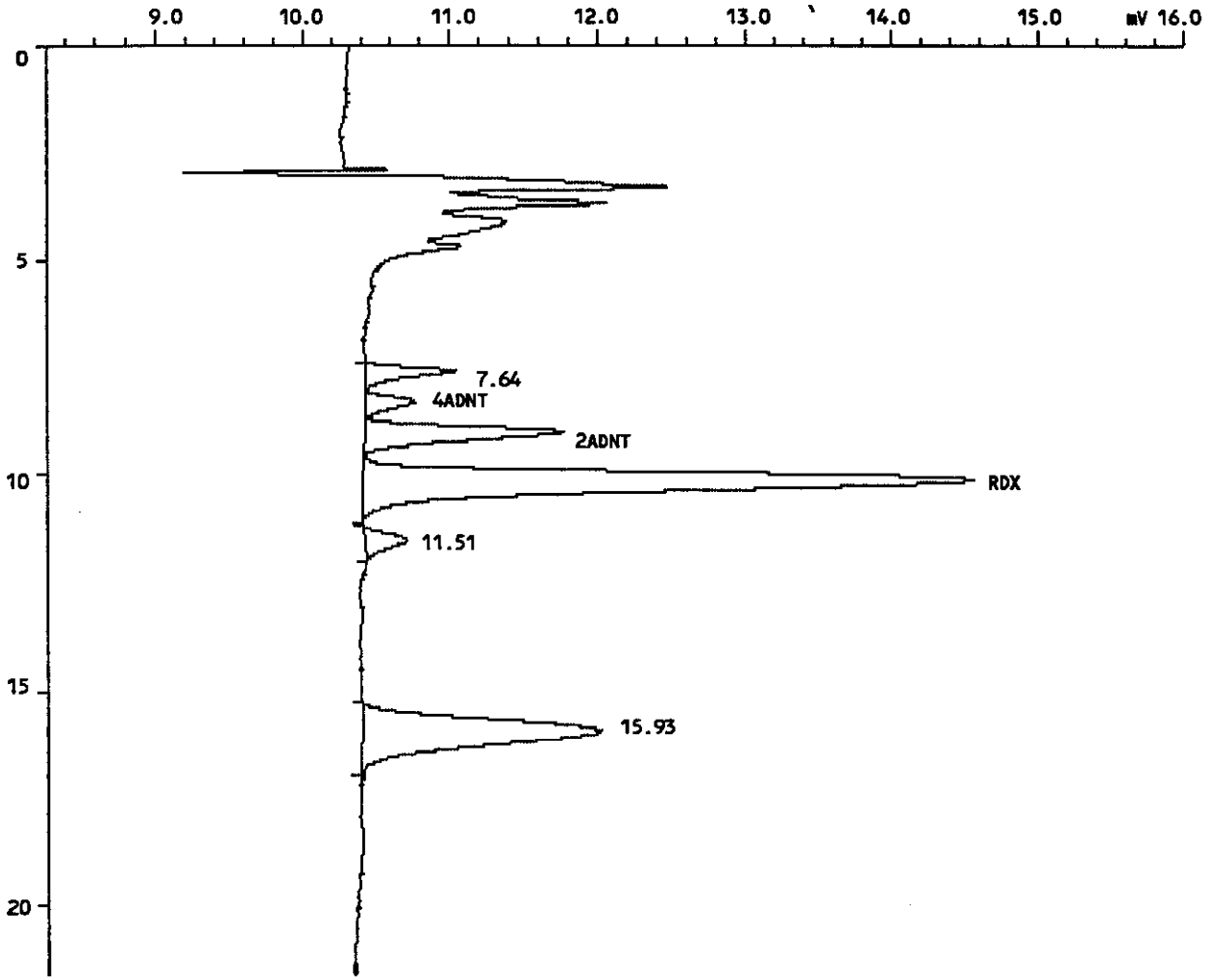
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	7.643	612	9765	375.293	TNT
3	9.040	1342	28453	2106.066	3,4DNT
6	15.925	1608	66392	6233.989	HMX
Total		3562	104610	8715.348	
Residual		4771	130411	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0411,18,1

Sample name.....: CRA/MFAICS519
Sample ID.....: 33437.08
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 12-Apr-98 at 04:54:43
Reported on 13-Apr-98 at 14:57:31



INJECTION REPORT

Injection F: <MC3> 3 3CN0411,18,1

Acquired on 12-Apr-98 at 04:54:43
Modified on 13-Apr-82 at 14:54:46
Reported on 13-Apr-98 at 14:54:47

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.: 46
Calibration file..: 3CN0411B Last modified on 13-Apr-82 at 14:22:18
Method file.....: LCCN Last modified on 13-Apr-82 at 14:50:26
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: CRA/MFAICS519
Sample ID.....: 33437.08
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	8.331	340	6389	366.768	4ADNT
3	9.040	1342	28453	1090.152	2ADNT
4	10.133	4137	117294	8231.188	RDX
Total		5819	152136	9688.106	
Residual		2515	82884	0.000	

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33437
Instrument ID: IN12 Column ID: CARB-05

Dates of Anlayses: 04/15/98 to 04/16/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
INST. BLK.	INST.BLK.	04/15/98	11:33
EXP L1 SOIL STD	2-156:IA1	04/15/98	13:47
EXP L2 SOIL STD	2-155:IA2	04/15/98	14:31
EXP L3 SOIL STD	2-154:IA3	04/15/98	15:16
EXP L4 SOIL STD	2-153:IA4	04/15/98	16:00
EXP L5 SOIL STD	2-152:IA5	04/15/98	16:45
EXP L3 SOIL STD	2-154:CA1	04/16/98	00:56
BL0406SA	BL0406SA	04/16/98	05:24
LC0406SA	LC0406SA	04/16/98	06:53
CRA/MFAICS516	33437.01	04/16/98	08:22
CRA/MFAICS516 MS	33437.02MS	04/16/98	09:07
EXP L3 SOIL STD	2-154:CA2	04/16/98	09:52
CRA/MFAICS516 MSD	33437.03MSD	04/16/98	11:21
CRA/MFAICS518	33437.07	04/16/98	12:06
CRA/MFAICS519	33437.08	04/16/98	12:50
CRA/MFAICS520	33437.09	04/16/98	13:35
CRA/MFAICS520 10X	33437.09DL	04/16/98	14:19
CRA/MFAICS522	33437.11	04/16/98	15:04
CRA/MFAICS522 10X	33437.11DL	04/16/98	15:49

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FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33437
Instrument ID: IN12 Column ID: CARB-05

Dates of Anlayses: 04/15/98 to 04/16/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
CRA/MFAICS523	33437.12	04/16/98	16:33
CRA/MFAICS523 10X	33437.12DL	04/16/98	17:23
CRA/MFAICS525	33437.14	04/16/98	18:08
EXP L3 SOIL STD	2-154:CA3	04/16/98	19:02

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FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33437
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
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
EXP L3 SOIL STD	2-171:CA7	04/22/98	13:43
LD0406SA	LD0406SA	04/22/98	16:42
EXP L3 SOIL STD	2-171:CA8	04/22/98	17:27

FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33437
Instrument ID: IN10 Column ID: LC-CN-10

Dates of Anlayses: 04/11/98 to 04/13/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
EXP L1A STD	2-146:IA1	04/11/98	18:33
EXP L2A STD	2-145:IA2	04/11/98	19:18
EXP L3A STD	2-144:IA3	04/11/98	20:02
EXP L4A STD	2-143:IA4	04/11/98	20:46
EXP L5A STD	2-142:IA5	04/11/98	21:31
EXP L1B STD	1-151:IB1	04/11/98	22:15
EXP L2B STD	2-150:IB2	04/11/98	22:59
EXP L3B STD	2-149:IB3	04/11/98	23:44
EXP L4B STD	2-148:IB4	04/12/98	00:28
EXP L5B STD	2-147:IB5	04/12/98	01:12
BL0406SA	BL0406SA	04/12/98	01:57
CRA/MFAICS516	33437.01	04/12/98	03:26
CRA/MFAICS518	33437.07	04/12/98	04:10
CRA/MFAICS519	33437.08	04/12/98	04:54
EXP L3A STD	2-144:CA1	04/12/98	08:36
EXP L3B STD	2-149:CB1	04/12/98	09:20

FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN12
Column ID : CARB-05

Inj 1

Injection File Name Level 1 : 2EX0415,4
Injection File Name Level 2 : 2EX0415,5
Injection File Name Level 3 : 2EX0415,6
Injection File Name Level 4 : 2EX0415,7
Injection File Name Level 5 : 2EX0415,8

Calibration Date : 04/15/1998
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	12602	1243	334568	1317	905474	1372	1315657	1329	1784127	1352
RDX	6909	1637	192191	1820	535597	1941	767176	1862	1059003	1925
TNB	10547	3492	289375	3828	807727	4100	1170768	3955	1565461	3973
DNB	8464	5225	224434	5528	618815	5860	885212	5588	1199752	5659
TETRYL	9324	2506	209034	2248	618708	2557	889668	2444	1208917	2498
NB	14206	4305	351078	4261	954637	4461	1376193	4274	1860481	4327
3,4-DNT	12315	2424	298873	2357	818074	2479	1183764	2387	1592996	2414
TNT	10669	3951	277296	4102	764538	4344	1113968	4220	1493340	4242
4ADNT	7652	3242	173933	2938	481123	3124	683154	2945	937399	3044
2ADNT	10166	4308	249158	4209	685508	4451	988379	4260	1348041	4377
26DNT	9997	2577	251105	2583	681439	2683	985756	2594	1317994	2605
24DNT	13331	5649	334285	5647	921088	5981	1337928	5767	1774349	5761
2NT	8038	2378	214622	2537	587554	2671	853679	2587	1153769	2622
T	7707	2280	198775	2350	543663	2471	786782	2384	1062553	2415
T	8999	2795	228442	2841	623382	2968	907885	2891	1227922	2938

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN12
Column ID : CARB-05

Inj 1

Injection File Name Level 1 : 2EX0415,4
Injection File Name Level 2 : 2EX0415,5
Injection File Name Level 3 : 2EX0415,6
Injection File Name Level 4 : 2EX0415,7
Injection File Name Level 5 : 2EX0415,8

Calibration Date : 04/15/1998
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	1322	3.73	0.99984	1347	0.000
RDX	1837	6.63	0.99962	1907	0.000
TNB	3870	6.00	0.99978	3983	0.000
DNB	5572	4.15	0.99969	5663	0.000
TETRYL	2451	4.91	0.99952	2485	0.000
NB	4325	1.85	0.99976	4328	0.000
3,4-DNT	2412	1.89	0.99980	2413	0.000
[illegible]T	4172	3.60	0.99986	4247	0.000
[illegible]DNT	3059	4.19	0.99946	3023	0.000
2ADNT	4321	2.21	0.99967	4349	0.000
26DNT	2608	1.65	0.99984	2612	0.000
24DNT	5761	2.36	0.99976	5791	0.000
2NT	2559	4.39	0.99984	2617	0.000
4NT	2380	3.00	0.99982	2412	0.000
3NT	2887	2.44	0.99987	2926	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/15/1998
Continuing Calibration #: 1
Continuing Cal Date : 04/16/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-05
Injection File Name : 2EX0415,19
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	859255	1302	1322	1.56	1347	3.34
RDX	503072	1823	1837	0.78	1907	4.41
TNB	757818	3847	3870	0.59	3983	3.41
DNB	590193	5589	5572	0.30	5663	1.32
TETRYL	569675	2354	2451	3.94	2485	5.28
NB	902037	4215	4325	2.55	4328	2.61
3,4-DNT	779180	2361	2412	2.11	2413	2.17
TNT	718206	4081	4172	2.19	4247	3.91
4ADNT	454108	2949	3059	3.59	3023	2.46
2ADNT	645712	4193	4321	2.96	4349	3.59
26DNT	657100	2587	2608	0.82	2612	0.96
24DNT	858626	5575	5761	3.22	5791	3.72
2NT	554738	2522	2559	1.46	2617	3.63
4NT	509020	2314	2380	2.78	2412	4.08
3NT	592872	2823	2887	2.20	2926	3.52

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/15/1998
Continuing Calibration #: 2
Continuing Cal Date : 04/16/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-05
Injection File Name : 2EX0415,31
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	886888	1344	1322	1.61	1347	0.23
RDX	519692	1883	1837	2.50	1907	1.25
TNB	780255	3961	3870	2.35	3983	0.55
DNB	606706	5745	5572	3.11	5663	1.45
TETRYL	574874	2376	2451	3.06	2485	4.42
NB	933267	4361	4325	0.82	4328	0.76
3,4-DNT	804099	2437	2412	1.02	2413	0.96
TNT	748222	4251	4172	1.90	4247	0.10
4ADNT	470759	3057	3059	0.05	3023	1.11
2ADNT	669629	4348	4321	0.63	4349	0.01
26DNT	676684	2664	2608	2.14	2612	1.99
24DNT	892108	5793	5761	0.56	5791	0.03
2NT	573671	2608	2559	1.90	2617	0.34
4NT	530496	2411	2380	1.32	2412	0.03
3NT	607231	2892	2887	0.17	2926	1.18

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/15/1998
Continuing Calibration #: 3
Continuing Cal Date : 04/16/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-05
Injection File Name : 2EX0415,43
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	911918	1382	1322	4.48	1347	2.58
RDX	537139	1946	1837	5.94	1907	2.07
TNB	798276	4052	3870	4.71	3983	1.75
DNB	622077	5891	5572	5.72	5663	4.02
TETRYL	542292	2241	2451	8.56	2485	9.84
NB	939671	4391	4325	1.52	4328	1.45
3,4-DNT	830228	2516	2412	4.30	2413	4.24
TNT	765808	4351	4172	4.30	4247	2.46
4ADNT	490423	3185	3059	4.12	3023	5.34
2ADNT	691292	4489	4321	3.89	4349	3.22
26DNT	698308	2749	2608	5.40	2612	5.25
24DNT	923783	5999	5761	4.13	5791	3.58
2NT	575405	2615	2559	2.21	2617	0.04
4NT	536390	2438	2380	2.44	2412	1.08
3NT	610960	2909	2887	0.78	2926	0.57

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

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN12
Column ID : CARB-05
Calibration Date : 04/15/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	5.57	5.54	5.59	5.54	5.55
RDX	8.48	8.39	8.44	8.39	8.42
TNB	11.36	11.28	11.37	11.29	11.34
DNB	13.88	13.79	13.89	13.80	13.85
TETRYL	14.90	14.77	14.90	14.78	14.84
NB	15.73	15.66	15.77	15.68	15.72
3,4-DNT	17.18	17.10	17.22	17.10	17.16
TNT	17.89	17.80	17.92	17.81	17.87
4ADNT	18.62	18.58	18.70	18.57	18.62
2ADNT	19.63	19.56	19.71	19.57	19.61
26DNT	20.92	20.84	20.97	20.85	20.89
24DNT	21.60	21.53	21.66	21.54	21.58
2NT	25.42	25.34	25.48	25.35	25.40
4NT	27.16	27.08	27.22	27.09	27.14
3NT	29.30	29.20	29.35	29.22	29.27

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4
HMX	5.56	5.57	5.58	5.57
RDX	8.42	8.44	8.38	8.45
TNB	11.33	11.35	11.31	11.37
DNB	13.85	13.89	13.85	13.91
TETRYL	14.84	14.90	14.85	14.92
NB	15.73	15.77	15.74	15.80
3,4-DNT	17.16	17.23	17.20	17.26
TNT	17.87	17.93	17.92	17.96
4ADNT	18.66	18.75	18.73	18.79
2ADNT	19.65	19.75	19.73	19.78
26DNT	20.92	21.00	20.99	21.04
24DNT	21.61	21.70	21.69	21.73
2NT	25.43	25.53	25.54	25.57
4NT	27.17	27.28	27.29	27.32
3NT	29.30	29.42	29.43	29.46

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	5.56	0.018	0.054	5.51 - 5.62
RDX	8.42	0.033	0.099	8.32 - 8.52
NB	11.33	0.033	0.099	11.23 - 11.43
DNB	13.86	0.041	0.124	13.73 - 13.98
TETRYL	14.86	0.054	0.161	14.69 - 15.02
NB	15.73	0.043	0.129	15.60 - 15.86
3,4-DNT	17.18	0.057	0.170	17.01 - 17.35
TNT	17.89	0.053	0.158	17.73 - 18.04

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2EX0415
page 2

4ADNT	18.67	0.078	0.233	18.44 - 18.90
2ADNT	19.67	0.081	0.242	19.42 - 19.91
26DNT	20.94	0.069	0.206	20.73 - 21.14
24DNT	21.63	0.072	0.217	21.41 - 21.84
2NT	25.45	0.083	0.248	25.20 - 25.70
4NT	27.19	0.087	0.261	26.93 - 27.45
6NT	29.33	0.094	0.282	29.05 - 29.61

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 : 3CN0411,4
Injection File Name Level 2 : 3CN0411,5
Injection File Name Level 3 : 3CN0411,6
Injection File Name Level 4 : 3CN0411,7
Injection File Name Level 5 : 3CN0411,8

Calibration Date : 04/11/1998
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	11959	2600	59876	2603	145873	2537	304432	2647	604348	2628
26DNT	8652	1730	43801	1752	108275	1732	225311	1802	442188	1769
TNT	11864	2579	59998	2609	146647	2550	304752	2650	603007	2622
3,4DNT	8656	1237	43955	1256	114536	1388	238419	1445	472393	1431
TETRYL	12341	1371	57870	1286	153469	1364	328232	1459	683952	1520
HMX	7578	1083	37425	1069	90812	1038	188599	1078	370345	1058

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 : 3CN0411,9
Injection File Name Level 2 : 3CN0411,10
Injection File Name Level 3 : 3CN0411,11
Injection File Name Level 4 : 3CN0411,12
Injection File Name Level 5 : 3CN0411,13

Calibration Date : 04/11/1998
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	9666	1933	50510	2020	129472	2072	260224	2082	512979	2052
DNB	13993	3498	76836	3842	188238	3765	392394	3924	750274	3751
24DNT	15589	3118	86241	3450	210859	3374	438485	3508	837861	3351
4ADNT	14687	1596	83862	1823	201226	1750	418351	1819	791200	1720
2ADNT	24764	2476	133377	2668	326438	2612	674182	2697	1299687	2599
RDX	7575	1515	37043	1482	87171	1395	173470	1388	336203	1345

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 : 3CN0411,4
Injection File Name Level 2 : 3CN0411,5
Injection File Name Level 3 : 3CN0411,6
Injection File Name Level 4 : 3CN0411,7
Injection File Name Level 5 : 3CN0411,8

Calibration Date : 04/11/1998
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	2603	1.60	0.99994	2627	0.000
26DNT	1757	1.69	0.99992	1773	0.000
TNT	2602	1.48	0.99995	2624	0.000
3,4DNT	1351	7.29	0.99990	1431	0.000
TETRYL	1400	6.48	0.99962	1500	0.000
HMX	1065	1.67	0.99992	1061	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 : 3CN0411,9
Injection File Name Level 2 : 3CN0411,10
Injection File Name Level 3 : 3CN0411,11
Injection File Name Level 4 : 3CN0411,12
Injection File Name Level 5 : 3CN0411,13

Calibration Date : 04/11/1998
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	2032	2.95	0.99996	2058	0.000
DNB	3756	4.25	0.99969	3786	0.000
24DNT	3360	4.43	0.99968	3384	0.000
4ADNT	1742	5.31	0.99954	1742	0.000
2ADNT	2610	3.25	0.99980	2619	0.000
RDX	1425	4.97	0.99987	1357	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/11/1998
Continuing Calibration #: 1
Continuing Cal Date : 04/12/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CN0411,23
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	153053	2662	2603	2.26	2627	1.32
26DNT	113307	1813	1757	3.17	1773	2.23
TNT	153075	2662	2602	2.31	2624	1.46
3,4DNT	116592	1413	1351	4.57	1431	1.22
TETRYL	150729	1340	1400	4.30	1500	10.70
HMX	102084	1167	1065	9.54	1061	9.96

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 04/11/1998
Continuing Calibration #: 1
Continuing Cal Date : 04/12/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-10
Injection File Name : 3CN0411,24
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	129578	2073	2032	2.04	2058	0.73
DNB	190621	3812	3756	1.50	3786	0.69
24DNT	211252	3380	3360	0.59	3384	0.11
4ADNT	202310	1759	1742	1.01	1742	1.00
2ADNT	325941	2608	2610	0.11	2619	0.45
RDX	101464	1623	1425	13.94	1357	19.66

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

ection 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

A8TD

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-10
Calibration Date : 04/11/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
TNB	6.23	6.26	6.22	6.23	6.22
26DNT	6.99	7.01	6.98	6.99	6.97
TNT	7.59	7.62	7.58	7.59	7.58
3,4DNT	8.95	9.00	8.95	8.97	8.95
TETRYL	12.69	12.73	12.67	12.68	12.68
HMX	15.89	15.90	15.78	15.86	15.85

COMPONENT NAME	RT Cont CA1
TNB	6.26
26DNT	7.03
TNT	7.63
3,4DNT	9.02
TETRYL	12.77
HMX	15.93

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
TNB	6.24	0.016	0.049	6.19 - 6.29
26DNT	6.99	0.022	0.067	6.93 - 7.06
TNT	7.60	0.021	0.062	7.54 - 7.66
3,4DNT	8.97	0.030	0.090	8.88 - 9.06
TETRYL	12.70	0.040	0.121	12.58 - 12.83
HMX	15.87	0.052	0.155	15.71 - 16.02

BSTD

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-10
Calibration Date : 04/11/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
NB	5.50	5.51	5.50	5.50	5.48
DNB	6.18	6.18	6.17	6.16	6.14
24DNT	7.34	7.35	7.34	7.33	7.31
4ADNT	8.31	8.33	8.31	8.31	8.27
2ADNT	8.97	9.00	8.98	8.98	8.94
RDX	10.13	10.16	10.13	10.13	10.08

COMPONENT NAME	RT Cont CAl
NB	5.52
DNB	6.19
24DNT	7.36
4ADNT	8.34
2ADNT	9.00
RDX	10.15

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
NB	5.50	0.012	0.037	5.47 - 5.54
DNB	6.17	0.015	0.044	6.13 - 6.21
24DNT	7.34	0.018	0.054	7.28 - 7.39
4ADNT	8.31	0.022	0.065	8.25 - 8.38
2ADNT	8.98	0.023	0.068	8.91 - 9.04
RDX	10.13	0.026	0.079	10.05 - 10.21

METHOD	SV	PEST • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)		XXXXX	
SOXHLET			

☐ RUSH ☐ REEXTRACT ☐ TCLP ☐ DIOXIN

SAMPLE EXTRACTION LOG

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 980406SA

EXTRACT DATE: 1998-04-06 09:24

000939
Page: 1 of 2

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - (P)	FIN PROCESS VOLUME	SCREEN Y/N	MS SV (P)	SURR SV (P)	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	(g) ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
BL0406SA			S/L	N/A			2.0							10.0	N		1000		
BB0406SA			S/L	N/A			2.0							10.0	N		1000		
LC0406SA			S/L	N/A			2.0							10.0	N	500	1000		
LD0406SA			S/L	N/A			2.0							10.0	N	500	1000		
33437.01 GC200	MKF-OH	04/03/1998 13:54 CRA/MFAICS516	S/L	N/A	20.69	1.6	2.0							10.0	N		1000		
33437.02MS GC200	MKF-OH	04/03/1998 13:54 CRA/MFAICS516	S/L	N/A	20.69	1.6	2.0							10.0	N	500	1000		
33437.03MSD GC200	MKF-OH	04/03/1998 13:54 CRA/MFAICS516	S/L	N/A	20.69	1.6	2.0							10.0	N	500	1000		
33437.07 GC200	MKF-OH	04/03/1998 13:54 CRA/MFAICS518	S/L	N/A	17.86	1.6	2.0							10.0	N		1000		
33437.08 GC200	MKF-OH	04/03/1998 13:54 CRA/MFAICS519	S/L	N/A	20.04	1.6	2.0							10.0	N		1000		
33437.09 GC200	MKF-OH	04/03/1998 13:54 CRA/MFAICS520	S/L	N/A	21.49	1.6	2.0							10.0	N		1000		
33437.11 GC200	MKF-OH	04/03/1998 13:54 CRA/MFAICS522	S/L	N/A	19.24	1.6	2.0							10.0	N		1000		
33437.12 GC200	MKF-OH	04/03/1998 13:54 CRA/MFAICS523	S/L	N/A	20.36	1.6	2.0							10.0	N		1000		
33437.14 GC200	MKF-OH	04/03/1998 13:54 CRA/MFAICS525	S/L	N/A	20.04	1.6	2.0							10.0	N		1000		
33446.01 GC200	XXXXXXXX XXXXXXXX	XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	S/L	N/A	43.67	1.1	2.0							10.0	N		1000		
33446.02 GC200	XXXXXXXX XXXXXXXX	XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	S/L	N/A	45.08	1.1	2.0							10.0	N		1000		

INITIALS

WEIGHING:	MK	EXTRACTION:	MK	FLORISIL:	
CLEANUP:		KD:			
BLOWDOWN:		TV:			
SURROG. SPIKER:	PV	VERIFIER:	MK		
MATRIX SPIKER:	PV	VERIFIER:	MK		
SUBMITTED BY:		REVIEWED BY:	1/21/98		

ID NUMBERS

FLORISIL CARTRIDGE #:

GPC COLUMN #:

SURROGATES ID CONC #: 2-97

MATRIX SPIKE SOLID/CONC #(s): 2-96

SOP - METHOD # : SWL-OP-_____ Rev._____

COMMENTS

CH_3CN 1st BR 258

MORRISON KNUDSEN CORPORATION

CHAIN OF CUSTODY RECORD

COC # 59

720 Park Blvd., P.O. Box 73
Boise, Idaho 83729
(208) 386-5000

Project No.: 4329-0009-007-35

Project Name: NSWC Crane Biofacility

Samplers: (Signature)

Sampler: (Print) Ryan Erwin

Sample Type	Sampling Point Description	Sample Date	Time	Sample I.D. Number	Split Samples Yes	Split Samples No	8330 Explosive	6010 Metals	TCLP Metals	RCRA Metals	8240 Voc.	Remarks
Soil	Grid 103 0-12" Comp	4/3/98	0853	CRA/MFA ICS 526		✓	✓	✓	✓			Mine-Field A
	Grid 103 12-18" Grab		0921	CRA/MFA ICS 527		✓				✓		Pre-Exc.
	Grid 103 24-36" Comp		0941	CRA/MFA ICS 528		✓	✓	✓	✓			
	Grid 181 0-12" Comp		1100	CRA/MFA ICS 529		✓	✓	✓	✓			
	Grid 181 12-18" Grab		1105	CRA/MFA ICS 530		✓				✓		
	Grid 181 24-36" Comp		1300	CRA/MFA ICS 531		✓	✓	✓	✓			
	Grid 182 0-12" Comp	4/6/98	0841	CRA/MFA ICS 532		✓	✓	✓	✓			
	Grid 182 12-18" Grab		0858	CRA/MFA ICS 533		✓				✓		
	Grid 182 24-36" Comp		0921	CRA/MFA ICS 534		✓	✓	✓	✓			
	Grid 174 0-12" Comp		1000	CRA/MFA ICS 535		✓	✓	✓	✓			
	Grid 174 12-18" Grab		1021	CRA/MFA ICS 536		✓				✓		
	Grid 174 24-36" Comp		1042	CRA/MFA ICS 537		✓	✓	✓	✓			
	Grid 174 12-18" Grab		1030	CRA/MFA ICS 538		✓				✓		
liquid	Rinse Blank		0800	CRA/MFA B0406		✓			✓	✓		
	Trip Blank		1530	CRA/MFA T0406		✓	✓			✓		South West Labs

Relinquished By: (Signature) / Company	Date/Time	Received By: (Signature) / Company	Relinquished By: (Signature) / Company	Date/Time	Received By: (Signature) / Company
Ryan Erwin	1530 4/6/98				
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	Date/Time	Total No. Samples This Shipping Container: / Company
				4/7/98 0945	
Relinquished By: (Signature) / Company	Date/Time	Received By: (Signature) / Company	Relinquished By: (Signature) / Company	Date/Time	Received By: (Signature) / Company

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2.WB1) / SWL-GA-115 Rev. 5.0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA / AMERICAN ANALYTICAL & TECH. SRVS.

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): KIM WILLISON / SARAH HODSON

RECEIVED BY (SIGNATURE): K Willison

LOGGED IN BY (SIGNATURE): K Willison

REC'D DATE: 4-7-98

TIME REC'D: 0945

LOG-IN DATE: 4-7-98

PROJECT:	EPISODE:	SAMPLE DELIVERY GROUP:
USWC CRAVE		

REMARKS:

1. CUSTODY SEAL(S): PRESENT / ABSENT; INTACT / BROKEN
2. CUSTODY SEALS NOS.:
3. CHAIN - OF- CUSTODY, PRESENT / ABSENT
   SEALED IN PLASTIC? YES / NO
   TAPED TO LID? YES / NO
   PROPERLY FILLED OUT (INK, SIGNED, ETC.)? YES / NO
4. AIRBILL: AIRBILL / STICKER PRESENT / ABSENT
5. AIRBILL NO: 8008182454 2
6. COOLER CONDITIONS
   ENOUGH ICE? YES / NO
   TYPE OF ICE? Wet
   TYPE OF PACKING? Bubble
7. SAMPLE TAGS: PRESENT / ABSENT
8. SAMPLE CONDITION: INTACT / BROKEN* / LEAKING
   BOTTLES SEALED IN SEPARATE PLASTIC BAGS? YES / NO
   CORRECT CONTAINERS USED FOR FOR TESTS INDICATED ? YES / NO
   CORRECT PRESERVATIVE ? YES / NO
   SUFFICIENT SAMPLE ? YES / NO
   LABELS COMPLETE (I.D., DATE, TIME, SIGNATURE, PRESERVATIVE ? YES / NO
   VOA SAMPLES WITHOUT BUBBLES ? YES / NO~
9. DOES INFORMATION ON CUSTODY RECORDS, LABELS, TAGS AGREE? YES / NO*
10. RAD SCREEN WITH GIEGER COUNTER? YES / NO
11. P.O. CALLED ? YES* / NO

CLIENT SAMPLE #	SAMPLE FRACTION@	ASSIGNED LAB #	COOLER I.D.	pH CHECK	ACID / BASE LOT #:	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
CRA/MFA/CS526	B, M	.01	MKF-01 4-1-98-1			3°C
527		.02				
527MS		.03				
527MSD		.04				
528		.05				
529		.06				
530		.07				
531		.08				
531MS		.09				
531MSD		.10				
532		.11				
533		.12				
534		.13				
535		.14				
536		.15				
537		.16				
538	✓	.17				
CRA/MFA0406	M, I	.18		✓		
CRA/MFA0406	✓	.19	✓			

* Contact PO and attach record of resolution

@ Sample Fractions: B= SV GC/MS, V= VOA GC/MS or GC , P=Pesticide,H=Herbicide, D= Dioxin, A=Air, I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.

3F

WATER EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33479

Client Sample No: CRA/MFAR04068 MSD

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
HMX	400		378	95	44-145
RDX	150		140	93	66-139
TNB	225		204	91	56-129
DNB	125		110	88	76-122
TETRYL	413		295	71*	76-120
NB	213		196	92	82-111
TNT	188		269	143*	76-137
4ADNT	313		304	97	60-140
2ADNT	313		281	90	60-140
26DNT	288		255	89	80-118
24DNT	175		164	94	72-123
2NT	363		330	91	74-130
4NT	250		237	95	78-116
3NT	238		262	110	72-126

No of Analyte recoveries out of QC Advisory Limits = 2

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD#	QC LIMITS RPD	QC LIMITS REC.
HMX	400	381	95	1	15	44-145
RDX	150	146	97	4	12	66-139
TNB	225	207	92	1	10	56-129
DNB	125	112	90	2	15	76-122
TETRYL	413	312	76	6	14	76-120
NB	213	198	93	1	13	82-111
TNT	188	267	142*	1	15	76-137
4ADNT	313	304	97	0	40	60-140
2ADNT	313	279	89	1	40	60-140
26DNT	288	252	88	1	13	80-118
24DNT	175	158	90	4	14	72-123
2NT	363	320	88	3	15	74-130
4NT	250	241	96	2	14	78-116
3NT	238	272	114	4	15	72-126

No of Analyte recoveries out of QC Advisory Limits = 2
No of RPD's out of QC Limits 0

3G

WATER EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33479

Client Sample No: LC0408WB

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC LIMITS REC.
HMX	400		388	97	46-151
RDX	150		139	93	72-129
TNB	225		208	92	74-118
DNB	125		112	90	76-132
TETRYL	413		322	78	58-120
NB	213		198	93	68-135
TNT	188		260	138	61-145
4ADNT	313		298	95	60-140
2ADNT	313		276	88	60-140
26DNT	288		252	88	77-125
24DNT	175		160	91	70-134
2NT	363		323	89	73-131
4NT	250		235	94	73-116
3NT	238		268	113	71-127

# of Analyte recoveries out of QC Advisory Limits = 0

3G

WATER EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No: MKF-OH SDG No:33479

Client Sample No: LD0408WB

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	QC LIMITS REC.
HMX	400		397	99	46-151
RDX	150		144	96	72-129
TNB	225		206	92	74-118
DNB	125		114	91	76-132
TETRYL	413		325	79	58-120
NB	213		198	93	68-135
TNT	188		268	142	61-145
4ADNT	313		298	95	60-140
2ADNT	313		279	89	60-140
26DNT	288		260	90	77-125
24DNT	175		158	90	70-134
2NT	363		332	92	73-131
4NT	250		241	96	73-116
3NT	238		269	113	71-127

of Analyte recoveries out of QC Advisory Limits = 0

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

CRA/MFAR04068

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33479

Matrix: (soil/water) WATER Lab Sample ID: 33479.18

Sample Amt: 1ml % Moisture Date Received: 04/07/98

Extraction Volume: 1ml Date Extracted: DIRECT INJ

Extraction Method: DIRECT Date Analyzed: 04/09/98

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

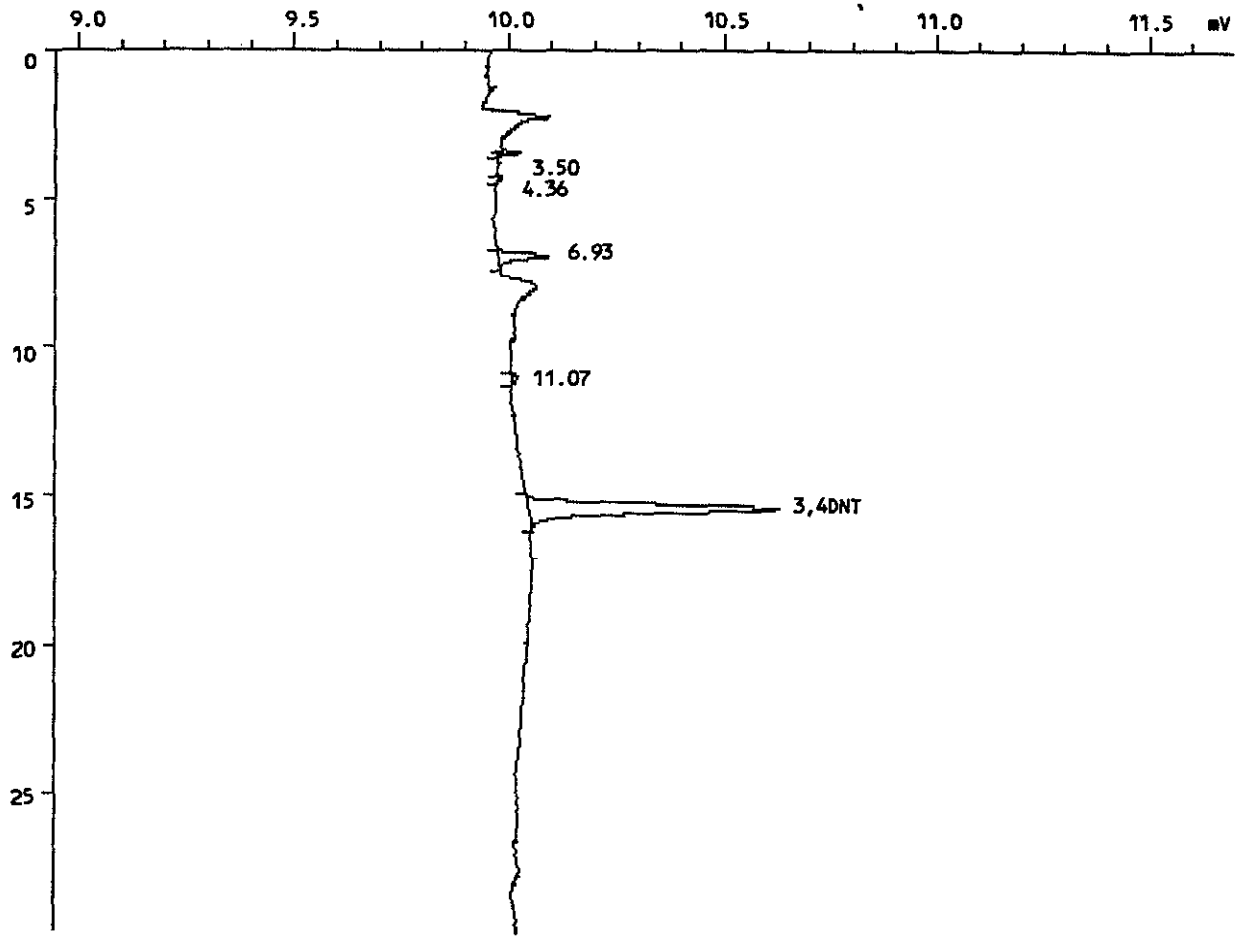
FORM I

LONG PLOT

Injection F: <MC3> 5 5E0408W,25,1

Sample name.....: CRA/MFAR04068
Sample ID.....: 33479.18
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 09-Apr-98 at 12:49:17
Reported on 15-Apr-98 at 11:28:05



INJECTION REPORT

Injection F: <MC3> 5 5E0408W,25,1

Acquired on 09-Apr-98 at 12:49:17
Modified on 15-Apr-82 at 10:25:56
Reported on 15-Apr-98 at 10:25:57

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.: 29
Calibration file..: 5E0408W Last modified on 15-Apr-82 at 10:25:56
Method file.....: EXPLOS Last modified on 15-Apr-82 at 10:24:22
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: CRA/MFAR04068
Sample ID.....: 33479.18
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
5	15.408	585	12095	246.340	3,4DNT
Total		585	12095	246.340	
Residual		188	2214	-3.459	

MORRISON KNUDSEN CORPORATION

CHAIN OF CUSTODY RECORD

MFA-003

720 Park Blvd., P.O. Box 73
Boise, Idaho 83729
(208) 386-5000

Project No.: 4324-0009-07-35

Project Name: NSWC Crane

Samplers: (Signature)

Sampler: (Print) Peter J Chevalier

Split Samples

Analysis Required

Sample Type	Sampling Point Description	Sample Date	Time	Sample I.D. Number	Split Samples Yes	Split Samples No	6330 Explosives	6010/7471 Metals	8260 VOC	RCRA Metals	Remarks
Soil	Grid 176 grab 12"	4/24/98	1000	MFA-ICS 550		✓			✓		Mine Fill A Pre-Excavation
	Grid 180 grab 12"		1015	MFA-ICS 553		✓			✓		
	Grid 178 comp 0-12"		0930	MFA-ICS 555		✓	✓	✓			
	Grid 178 grab 12"		0938	MFA-ICS 556		✓			✓		
	Grid 178 grab 30"		1000	MFA-ICS 557		✓			✓		
	Grid 178 comp 0-12"		0930	MFA-ICS 555-FD		✓	✓	✓			
	Grid 179 comp 0-12"		1020	MFA-ICS 558		✓	✓	✓			
	Grid 179 grab 12"		1033	MFA-ICS 559		✓			✓		
	Grid 179 comp 24-36"		1045	MFA-ICS 560		✓	✓	✓			
liquid	rinse blank		0830	MFA-ICS RB042498		✓	✓			✓	
liquid	trip blank		1530	MFA-ICS TB042498		✓			✓		
											Southwest Labs

Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:	Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:
[signature]	4/24/98 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: C. Miller	Date/Time 4/25/98 8:30	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:

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2.WB1) / SWL-GA-115 Rev. 5.0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA / AMERICAN ANALYTICAL & TECH. SRVS.

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): KIM WILLISON / SARAH HODSON

RECEIVED BY (SIGNATURE): C. Miller

LOGGED IN BY (SIGNATURE):

REC'D DATE: 4-25-98

TIME REC'D: 8:30

LOG-IN DATE: 4-25-98

PROJECT:	EPISODE:	SAMPLE DELIVERY GROUP:
NSWC CRANE	33748	33748

REMARKS:

1. CUSTODY SEAL(S): PRESENT / ABSENT; INTACT / BROKEN
2. CUSTODY SEALS NOS.:
3. CHAIN - OF- CUSTODY, PRESENT / ABSENT
   SEALED IN PLASTIC? YES / NO
   TAPED TO LID? YES / NO
   PROPERLY FILLED OUT (INK, SIGNED, ETC.)? YES / NO
4. AIRBILL: AIRBILL / STICKER; PRESENT / ABSENT
5. AIRBILL NO: 8008118246 18
6. COOLER CONDITIONS
   ENOUGH ICE? YES / NO
   TYPE OF ICE? Wet
   TYPE OF PACKING? Bubble
7. SAMPLE TAGS: PRESENT / ABSENT
8. SAMPLE CONDITION: INTACT / BROKEN* / LEAKING
   BOTTLES SEALED IN SEPARATE PLASTIC BAGS? YES / NO
   CORRECT CONTAINERS USED FOR FOR TESTS INDICATED ? YES / NO
   CORRECT PRESERVATIVE ? YES / NO
   SUFFICIENT SAMPLE ? YES / NO
   LABELS COMPLETE (I.D., DATE, TIME, SIGNATURE, PRESERVATIVE ? YES / NO
   VOA SAMPLES WITHOUT BUBBLES ? YES / NO~
9. DOES INFORMATION ON CUSTODY RECORDS, LABELS, TAGS AGREE? YES / NO*
10. RAD SCREEN WITH GIEGER COUNTER? YES / NO
11. P.O. CALLED ? YES* / NO

CLIENT SAMPLE #	SAMPLE FRACTION@	ASSIGNED LAB #	COOLER I.D.	pH CHECK	ACID / BASE LOT #:	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
MFA-ICS-550	V	01	MKF-014 4-25-98-1			10°C
553	↓	02				
555	B M	03				
556	V	04				
557	V	05				
555FD	B M	06				
558	↓	07				
559	V	08				
560	B M	09				
MFA-ICSRB042498	↓	10				
TB042498	V	11				

* Contact PO and attach record of resolution

@ Sample Fractions: B= SV GC/MS, V= VOA GC/MS or GC , P=Pesticide,H=Herbicide, D= Dioxin, A=Air, I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

SDG NARRATIVE

May 23, 1998

CLIENT : MKF-OH
CASE : NSWC CRANE
SDG : 33748
EPISODE(S) : 33748
FRACTION : EXPLOSIVES
SAMPLE(S) : MFA-ICS-555, MFA-ICS-555FD, MFA-ICS-558, MFA-ICS-560, MFA-ICS-RB042498

This SDG consisted of 4 soil and 1 water samples for explosives analysis. The samples, blanks and spikes were extracted and analyzed according to EPA protocol, SW-846, method 8330, REV. 0, 1994.

For soil samples, the percent moisture is determined by drying them at 105° C at the time of receipt. Additional portion of the samples is air-dried prior to analysis. The results are reported on the basis of the air-dried samples. For high-level water samples, direct injection method is used. For low-level water samples, salting out method is used. All of the extracts are diluted by a factor of two prior to analysis according to method 8330. The extracts are diluted in order to be the same consistency as the Mobile Phase.

"P" flags were used when the appropriate compound with sufficient response exceeded 40% deviation, possibly due to interference in the quantitation or confirmation columns.

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CASE SUMMARY:

Soil:

All of the analytes were within QC limits in the laboratory control spike (LCS) an he laboratory control spike duplicate (LCSD).

WATER:

An interfering peak eluted in the L1 and L2 standards at the approximate retention time as RDX. The interfering peak was not eluted in the other low level standard injected prior to this standard. Possibly due to autosampler vial contamination, the interfering peak was detected in these standards. Since correlation coefficient was greater than 0.99 for the analyte, slope was utilized to calculate the concentration for RDX. RDX was not detected in the sample.

ICV slightly exceeded 15% deviation when compared to the initial calibration standard. Since PETN was not detected in the associated sample, the sample was not re-analyzed.

The surrogate (3,4DNT) exceeded the QC limits in the samples MFA-ICS-RB042498MS and MFA-ICS-RB042498MSD and LC0425WC.

Tetryl was out of the QC limits in the samples MFA-ICS-RB042498MS and MFA-ICS-RB042498MSD. The analyte was within the QC limits in the LCS an LCSD.

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To analyze PETN, LC ChemStation software was utilized. Unlike the VG software, the Response Factor in the ChemStation is calculated by dividing the concentration by the area.

Multiplier = amount extracted/ final volume

The following is an example of the calculation for the LC0425WC:

Mean response factor * area of the sample * dilution * Multiplier = the concentration

3.22 * 205.52 * 1 * 2 = 1323 ug/L

Form 9s were included for the %RSD and correlation coefficient calculation of the calibration standard. However, the samples were calculated based on the mean response factor generated by the software which due to a number of decimal places, the mean response factor generated by the software might not be exactly the same as the form 9s.

The explosives referred to in the data package by the abbreviations found in method 8330 are as follows: HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine), RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine), TNB (1,3,5-Trinitrobenzene), DNB (1,3-Dinitrobenzene), Tetryl (Methyl-2,4,6-trinitrophenylnitramine), NB (Nitrobenzene), TNT (2,4,6- Trinitrotoluene), 24DNT (2,4-Dinitrotoluene), 26DNT (2,6-Dinitrotoluene), 2NT (o-Nitrotoluene), 3NT m-Nitrotoluene), 4NT (p-Nitrotoluene) , PETN (Pentaerythritol tetranitrate), 2ADNT (2-Amino-4,6-dinitrotoluene), 4ADNT (4-Amino-2,6-dinitrotoluene).

SOUTHWEST LABORATORY OF OKLAHOMA, INC.

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We use the following flags where appropriate. "J" - indicates a quantitated result, which is below the quantitation limit, but above the detection limit and has been confirmed by the second column. "E"- indicates an out of range value, i.e., a peak that is off-scale or out of the linear calibration range of the detector. The value reported is not to be used. The sample must be diluted and re-run. "D" - indicates a value derived from a secondary dilution. "U" - indicates the compound that is undetected above the quantitation limit. "X" - indicates a comment which is explained in the case narrative.

Shahriar Shahreza

GC Supervisor

2E

EXPLOSIVE SURROGATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33748

	SAMPLE NUMBER	S1 #	OTHER
1	MFA-ICS-555	97.0	0
2	MFA-ICS-555-FD	105	0
3	MFA-ICS-558	105	0
4	MFA-ICS-560	100	0
5	MFA-ICS-RB042498	112	0
6	MFA-ICS-RB042498 MS	152*	0
7	MFA-ICS-RB042498 MSD	145*	0
8	BL0425SC	107	0
9	BL0425WC	108	0
10	LC0425SC	140	0
11	LC0425WC	144*	0
12	LD0425SC	86.2	0
13	LD0425WC	127	0
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
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

FORM II

3G

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33748

Client Sample No: LC0425SC

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
HMX	9500		10900	115	57-137
RDX	9500		9690	102	77-113
TNB	9500		9410	99	64-125
DNB	9500		10500	110	82-118
TETRYL	9500		11100	117	23-124
NB	9500		10900	115	69-143
TNT	9500		9690	102	75-118
4ADNT	9500		10700	113	60-140
2ADNT	9500		10400	109	60-140
26DNT	9500		10100	106	78-117
24DNT	9500		10000	105	74-126
2NT	9500		10200	107	78-123
4NT	9500		10200	107	79-125
3NT	9500		10400	109	78-121

# of Analyte recoveries out of QC Advisory Limits = 0

3G

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33748

Client Sample No: LC0425SC

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
PETN	3000		3000	100	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:33748

Client Sample No: LD0425SC

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	QC LIMITS REC.
HMX	9500		9000	95	57-137
RDX	9500		7940	84	77-113
TNB	9500		6900	73	64-125
DNB	9500		8490	89	82-118
TETRYL	9500		6170	65	23-124
NB	9500		8160	86	69-143
TNT	9500		7550	80	75-118
4ADNT	9500		7970	84	60-140
2ADNT	9500		7790	82	60-140
26DNT	9500		7710	81	78-117
24DNT	9500		7830	82	74-126
2NT	9500		8140	86	78-123
4NT	9500		8230	87	79-125
3NT	9500		8400	88	78-121

# 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:33748

Client Sample No: LD0425SC

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	QC LIMITS REC.
PETN	3000		2820	94	70-130

No of Analyte recoveries out of QC Advisory Limits = 0

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0425SC

Lab Code: SWOK Case No: MKF-OH SDG No:33748

Matrix: (soil/water) Soil

Date Extracted: 04/25/98 Extn. Method: SONC

Date Analyzed (1): 04/29/98 Date Analyzed(2): 04/29/98

Time Analyzed (1): 19:06:25 Time Analyzed(2): 02:27:20

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	LC0425SC	LC0425SC	04/29/98	
2	LD0425SC	LD0425SC	04/29/98	
3	MFA-ICS-555	33748.03	04/29/98	04/29/98
4	MFA-ICS-555-FD	33748.06	04/29/98	04/29/98
	MFA-ICS-558	33748.07	04/29/98	04/29/98
	MFA-ICS-560	33748.09	04/30/98	04/29/98
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: BL0425SC

Lab Code: SWOK Case No: MKF-OH SDG No:33748

Matrix: (soil/water) Soil

Date Extracted: 04/25/98 Extn. Method: SONC

Date Analyzed (1): 04/29/98 Date Analyzed(2):

Time Analyzed (1): 00:57:29 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	LC0425SC	LC0425SC	04/29/98	
2	LD0425SC	LD0425SC	04/29/98	
3	MFA-ICS-555	33748.03	04/29/98	
4	MFA-ICS-555-FD	33748.06	04/29/98	
	MFA-ICS-558	33748.07	04/29/98	
	MFA-ICS-560	33748.09	04/30/98	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

FORM IV

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

MFA-ICS-555

b Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33748

Matrix: (soil/water) SOIL Lab Sample ID: 33748.03

Sample Amt: 2g % Moisture 23.22 Date Received: 04/25/98

Extraction Volume: 10ml Date Extracted: 04/25/98

Extraction Method: SONC Date Analyzed: 04/29/98

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	4360	
121-82-4	RDX	90.2	J
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	186	J
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

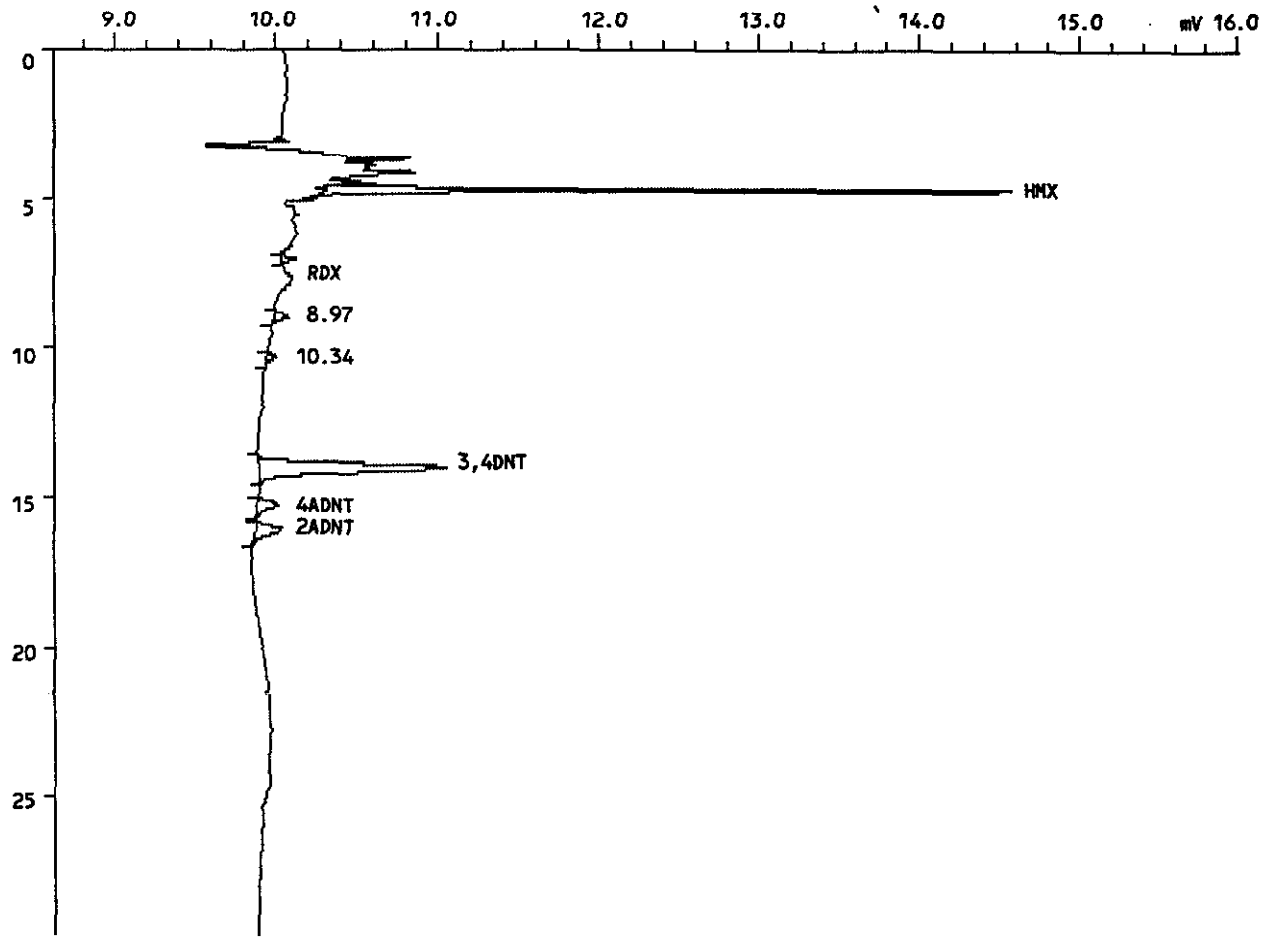
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0429A,6,1

Sample name.....: MFA-ICS-555
Sample ID.....: 33748.03
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 29-Apr-98 at 22:05:05
Reported on 30-Apr-98 at 12:07:34



INJECTION REPORT

Injection F: <MC3> 5 5EX0429A,6,1

Acquired on 29-Apr-98 at 22:05:05
Modified on 30-Apr-82 at 12:07:12
Reported on 30-Apr-98 at 12:07:18

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 33
Calibration file..: 5EX0429 Last modified on 30-Apr-82 at 12:07:08
Method file.....: EXPLOS Last modified on 30-Apr-82 at 11:46:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-555
Sample ID.....: 33748.03
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).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

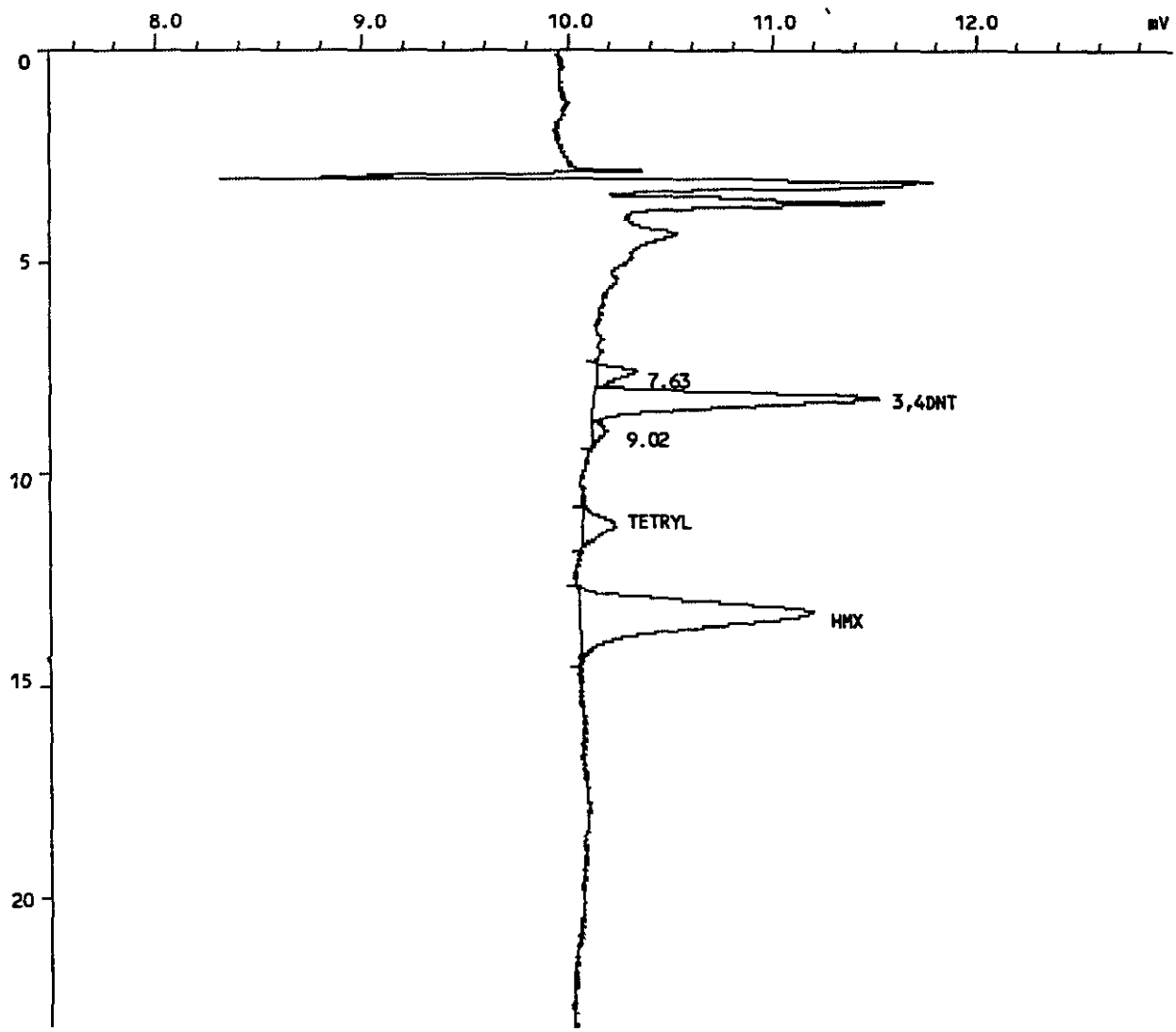
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.747	4282	29930	4362.932	HMX *
2	7.056	85	774	90.239	RDX
5	14.053	1147	20794	1939.722	3,4DNT 97
6	15.259	134	2532	185.598	4ADNT *
7	16.059	165	3359	179.815	2ADNT
Total		5813	57388	6758.306	
Residual		143	2093	243.914	

LONG PLOT

Injection F: <MC3> 3 3CN0428A,4,1

Sample name.....: MFA-ICS-555
Sample ID.....: 33748.03
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 29-Apr-98 at 03:56:02
Reported on 30-Apr-98 at 12:33:11



INJECTION REPORT

Injection F: <MC3> 3 3CN0428A,4,1

Acquired on 29-Apr-98 at 03:56:02
Modified on 30-Apr-82 at 12:30:32
Reported on 30-Apr-98 at 12:30:34

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.: 29
Calibration file..: 3CN0428A Last modified on 30-Apr-82 at 12:25:50
Method file.....: LCCN Last modified on 30-Apr-82 at 12:29:52
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-555
Sample ID.....: 33748.03
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).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

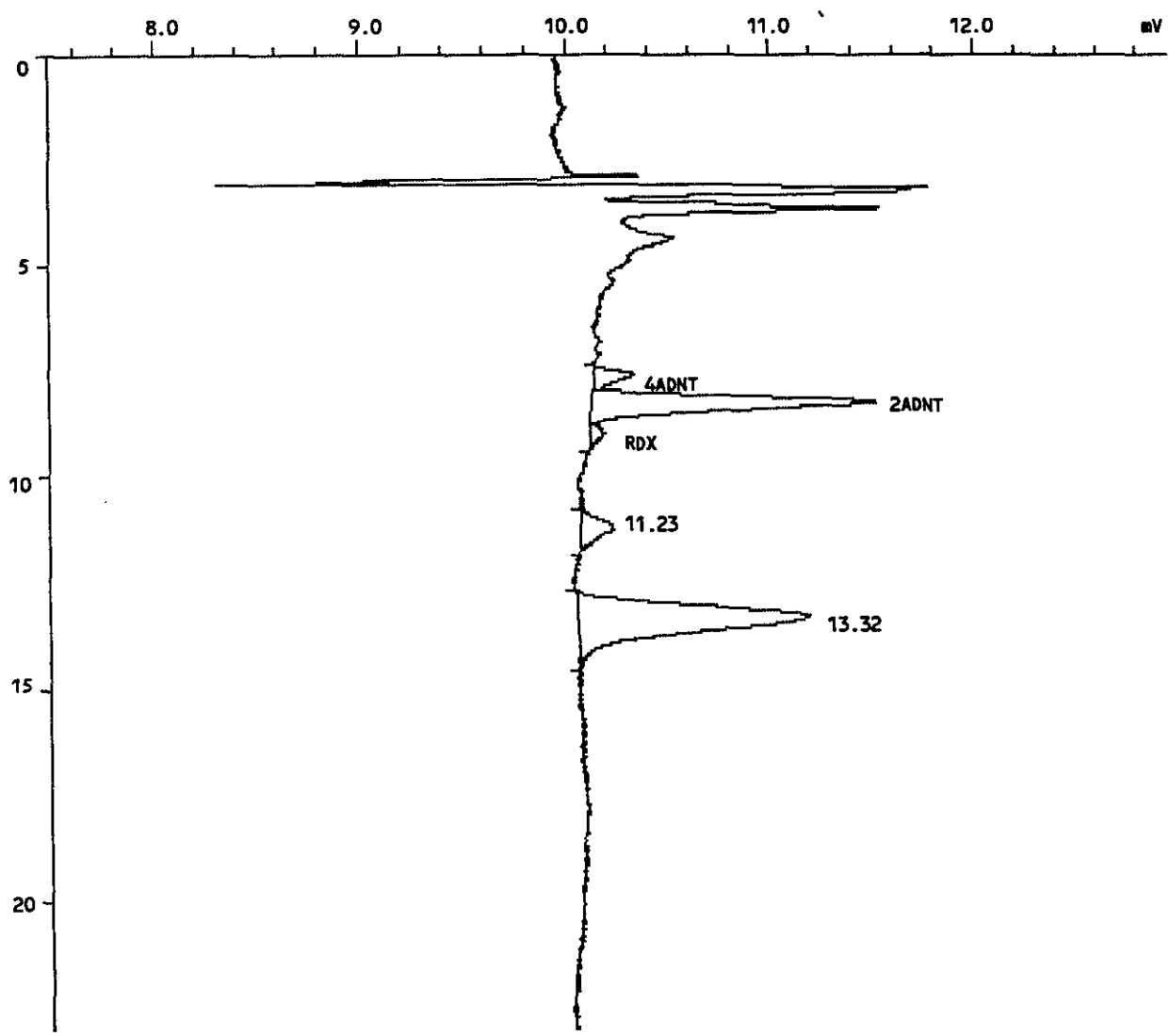
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	8.219	1394	31053	2315.642	3,4DNT
4	11.227	155	4479	307.430	TETRYL
5	13.323	1145	46545	4411.820	HMX
Total		2694	82077	7034.891	
Residual		272	5007	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0428A,4,1

Sample name.....: MFA-ICS-555
Sample ID.....: 33748.03
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 29-Apr-98 at 03:56:02
Reported on 30-Apr-98 at 12:45:27



INJECTION REPORT

Injection F: <MC3> 3 3CN0428A,4,1

Acquired on 29-Apr-98 at 03:56:02
Modified on 30-Apr-82 at 12:41:16
Reported on 30-Apr-98 at 12:41:17

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..: 3CN0428B Last modified on 30-Apr-82 at 12:27:10
Method file.....: LCCN Last modified on 30-Apr-82 at 12:29:52
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-555
Sample ID.....: 33748.03
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).....: 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	7.627	198	3494	225.416	4ADNT
2	8.219	1394	31053	1220.627	2ADNT
3	9.024	74	1513	114.729	RDX
Total		1666	36060	1560.772	
Residual		1300	51024	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

MFA-ICS-555

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33748

Matrix: (soil/water) SOIL Lab Sample ID: 33748.03

Sample Amt: 2g % Moisture 23.22 Date Received: 04/25/98

Extraction Volume: 10ml Date Extracted: 04/27/98

Extraction Method: SONC Date Analyzed: 04/29/98

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

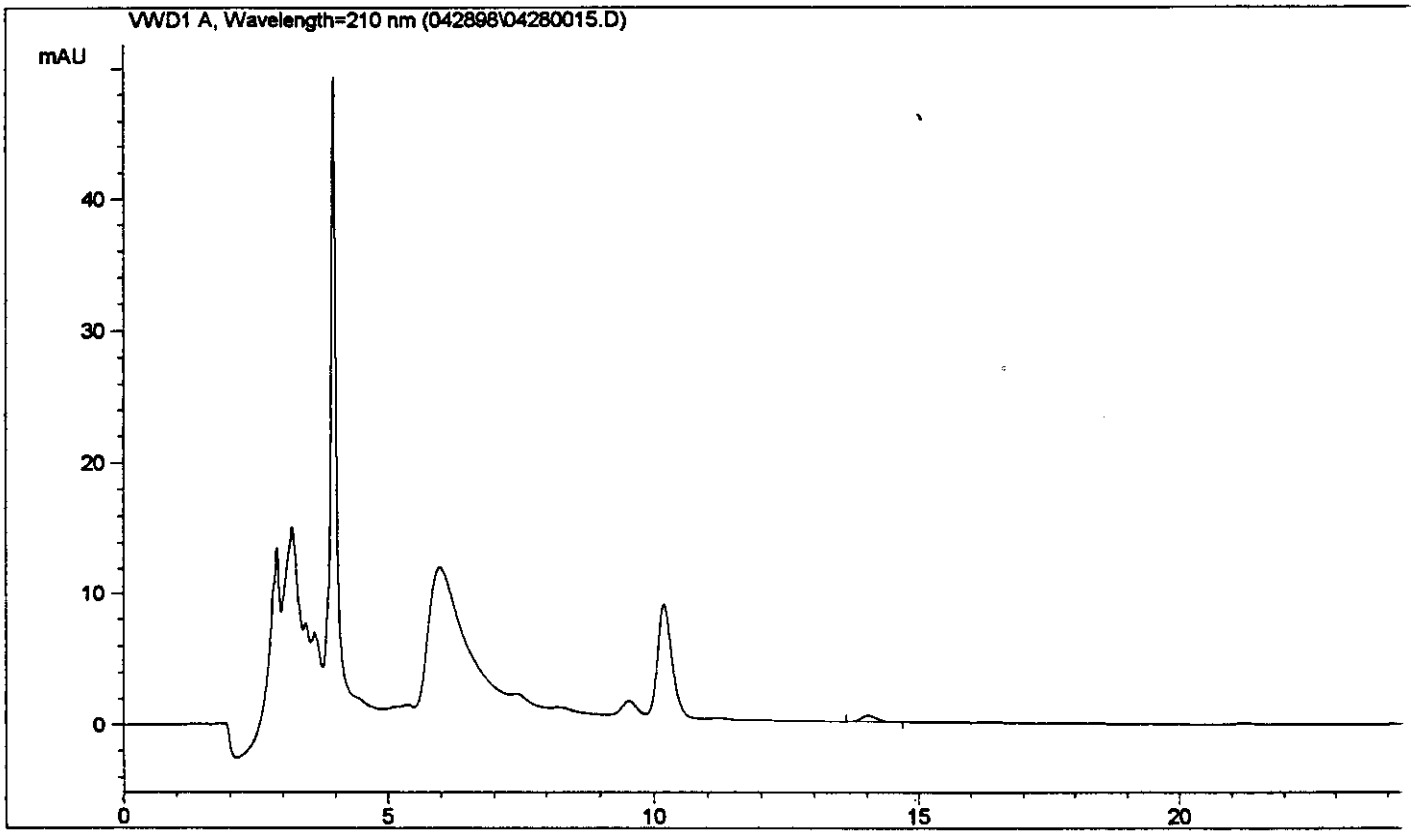
FORM I

Injection Date : Wed, 29. Apr. 1998
Sample Name : 33748.03
Acq Operator : SS

Seq Line : 15
Vial No. : 15
Inj. No. : 1
Inj. Vol. : 200 µl

Acq. Method : 042898.M
Analysis Method : C:\HPCHEM\1\METHODS\042898.M
Last Changed : Thu, 30. Apr. 1998, 01:13:53 pm

PETN



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Thu, 30. Apr. 1998,01:13:44 pm
Multiplier : 10.000000
Dilution : 1.000000
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
14.023	PB	12.23936	0.00000	0.00000	
Totals:				0.00000	

25

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

MFA-ICS-555-FD

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33748

Matrix: (soil/water) SOIL Lab Sample ID: 33748.06

Sample Amt: 2g % Moisture 22.09 Date Received: 04/25/98

Extraction Volume: 10ml Date Extracted: 04/25/98

Extraction Method: SONC Date Analyzed: 04/29/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q	RPD of FD
2691-41-0	HMX	5520		23.5
121-82-4	RDX	1000	U	—
99-35-4	TNB	250	U	0
99-65-0	DNB	250	U	0
479-45-8	TETRYL	650	U	0
98-95-3	NB	260	U	0
118-96-7	TNT	250	U	0
1946-51-0	4ADNT	167	J	10.7
35572-78-2	2ADNT	250	U	0
606-20-2	26DNT	260	U	0
121-14-2	24DNT	250	U	0
88-72-2	2NT	250	U	0
99-99-0	4NT	250	U	0
99-08-1	3NT	250	U	0

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

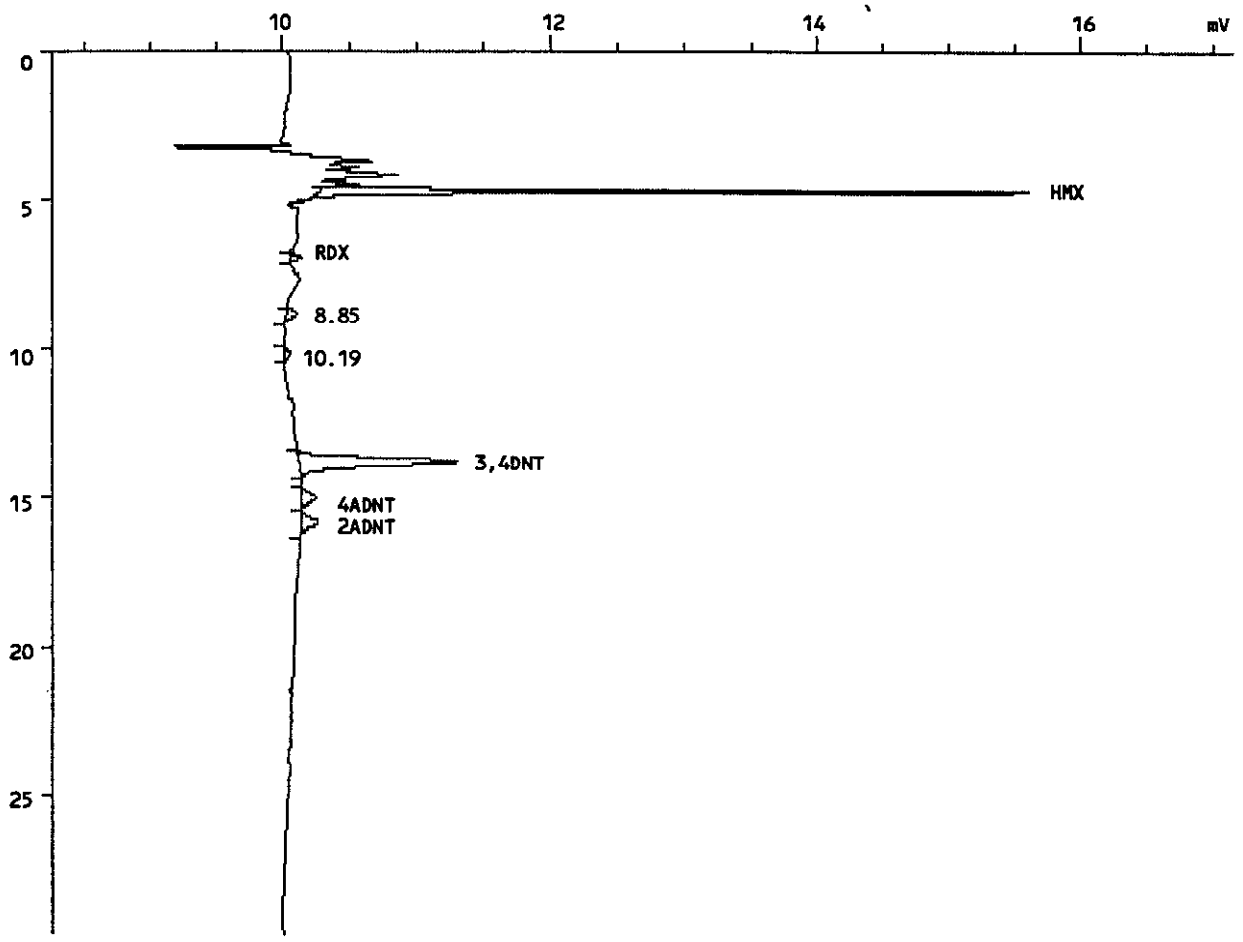
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0429A,7,1

Sample name.....: MFA-ICS-555-FD
Sample ID.....: 33748.06
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-06, INJ:200,COL#1

Acquired on 29-Apr-98 at 22:49:45
Reported on 30-Apr-98 at 11:52:11



INJECTION REPORT

Injection F: <MC3> 5 5EX0429A,7,1

Acquired on 29-Apr-98 at 22:49:45
Modified on 30-Apr-82 at 11:47:06
Reported on 30-Apr-98 at 11:47:08

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-06,INJ:200,COL#1
Number of samples.: 33
Calibration file..: 5EX0429 Last modified on 30-Apr-82 at 11:19:58
Method file.....: EXPLOS Last modified on 30-Apr-82 at 11:46:20
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-555-FD
Sample ID.....: 33748.06
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

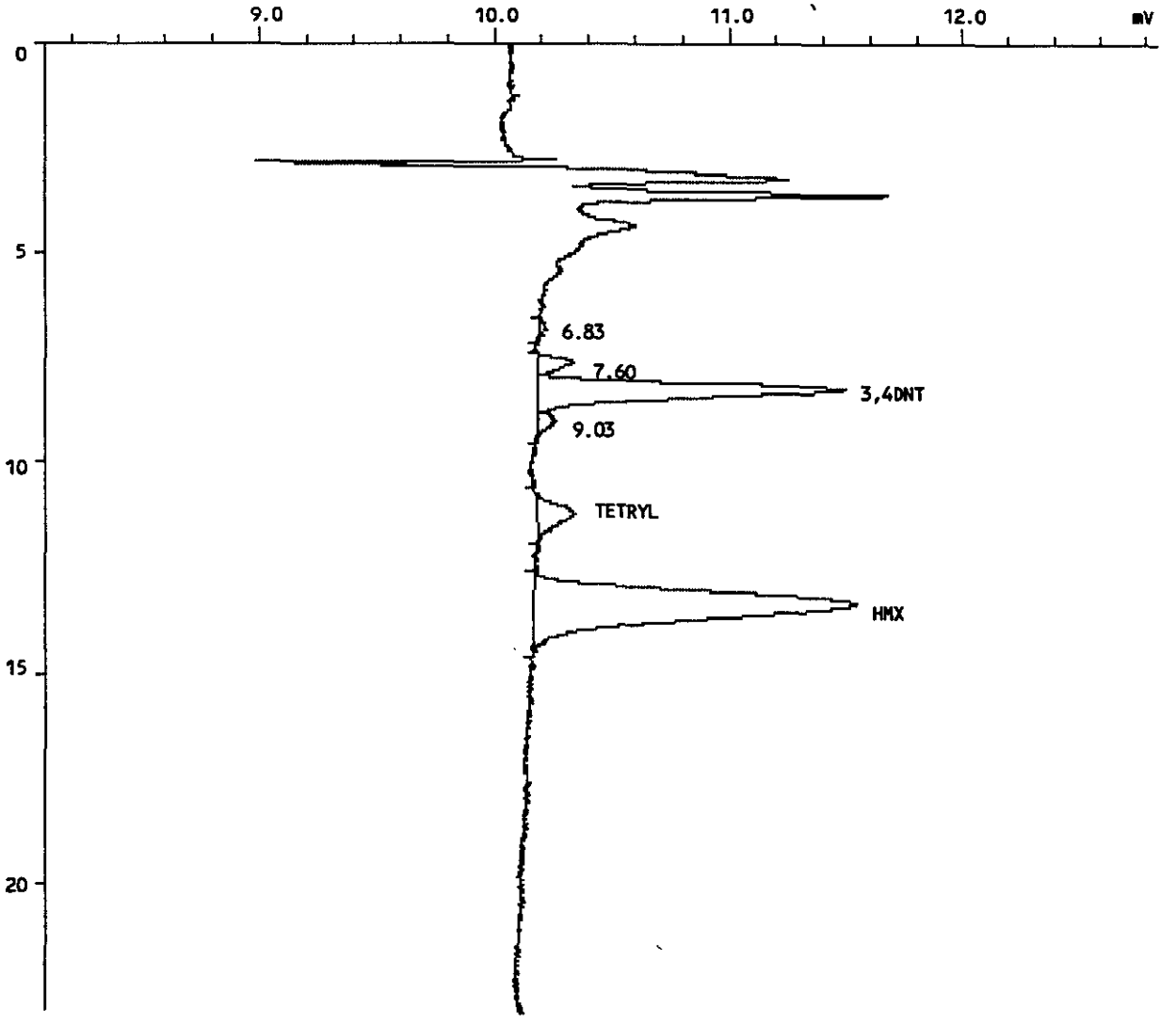
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.747	5337	37902	5525.021	HMX
2	6.981	88	808	94.191	RDX
5	13.829	1187	22513	2100.080	3,4DNT
6	15.019	109	2278	166.996	4ADNT
7	15.840	133	2898	155.154	2ADNT
Total		6855	66399	8041.442	
Residual		136	2009	234.171	

LONG PLOT

Injection F: <MC3> 3 3CN0428A,5,1

Sample name.....: MFA-ICS-555-FD
Sample ID.....: 33748.06
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 29-Apr-98 at 04:40:24
Reported on 30-Apr-98 at 12:32:42



INJECTION REPORT

Injection F: <MC3> 3 3CN0428A,5,1

Acquired on 29-Apr-98 at 04:40:24
Modified on 30-Apr-82 at 12:30:48
Reported on 30-Apr-98 at 12:30:48

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.: 29
Calibration file..: 3CN0428A Last modified on 30-Apr-82 at 12:25:50
Method file.....: LCCN Last modified on 30-Apr-82 at 12:29:52
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-555-FD
Sample ID.....: 33748.06
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

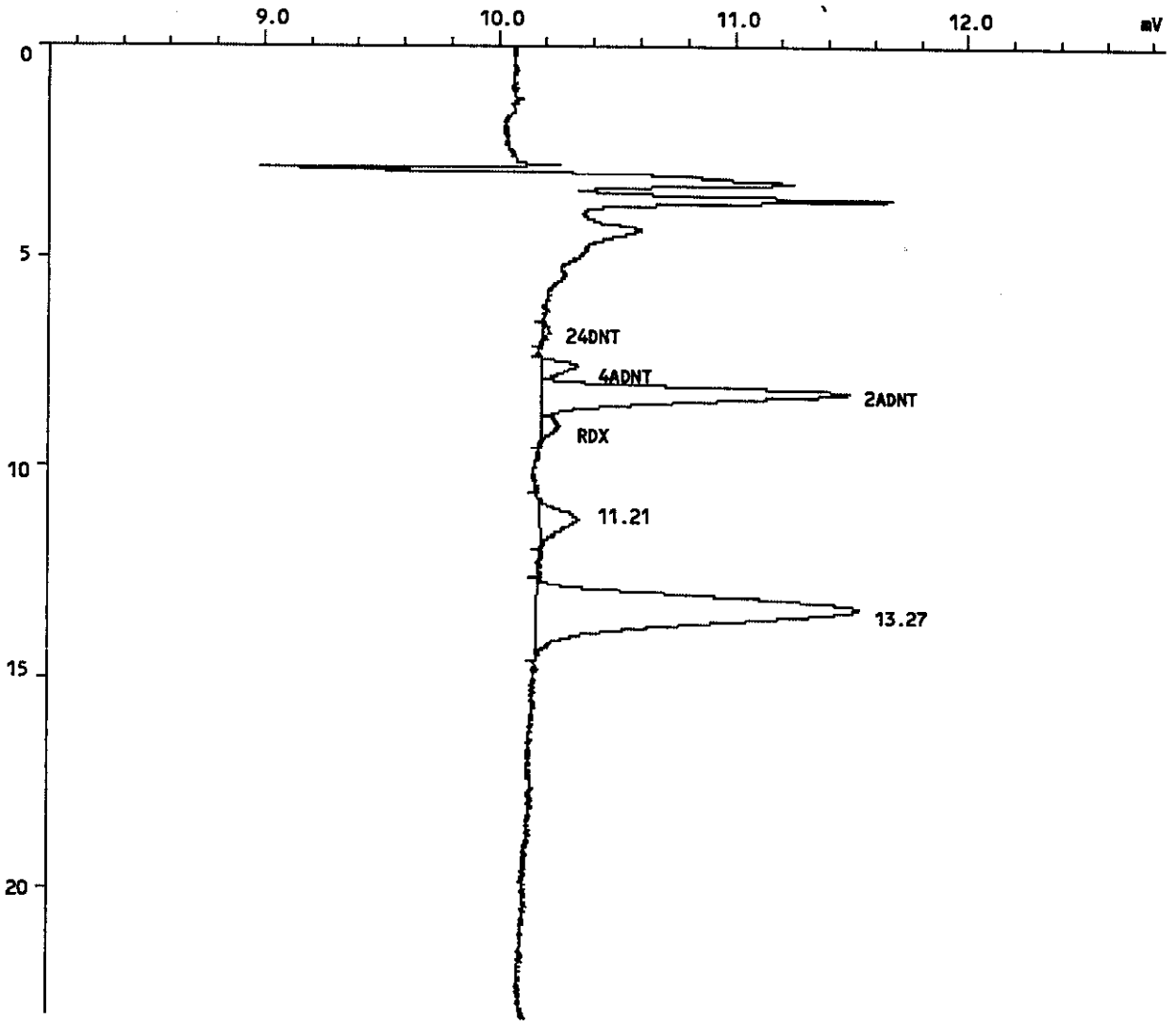
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	8.208	1318	30860	2301.294	3,4DNT
5	11.205	171	5308	364.301	TETRYL
6	13.275	1376	59212	5612.480	HMX
Total		2865	95380	8278.074	
Residual		275	5132	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0428A,5,1

Sample name.....: MFA-ICS-555-FD
Sample ID.....: 33748.06
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-10, INJ:100, UV

Acquired on 29-Apr-98 at 04:40:24
Reported on 30-Apr-98 at 12:44:56



INJECTION REPORT

Injection F: <MC3> 3 3CN0428A,5,1

Acquired on 29-Apr-98 at 04:40:24
Modified on 30-Apr-82 at 12:41:30
Reported on 30-Apr-98 at 12:41:30

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..: 3CN0428B Last modified on 30-Apr-82 at 12:27:10
Method file.....: LCCN Last modified on 30-Apr-82 at 12:29:52
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-555-FD
Sample ID.....: 33748.06
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	6.827	37	528	16.760	24DNT
2	7.600	157	2852	183.984	4ADNT
3	8.208	1318	30860	1213.064	2ADNT
4	9.035	81	1752	132.861	RDX
Total		1593	35993	1546.669	
Residual		1547	64520	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

MFA-ICS-555-FD

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33748

Matrix: (soil/water) SOIL Lab Sample ID: 33748.06

Sample Amt: 2g % Moisture 22.09 Date Received: 04/25/98

Extraction Volume: 10ml Date Extracted: 04/27/98

Extraction Method: SONC Date Analyzed: 04/29/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

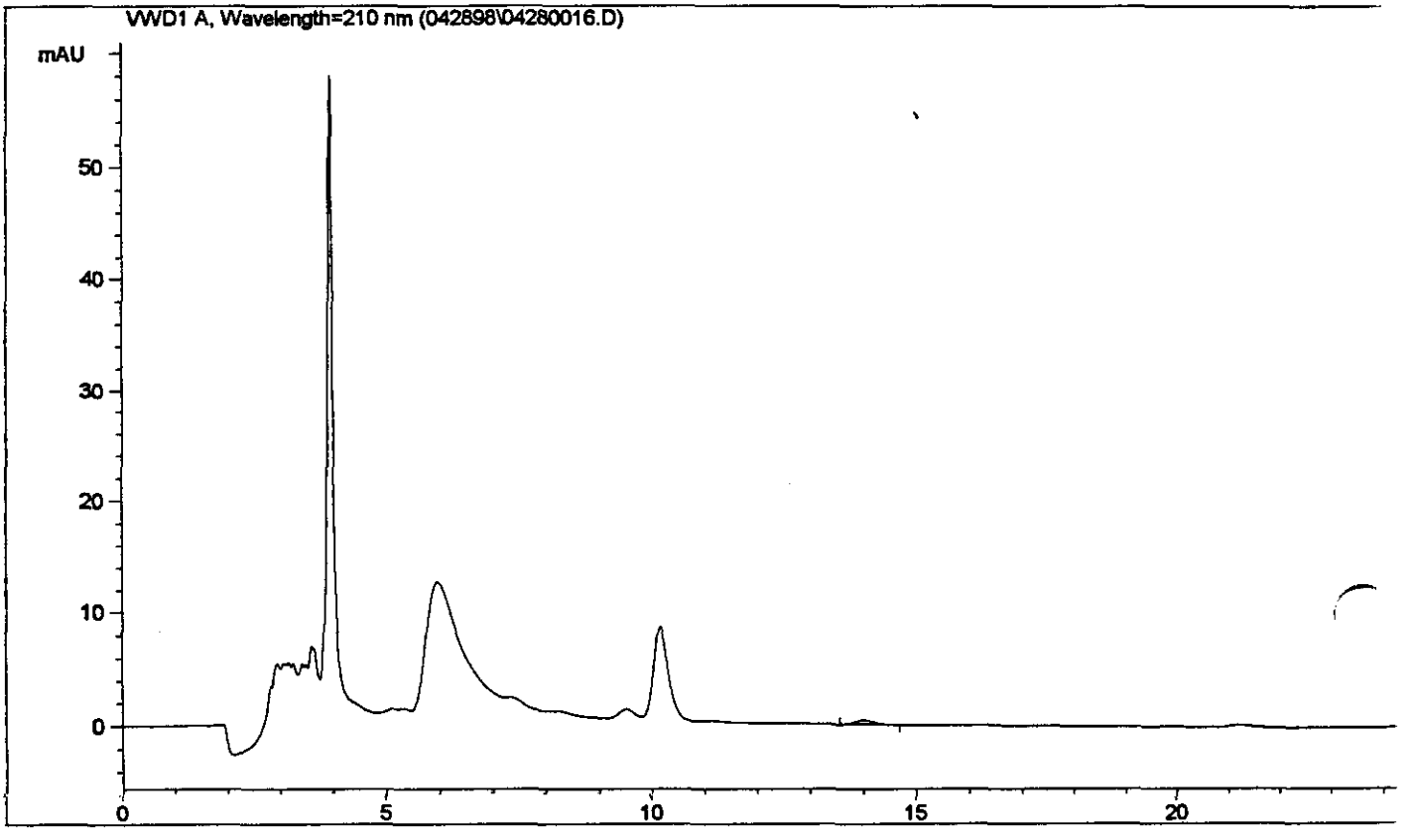
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q	RPD of FD
75-11-5	PETN----------	250	U	0

FORM I

Injection Date	: Wed, 29. Apr. 1998	Seq Line	: 16
Sample Name	: 33748.06	Vial No.	: 16
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042898.M
Analysis Method : C:\HPCHEM\1\METHODS\042898.M
Last Changed : Thu, 30. Apr. 1998, 01:13:53 pm

PETN



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Thu, 30. Apr. 1998,01:13:44 pm
Multiplier : 10.000000
Dilution : 1.000000
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
14.006	PB	10.13148	0.00000	0.00000	
Totals:				0.00000	

MORRISON KNUDSEN CORPORATION

CHAIN OF CUSTODY RECORD

720 Park Blvd., P.O. Box 73
Boise, Idaho 83729
(208) 386-5000

MFA-005

Project No.: 4324-0009-00734 ~~4329~~

Project Name: NSWC Crane Biofacility

Samplers: (Signature)

Sampler: (Print) Ryan Erwin

Sample Type	Sampling Point Description	Sample Date	Time	Sample I.D. Number	Split Samples Yes	Split Samples No	8330 Expl.	6010/7470	8260	Remarks
Soil	Grid 184 0-12" Comp	5/14/98	850	MFA ICS 565		✓	✓	✓		MS/MSD on
	Grid 184 12-18" ~~Comp~~ Grab		855	MFA ICS 566		✓		✓		Grid 185 was
	Grid 184 24-36" Comp		915	MFA ICS 567		✓	✓	✓		at ICS 571
	Grid 185 0-12" Comp		1028	MFA ICS 568		✓	✓	✓		Additional
	Grid 185 12-18" Grab		1032	MFA ICS 569		✓		✓		VOC taken
	Grid 185 24-36" Comp		1345	MFA ICS 570		✓	✓	✓		at Corners.
	Grid 185 12-18" Grab		1245	MFA ICS 571		✓		✓		571 — 573
	Grid 185 12-18" Grab		1300	MFA ICS 572		✓		✓		
	Grid 185 12-18" Grab		1315	MFA ICS 573		✓		✓		
	Grid 185 24-36" Comp		1345	MFA ICS 574 FD		✓	✓			
liquid				MFA ICS T0514		✓		✓		

Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:	Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:
	5/14/98 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: C. Miller	Date/Time 5-15-98 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:

6°C

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-

SDG NARRATIVE

June 10, 1998

CLIENT : MKF-OH
CASE : NSWC CRANE
SDG : 33971
EPISODE(S): 33971
FRACTION : EXPLOSIVES
SAMPLE(S) : MFA-ICS-565, MFA-ICS-567, MFA-ICS-568, MFA-ICS-570, MFA-ICS-574FD

This SDG consisted of 5 soil samples with applicable MS and MSD for explosives analysis. The samples, blanks and spikes were extracted and analyzed according to EPA protocol, SW-846, method 8330, REV. 0, 1994.

For soil samples, the percent moisture is determined by drying them at 105° C at the time of receipt. Additional portion of the samples is air-dried prior to analysis. The results are reported on the basis of the air-dried samples. For high-level water samples, direct injection method is used. For low-level water samples, salting out method is used. All of the extracts are diluted by a factor of two prior to analysis according to method 8330. The extracts are diluted in order to be the same consistency as the Mobile Phase.

"P" flags were used when the appropriate compound with sufficient response exceeded 40% deviation, possibly due to interference in the quantitation or confirmation columns.

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CASE SUMMARY:

The surrogate (3,4DNT) was not detected in the sample MFA-ICS-568 and its MS and MSD due to the concentration of the TNT peak. Therefore, no recovery was reported for the surrogate on the form 2E (the surrogate recovery form). The surrogate was diluted out in the 50X dilution of these samples.

Since some of the analytes were out of the QC limits in the freshly prepared initial calibration standard, another initial calibration standard was prepared and these sample were re-analyzed. All of the analytes were within the QC limits under the new initial calibration standard.

Due to non-homogeneity of the samples MFA-ICS-568MS and MFA-ICS-568MSD, some of the analytes were out of the QC limits and %RPD limits in these samples.

All of the analytes were within the QC limits in the laboratory control spike (LCS) and the laboratory control spike duplicate (LCSD).

To analyze PETN, LC ChemStation software was utilized. Unlike the VG software, the Response Factor in the ChemStation is calculated by dividing the concentration by the area.

Multiplier = amount extracted/ final volume. Multiplier does not have any units.

The following is an example of the calculation for the LC0516SD:

Mean response factor * area of the sample * dilution * Multiplier = the concentration

2.94 * 94.46 * 2 * 5 = 2777 ug/Kg

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The explosives referred to in the data package by the abbreviations found in method 8330 are as follows: HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine), RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine), TNB (1,3,5-Trinitrobenzene), DNB (1,3-Dinitrobenzene), Tetryl (Methyl-2,4,6-trinitrophenylnitramine), NB (Nitrobenzene), TNT (2,4,6- Trinitrotoluene), 24DNT (2,4-Dinitrotoluene), 26DNT (2,6-Dinitrotoluene), 2NT (o-Nitrotoluene), 3NT m-Nitrotoluene), 4NT (p-Nitrotoluene) , PETN (Pentaerythritol tetranitrate), 2ADNT (2-Amino-4,6-dinitrotoluene), 4ADNT (4-Amino-2,6-dinitrotoluene).

We use the following flags where appropriate. "J" - indicates a quantitated result, which is below the quantitation limit, but above the detection limit and has been confirmed by the second column. "E"- indicates an out of range value, i.e., a peak that is off-scale or out of the linear calibration range of the detector. The value reported is not to be used. The sample must be diluted and re-run. "D" - indicates a value derived from a secondary dilution. "U" - indicates the compound that is undetected above the quantitation limit. "X" - indicates a comment which is explained in the case narrative.

Shahriar Shahreza

LC Supervisor

2E

EXPLOSIVE SURROGATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33971

	SAMPLE NUMBER	S1 #	OTHER
1	MFA-ICS-565	105	0
2	MFA-ICS-567	107	0
3	MFA-ICS-568		0
4	MFA-ICS-568 50X	D	0
5	MFA-ICS-568 MS		0
6	MFA-ICS-568 MS 50X	D	0
7	MFA-ICS-568 MSD 50X	D	0
8	MFA-ICS-568 MSD		0
9	MFA-ICS-570	95.6	0
10	MFA-ICS-574FD	91.5	0
11	BL0516SC	103	0
12	LC0516SC	102	0
13	LD0516SC	87.5	0
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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

4

3F

SOIL EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33971

Client Sample No: MFA-ICS-568 MSD

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
HMX	9500	101000	135000	358*	54-128
RDX	9500	650000	979000	3460*	66-109
TNB	9500	1050	10200	96	57-130
DNB	9500		8670	91	74-122
TETRYL	9500		8440	89	32-119
NB	9500		9040	95	70-135
TNT	9500	661000	660000	11*	44-124
4ADNT	9500		20300	214*	60-140
2ADNT	9500		13300	140	60-140
26DNT	9500		9080	96	58-125
24DNT	9500		10600	112	59-120
2NT	9500		9890	104	79-124
4NT	9500		9040	95	74-128
3NT	9500		8110	85	79-121

No of Analyte recoveries out of QC Advisory Limits = 4

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD#	QC LIMITS RPD	QC LIMITS REC.
HMX	9500	157000	589*	49*	30	54-128
RDX	9500	1030000	4000*	14	30	66-109
TNB	9500	10000	94	2	30	57-130
DNB	9500	8660	91	0	45	74-122
TETRYL	9500	7980	84	6	30	32-119
NB	9500	9090	96	1	35	70-135
TNT	9500	468000	2030*	198*	30	44-124
4ADNT	9500	19700	207*	3	40	60-140
2ADNT	9500	13000	137	2	40	60-140
26DNT	9500	8940	94	2	35	58-125
24DNT	9500	10100	106	6	35	59-120
2NT	9500	9870	104	0	35	79-124
4NT	9500	8840	93	2	35	74-128
3NT	9500	8100	85	0	35	79-121

No of Analyte recoveries out of QC Advisory Limits = 4
No of RPD's out of QC Limits 2

3F

SOIL EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33971

Client Sample No: MFA-ICS-568 MSD 50X

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
HMX	9500	107000	139000	337*	54-128
RDX	9500	693000	1060000	3860*	66-109
TNB	9500		9710	102	57-130
DNB	9500		9690	102	74-122
TETRYL	9500		7380	78	32-119
NB	9500		9290	98	70-135
TNT	9500	690000	685000	53	44-124
4ADNT	9500		20600	217*	60-140
2ADNT	9500		13800	145*	60-140
26DNT	9500		8900	94	58-125
24DNT	9500		8990	95	59-120
2NT	9500		8440	89	79-124
4NT	9500		8500	90	74-128
3NT	9500		7020	74*	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	REC.
HMX	9500	159000	547*	48*	30	54-128
RDX	9500	1080000	4070*	5	30	66-109
TNB	9500	9020	95	7	30	57-130
DNB	9500	8540	90	13	45	74-122
TETRYL	9500	5970	63	21	30	32-119
NB	9500	8840	93	5	35	70-135
TNT	9500	473000	2280*	191*	30	44-124
4ADNT	9500	17500	184*	16	40	60-140
2ADNT	9500	10500	110	27	40	60-140
26DNT	9500	7000	74	24	35	58-125
24DNT	9500	8630	91	4	35	59-120
2NT	9500	8210	86	3	35	79-124
4NT	9500	9100	96	7	35	74-128
3NT	9500	9100	96	26	35	79-121

No of Analyte recoveries out of QC Advisory Limits = 5
No of RPD's out of QC Limits 2

3F

SOIL EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33971

Client Sample No: MFA-ICS-568

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
PETN	3000		2800	93	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	2670	89	5	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:33971

Client Sample No: LC0516SC

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
HMX	9500		9560	101	57-137
RDX	9500		9230	97	77-113
TNB	9500		8950	94	64-125
DNB	9500		9270	98	82-118
TETRYL	9500		4700	50	23-124
NB	9500		9830	103	69-143
TNT	9500		7300	77	75-118
4ADNT	9500		10500	110	60-140
2ADNT	9500		9460	100	60-140
26DNT	9500		9010	95	78-117
24DNT	9500		10100	106	74-126
2NT	9500		9690	102	78-123
4NT	9500		9400	99	79-125
3NT	9500		8700	92	78-121

# of Analyte recoveries out of QC Advisory Limits = 0

3G

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33971

Client Sample No: LC0516SD

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
PETN	3000		2780	93	70-130

No of Analyte recoveries out of QC Advisory Limits = 0

3G

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33971

Client Sample No: LD0516SC

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	QC LIMITS REC.
HMX	9500		9470	100	57-137
RDX	9500		9140	96	77-113
TNB	9500		8990	95	64-125
DNB	9500		9190	97	82-118
TETRYL	9500		5650	60	23-124
NB	9500		9440	99	69-143
TNT	9500		7460	79	75-118
4ADNT	9500		9970	105	60-140
2ADNT	9500		9380	99	60-140
26DNT	9500		8960	94	78-117
24DNT	9500		10100	106	74-126
2NT	9500		9600	101	78-123
4NT	9500		9360	99	79-125
3NT	9500		8550	90	78-121

f Analyte recoveries out of QC Advisory Limits = 0

3G

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33971

Client Sample No: LD0516SD

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	QC LIMITS REC.
PETN	3000		2740	91	70-130

No of Analyte recoveries out of QC Advisory Limits = 0

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0516SC

Lab Code: SWOK Case No: MKF-OH SDG No:33971

Matrix: (soil/water) Soil

Date Extracted: 05/16/98 Extn. Method: SONC

Date Analyzed (1): 06/06/98 Date Analyzed(2): 05/24/98

Time Analyzed (1): 09:06:55 Time Analyzed(2): 04:57:33

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	LC0516SC	LC0516SC	06/06/98	
2	LD0516SC	LD0516SC	06/06/98	
3	MFA-ICS-565	33971.01	06/06/98	05/24/98
4	MFA-ICS-567	33971.03	06/06/98	05/24/98
5	MFA-ICS-568	33971.04	06/06/98	05/24/98
6	MFA-ICS-568 50X	33971.04DL	06/06/98	05/25/98
7	MFA-ICS-568 MS	33971.05MS	06/06/98	
8	MFA-ICS-568 MS 50X	33971.05MSDL	06/06/98	
9	MFA-ICS-568 MSD	33971.06MSD	06/06/98	
10	MFA-ICS-568 MSD 50X	33971.06MDDL	06/06/98	
11	MFA-ICS-570	33971.08	06/06/98	05/24/98
12	MFA-ICS-574FD	33971.14	06/06/98	05/24/98
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FORM IV

4C

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0516SD

Lab Code: SWOK Case No: MKF-OH SDG No:33971

Matrix: (soil/water) Soil

Date Extracted: 05/16/98 Extn. Method: SONC

Date Analyzed (1): 05/22/98 Date Analyzed(2):

Time Analyzed (1): 01:03:31 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	LC0516SD	LC0516SD	05/22/98	
2	LD0516SD	LD0516SD	05/22/98	
3	MFA-ICS-565	33971.01	05/22/98	
4	MFA-ICS-567	33971.03	05/22/98	
5	MFA-ICS-568	33971.04	05/22/98	
6	MFA-ICS-568	33971.05MS	05/22/98	
7	MFA-ICS-568	33971.06MSD	05/22/98	
8	MFA-ICS-570	33971.08	05/22/98	
9	MFA-ICS-574FD	33971.14	05/22/98	
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FORM IV

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

MFA-ICS-570

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33971

Matrix: (soil/water) SOIL Lab Sample ID: 33971.08

Sample Amt: 2g % Moisture 15.80 Date Received: 05/15/98

Extraction Volume: 10ml Date Extracted: 05/16/98

Extraction Method: SONC Date Analyzed: 06/06/98

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	2030	J
121-82-4	RDX	6800	
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	1060	
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

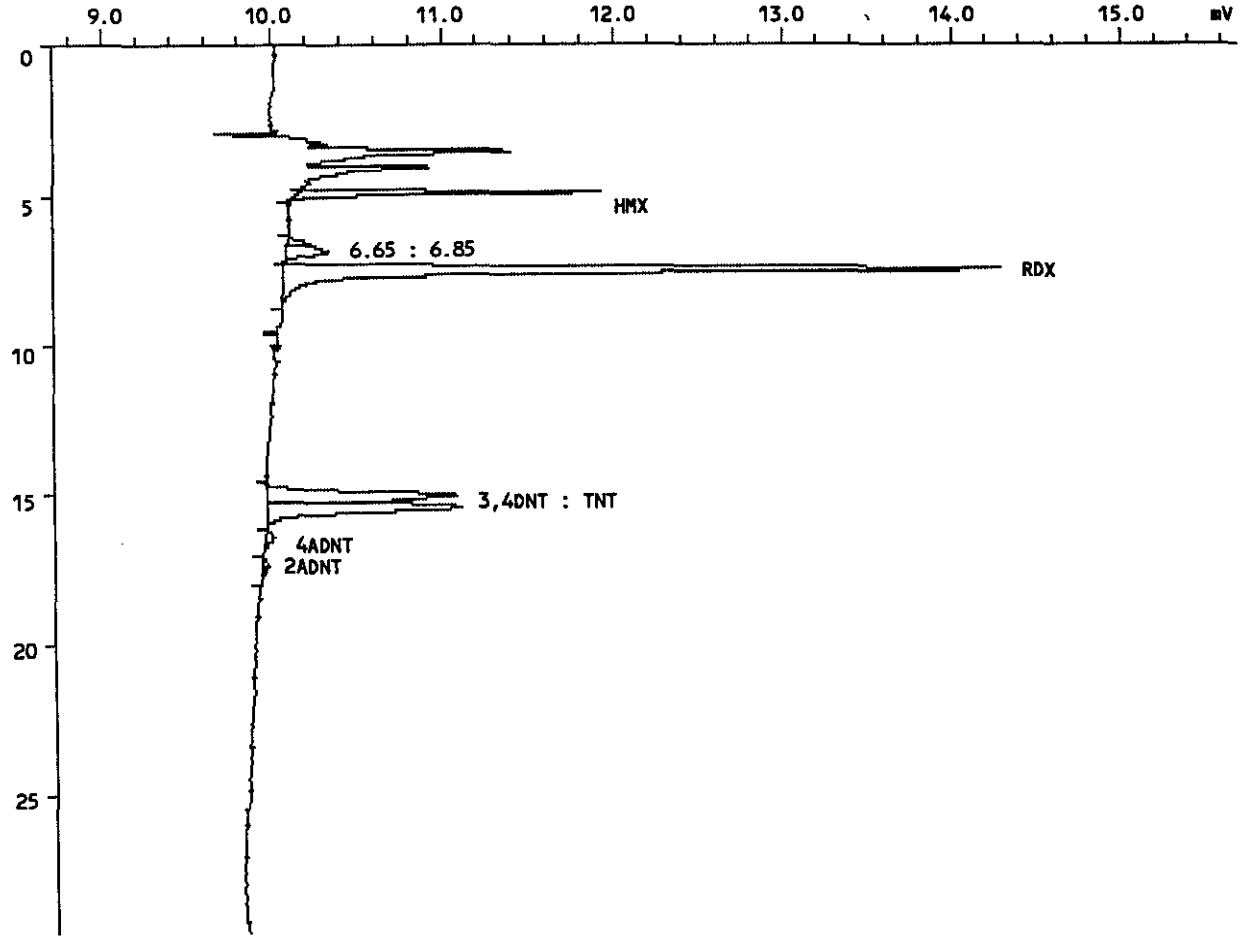
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0605B,15,1

Sample name.....: MFA-ICS-570
Sample ID.....: 33971.08
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 06-Jun-98 at 20:28:17
Reported on 08-Jun-98 at 12:31:44



INJECTION REPORT

Injection F: <MC3> 5 5EX0605B,15,1

Acquired on 06-Jun-98 at 20:28:17
Modified on 08-Jun-82 at 12:04:48
Reported on 08-Jun-98 at 12:04:45

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.: 18
Calibration file..: 5EX0605 Last modified on 08-Jun-82 at 12:01:06
Method file.....: EXPLOS Last modified on 08-Jun-82 at 12:04:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-570
Sample ID.....: 33971.08
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

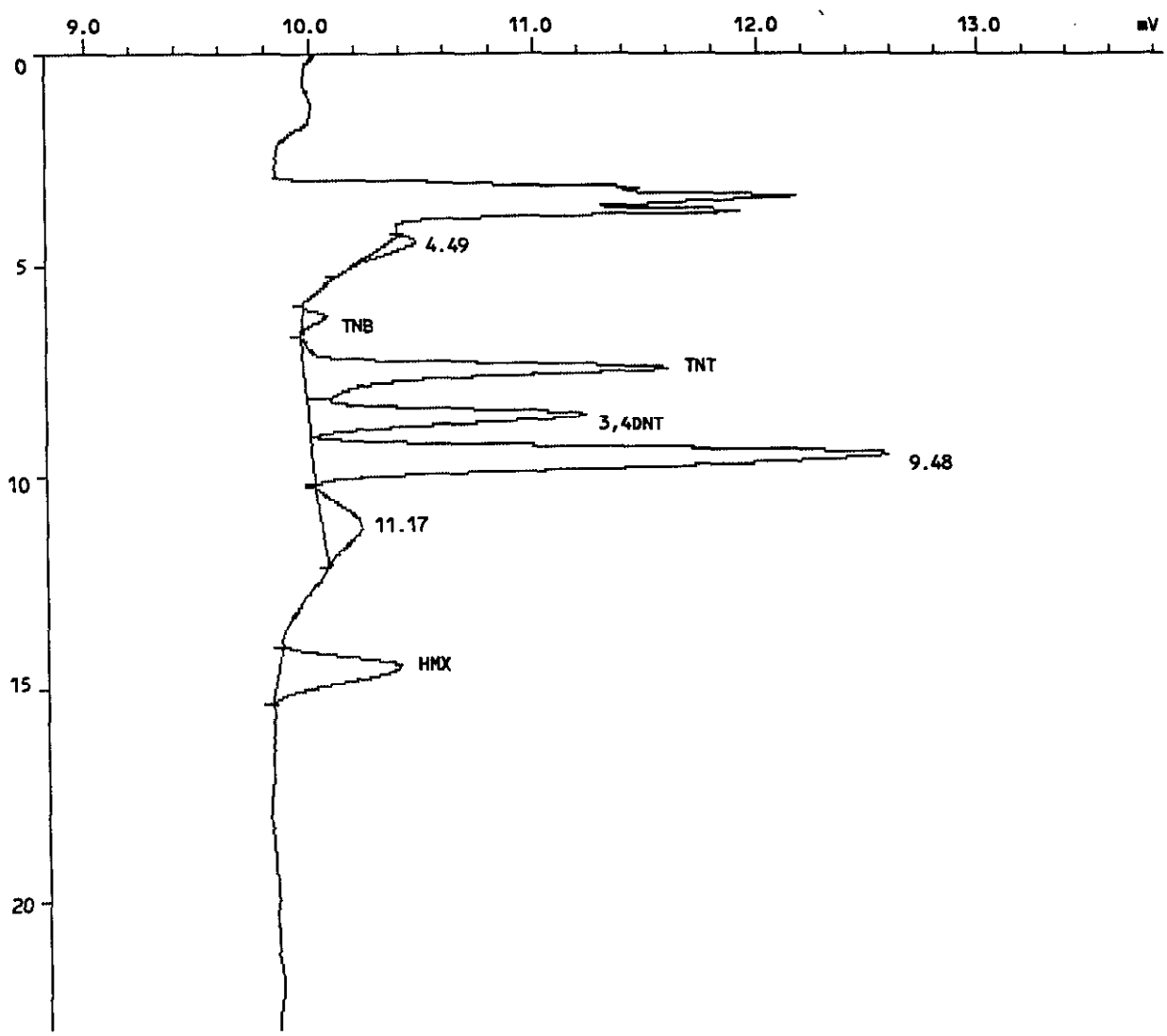
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.912	1783	14893	2029.044	HMX *J
4	7.461	4209	65308	6802.938	RDX *
5	15.072	1105	21042	1912.874	3,4DNT 90
6	15.467	1136	24718	1056.307	TNT *
7	16.437	56	1201	88.576	4ADNT
8	17.355	37	920	49.893	2ADNT
Total		8326	128082	11939.632	
Residual		401	6126	834.658	

LONG PLOT

Injection F: <MC3> 3 3CN0523A,6,1

Sample name.....: MFA-ICS-570
Sample ID.....: 33971.08
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100,UV

Acquired on 24-May-98 at 08:39:18
Reported on 04-Jun-98 at 14:41:04



INJECTION REPORT

Injection F: <MC3> 3 3CN0523A,6,1

Acquired on 24-May-98 at 08:39:18
Modified on 04-Jun-82 at 14:27:30
Reported on 04-Jun-98 at 14:27:29

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.: 31
Calibration file..: 3CN0523A Last modified on 04-Jun-82 at 14:23:36
Method file.....: LCCN Last modified on 04-Jun-82 at 13:16:44
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-570
Sample ID.....: 33971.08
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

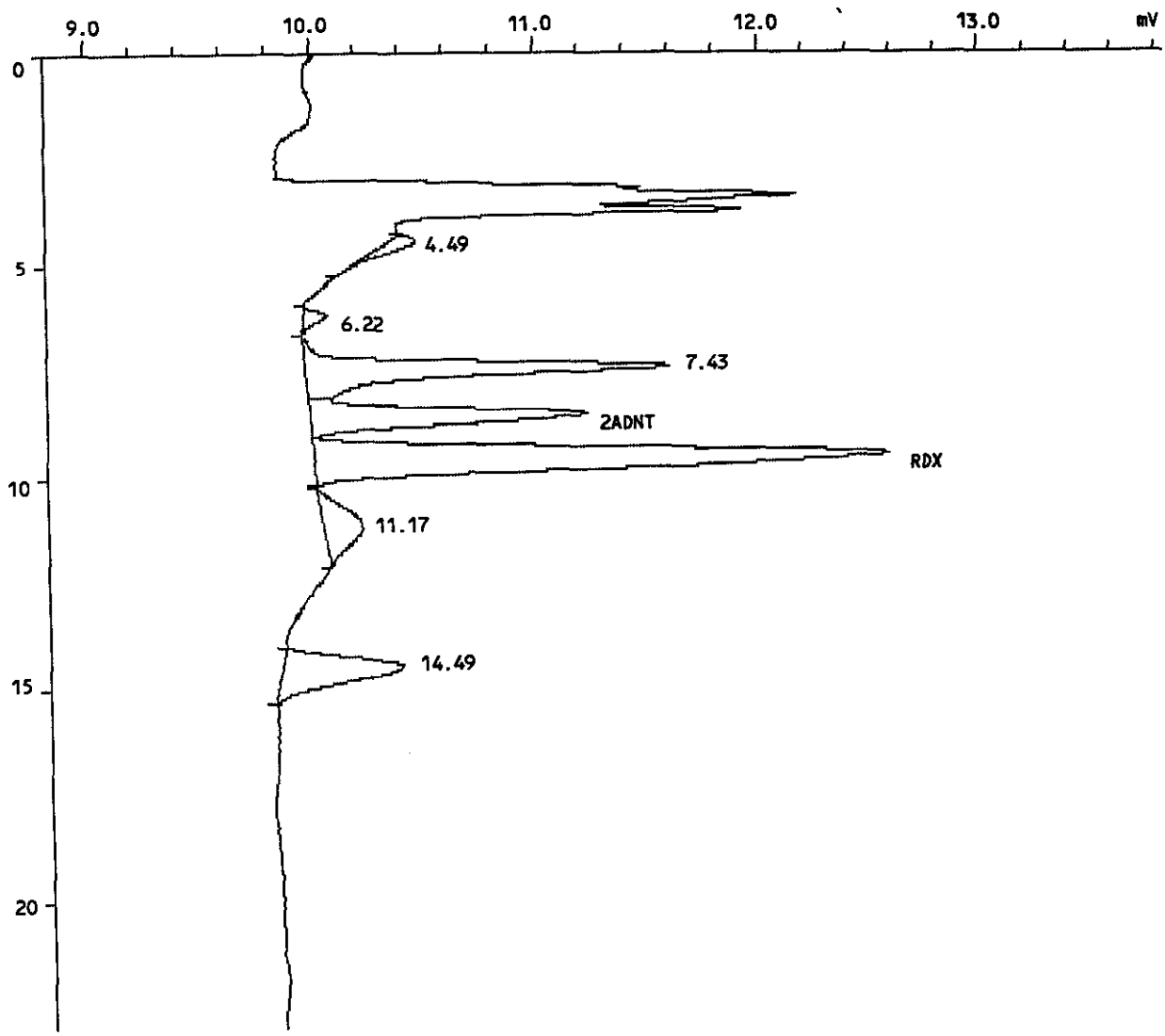
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
2	6.219	106	1916	75.930	TNB
3	7.429	1631	38936	1483.288	TNT
4	8.549	1239	31874	2186.162	3,4DNT
7	14.491	538	21516	2109.425	HMX
Total		3514	94242	5854.805	
Residual		2907	94956	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0523A,6,1

Sample name.....: MFA-ICS-570
Sample ID.....: 33971.08
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100,UV

Acquired on 24-May-98 at 08:39:18
Reported on 04-Jun-98 at 15:13:20



INJECTION REPORT

Injection F: <MC3> 3 3CN0523A,6,1

Acquired on 24-May-98 at 08:39:18
Modified on 04-Jun-82 at 14:48:36
Reported on 04-Jun-98 at 14:48:35

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.: 31
Calibration file..: 3CN0523B Last modified on 04-Jun-82 at 14:45:44
Method file.....: LCCN Last modified on 04-Jun-82 at 14:45:54
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-570
Sample ID.....: 33971.08
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	8.549	1239	31874	1174.005	2ADNT
5	9.483	2584	80131	5399.636	RDX
Total		3823	112005	6573.641	
Residual		2598	77194	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

MFA-ICS-570

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33971

Matrix: (soil/water) SOIL Lab Sample ID: 33971.08

Sample Amt: 2g % Moisture 15.80 Date Received: 05/15/98

Extraction Volume: 10ml Date Extracted: 05/16/98

Extraction Method: SONC Date Analyzed: 05/22/98

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

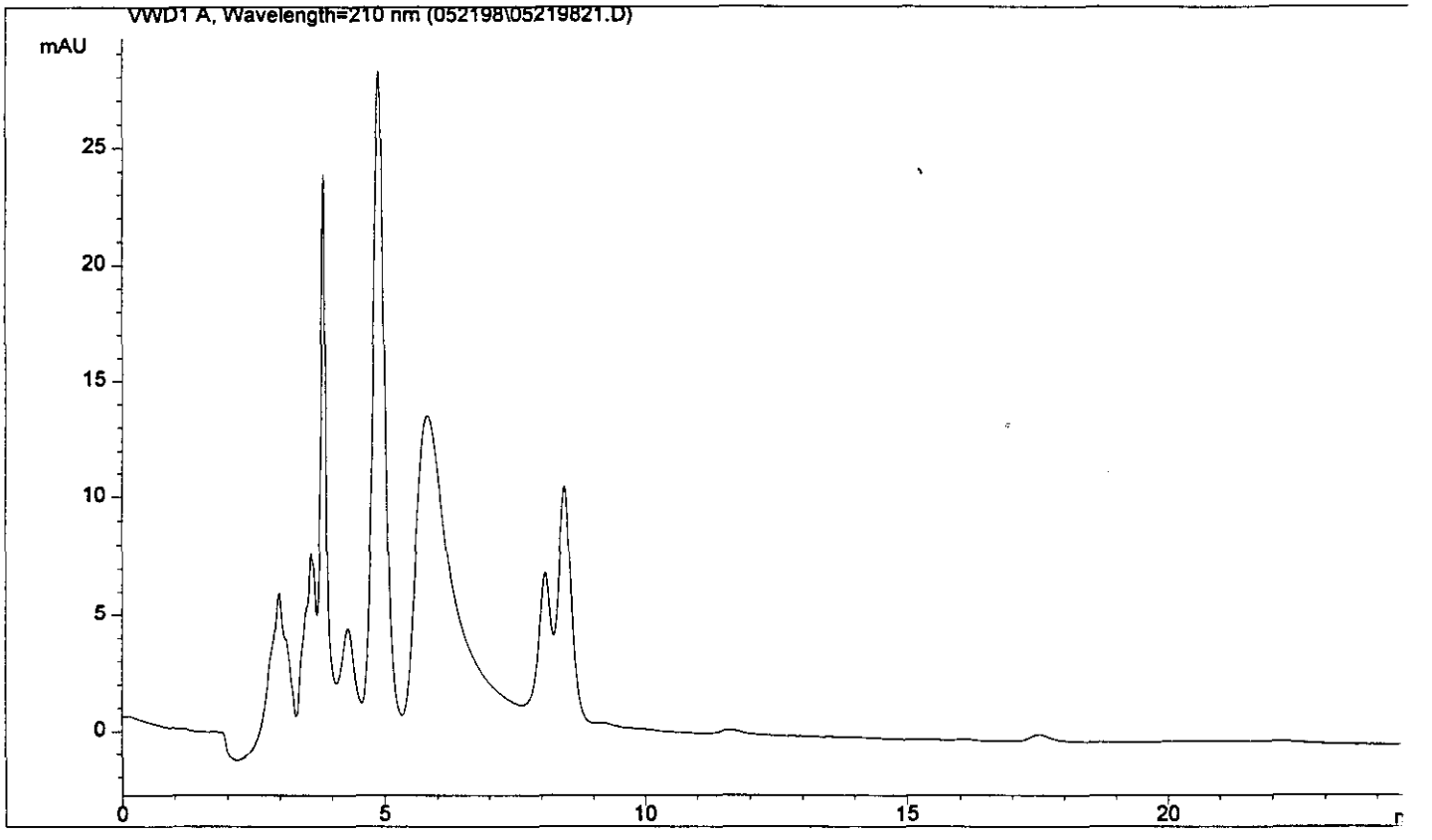
FORM I

Sample Name : 33971.08
Acq Operator : SS

Vial No. : 21
Inj. No. : 1
Inj. Vol. : 200 µl

Acq. Method : 052198.M
Analysis Method : C:\HPCHEM\1\METHODS\052198.M
Last Changed : Sat, 6. Jun. 1998, 05:35:59 pm

PETN SOIL



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Sat, 6. Jun. 1998, 05:30:47 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/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:

MFA-ICS-574FD

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33971

Matrix: (soil/water) SOIL Lab Sample ID: 33971.14

Sample Amt: 2g % Moisture 16.58 Date Received: 05/15/98

Extraction Volume: 10ml Date Extracted: 05/16/98

Extraction Method: SONC Date Analyzed: 06/06/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q	RPD of FD
2691-41-0	HMX	1890	J	7.1
121-82-4	RDX	18900		94.2
99-35-4	TNB	250	U	0
99-65-0	DNB	250	U	0
479-45-8	TETRYL	650	U	0
98-95-3	NB	260	U	0
118-96-7	TNT	1390		26.9
1946-51-0	4ADNT	250	U	0
35572-78-2	2ADNT	250	U	0
606-20-2	26DNT	260	U	0
121-14-2	24DNT	250	U	0
88-72-2	2NT	250	U	0
99-99-0	4NT	250	U	0
99-08-1	3NT	250	U	0

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

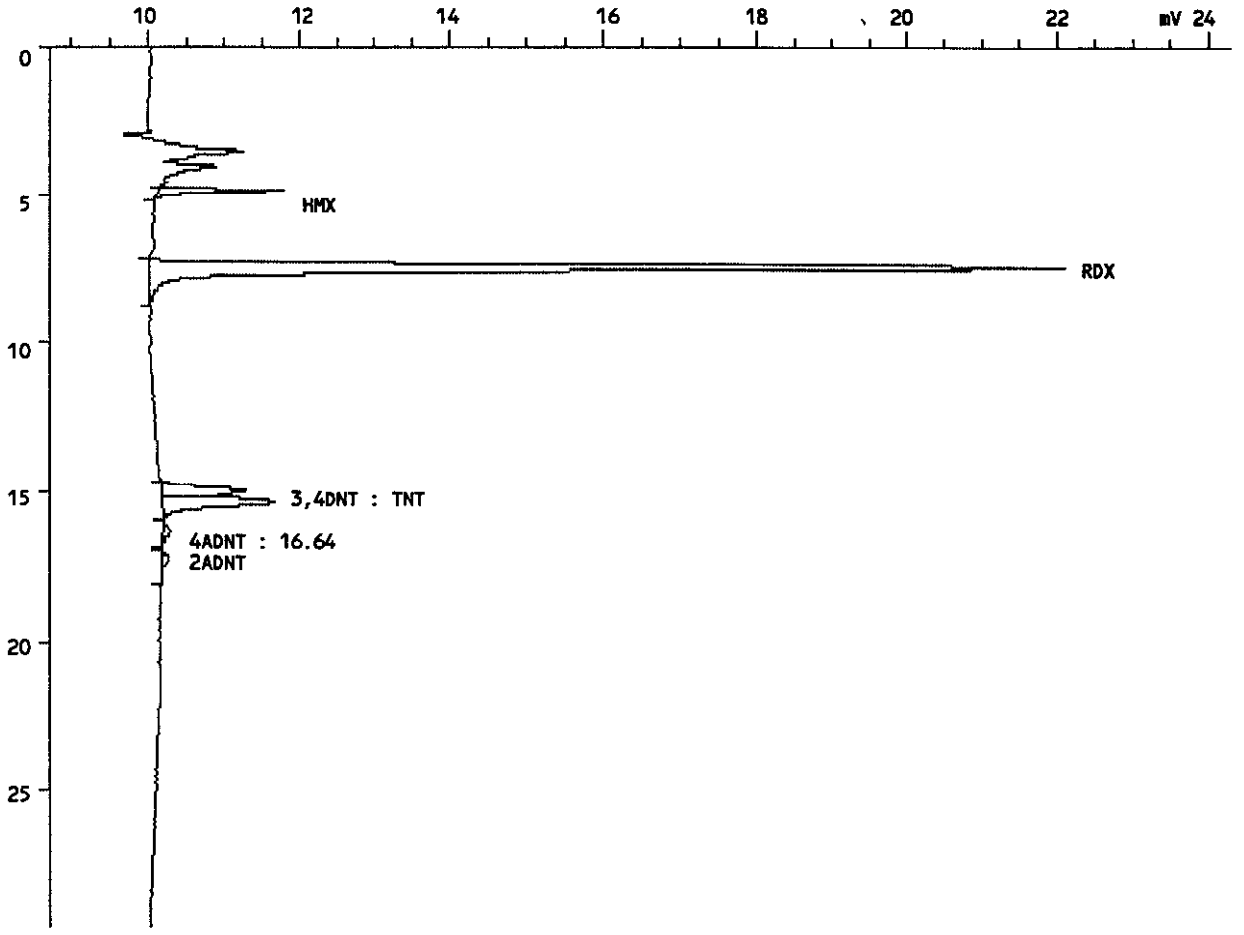
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0605B,16,1

Sample name.....: MFA-ICS-574FD
Sample ID.....: 33971.14
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-08, INJ:200,COL#1

Acquired on 06-Jun-98 at 21:12:57
Reported on 08-Jun-98 at 12:32:07



INJECTION REPORT

Injection F: <MC3> 5 5EX0605B,16,1

Acquired on 06-Jun-98 at 21:12:57
Modified on 08-Jun-82 at 12:05:06
Reported on 08-Jun-98 at 12:05:04

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.: 18
Calibration file..: 5EX0605 Last modified on 08-Jun-82 at 12:01:06
Method file.....: EXPLOS Last modified on 08-Jun-82 at 12:04:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-574FD
Sample ID.....: 33971.14
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

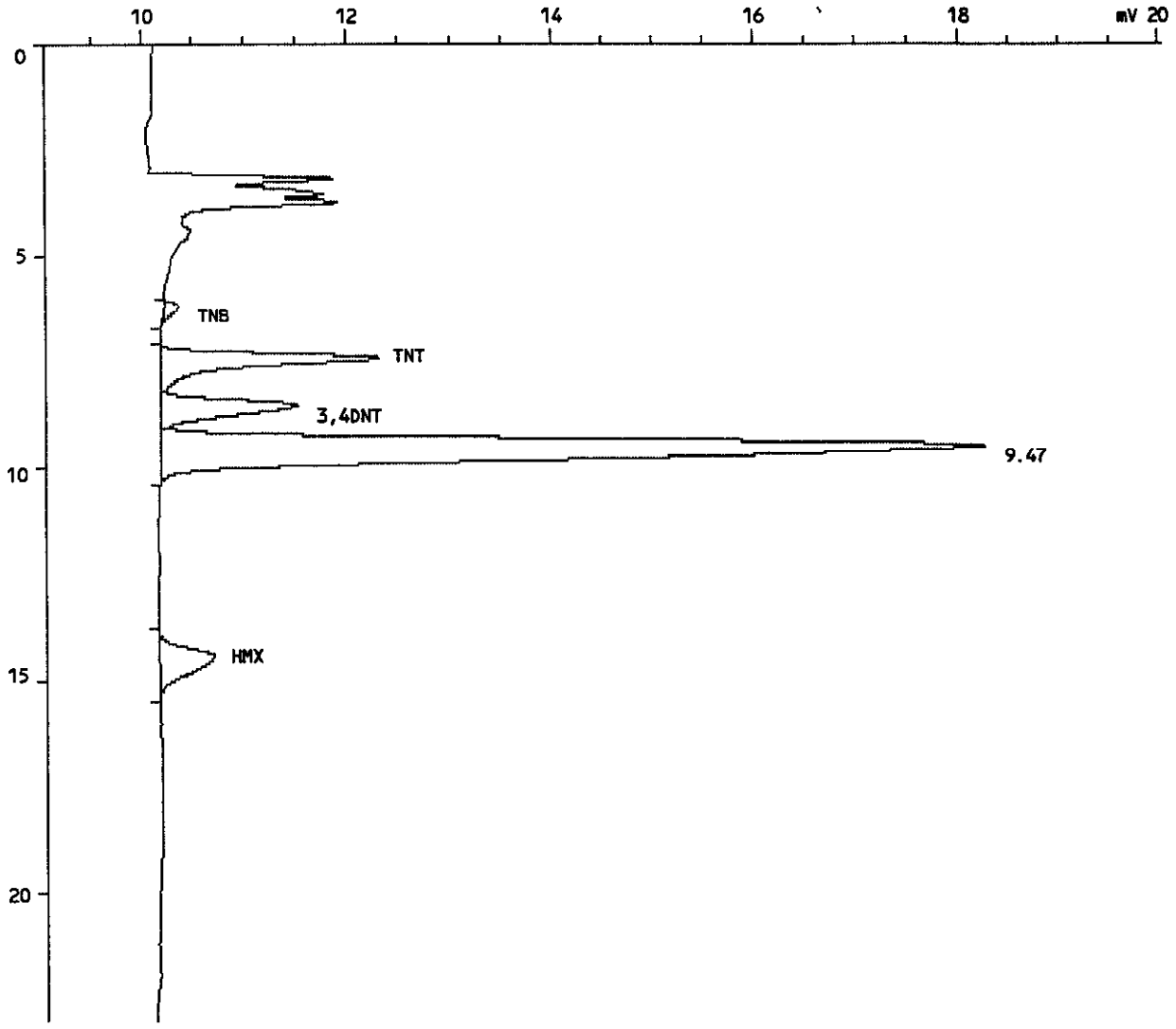
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.907	1662	13860	1888.317	HMX *J
2	7.456	12070	181276	18882.887	RDX *
3	14.987	1103	20129	1829.917	3,4DNT 92
4	15.397	1477	32433	1386.043	TNT *
5	16.363	108	2250	165.925	4ADNT
7	17.312	92	2233	121.104	2ADNT
Total		16512	252182	24274.191	
Residual		41	251	18.514	

LONG PLOT

Injection F: <MC3> 3 3CN0523A,7,1

Sample name.....: MFA-ICS-574FD
Sample ID.....: 33971.14
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100,UV

Acquired on 24-May-98 at 09:23:40
Reported on 04-Jun-98 at 14:41:28



INJECTION REPORT

Injection F: <MC3> 3 3CN0523A,7,1

Acquired on 24-May-98 at 09:23:40
Modified on 04-Jun-82 at 14:27:44
Reported on 04-Jun-98 at 14:27:44

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.: 31
Calibration file..: 3CN0523A Last modified on 04-Jun-82 at 14:23:36
Method file.....: LCCN Last modified on 04-Jun-82 at 13:16:44
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-574FD
Sample ID.....: 33971.14
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

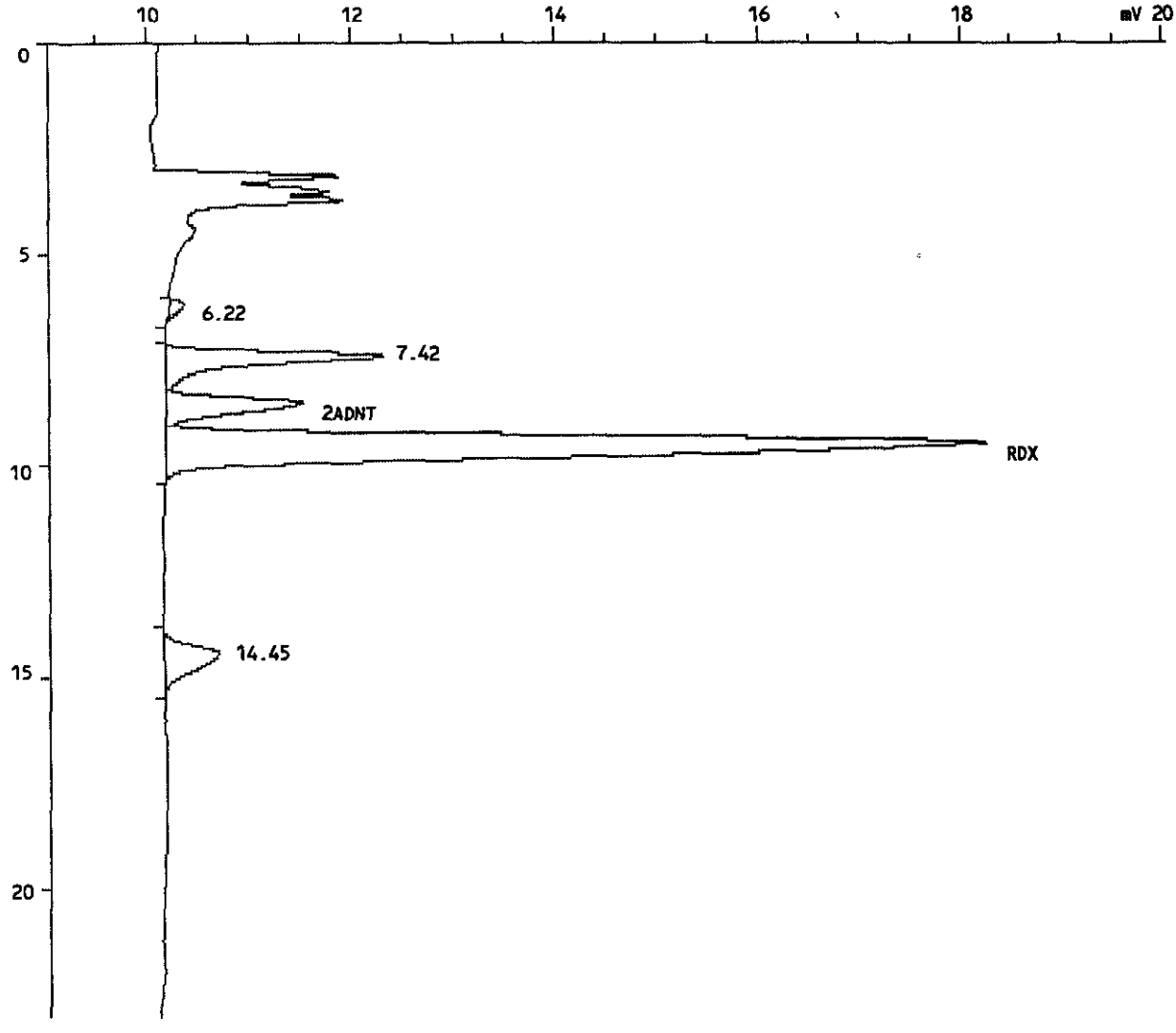
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	6.224	159	3032	120.160	TNB
2	7.419	2127	45095	1717.902	TNT
3	8.539	1341	33318	2285.151	3,4DNT
5	14.453	542	21312	2089.417	HMX
Total		4169	102756	6212.631	
Residual		8061	245945	0.000	

LONG PLOT

Injection F: <MC3> 3 3CN0523A,7,1

Sample name.....: MFA-ICS-574FD
Sample ID.....: 33971.14
INST ID: IN10, COL. TYPE: LC-CN, ID: LC-CN-09, INJ:100,UV

Acquired on 24-May-98 at 09:23:40
Reported on 04-Jun-98 at 15:13:44



INJECTION REPORT

Injection F: <MC3> 3 3CN0523A,7,1

Acquired on 24-May-98 at 09:23:40
Modified on 04-Jun-82 at 14:48:48
Reported on 04-Jun-98 at 14:48:48

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.: 31
Calibration file..: 3CN0523B Last modified on 04-Jun-82 at 14:45:44
Method file.....: LCCN Last modified on 04-Jun-82 at 14:45:54
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-574FD
Sample ID.....: 33971.14
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	8.539	1341	33318	1227.164	2ADNT
4	9.467	8061	245945	16573.102	RDX
Total		9402	279262	17800.266	
Residual		2828	69439	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

MFA-ICS-574FD

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33971

Matrix: (soil/water) SOIL Lab Sample ID: 33971.14

Sample Amt: 2g % Moisture 16.58 Date Received: 05/15/98

Extraction Volume: 10ml Date Extracted: 05/16/98

Extraction Method: SONC Date Analyzed: 05/22/98

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

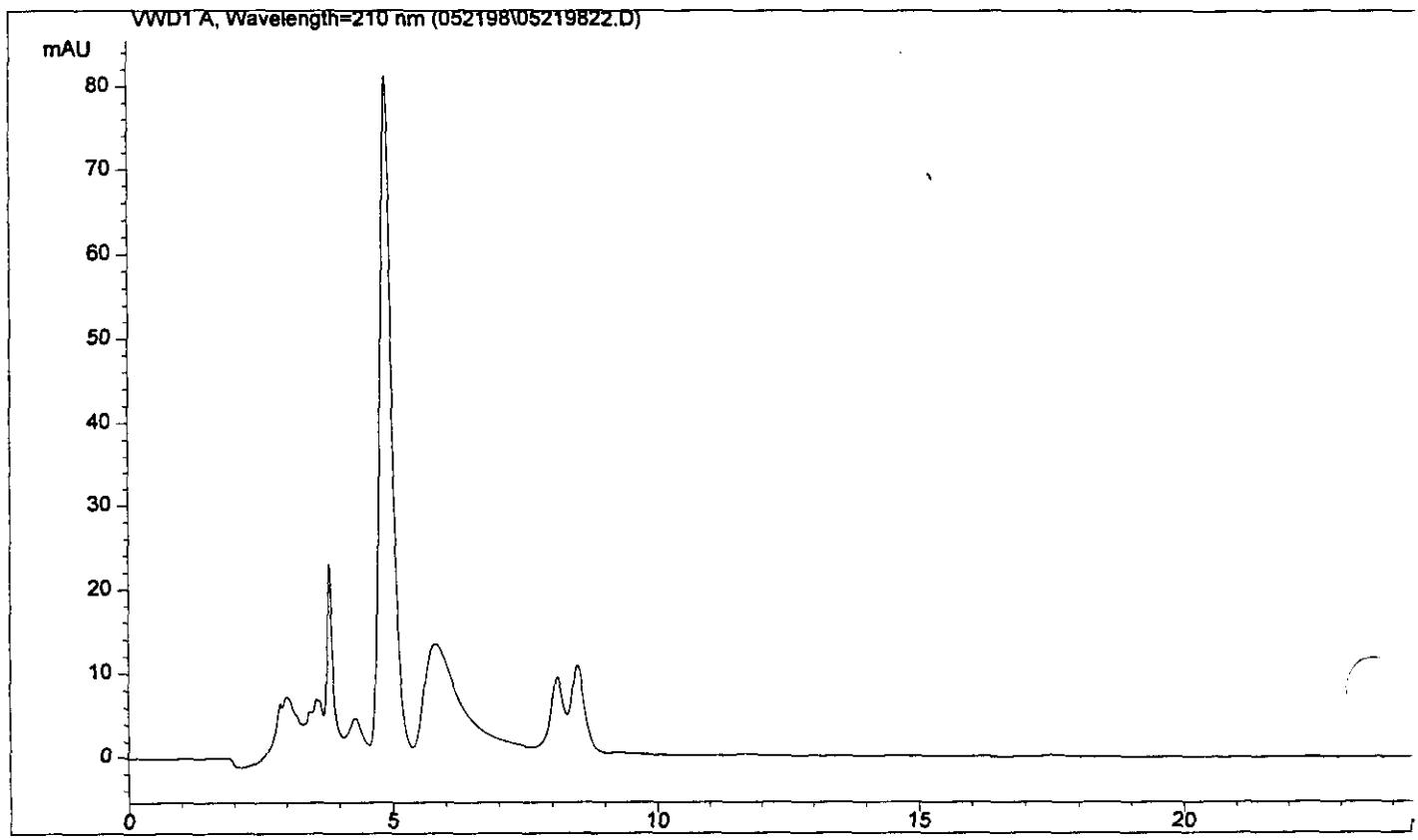
FORM I

Sample Name : 33971.14
Acq Operator : SS

Vial No. : 22
Inj. No. : 1
Inj. Vol. : 200 µl

Acq. Method : 052198.M
Analysis Method : C:\HPCHEM\1\METHODS\052198.M
Last Changed : Sat, 6. Jun. 1998, 05:35:59 pm

PETN SOIL



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Customized Report: extstd.frp

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Sorted By Signal
Calib. Data Modified : Sat, 6. Jun. 1998, 05:30:47 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/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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8D

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33971
Instrument ID: IN13 Column ID: CARB-08

Dates of Anlayses: 06/05/98 to 06/06/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
INST. BLK.	INST.BLK.	06/05/98	18:12
EXP L1 SOIL STD	2-296:IA1	06/05/98	20:26
EXP L2 SOIL STD	2-295:IA2	06/05/98	21:11
EXP L3 SOIL STD	2-294:IA3	06/05/98	21:56
EXP L4 SOIL STD	2-293:IA4	06/05/98	22:40
EXP L5 SOIL STD	2-292:IA5	06/05/98	23:25
EXP L3 SOIL STD	2-294:CA1	06/06/98	07:37
BL0516SC	BL0516SC	06/06/98	09:06
LC0516SC	LC0516SC	06/06/98	11:26
LD0516SC	LD0516SC	06/06/98	12:10
EXP L3 SOIL STD	2-294:CA2	06/06/98	12:55
MFA-ICS-565	33971.01	06/06/98	14:24
MFA-ICS-567	33971.03	06/06/98	15:09
MFA-ICS-568	33971.04	06/06/98	15:54
MFA-ICS-568 50X	33971.04DL	06/06/98	16:38
MFA-ICS-568 MS	33971.05MS	06/06/98	17:23
MFA-ICS-568 MS 50X	33971.05MSDL	06/06/98	18:08
MFA-ICS-568 MSD	33971.06MSD	06/06/98	18:53
MFA-ICS-568 MSD 50X	33971.06MDDL	06/06/98	19:37

FORM VIII

8D

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33971
Instrument ID: IN13 Column ID: CARB-08

Dates of Anlayses: 06/05/98 to 06/06/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
MFA-ICS-570	33971.08	06/06/98	20:28
MFA-ICS-574FD	33971.14	06/06/98	21:12
EXP L3 STD	2-294:CA3	06/06/98	22:42

page 2

FORM VIII

8D

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33971
Instrument ID: LC4 Column ID:

Dates of Anlayses: 05/21/98 to 05/22/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
instrument blank	instrument bla	05/21/98	20:50
L1 2-214:IA1	L1 2-214:IA1	05/21/98	22:14
L2 2-213:IA2	L2 2-213:IA2	05/21/98	22:42
L3 2-224:IA3	L3 2-224:IA3	05/21/98	23:10
L4 2-211:IA4	L4 2-211:IA4	05/21/98	23:39
L5 2-185:IA5	L5 2-185:IA5	05/22/98	00:07
ICV 2-223:CA1	ICV 2-223:CA1	05/22/98	00:35
BL0516SD	BL0516SD	05/22/98	01:03
LC0516SD	LC0516SD	05/22/98	01:59
LD0516SD	LD0516SD	05/22/98	02:27
MFA-ICS-565	33971.01	05/22/98	02:56
MFA-ICS-567	33971.03	05/22/98	03:24
MFA-ICS-568	33971.04	05/22/98	03:52
MFA-ICS-568	33971.05MS	05/22/98	04:20
MFA-ICS-568	33971.06MSD	05/22/98	04:48
L3 2-224:CA2	L3 2-224:CA2	05/22/98	05:16
MFA-ICS-570	33971.08	05/22/98	06:13
MFA-ICS-574FD	33971.14	05/22/98	06:41
L3 2-224:CA3	L3 2-224:CA3	05/22/98	09:30

FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33971
Instrument ID: IN10 Column ID: LC-CN-09

Dates of Anlayses: 05/23/98 to 05/25/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
INST. BLK.	INST. BLK.	05/23/98	19:20
EXP L1A STD	2-231:IA1	05/23/98	21:34
EXP L2A STD	2-230:IA2	05/23/98	22:18
EXP L3A STD	2-229:IA3	05/23/98	23:02
EXP L4A STD	2-228:IA4	05/23/98	23:47
EXP L5A STD	2-227:IA5	05/24/98	00:31
EXP L1B STD	1-236:IB1	05/24/98	01:15
EXP L2B STD	2-235:IB2	05/24/98	02:00
EXP L3B STD	2-234:IB3	05/24/98	02:44
EXP L4B STD	2-233:IB4	05/24/98	03:28
EXP L5B STD	2-232:IB5	05/24/98	04:13
BL0516SC	BL0516SC	05/24/98	04:57
MFA-ICS-565	33971.01	05/24/98	06:26
MFA-ICS-567	33971.03	05/24/98	07:10
MFA-ICS-568	33971.04	05/24/98	07:54
MFA-ICS-570	33971.08	05/24/98	08:39
MFA-ICS-574FD	33971.14	05/24/98	09:23
EXP L3A STD	2-229:CA1	05/24/98	11:36
EXP L3B STD	2-234:CB1	05/24/98	12:21

FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 33971
Instrument ID: IN10 Column ID: LC-CN-09

Dates of Anlayses: 05/23/98 to 05/25/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
EXP L3A STD	2-229:CA3	05/25/98	02:24
EXP L3B STD	2-234:CB3	05/25/98	03:08
MFA-ICS-568 50X	33971.04DL	05/25/98	06:50
EXP L3A STD	2-229:CA4	05/25/98	07:34
EXP L3B STD	2-234:CB4	05/25/98	08:19

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 : 5EX0605,4
Injection File Name Level 2 : 5EX0605,5
Injection File Name Level 3 : 5EX0605,6
Injection File Name Level 4 : 5EX0605,7
Injection File Name Level 5 : 5EX0605,8

Calibration Date : 06/05/1998
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	3700	365	89797	354	243808	369	360861	365	506592	384
RDX	2057	487	50198	475	131179	475	193824	470	270410	492
TNB	2742	908	72890	964	197250	1001	293748	992	409346	1039
DNB	1968	1215	55458	1366	148832	1409	219646	1387	306965	1448
TETRYL	2239	602	64967	699	154294	638	256963	706	346867	717
NB	2592	785	74251	901	196573	919	292141	907	394051	916
3,4-DNT	2614	515	68198	538	187996	570	272586	550	381609	578
TNT	2706	1002	79824	1181	212496	1207	317829	1204	442547	1257
4ADNT	1316	558	40494	684	110370	717	161020	694	226447	73
2ADNT	1947	825	54469	920	145369	944	215977	931	304244	98
26DNT	2549	657	65723	676	175923	693	261260	688	369194	73
24DNT	2585	1095	67593	1142	182906	1188	269838	1163	385375	125
2NT	1678	496	45111	533	117180	533	177593	538	245673	55
[illegible]	1385	410	39413	466	103837	472	156437	474	219751	49
[illegible]	1788	555	51500	641	137683	656	207780	662	286504	68

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN13
Column ID : CARB-08

Inj 1

Injection File Name Level 1 : 5EX0605,4
Injection File Name Level 2 : 5EX0605,5
Injection File Name Level 3 : 5EX0605,6
Injection File Name Level 4 : 5EX0605,7
Injection File Name Level 5 : 5EX0605,8

Calibration Date : 06/05/1998
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	367	2.98	0.99930	376	0.000
RDX	480	1.88	0.99949	483	0.000
TNB	981	4.97	0.99944	1019	0.000
DNB	1365	6.54	0.99954	1423	0.000
TETRYL	672	7.42	0.99841	703	0.000
NB	886	6.38	0.99997	914	0.000
3,4-DNT	550	4.62	0.99934	568	0.000
TNT	1170	8.37	0.99949	1233	0.000
[illegible]NT	678	10.32	0.99919	720	0.000
[illegible]NT	922	6.49	0.99910	964	0.000
26DNT	689	3.88	0.99905	711	0.000
24DNT	1168	4.94	0.99865	1215	0.000
2NT	532	4.20	0.99955	548	0.000
4NT	464	7.12	0.99920	488	0.000
3NT	640	7.80	0.99959	674	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 06/05/1998
Continuing Calibration #: 1
Continuing Cal Date : 06/06/1998
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-08
Injection File Name : 5EX0605A,11
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	238720	362	367	1.50	376	3.70
RDX	128594	466	480	2.94	483	3.51
TNB	191398	972	981	0.96	1019	4.63
DNB	144343	1367	1365	0.14	1423	3.95
TETRYL	139890	578	672	14.00	703	17.81
NB	194555	909	886	2.64	914	0.49
3,4-DNT	184934	560	550	1.90	568	1.31
TNT	209175	1188	1170	1.55	1233	3.63
4ADNT	109853	713	678	5.29	720	0.87
2ADNT	142122	923	922	0.14	964	4.26
26DNT	174143	686	689	0.43	711	3.61
24DNT	179051	1163	1168	0.44	1215	4.30
2NT	118673	539	532	1.44	548	1.65
4NT	104697	476	464	2.51	488	2.42
3NT	135330	644	640	0.74	674	4.32

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 06/05/1998
Continuing Calibration #: 2
Continuing Cal Date : 06/06/1998
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-08
Injection File Name : 5EX0605B,5
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	239401	363	367	1.22	376	3.43
RDX	127718	463	480	3.60	483	4.17
TNB	191797	974	981	0.75	1019	4.43
DNB	146307	1385	1365	1.50	1423	2.65
TETRYL	147589	610	672	9.26	703	13.29
NB	195840	915	886	3.32	914	0.17
3,4-DNT	183502	556	550	1.11	568	2.07
TNT	210576	1196	1170	2.23	1233	2.99
4ADNT	109180	709	678	4.64	720	1.48
2ADNT	142658	926	922	0.52	964	3.90
26DNT	174088	685	689	0.46	711	3.64
24DNT	179271	1164	1168	0.32	1215	4.18
2NT	118762	540	532	1.52	548	1.57
4NT	105203	478	464	3.01	488	1.95
[illegible]NT	136734	651	640	1.78	674	3.33

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 06/05/1998
Continuing Calibration #: 3
Continuing Cal Date : 06/06/1998
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-08
Injection File Name : 5EX0605B,18
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	268355	407	367	10.72	376	8.25
RDX	143761	521	480	8.51	483	7.87
TNB	212653	1079	981	10.04	1019	5.96
DNB	163140	1545	1365	13.18	1423	8.56
TETRYL	151090	624	672	7.11	703	11.23
NB	212445	993	886	12.08	914	8.66
3,4-DNT	207577	629	550	14.37	568	10.78
TNT	234663	1333	1170	13.93	1233	8.11
4ADNT	125821	817	678	20.59	720	13.54
2ADNT	163210	1060	922	15.00	964	9.95
26DNT	194975	768	689	11.48	711	7.92
24DNT	201441	1308	1168	12.01	1215	7.66
2NT	125841	572	532	7.57	548	4.29
4NT	111198	505	464	8.88	488	3.64
1NT	144497	688	640	7.56	674	2.16

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

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN13
Column ID : CARB-08
Calibration Date : 06/05/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	4.90	4.91	4.90	4.89	4.88
RDX	7.46	7.46	7.45	7.42	7.42
TNB	9.91	9.93	9.90	9.86	9.87
DNB	12.16	12.18	12.16	12.09	12.12
TETRYL	12.96	12.98	12.94	12.85	12.91
NB	13.77	13.78	13.76	13.68	13.72
3,4-DNT	15.07	15.07	15.04	14.92	15.00
TNT	15.44	15.47	15.44	15.33	15.41
4ADNT	16.43	16.44	16.41	16.28	16.37
2ADNT	17.36	17.39	17.36	17.22	17.33
26DNT	18.11	18.10	18.06	17.93	18.03
24DNT	18.80	18.80	18.76	18.62	18.73
2NT	21.83	21.89	21.84	21.65	21.78
4NT	23.42	23.43	23.36	23.15	23.29
3NT	25.13	25.21	25.13	24.90	25.05

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3
HMX	4.91	4.89	4.92
RDX	7.46	7.42	7.49
TNB	9.91	9.88	9.95
DNB	12.17	12.13	12.21
TETRYL	12.97	12.92	13.01
NB	13.76	13.72	13.82
3,4-DNT	15.04	14.99	15.10
TNT	15.45	15.40	15.49
4ADNT	16.43	16.37	16.48
2ADNT	17.38	17.31	17.43
26DNT	18.06	18.01	18.13
24DNT	18.75	18.70	18.83
2NT	21.79	21.73	21.91
4NT	23.31	23.25	23.45
3NT	25.09	25.00	25.23

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	4.90	0.014	0.043	4.86 - 4.94
RDX	7.45	0.026	0.078	7.37 - 7.52
TNB	9.90	0.030	0.091	9.81 - 9.99
DNB	12.15	0.037	0.112	12.04 - 12.26
TETRYL	12.94	0.048	0.145	12.80 - 13.09
NB	13.75	0.044	0.131	13.62 - 13.88
3,4-DNT	15.03	0.058	0.173	14.85 - 15.20
TNT	15.43	0.049	0.148	15.28 - 15.58

4ADNT	16.40	0.061	0.183	16.22 - 16.58
2ADNT	17.35	0.062	0.187	17.16 - 17.53
26DNT	18.05	0.066	0.199	17.85 - 18.25
24DNT	18.75	0.067	0.200	18.55 - 18.95
2NT	21.80	0.085	0.255	21.55 - 22.06
4NT	23.33	0.101	0.304	23.03 - 23.64
T	25.09	0.111	0.332	24.76 - 25.42

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: LC4
Column ID :

	Inj 1
Injection File Name Level 1 :	052198,4
Injection File Name Level 2 :	052198,5
Injection File Name Level 3 :	052198,6
Injection File Name Level 4 :	052198,7
Injection File Name Level 5 :	052198,8

Calibration Date : 05/21/98
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	6.40853	3.12E0	54.8288	2.92E0	110.463	2.90E0	446.909	2.86E0	878.416	2.91E0

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: LC4
Column ID :

	Inj 1
Injection File Name Level 1 :	052198,4
Injection File Name Level 2 :	052198,5
Injection File Name Level 3 :	052198,6
Injection File Name Level 4 :	052198,7
Injection File Name Level 5 :	052198,8

Calibration Date : 05/21/98
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	2.942873393	3.46	0.99996	2.90E0	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/21/98
Continuing Calibration #: 1
Continuing Cal Date : 05/22/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 052198,9
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	101.582	3.15E0	2.94E0	7.04	2.90E0	8.47

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/21/98
Continuing Calibration #: 2
Continuing Cal Date : 05/22/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 052198,19
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	108.98	2.94E0	2.94E0	0.22	2.90E0	1.11

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/21/98
Continuing Calibration #: 3
Continuing Cal Date : 05/22/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 052198,28
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	111.567	2.87E0	2.94E0	2.54	2.90E0	1.24

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : LC4
Column ID :
Calibration Date : 05/21/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
PETN	10.67	10.66	10.72	10.71	10.69

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3
PETN	10.78	10.72	10.75

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
PETN	10.71	0.038	0.113	10.60 - 10.83

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 : 3CN0523,4
Injection File Name Level 2 : 3CN0523,5
Injection File Name Level 3 : 3CN0523,6
Injection File Name Level 4 : 3CN0523,7
Injection File Name Level 5 : 3CN0523,8

Calibration Date : 05/23/1998
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	12102	2631	57881	2517	143472	2495	284570	2475	574221	2497
26DNT	9745	1949	45223	1809	112852	1806	225599	1805	454776	1819
TNT	12712	2763	58866	2559	147924	2573	299235	2602	604259	2627
3,4DNT	10658	1523	47638	1361	119186	1445	243222	1474	490633	1467
TETRYL	13450	1494	64447	1432	157849	1403	306097	1360	628457	1397
HMX	7305	1044	35002	1000	88878	1016	178277	1019	357530	1022

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 : 3CN0523,9
Injection File Name Level 2 : 3CN0523,10
Injection File Name Level 3 : 3CN0523,11
Injection File Name Level 4 : 3CN0523,12
Injection File Name Level 5 : 3CN0523,13

Calibration Date : 05/23/1998
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	9750	1950	52638	2106	130256	2084	269502	2156	553370	2213
DNB	14454	3614	74492	3725	188012	3760	384273	3843	801207	4006
24DNT	17073	3415	83775	3351	209272	3348	424821	3399	884243	3537
4ADNT	15711	1708	79303	1724	197928	1721	396844	1725	820580	1784
2ADNT	27063	2706	136420	2728	333111	2665	667500	2670	1403464	2807
RDX	8940	1788	38193	1528	88242	1412	164755	1318	343291	1373

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 : 3CN0523,4
Injection File Name Level 2 : 3CN0523,5
Injection File Name Level 3 : 3CN0523,6
Injection File Name Level 4 : 3CN0523,7
Injection File Name Level 5 : 3CN0523,8

Calibration Date : 05/23/1998
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	2523	2.47	0.99999	2493	0.000
26DNT	1837	3.41	0.99999	1816	0.000
TNT	2625	3.12	0.99998	2619	0.000
3,4DNT	1458	4.18	0.99995	1481	0.000
TETRYL	1417	3.53	0.99988	1391	0.000
HMX	1020	1.53	1.00000	1021	0.000

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 : 3CN0523,9
Injection File Name Level 2 : 3CN0523,10
Injection File Name Level 3 : 3CN0523,11
Injection File Name Level 4 : 3CN0523,12
Injection File Name Level 5 : 3CN0523,13

Calibration Date : 05/23/1998
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	2102	4.68	0.99987	2196	0.000
DNB	3789	3.86	0.99976	3963	0.000
24DNT	3410	2.25	0.99977	3502	0.000
4ADNT	1732	1.71	0.99985	1770	0.000
2ADNT	2715	2.12	0.99966	2775	0.000
RDX	1484	12.58	0.99960	1366	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/23/1998
Continuing Calibration #: 1
Continuing Cal Date : 05/24/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0523A,10
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	145078	2523	2523	0.01	2493	1.22
26DNT	114461	1831	1837	0.33	1816	0.86
TNT	151045	2627	2625	0.07	2619	0.28
3,4DNT	122708	1487	1458	2.03	1481	0.40
TETRYL	139282	1238	1417	12.65	1391	10.96
HMX	91441	1045	1020	2.46	1021	2.40

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/23/1998
Continuing Calibration #: 1
Continuing Cal Date : 05/24/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0523A,11
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	132263	2116	2102	0.68	2196	3.64
DNB	191710	3834	3789	1.18	3963	3.25
24DNT	212689	3403	3410	0.20	3502	2.82
4ADNT	201876	1755	1732	1.33	1770	0.81
2ADNT	334898	2679	2715	1.33	2775	3.45
RDX	86566	1385	1484	6.65	1366	1.36

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/23/1998
Continuing Calibration #: 3
Continuing Cal Date : 05/25/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0523A,30
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	149087	2593	2523	2.78	2493	4.02
26DNT	120586	1929	1837	5.00	1816	6.26
TNT	159347	2771	2625	5.57	2619	5.79
3,4DNT	129258	1567	1458	7.47	1481	5.76
TETRYL	119869	1066	1417	24.82	1391	23.37
HMX	92657	1059	1020	3.83	1021	3.76

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/23/1998
Continuing Calibration #: 3
Continuing Cal Date : 05/25/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0523A,31
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	131572	2105	2102	0.16	2196	4.14
DNB	194259	3885	3789	2.53	3963	1.96
24DNT	215138	3442	3410	0.95	3502	1.70
4ADNT	201317	1751	1732	1.05	1770	1.08
2ADNT	340119	2721	2715	0.21	2775	1.95
RDX	84894	1358	1484	8.46	1366	0.60

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/23/1998
Continuing Calibration #: 4
Continuing Cal Date : 05/25/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0523B,6
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
TNB	149021	2592	2523	2.73	2493	3.97
26DNT	116960	1871	1837	1.84	1816	3.06
TNT	154534	2688	2625	2.38	2619	2.60
3,4DNT	124328	1507	1458	3.37	1481	1.72
TETRYL	138016	1227	1417	13.44	1391	11.77
HMX	94416	1079	1020	5.80	1021	5.73

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 05/23/1998
Continuing Calibration #: 4
Continuing Cal Date : 05/25/1998
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : LC-CN-09
Injection File Name : 3CN0523B,7
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
NB	131715	2107	2102	0.27	2196	4.04
DNB	195097	3902	3789	2.97	3963	1.54
24DNT	215094	3442	3410	0.93	3502	1.72
4ADNT	198932	1730	1732	0.15	1770	2.25
2ADNT	340676	2725	2715	0.37	2775	1.79
RDX	86081	1377	1484	7.18	1366	0.79

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

A-STD

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-09
Calibration Date : 05/23/1998
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	6.18	6.16
26DNT	6.76	6.77	6.75	6.76	6.73
TNT	7.41	7.42	7.41	7.41	7.39
3,4DNT	8.53	8.53	8.52	8.53	8.50
TETRYL	11.96	11.97	11.96	11.97	11.94
HMX	14.53	14.56	14.54	14.56	14.54

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4
TNB	6.19	6.18	6.18	6.17
26DNT	6.77	6.76	6.78	6.77
TNT	7.41	7.40	7.42	7.40
3,4DNT	8.52	8.50	8.53	8.50
TETRYL	11.91	11.87	11.93	11.86
HMX	14.38	14.32	14.37	14.22

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
TNB	6.18	0.011	0.032	6.15 - 6.21
26DNT	6.76	0.014	0.041	6.72 - 6.80
TNT	7.41	0.010	0.031	7.38 - 7.44
3,4DNT	8.52	0.017	0.051	8.47 - 8.57
TETRYL	11.93	0.043	0.129	11.80 - 12.06
HMX	14.45	0.126	0.377	14.07 - 14.82

B STD

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : LC-CN-09
Calibration Date : 05/23/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
NB	5.39	5.39	5.40	5.41	5.38
DNB	6.05	6.03	6.04	6.05	6.02
24DNT	7.07	7.07	7.08	7.09	7.06
4ADNT	7.86	7.84	7.86	7.87	7.83
2ADNT	8.47	8.47	8.48	8.49	8.45
RDX	9.49	9.50	9.52	9.52	9.48

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4
NB	5.38	5.39	5.42	5.42
DNB	6.02	6.02	6.05	6.05
24DNT	7.06	7.05	7.09	7.10
4ADNT	7.83	7.82	7.87	7.89
2ADNT	8.44	8.42	8.46	8.49
RDX	9.44	9.40	9.44	9.44

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
NB	5.40	0.016	0.047	5.35 - 5.44
DNB	6.04	0.014	0.043	5.99 - 6.08
24DNT	7.07	0.018	0.053	7.02 - 7.13
4ADNT	7.85	0.024	0.072	7.78 - 7.93
2ADNT	8.46	0.025	0.075	8.39 - 8.54
RDX	9.47	0.042	0.126	9.34 - 9.59

	SV	OD ST • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

[X] RUSH ☐ REEXTRACT ☐ TCLP ☐ DXIN

SAMPLE EXTRACTION LOG

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 980516SC

EXTRACT DATE: 1998-05-16 12:28

001127
Page: 1 of 1

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	g • ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
BL0516SC			S/L				2.0							10.0	N		1000		
BB0516SC			S/L				2.0							10.0	N		1000		
LC0516SC			S/L				2.0							10.0	N	500	1000		
LD0516SC			S/L				2.0							10.0	N	500	1000		
33971.01 GC200	MKF-OH	05/15/1998 10:46 MFA-ICS-565	S/L		20.11	1.6	2.0							10.0	N		1000		
33971.03 GC200	MKF-OH	05/15/1998 10:46 MFA-ICS-567	S/L		19.71	1.6	2.0							10.0	N		1000		
33971.04 GC200	MKF-OH	05/15/1998 10:46 MFA-ICS-568	S/L		18.89	1.6	2.0							10.0	N		1000		
33971.05MS GC200	MKF-OH	05/15/1998 10:46 MFA-ICS-568	S/L				2.0							10.0	N	500	1000		
33971.06MSD GC200	MKF-OH	05/15/1998 10:46 MFA-ICS-568	S/L				2.0							10.0	N	500	1000		
✓ 33971.08 GC200	MKF-OH	05/15/1998 10:46 MFA-ICS-570	S/L		15.80	1.7	2.0							10.0	N		1000		
✓ 33971.14 GC200	MKF-OH	05/15/1998 10:46 MFA-ICS-574FD	S/L		16.58	1.7	2.0							10.0	N		1000		
2 15																			

INITIALS

WEIGHING:	MK	EXTRACTION:	MK	FLORISIL:	
CLEANUP:		KD:			
BLOWDOWN:		TV:			
SURROG. SPIKER:	PV	VERIFIER:	MK		
MATRIX SPIKER:	PV	VERIFIER:	MK		
SUBMITTED BY:		REVIEWED BY:			

ID NUMBERS

FLORISIL CARTRIDGE #:

GPC COLUMN #:

SURROGATES ID CONC #: 2-204

MATRIX SPIKE SOLID/CONC #(s): 2-243

SOP - METHOD # : SWL-OP-_____ Rev._____

COMMENTS

CH_3CN BR361

SAMPLE EXTRACTION LOG

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

[X] RUSH [ ] REEXTRACT [ ] TCLP [ ] DIOXIN

METHOD	SV	ST • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

BATCH: 980516SD

EXTRACT DATE: 1998-05-16 12:42

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Page: 1 of 1

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE %	DRY WEIGHT g	AMOUNT EXTRACTED g ml	EXTRACTED VOLUME ml	GPC VOLUME ml	GPC ELUTE VOL ml	FLORISIL VOL CONC ml	FLORISIL FIN VOL CONC ml	VOL SV - P ml	FIN PROCESS VOLUME ml	SCREEN Y/N Y/N	MS SV - P µL	SURR SV - P µL	BASE pH CONFIRMATION	ACID pH CONFIRMATION
BL0516SD			S/L				2.0							10.0	N				
BB0516SD			S/L				2.0							10.0	N				
LC0516SD			S/L				2.0							10.0	N	120			
LD0516SD			S/L				2.0							10.0	N	120			
33971.01 GC201	MKF-OH	05/15/1998 10:46 MFA-ICS-565	S/L		20.11	1.6	2.0							10.0	N				
33971.03 GC201	MKF-OH	05/15/1998 10:46 MFA-ICS-567	S/L		19.71	1.6	2.0							10.0	N				
33971.04 GC201	MKF-OH	05/15/1998 10:46 MFA-ICS-568	S/L		18.89	1.6	2.0							10.0	N				
33971.05MS GC201	MKF-OH	05/15/1998 10:46 MFA-ICS-568	S/L				2.0							10.0	N	120			
33971.06MSD GC201	MKF-OH	05/15/1998 10:46 MFA-ICS-568	S/L				2.0							10.0	N	120			
33971.08 GC201	MKF-OH	05/15/1998 10:46 MFA-ICS-570	S/L		15.80	1.7	2.0							10.0	N				
33971.14 GC201	MKF-OH	05/15/1998 10:46 MFA-ICS-574FD	S/L		16.58	1.7	2.0							10.0	N				

INITIALS

WEIGHING:	MK	EXTRACTION:	MK	FLORISIL:	
CLEANUP:		KD:			
BLOWDOWN:		TV:			
SURROG. SPIKER:		VERIFIER:			
MATRIX SPIKER:	PV	VERIFIER:	MK		
SUBMITTED BY:		REVIEWED BY:			

ID NUMBERS

FLORISIL CARTRIDGE #:

GPC COLUMN #:

SURROGATES ID CONC #:

MATRIX SPIKE SOLID/CONC #(s): 2-244

SOP - METHOD # : SWL-OP-

COMMENTS

CH_3CN BR361

MORRISON KNUDSEN CORPORATION

CHAIN OF CUSTODY RECORD

MFA-003

720 Park Blvd., P.O. Box 73
Boise, Idaho 83729
(208) 386-5000

Project No.: 4321-0009-07-35

Project Name: NSWC Crane

Samplers: (Signature)

Sampler: (Print) Peter J Chevalier

Sample Type	Sampling Point Description	Sample Date	Time	Sample I.D. Number	Split Samples Yes	Split Samples No	8330 Explosives	6010/7471 Metals	8260 VOC	RCRA Metals	Remarks
Soil	Grid 176 grab 12"	4/24/98	1000	MFA ICS 550		✓			✓		Mine Fill A Pre-Excavation
	Grid 180 grab 12"		1015	MFA-ICS 553		✓			✓		
	Grid 178 comp 0-12"		0930	MFA ICS 555		✓	✓	✓			
	Grid 178 grab 12"		0938	MFA ICS 556		✓			✓		
	Grid 178 grab 30"		1000	MFA ICS 557		✓			✓		
	Grid 178 comp 0-12"		0930	MFA ICS 555-FD		✓	✓	✓			
	Grid 179 comp 0-12"		1020	MFA ICS 558		✓	✓	✓			
	Grid 179 grab 12"		1033	MFA ICS 559		✓			✓		
	Grid 179 comp 24-36"		1045	MFA ICS 560		✓	✓	✓			
liquid	rinse blank		0830	MFA-ICS RB042498		✓	✓			✓	
liquid	trip blank		1530	MFA-ICS TB042498		✓			✓		
											Southwest Labs

Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:	Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:
[signature]	4/24/98 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: C. Miller	Date/Time 4/25/98 8:30	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: 7142

10 p.

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2.WB1) / SWL-GA-115 Rev. 5.0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA / AMERICAN ANALYTICAL & TECH. SRVS.

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): KIM WILLISON / SARAH HODSON

RECEIVED BY (SIGNATURE): C. Miller

LOGGED IN BY (SIGNATURE):

REC'D DATE: 4-25-98

TIME REC'D: 8:30

LOG-IN DATE: 4-25-98

PROJECT:	EPISODE:	SAMPLE DELIVERY GROUP:
NSWC CRANE	33748	33748

REMARKS:

1. CUSTODY SEAL(S): PRESENT / ABSENT; INTACT / BROKEN
2. CUSTODY SEALS NOS.:
3. CHAIN - OF- CUSTODY, PRESENT / ABSENT
   - SEALED IN PLASTIC? YES / NO
   - TAPED TO LID? YES / NO
   - PROPERLY FILLED OUT (INK, SIGNED, ETC.)? YES / NO
4. AIRBILL: AIRBILL / STICKER; PRESENT / ABSENT
5. AIRBILL NO: 3009118246 18
6. COOLER CONDITIONS
   - ENOUGH ICE? YES / NO
   - TYPE OF ICE? Wet
   - TYPE OF PACKING? Bubble
7. SAMPLE TAGS: PRESENT / ABSENT
8. SAMPLE CONDITION: INTACT / BROKEN* / LEAKING
   - BOTTLES SEALED IN SEPARATE PLASTIC BAGS? YES / NO
   - CORRECT CONTAINERS USED FOR FOR TESTS INDICATED ? YES / NO
   - CORRECT PRESERVATIVE ? YES / NO
   - SUFFICIENT SAMPLE ? YES / NO
   - LABELS COMPLETE (I.D., DATE, TIME, SIGNATURE, PRESERVATIVE ? YES / NO
   - VOA SAMPLES WITHOUT BUBBLES ? YES / NO–
9. DOES INFORMATION ON CUSTODY RECORDS, LABELS, TAGS AGREE? YES / NO*
10. RAD SCREEN WITH GIEGER COUNTER? YES / NO
11. P.O. CALLED ? YES* / NO

CLIENT SAMPLE #	SAMPLE FRACTION@	ASSIGNED LAB #	COOLER I.D.	pH CHECK	ACID / BASE LOT #:	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
MFA-ICS-550	V	01	MKE-014 4-25-98-1			10°C
553	↓	02				
555	B M	03				
556	V	04				
557	V	05				
555FD	B M	06				
558	↓	07				
559	V	08				
560	B M	09				
MFA-ICSRB042498	↓	10				
TB042498	V	11				

* Contact PO and attach record of resolution

@ Sample Fractions: B= SV GC/MS, V= VOA GC/MS or GC , P=Pesticide,H=Herbicide, D= Dioxin, A=Air, I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

SDG NARRATIVE

May 23, 1998

CLIENT : MKF-OH
CASE : NSWC CRANE
SDG : 33748
EPISODE(S) : 33748
FRACTION : EXPLOSIVES
SAMPLE(S) : MFA-ICS-555, MFA-ICS-555FD, MFA-ICS-558, MFA-ICS-560, MFA-ICS-RB042498

This SDG consisted of 4 soil and 1 water samples for explosives analysis. The samples, blanks and spikes were extracted and analyzed according to EPA protocol, SW-846, method 8330, REV. 0, 1994.

For soil samples, the percent moisture is determined by drying them at 105° C at the time of receipt. Additional portion of the samples is air-dried prior to analysis. The results are reported on the basis of the air-dried samples. For high-level water samples, direct injection method is used. For low-level water samples, salting out method is used. All of the extracts are diluted by a factor of two prior to analysis according to method 8330. The extracts are diluted in order to be the same consistency as the Mobile Phase.

"P" flags were used when the appropriate compound with sufficient response exceeded 40% deviation, possibly due to interference in the quantitation or confirmation columns.

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1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-

CASE SUMMARY:

Soil:

All of the analytes were within QC limits in the laboratory control spike (LCS) an he laboratory control spike duplicate (LCSD).

WATER:

An interfering peak eluted in the L1 and L2 standards at the approximate retention time as RDX. The interfering peak was not eluted in the other low level standard injected prior to this standard. Possibly due to autosampler vial contamination, the interfering peak was detected in these standards. Since correlation coefficient was greater than 0.99 for the analyte, slope was utilized to calculate the concentration for RDX. RDX was not detected in the sample.

ICV slightly exceeded 15% deviation when compared to the initial calibration standard. Since PETN was not detected in the associated sample, the sample was not re-analyzed.

The surrogate (3,4DNT) exceeded the QC limits in the samples MFA-ICS-RB042498MS and MFA-ICS-RB042498MSD and LC0425WC.

Tetryl was out of the QC limits in the samples MFA-ICS-RB042498MS and MFA-ICS-RB042498MSD. The analyte was within the QC limits in the LCS an LCSD.

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To analyze PETN, LC ChemStation software was utilized. Unlike the VG software, the Response Factor in the ChemStation is calculated by dividing the concentration by the area.

Multiplier = amount extracted/ final volume

The following is an example of the calculation for the LC0425WC:

Mean response factor * area of the sample * dilution * Multiplier = the concentration

3.22 * 205.52 * 1 * 2 = 1323 ug/L

Form 9s were included for the %RSD and correlation coefficient calculation of the calibration standard. However, the samples were calculated based on the mean response factor generated by the software which due to a number of decimal places, the mean response factor generated by the software might not be exactly the same as the form 9s.

The explosives referred to in the data package by the abbreviations found in method 8330 are as follows: HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine), RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine), TNB (1,3,5-Trinitrobenzene), DNB (1,3-Dinitrobenzene), Tetryl (Methyl-2,4,6-trinitrophenylnitramine), NB (Nitrobenzene), TNT (2,4,6- Trinitrotoluene), 24DNT (2,4-Dinitrotoluene), 26DNT (2,6-Dinitrotoluene), 2NT (o-Nitrotoluene), 3NT m-Nitrotoluene), 4NT (p-Nitrotoluene) , PETN (Pentaerythritol tetranitrate), 2ADNT (2-Amino-4,6-dinitrotoluene), 4ADNT (4-Amino-2,6-dinitrotoluene).

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We use the following flags where appropriate. "J" - indicates a quantitated result, which is below the quantitation limit, but above the detection limit and has been confirmed by the second column. "E"- indicates an out of range value, i.e., a peak that is off-scale or out of the linear calibration range of the detector. The value reported is not to be used. The sample must be diluted and re-run. "D" - indicates a value derived from a secondary dilution. "U" - indicates the compound that is undetected above the quantitation limit. "X" - indicates a comment which is explained in the case narrative.

Shahriar Shahreza

GC Supervisor

2E

EXPLOSIVE SURROGATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No: MKF-OH SDG No:33748

	SAMPLE NUMBER	S1 #	OTHER
1	MFA-ICS-555	97.0	0
2	MFA-ICS-555-FD	105	0
3	MFA-ICS-558	105	0
4	MFA-ICS-560	100	0
5	MFA-ICS-RB042498	112	0
6	MFA-ICS-RB042498 MS	152*	0
7	MFA-ICS-RB042498 MSD	145*	0
8	BL0425SC	107	0
9	BL0425WC	108	0
10	LC0425SC	140	0
11	LC0425WC	144*	0
12	LD0425SC	86.2	0
13	LD0425WC	127	0
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
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

FORM II

WATER EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33748

Client Sample No: MFA-ICS-RB042498 MSD

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
HMX	400		369	92	44-154
RDX	150		155	103	66-139
TNB	225		202	90	56-129
DNB	125		112	90	76-122
TETRYL	413		178	43*	76-120
NB	213		228	107	82-111
TNT	188		239	127	76-137
4ADNT	313		297	95	60-140
2ADNT	313		285	91	60-140
26DNT	288		273	95	80-118
24DNT	175		154	88	72-123
2NT	363		318	88	74-130
4NT	250		218	87	78-116
3NT	238		275	116	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	369	92	0	15	44-154
RDX	150	160	107	4	12	66-139
TNB	225	204	91	1	10	56-129
DNB	125	112	90	0	15	76-122
TETRYL	413	217	53*	20*	14	76-120
NB	213	211	99	8	13	82-111
TNT	188	239	127	0	15	76-137
4ADNT	313	291	93	2	40	60-140
2ADNT	313	284	91	0	40	60-140
26DNT	288	274	95	0	13	80-118
24DNT	175	153	87	1	14	72-123
2NT	363	333	92	5	15	74-130
4NT	250	213	85	2	14	78-116
3NT	238	275	116	0	15	72-126

No of Analyte recoveries out of QC Advisory Limits = 1
No of RPD's out of QC Limits 1

WATER EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33748

Client Sample No: MFA-ICS-RB042498

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
PETN	1200		1240	103	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	1310	109	6	30	70-130

No of Analyte recoveries out of QC Advisory Limits = 0
No of RPD's out of QC Limits 0

3G

WATER EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33748

Client Sample No: LC0425WC

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC LIMITS REC.
HMX	400		380	95	46-151
RDX	150		168	112	72-129
TNB	225		211	94	74-118
DNB	125		120	96	79-132
TETRYL	413		284	69	58-120
NB	213		226	106	68-135
TNT	188		248	132	61-145
4ADNT	313		306	98	60-140
2ADNT	313		299	96	60-140
26DNT	288		284	99	77-125
24DNT	175		160	91	70-134
2NT	363		342	94	73-131
4NT	250		222	89	73-116
3NT	238		286	120	71- 127

# of Analyte recoveries out of QC Advisory Limits = 0

3G

WATER EXPLOSIVES CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33748

Client Sample No: LC0427WB

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC LIMITS REC.
PETN	1200		1320	110	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:33748

Client Sample No: LD0425WC

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	QC LIMITS REC.
HMX	400		361	90	46-151
RDX	150		157	105	72-129
TNB	225		198	88	74-118
DNB	125		112	90	79-132
TETRYL	413		300	73	58-120
NB	213		199	93	68-135
TNT	188		236	126	61-145
4ADNT	313		276	88	60-140
2ADNT	313		280	89	60-140
26DNT	288		255	89	77-125
24DNT	175		156	89	70-134
2NT	363		328	90	73-131
4NT	250		211	84	73-116
3NT	238		274	115	71- 127

# of Analyte recoveries out of QC Advisory Limits = 0

3G

WATER EXPLOSIVES CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:33748

Client Sample No: LD0427WD

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	QC LIMITS REC.
PETN	1200		1270	106	70-130

No of Analyte recoveries out of QC Advisory Limits = 0

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0425WC

Lab Code: SWOK Case No: MKF-OH SDG No:33748

Matrix: (soil/water) Water

Date Extracted: Extn. Method: DIRECT

Date Analyzed (1): 04/26/98 Date Analyzed(2):

Time Analyzed (1): 01:39:41 Time Analyzed(2):

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

LC Column ID (1): CARB-07 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	LC0425WC	LC0425WC	04/26/98	
2	LD0425WC	LD0425WC	04/26/98	
3	MFA-ICS-RB042498	33748.10	04/26/98	
4	MFA-ICS-RB042498 MS	33748.10MS	04/26/98	
	MFA-ICS-RB042498 MSD	33748.10MSD	04/26/98	
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: BL0427WB

Code: SWOK Case No: MKF-OH SDG No:33748

Matrix: (soil/water) Water

Date Extracted: Extn. Method: DIRECT

Date Analyzed (1): 04/29/98 Date Analyzed(2):

Time Analyzed (1): 23:33:05 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	LC0427WB	LC0427WB	04/30/98	
2	LD0427WD	LD0427WD	04/30/98	
3	MFA-ICS-RB042498	33748.10	04/30/98	
4	MFA-ICS-RB042498	33748.10MS	04/30/98	
	MFA-ICS-RB042498	33748.10MSD	04/30/98	
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

FORM IV

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

MFA-ICS-RB04249
8

Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33748

Matrix: (soil/water) WATER Lab Sample ID: 33748.10

Sample Amt: 1ml % Moisture Date Received: 04/25/98

Extraction Volume: 1ml Date Extracted: DIRECT INJ

Extraction Method: DIRECT Date Analyzed: 04/26/98

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

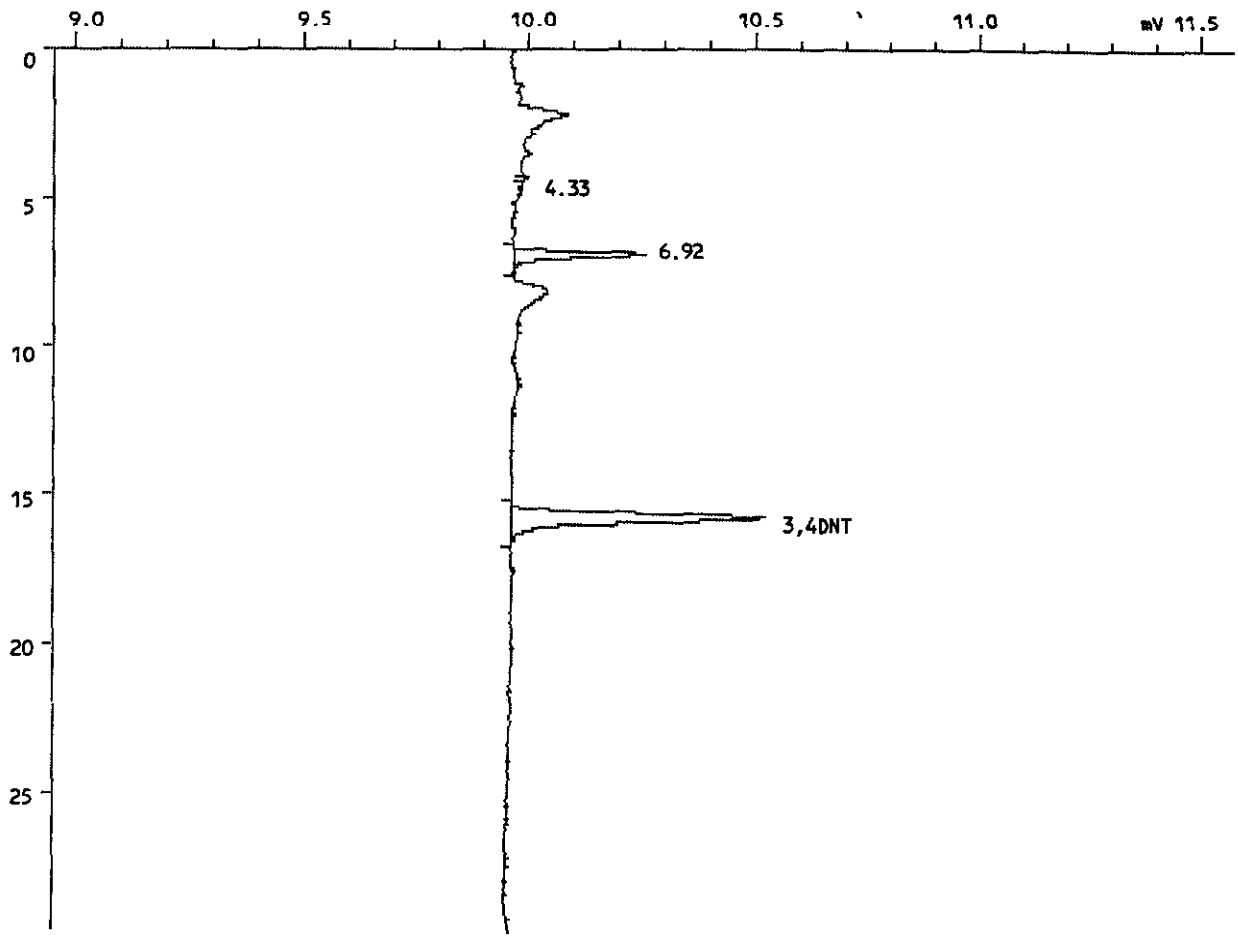
FORM I

LONG PLOT

Injection F: <MC3> 5 5E0425W,13,1

Sample name.....: MFA-ICS-RB042498
Sample ID.....: 33748.10
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-07, INJ:200,COL#1

Acquired on 26-Apr-98 at 04:38:30
Reported on 13-May-98 at 09:54:32



INJECTION REPORT

Injection F: <MC3> 5 5E0425W,13,1

Acquired on 26-Apr-98 at 04:38:30
Modified on 13-May-82 at 09:54:06
Reported on 13-May-98 at 09:54:12

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC 200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-07,INJ:200,COL#1
Number of samples.: 18
Calibration file..: 5E0425W Last modified on 13-May-82 at 09:54:06
Method file.....: EXPLOS Last modified on 12-May-82 at 16:57:52
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: MFA-ICS-RB042498
Sample ID.....: 33748.10
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
3	15.771	556	12003	225.192	3,4DNT 112%
Total		556	12003	225.192	
Residual		302	4291	-6.705	

1D

EXPLOSIVES ANALYSIS DATA SHEET

EPA SAMPLE NO:

MFA-ICS-RB04249
8

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 33748

Matrix: (soil/water) WATER Lab Sample ID: 33748.10

Sample Amt: 1ml % Moisture Date Received: 04/25/98

Extraction Volume: 1ml Date Extracted: DIRECT INJ

Extraction Method: DIRECT Date Analyzed: 04/30/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

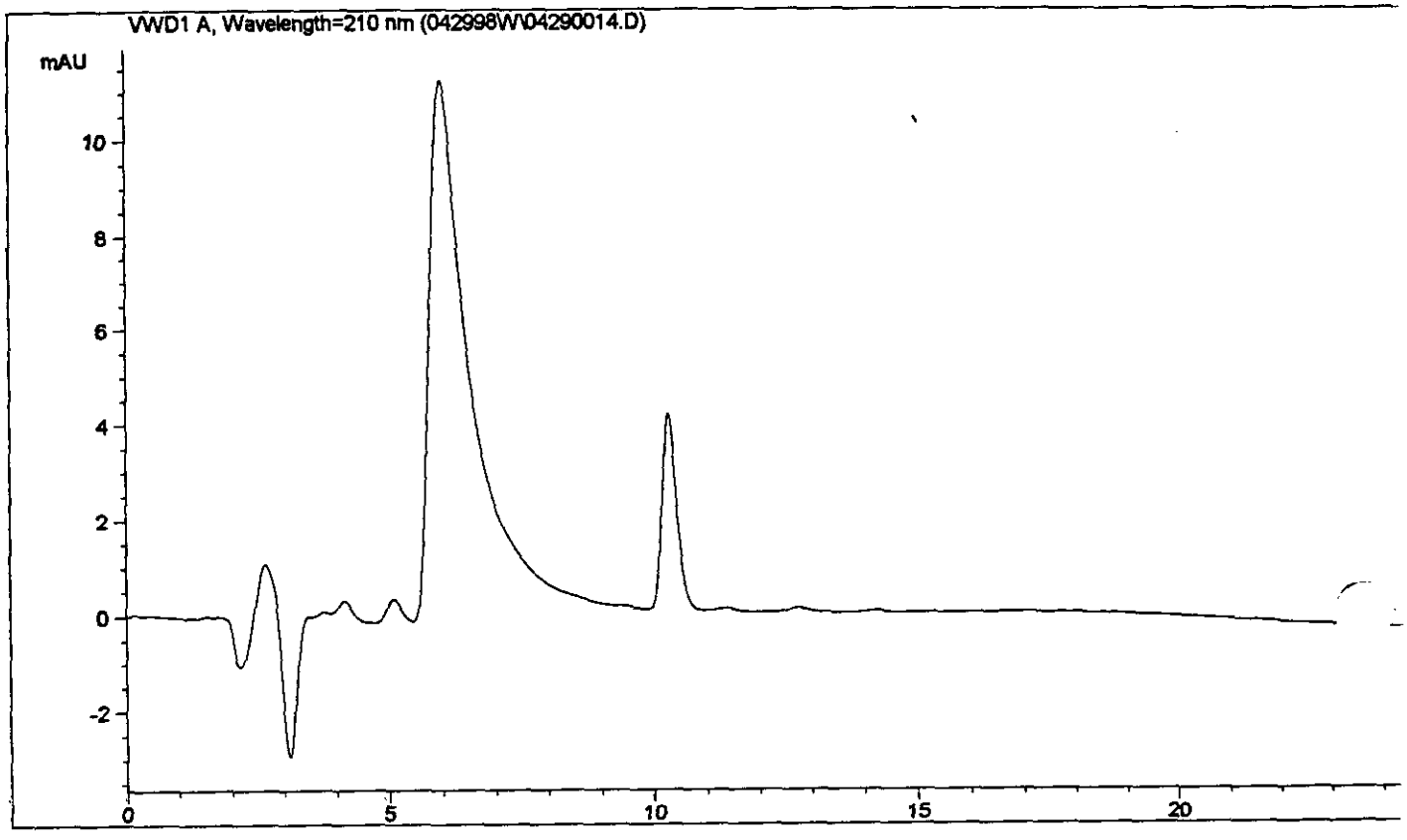
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-11-5	PETN----------	20.0	U

FORM I

Injection Date	: Thu, 30. Apr. 1998	Seq Line	: 14
Sample Name	: 33748.10	Vial No.	: 64
Acq Operator	: SS	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 042998W.M
Analysis Method : C:\HPCHEM\1\METHODS\042998W.M
Last Changed : Thu, 30. Apr. 1998, 01:28:48 pm

PETN



==========

Customized Report: extstd.frp

==========

Sorted By Signal
Calib. Data Modified : Thu, 30. Apr. 1998,01:28:49 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 ***

MORRISON KNUDSEN CORPORATION

CHAIN OF CUSTODY RECORD

MFA-009

720 Park Blvd., P.O. Box 73
Boise, Idaho 83729
(208) 386-5000

Project No.: 4329-0009-07-35

Project Name: NSWC Crane Biofacility

Samplers: (Signature)

Sampler: (Print) Ryan Erwin

Sample Type	Sampling Point Description	Sample Date	Time	Sample I.D. Number	Split Samples Yes	Split Samples No	8330 Explos.	6010, 7470 Jac	8260	Remarks
Soil	Grid 192 0-12" Comp	5/28/98	950	MFA ICS 582		✓	✓	✓		
	Grid 192 0-12" Comp		950	MFA ICS 582FD		✓	✓	✓		
	Grid 192 12" Grab		930	MFA ICS 583		✓			✓	
	Grid 192 24-36" Comp		1010	MFA ICS 584		✓	✓	✓		
	Grid 191 0-12" Comp		1040	MFA ICS 585		✓	✓	✓		
	Grid 191 12" Grab		1056	MFA ICS 586		✓			✓	
	Grid 191 24-36" Comp		1100	MFA ICS 587		✓	✓	✓		
	Grid 186 0-12" Comp		1325	MFA ICS 588		✓	✓	✓		
	Grid 186 12" Grab		1332	MFA ICS 589		✓			✓	
	Grid 186 24-36" Comp		1345	MFA ICS 590		✓	✓	✓		
	Grid 187 0-12" Comp		1415	MFA ICS 591		✓	✓	✓		MS/MSD
	Grid 187 12" Grab		1405	MFA ICS 592		✓			✓	
	Grid 187 24-36" Comp		1445	MFA ICS 593		✓	✓	✓		
	Grid 187 24-36" Comp		1445	MFA ICS 593FD		✓	✓	✓		
liquid	Rinse Blank		1500	MFA RC528		✓	✓	✓		
	Trip Blank		1510	MFA T 0528		✓			✓	
										South West Labs

Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:	Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:
	5/28/98 1600				
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. Hedon	Date/Time 5/29/98 9:30	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:

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2.WB1) / SWL-GA-115 Rev 5.0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA / AMERICAN ANALYTICAL & TECH. SRVS.

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): Sarah Hodson/ Charlene Miller

RECEIVED BY (SIGNATURE): S. Hodson

LOGGED IN BY (SIGNATURE): C. Miller

REC'D DATE: 5-29-98

TIME REC'D: 9:30

LOG-IN DATE: 5-29-98

PROJECT:	EPISODE:	SAMPLE DELIVERY GROUP:
NSWC CRANE	34162	34162

REMARKS:

1. CUSTODY SEAL(S): PRESENT / ABSENT; INTACT / BROKEN
2. CUSTODY SEALS NOS.: 2343; 2344
3. CHAIN - OF- CUSTODY, PRESENT / ABSENT
   SEALED IN PLASTIC? YES / NO
   TAPED TO LID? YES / NO
   PROPERLY FILLED OUT (INK, SIGNED, ETC.)? YES / NO
4. AIRBILL: AIRBILL / STICKER PRESENT / ABSENT
5. AIRBILL NO: 8008118248 13
6. COOLER CONDITIONS
   ENOUGH ICE? YES / NO
   TYPE OF ICE? Wet
   TYPE OF PACKING? Bubble
7. SAMPLE TAGS: PRESENT / ABSENT
8. SAMPLE CONDITION: INTACT / BROKEN* / LEAKING
   BOTTLES SEALED IN SEPARATE PLASTIC BAGS? YES / NO
   CORRECT CONTAINERS USED FOR FOR TESTS INDICATED ? YES / NO
   CORRECT PRESERVATIVE ? YES / NO
   SUFFICIENT SAMPLE ? YES / NO
   LABELS COMPLETE (I.D., DATE, TIME, SIGNATURE, PRESERVATIVE ? YES / NO — CM 5/29
   VOA SAMPLES WITHOUT BUBBLES ? YES / NO~
9. DOES INFORMATION ON CUSTODY RECORDS, LABELS, TAGS AGREE? YES / NO*
10. RAD SCREEN WITH GIEGER COUNTER? YES / NO
11. P.O. CALLED ? YES / NO

CLIENT SAMPLE #	SAMPLE FRACTION@	ASSIGNED LAB #	COOLER I.D.	pH CHECK	ACID / BASE LOT #:	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
MFATCS-582	B,M	01	MKF-OH 5-29-98-1			3.7°C
582FD	B,M	02				
583	V	03				
584	B,M	04				
585	B,M	05				
586	V	06				
587	B,M	07				
588	B,M	08				
589	V	09				Voa not labeled
590	B,M	10				
591		11				
591MS		12				
591MSD		13				
592	V	14				
593	B,M	15				
593FD	B,M	16				
MFAR0528	B,M	17				
MFAT0528	V	18				

* Contact PO and attach record of resolution

@ Sample Fractions: B= SV GC/MS, V= VOA GC/MS or GC , P=Pesticide,H=Herbicide, D= Dioxin, A=Air, I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany / Broken Arrow, Oklahoma 74012 / Office (918) 251-2858 / Fax (918) 251-2599

SDG NARRATIVE

CONTRACT: MKF-OH **DATE: 06/11/98**
CASE: 34162 **SOW NO.: SW846**
SDG: 34162 **EPISODE NO.: 34162**

INORGANIC METAL FRACTION:

Ten soil samples plus one MS/MSD were submitted for ICP and Hg analysis. No major problems occurred during the digestion or analyses of these samples. The samples' analyses were completed according to the following:

SWL SOP #	Method SOP is based
SWL-IN-205	SW846 3010A & 3050A
SWL-IN-209	SW846 6010A
SWL-IN-207	SW846 7470A & 7471A

Initial and Continuing Calibration Checks: No problems.

Initial and Continuing Calibration Blanks: The following elements showed low level concentrations below the Contract Required Detection Limit in the Calibration Blanks: Al, Cd, Pb, Ag, As, Se. No action required.

Linearity near the CRDL (CRA & CRI): The CRI standard was outside of our in-house warning limits of 70 - 130%R for the following element: Al. No action required.

Preparation Blanks: The following element showed low level concentrations below the Contract Required Detection Limit in the Preparation Blank: Pb. No action required.

Lab Control Spikes: No problems.

Matrix Spike (and MSD): The following elements were outside the control limits of 75-125% recovery: MFA-ICS-591S/Cr, Pb, Se; MFA-ICS-591M/Ba, Cr, Pb. All associated samples were flagged with a "N" on Form I's. No action required.

Duplicates (LCSD and MSD): The following elements were outside the control limits of 0-20% RPD: LCSSD/no problems; MFA-ICS-591M/Cr, Pb. All associated samples were flagged with a "*" on Form I's. No action required.

Serial Dilution (ICP): MFA-ICS-591L/no problems.

SW846 MDLs: The IDL column on the Form 10s contain our MDLs rather than IDLs and the CRDL column on the Form 10s contain our PQLS rather than CRDLs. MDLs are done on an annual basis (SWOK SOP states between November and February) instead of requiring the quarterly change needed for IDLs.

Sincerely,

Deborah J. Inman for...
Jason D. Ruckman
Inorganic Program Manager

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

INORGANICS CLP QUALIFIER FLAGS

B	The reported values was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL), if the analyte was analyzed for but not detected, a "U" must be entered.
E	The reported value is estimated because of the presence of interference. An explanatory note must be included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I - IN (if it is an isolated problem).
M	Duplicate injection precision not met.
N	Spike sample recovery not within control limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
W	Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance. (See Exhibit E.)
*	Duplicate analysis not within control limits.
+	Correlation coefficient for the MSA is less than 0.995.

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.:34162A

SOW No.: SW846__

Client Sample ID	Lab Sample ID
_MFAICS582____	_34162.01_____
_MFAICS582FD__	_34162.02_____
_MFAICS584____	_34162.04_____
_MFAICS585____	_34162.05_____
_MFAICS587____	_34162.07_____
_MFAICS588____	_34162.08_____
_MFAICS590____	_34162.10_____
_MFAICS591____	_34162.11_____
_MFAICS593____	_34162.15_____
_MFAICS593FD__	_34162.16_____
_MFAICS591S___	_34162.12S_____
_MFAICS591M___	_34162.13SD_____

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:
____BATCH_#'S:__ICP=980601I3
_____AV=980601HG3

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Deborah J. Inman Name: Deborah J. Inman for... Jason D. Ruckman

Date: June 11, 1998 Title: Inorganic Program Manager

1

INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

MFAICS582

Lab Name: SOUTHWEST_LAB_OF_OK Contract: MKF-OH
Lab Code: SWOK Case No.: 34162 SAS No.: SDG No.: 34162A
Matrix (soil/water): SOIL Lab Sample ID: 34162.01
Level (low/med): LOW Date Received: 05/29/98
% Solids: 82.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15500			P
7440-38-2	Arsenic	8.0			P
7440-39-3	Barium	92.2		N	P
7440-43-9	Cadmium	0.04	U		P
7440-47-3	Chromium	19.5		N*	P
7439-92-1	Lead	29.3		N*	P
7439-97-6	Mercury	0.04	U		AV
7782-49-2	Selenium	0.47	U	N	P
7440-22-4	Silver	0.14	U		P

Color Before: BROWN Clarity Before: Texture: MEDIUM
Color After: YELLOW Clarity After: Artifacts:

Comments:
CLIENT_ID = MFA-ICS-582

1

INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

MFAICS582FD

Lab Name: SOUTHWEST_LAB_OF_OK Contract: MKF-OH
Lab Code: SWOK Case No.: 34162 SAS No.: SDG No.: 34162A
Matrix (soil/water): SOIL Lab Sample ID: 34162.02
Level (low/med): LOW Date Received: 05/29/98
% Solids: 75.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	RPD for FD
7429-90-5	Aluminum	16800			P	8.05
7440-38-2	Arsenic	8.0			P	0
7440-39-3	Barium	100		N	P	8.12
7440-43-9	Cadmium	0.04	U		P	0
7440-47-3	Chromium	19.7		N*	P	1.02
7439-92-1	Lead	18.3		N*	P	46.2
7439-97-6	Mercury	0.04	U		AV	0
7782-49-2	Selenium	0.53	U	N	P	—
7440-22-4	Silver	0.16	U		P	—

Color Before: BROWN Clarity Before: Texture: MEDIUM
Color After: YELLOW Clarity After: Artifacts:

Comments:
CLIENT_ID = MFA-ICS-582FD

1

INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

MFAICS584

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____
Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A
Matrix (soil/water): SOIL_ Lab Sample ID: 34162.04
Level (low/med): LOW__ Date Received: 05/29/98
% Solids: _78.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	16500			P
7440-38-2	Arsenic__	8.4			P
7440-39-3	Barium___	73.7		N	P
7440-43-9	Cadmium__	0.04	U		P
7440-47-3	Chromium_	20.2		N*	P
7439-92-1	Lead____	14.2		N*	P
7439-97-6	Mercury__	0.04	U		AV
7782-49-2	Selenium_	0.50	U	N	P
7440-22-4	Silver___	0.15	U		P

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM
Color After: YELLOW___ Clarity After: _____ Artifacts: _____

Comments:
CLIENT_ID_=_MFA-ICS-584

1
INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

MFAICS585

Lab Name: SOUTHWEST_LAB_OF_OK Contract: MKF-OH
Lab Code: SWOK Case No.: 34162 SAS No.: SDG No.: 34162A
Matrix (soil/water): SOIL Lab Sample ID: 34162.05
Level (low/med): LOW Date Received: 05/29/98
% Solids: 79.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17800			P
7440-38-2	Arsenic	6.1			P
7440-39-3	Barium	65.3		N	P
7440-43-9	Cadmium	0.04	U		P
7440-47-3	Chromium	21.3		N*	P
7439-92-1	Lead	36.1		N*	P
7439-97-6	Mercury	0.04	U		AV
7782-49-2	Selenium	0.49	U	N	P
7440-22-4	Silver	0.15	U		P

Color Before: BROWN Clarity Before: Texture: MEDIUM
Color After: YELLOW Clarity After: Artifacts:

Comments:
CLIENT_ID = MFA-ICS-585

1

INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

MFAICS587

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____
Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A
Matrix (soil/water): SOIL_ Lab Sample ID: 34162.07
Level (low/med): LOW__ Date Received: 05/29/98
% Solids: _82.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	13200			P
7440-38-2	Arsenic__	3.8			P
7440-39-3	Barium___	57.3		N	P
7440-43-9	Cadmium__	0.04	U		P
7440-47-3	Chromium_	14.2		N*	P
7439-92-1	Lead____	11.6		N*	P
7439-97-6	Mercury__	0.04	U		AV
7782-49-2	Selenium_	0.47	U	N	P
7440-22-4	Silver___	0.14	U		P

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM
Color After: YELLOW___ Clarity After: _____ Artifacts: _____

Comments:
CLIENT_ID_=_MFA-ICS-587

1
INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

MFAICS588

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____
Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A
Matrix (soil/water): SOIL_ Lab Sample ID: 34162.08
Level (low/med): LOW__ Date Received: 05/29/98
% Solids: _84.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	11800			P
7440-38-2	Arsenic__	3.2			P
7440-39-3	Barium___	78.5		N	P
7440-43-9	Cadmium__	0.12	B		P
7440-47-3	Chromium_	20.4		N*	P
7439-92-1	Lead____	17.7		N*	P
7439-97-6	Mercury__	0.04	U		AV
7782-49-2	Selenium_	0.47	U	N	P
7440-22-4	Silver___	0.14	B		P

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM
Color After: YELLOW___ Clarity After: _____ Artifacts: _____

Comments:
CLIENT_ID_=_MFA-ICS-588

1

INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

MFAICS590

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____
Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A
Matrix (soil/water): SOIL_ Lab Sample ID: 34162.10
Level (low/med): LOW__ Date Received: 05/29/98
% Solids: _76.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	11900			P
7440-38-2	Arsenic__	6.8			P
7440-39-3	Barium___	101		N	P
7440-43-9	Cadmium__	0.47			P
7440-47-3	Chromium_	21.1		N*	P
7439-92-1	Lead_____	35.3		N*	P
7439-97-6	Mercury__	0.04	U		AV
7782-49-2	Selenium_	0.51	U	N	P
7440-22-4	Silver___	0.15	U		P

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM
Color After: YELLOW___ Clarity After: _____ Artifacts: _____

Comments:
CLIENT_ID_=_MFA-ICS-590

1
INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

MFAICS591

Lab Name: SOUTHWEST_LAB_OF_OK Contract: MKF-OH
Lab Code: SWOK Case No.: 34162 SAS No.: SDG No.: 34162A
Matrix (soil/water): SOIL Lab Sample ID: 34162.11
Level (low/med): LOW Date Received: 05/29/98
% Solids: 76.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14900			P
7440-38-2	Arsenic	4.2			P
7440-39-3	Barium	89.5		N	P
7440-43-9	Cadmium	0.04	U		P
7440-47-3	Chromium	26.2		N*	P
7439-92-1	Lead	27.1		N*	P
7439-97-6	Mercury	0.04	U		AV
7782-49-2	Selenium	0.52	U	N	P
7440-22-4	Silver	0.16	U		P

Color Before: BROWN Clarity Before: Texture: MEDIUM
Color After: YELLOW Clarity After: Artifacts:

Comments:
CLIENT_ID = MFA-ICS-591

1

INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

MFAICS593

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____
Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A
Matrix (soil/water): SOIL_ Lab Sample ID: 34162.15
Level (low/med): LOW__ Date Received: 05/29/98
% Solids: _81.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	15400			P
7440-38-2	Arsenic__	2.9			P
7440-39-3	Barium___	114		N	P
7440-43-9	Cadmium__	0.04	U		P
7440-47-3	Chromium_	25.7		N*	P
7439-92-1	Lead____	15.9		N*	P
7439-97-6	Mercury__	0.04	U		AV
7782-49-2	Selenium_	0.47	U	N	P
7440-22-4	Silver___	0.14	U		P

Color Before: BROWN____ Clarity Before: _____ Texture: MEDIUM
Color After: YELLOW___ Clarity After: _____ Artifacts: _____

Comments:
CLIENT_ID_=_MFA-ICS-593

1

INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

MFAICS593FD

Lab Name: SOUTHWEST_LAB_OF_OK Contract: MKF-OH
Lab Code: SWOK Case No.: 34162 SAS No.: SDG No.: 34162A
Matrix (soil/water): SOIL Lab Sample ID: 34162.16
Level (low/med): LOW Date Received: 05/29/98
% Solids: 82.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	RPD for FD
7429-90-5	Aluminum	13800			P	11.6
7440-38-2	Arsenic	2.3			P	23.1
7440-39-3	Barium	117		N	P	2.6
7440-43-9	Cadmium	0.04	U		P	0
7440-47-3	Chromium	23.7		N*	P	8.1
7439-92-1	Lead	14.7		N*	P	7.8
7439-97-6	Mercury	0.04	U		AV	0
7782-49-2	Selenium	0.47	U	N	P	0
7440-22-4	Silver	0.14	U		P	0

Color Before: BROWN Clarity Before: Texture: MEDIUM
Color After: YELLOW Clarity After: Artifacts:

Comments:
CLIENT_ID = MFA-ICS-593FD

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Initial Calibration Source: EPA-LV_____

Continuing Calibration Source: IN.VEN._____

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum	1000.0	1007.74	100.8	5000.0	5082.01	101.6	4933.06	98.7	P
Arsenic	250.0	254.11	101.6	500.0	494.49	98.9	492.72	98.5	P
Barium	1000.0	1006.56	100.7	500.0	492.12	98.4	492.27	98.5	P
Cadmium	125.0	121.64	97.3	500.0	487.38	97.5	482.59	96.5	P
Chromium	100.0	98.58	98.6	500.0	486.99	97.4	484.37	96.9	P
Lead	250.0	244.89	98.0	500.0	496.59	99.3	487.11	97.4	P
Mercury	4.1	3.91	95.4	5.0	5.50	110.0	5.29	105.8	AV
Selenium	250.0	243.30	97.3	500.0	496.60	99.3	486.73	97.3	P
Silver	125.0	124.69	99.8	500.0	486.86	97.4	485.92	97.2	P

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Initial Calibration Source: EPA-LV_____

Continuing Calibration Source: IN.VEN._____

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				5000.0	4932.80	98.7	5099.85	102.0	P
Arsenic				500.0	488.32	97.7	500.95	100.2	P
Barium				500.0	492.14	98.4	498.59	99.7	P
Cadmium				500.0	480.38	96.1	494.44	98.9	P
Chromium				500.0	483.26	96.7	494.71	98.9	P
Lead				500.0	488.02	97.6	502.15	100.4	P
Mercury				5.0	5.41	108.2	5.35	107.0	AV
Selenium				500.0	487.55	97.5	503.40	100.7	P
Silver				500.0	486.26	97.3	495.87	99.2	P

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Initial Calibration Source: EPA-LV_____

Continuing Calibration Source: IN.VEN._____

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									NR
Arsenic									NR
Barium									NR
Cadmium									NR
Chromium	100.0	98.31	98.3	500.0	503.01	100.6	505.20	101.0	P
Lead	250.0	241.66	96.7	500.0	503.45	100.7	503.57	100.7	P
Mercury				5.0	5.37	107.4	5.29	105.8	AV
Selenium	250.0	244.17	97.7	500.0	509.61	101.9	503.72	100.7	P
Silver									NR

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Initial Calibration Source: EPA-LV_____

Continuing Calibration Source: IN.VEN._____

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum									NR
Arsenic									NR
Barium									NR
Cadmium									NR
Chromium				500.0	506.20	101.2			P
Lead				500.0	504.46	100.9			P
Mercury									NR
Selenium				500.0	510.67	102.1			P
Silver									NR

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

AA CRDL Standard Source: PLASMACHEM__

ICP CRDL Standard Source: IN.VEN._____

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum				100.0	168.69	168.7	149.85	149.8
Arsenic				20.0	23.66	118.3	22.48	112.4
Barium				4.0	6.07	151.7	6.10	152.5
Cadmium				6.0	5.89	98.2	5.98	99.7
Chromium				10.0	9.86	98.6	10.30	103.0
Lead				6.0	6.08	101.3	5.81	96.8
Mercury	0.2	0.17	85.0					
Selenium				10.0	8.85	88.5	7.24	72.4
Silver				10.0	12.80	128.0	13.09	130.9

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

AA CRDL Standard Source: PLASMACHEM__

ICP CRDL Standard Source: IN.VEN._____

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
					Initial		Final	
	True	Found	%R	True	Found	%R	Found	%R
Aluminum								
Arsenic								
Barium								
Cadmium								
Chromium				10.0	11.33	113.3	11.85	118.5
Lead				6.0	6.14	102.3	6.19	103.2
Mercury								
Selenium				10.0	11.44	114.4	11.50	115.0
Silver								

3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Preparation Blank Matrix (soil/water): SOIL_

Preparation Blank Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	16.0	U	73.5	B	16.0	U	16.0	U	1.60	U	P
Arsenic	1.8	U	1.8	U	1.8	U	2.3	B	0.18	U	P
Barium	1.3	U	1.3	U	1.3	U	1.3	U	0.13	U	P
Cadmium	0.3	U	0.5	B	0.4	B	0.3	U	0.03	U	P
Chromium	0.8	U	0.8	U	0.8	U	0.8	U	0.08	U	P
Lead	1.4	U	1.4	B	1.4	U	1.4	U	0.14	B	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.03	U	AV
Selenium	4.0	U	4.0	U	4.0	U	4.0	U	0.40	U	P
Silver	1.2	U	1.2	U	1.2	B	1.2	U	0.12	U	P

3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum			53.7	B							P
Arsenic			1.8	U							P
Barium			1.3	U							P
Cadmium			0.3	U							P
Chromium			0.8	U							P
Lead			1.4	U							P
Mercury			0.2	U	0.2	U	0.2	U			AV
Selenium			4.0	U							P
Silver			1.2	U							P

3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum											NR
Arsenic											NR
Barium											NR
Cadmium											NR
Chromium	0.8	U	0.8	U	0.8	U	0.8	U			P
Lead	1.4	U	1.4	U	1.4	U	1.4	U			P
Mercury											NR
Selenium	4.4	B	4.0	U	4.1	B	4.0	U			P
Silver											NR

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No: _____ SDG No.: 34162A

ICP ID Number: TJA ET1_____ ICS Source: EPA-LV91____

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	Initial Found %R	Final Found Sol. A	Final Found Sol. AB	Final Found %R
Aluminum								
Arsenic								
Barium								
Cadmium								
Chromium	0	500	1	432.8	86.6	0	439.0	87.8
Lead	0	50	2	47.2	94.4	2	45.3	90.6
Mercury								
Selenium	0	50	5	49.2	98.4	4	49.1	98.2
Silver								

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No: _____ SDG No.: 34162A

ICP ID Number: TJA ET2_____ ICS Source: EPA-LV91____

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	500000	500000	465329	465204.3	93.0	463699	466979.8	93.4
Arsenic	0	100	2	91.9	91.9	-3	91.4	91.4
Barium	0	500	5	460.7	92.1	5	459.7	91.9
Cadmium	0	1000	-3	860.8	86.1	-3	851.6	85.2
Chromium	0	500	0	434.8	87.0	1	432.7	86.5
Lead	0	50	1	43.4	86.8	3	41.8	83.6
Mercury								
Selenium	0	50	-7	43.0	86.0	-6	43.0	86.0
Silver	0	200	0	186.0	93.0	0	185.7	92.8

5A
SPIKE SAMPLE RECOVERY

Client SAMPLE ID

MFAICS591M

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A
Matrix: __SOIL_____ Level (low/med): _LOW____
% Solids for Sample: _76.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum		16888.2370		14869.5108		249.31	809.7		P
Arsenic	75-125	13.6501		4.2274		9.97	94.5		P
Barium	75-125	411.5637		89.4519		249.31	129.2	N	P
Cadmium	75-125	5.7037		0.0389	U	6.23	91.6		P
Chromium	75-125	57.7686		26.2429		24.93	126.5	N	P
Lead	75-125	60.6654		27.0643		9.97	337.0	N	P
Mercury	75-125	0.2223		0.0416	U	0.21	105.9		AV
Selenium	75-125	7.7579		0.5184	U	9.97	77.8		P
Silver	75-125	6.2273		0.1555	U	6.23	100.0		P

Comments:
CLIENT_ID_=_MFA-ICS-591

5A
SPIKE SAMPLE RECOVERY

Client SAMPLE ID

MFAICS591S

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A
Matrix: __SOIL_____ Level (low/med): _LOW____
% Solids for Sample: _76.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum		14535.2574		14869.5108		249.31	-134.1		P
Arsenic	75-125	13.5997		4.2274		9.97	94.0		P
Barium	75-125	353.6801		89.4519		249.31	106.0		P
Cadmium	75-125	5.4772		0.0389	U	6.23	87.9		P
Chromium	75-125	88.1329		26.2429		24.93	248.3	N	P
Lead	75-125	167.5838		27.0643		9.97	1409.4	N	P
Mercury	75-125	0.2202		0.0416	U	0.21	104.9		AV
Selenium	75-125	7.2182		0.5184	U	9.97	72.4	N	P
Silver	75-125	5.6451		0.1555	U	6.23	90.6		P

Comments:
CLIENT_ID_=_MFA-ICS-591

5B
POST DIGEST SPIKE SAMPLE RECOVERY

Client SAMPLE ID

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____ MFAICS591A

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Matrix: ____SOIL_____ Level (low/med): LOW_____

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Added (SA)	%R	Q	M
Aluminum									NR
Arsenic									NR
Barium									NR
Cadmium									NR
Chromium		620.65		202.50		400.0	104.5		P
Lead		669.11		208.84		420.0	109.6		P
Mercury									NR
Selenium		17.51		4.00	U	10.0	175.1		P
Silver									NR

Comments:
CLIENT_ID_=_MFA-ICS-591

6
DUPLICATES

CLIENT SAMPLE ID

LCSSD

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: 100.0 % Solids for Duplicate: _100.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		175.0945		183.4358		4.7		P
Arsenic		7.2482		7.5972		4.7		P
Barium		24.1959		25.1647		3.9		P
Cadmium		4.4720		4.6585		4.1		P
Chromium		18.4023		19.2018		4.3		P
Lead		7.3340		7.5904		3.4		P
Mercury	0.0333	0.1667		0.1517		9.4		AV
Selenium		6.6327		6.8411		3.1		P
Silver	1.0000	4.4922		4.7666		5.9		P

6
DUPLICATES

CLIENT SAMPLE ID

MFAICS591M

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Matrix (soil/water): SOIL_ Level (low/med): _LOW__

% Solids for Sample: _76.4 % Solids for Duplicate: __76.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		14535.2574		16888.2370		15.0		P
Arsenic		13.5997		13.6501		0.4		P
Barium		353.6801		411.5637		15.1		P
Cadmium		5.4772		5.7037		4.1		P
Chromium		88.1329		57.7686		41.6	*	P
Lead		167.5838		60.6654		93.7	*	P
Mercury		0.2202		0.2223		0.9		AV
Selenium		7.2182		7.7579		7.2		P
Silver	1.2466	5.6451		6.2273		9.8		P

7

LABORATORY CONTROL SAMPLE

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Solid LCS Source: EPA0287_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				200.00	175.09		160.00	240.00	87.5
Arsenic				8.00	7.25		6.40	9.60	90.6
Barium				25.00	24.20		20.00	30.00	96.8
Cadmium				5.00	4.47		4.00	6.00	89.4
Chromium				20.00	18.40		16.00	24.00	92.0
Lead				8.00	7.33		6.40	9.60	91.6
Mercury				0.17	0.17		0.13	0.20	100.0
Selenium				8.00	6.63		6.40	9.60	82.9
Silver				5.00	4.49		4.00	6.00	89.8

7

LABORATORY CONTROL SAMPLE

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Solid LCS Source: EPA0287_____

Aqueous LCS Source: _____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum				200.00	183.44		160.00	240.00	91.7
Arsenic				8.00	7.60		6.40	9.60	95.0
Barium				25.00	25.16		20.00	30.00	100.6
Cadmium				5.00	4.66		4.00	6.00	93.2
Chromium				20.00	19.20		16.00	24.00	96.0
Lead				8.00	7.59		6.40	9.60	94.9
Mercury				0.17	0.15		0.13	0.20	91.0
Selenium				8.00	6.84		6.40	9.60	85.5
Silver				5.00	4.77		4.00	6.00	95.4

8

STANDARD ADDITION RESULTS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____

Lab Code: SWOK__ Case No.: 34162_ SAS No.:_____ SDG No.:34162A

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r	Q

9

ICP SERIAL DILUTION

Client SAMPLE ID

MFAICS591L

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

Matrix (soil/water): SOIL_ Level (low/med): LOW__

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Aluminum	114739.09		121110.81		5.6		P
Arsenic	32.62		33.74	B	3.4		P
Barium	690.25		730.26		5.8		P
Cadmium	0.30	U	1.50	U			P
Chromium	202.50		213.73		5.5		P
Lead	208.84		230.46		10.4		P
Mercury							NR
Selenium	4.00	U	20.00	U			P
Silver	1.20	U	6.00	U			P

10

Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____
Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A
ICP ID Number: TJA_ET1_____ Date: 03/20/98
Flame AA ID Number : _____
Furnace AA ID Number : _____

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			150		NR
Arsenic			10		NR
Barium			10		NR
Cadmium			3		NR
Chromium	267.72		5	0.8	P
Lead	220.35		3	1.4	P
Mercury			0.2		NR
Selenium	196.02		5	4.0	P
Silver			10		NR

Comments:

FORM X - IN

Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK
Lab Code: SWOK Case No.: 34162
ICP ID Number: TJA_ET2
Flame AA ID Number :
Furnace AA ID Number :

Contract: MKF-OH
SAS No.:
Date: 03/20/98
SDG No.: 34162A

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		150	16.0	P
Arsenic	189.04		10	1.8	P
Barium	493.41		10	1.3	P
Cadmium	267.72		3	0.3	P
Chromium	267.72		5	0.8	P
Lead	220.35		3	1.4	P
Mercury			0.2		NR
Selenium	196.03		5	4.0	P
Silver	328.07		10	1.2	P

Comments:

10

Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK Contract: MKF-OH
Lab Code: SWOK Case No.: 34162 SAS No.: SDG No.: 34162A
ICP ID Number: Date: 12/18/96
Flame AA ID Number : PS200B
Furnace AA ID Number :

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			150		NR
Arsenic			10		NR
Barium			10		NR
Cadmium			3		NR
Chromium			5		NR
Lead			3		NR
Mercury	254.00		0.2	0.2	AV
Selenium			5		NR
Silver			10		NR

Comments:

11A

ICP Interelement Correction Factors (Annually)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

ICP ID Number: TJA ET1_____ Date: 01/13/98

Analyte	Wave-length (nm)	Interelement Correction Factors for : Al	Ca	Fe	Mg	BI_
Aluminum_	308.21	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic__	189.04	0.0000000	0.0000000	-0.0000230	0.0000000	0.0000000
Barium___	493.41	0.0000000	0.0000000	0.0000440	0.0000000	0.0000000
Cadmium__	226.50	0.0000000	0.0000000	0.0001140	0.0000000	0.0000000
Chromium_	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead_____	220.35	0.0004460	0.0000000	0.0001000	0.0000000	-0.0011430
Mercury__						
Selenium_	196.02	0.0000000	0.0000000	-0.0001000	0.0000000	0.0000000
Silver___	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

11B

ICP Interelement Correction Factors (Annually)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

ICP ID Number: TJA ET1_____ Date: 01/13/98

Analyte	Wave-length (nm)	Interelement Correction Factors for :				
		CO_	CR_	CU_	MN_	MO_
Aluminum	308.21	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic	189.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0007340
Barium	493.41	-0.0007300	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	-0.0001430	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0002250	0.0000000
Lead	220.35	-0.0016270	0.0000000	0.0000000	0.0000000	-0.0006490
Mercury						
Selenium	196.02	0.0000000	0.0000000	0.0000000	0.0004530	0.0000000
Silver	328.07	0.0000000	0.0005060	0.0003560	0.0000000	-0.0005680

Comments:

11B
ICP Interelement Correction Factors (Annually)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

ICP ID Number: TJA ET1_____ Date: 01/13/98

Analyte	Wave-length (nm)	Interelement Correction Factors for : NI_	SB_	SC_	SN_	TI_
Aluminum	308.21	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic	189.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.41	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.35	0.0002660	0.0000000	0.0000000	0.0000000	-0.0004910
Mercury						
Selenium	196.02	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0007790	0.0000000	0.0000000

Comments:

11B
ICP Interelement Correction Factors (Annually)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

ICP ID Number: TJA ET1_____ Date: 01/13/98

Analyte	Wave-length (nm)	Interelement Correction Factors for : TL_	U__	V__	W__	ZN_
Aluminum_	308.21__	0.0000000	0.0000000	0.0221230	0.0000000	0.0000000
Arsenic__	189.04__	0.0000000	0.0000000	0.0000000	-0.0017530	0.0000000
Barium___	493.41__	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium__	226.50__	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium_	267.72__	0.0000000	0.0004820	0.0000000	0.0005590	0.0000000
Lead_____	220.35__	0.0000000	0.0006940	-0.0005550	-0.0007320	0.0000000
Mercury__						
Selenium_	196.02__	0.0000000	0.0000000	0.0000000	0.0091790	0.0000000
Silver___	328.07__	0.0000000	0.0025270	-0.0000960	0.0000000	0.0000000

Comments:

11A
ICP Interelement Correction Factors (Annually)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

ICP ID Number: TJA ET2_____ Date: 01/09/98

Analyte	Wave-length (nm)	Interelement Correction Factors for : Al	Ca	Fe	Mg	BA_
Aluminum_	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic__	189.04	0.0000000	0.0000000	-0.0000310	0.0000000	0.0000000
Barium___	493.41	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium__	267.72	0.0000000	0.0000000	0.0000770	0.0000000	0.0000000
Chromium_	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead_____	220.35	0.0006490	0.0000000	0.0000530	0.0000000	0.0000000
Mercury__						
Selenium_	196.03	0.0000000	0.0000000	-0.0000310	0.0000000	0.0000000
Silver___	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

11B
ICP Interelement Correction Factors (Annually)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

ICP ID Number: TJA ET2_____ Date: 01/09/98

Analyte	Wave-length (nm)	Interelement Correction Factors for : CO_	CR_	CU_	MN_	NI_
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic	189.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.41	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	267.72	-0.0000800	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0003370	0.0000000
Lead	220.35	-0.0006220	0.0000000	0.0000000	0.0000000	0.0002760
Mercury						
Selenium	196.03	0.0004010	0.0000000	0.0000000	0.0008230	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

11B
ICP Interelement Correction Factors (Annually)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

ICP ID Number: TJA ET2_____ Date: 01/09/98

Analyte	Wave-length (nm)	Interelement Correction Factors for : SC_	SN_	TI_	TL_	V__
Aluminum_	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0159360
Arsenic__	189.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium___	493.41	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium__	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium_	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead_____	220.35	0.0000000	0.0000000	0.0000000	0.0000000	-0.0002030
Mercury__						
Selenium_	196.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0002840
Silver___	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

12

ICP Linear Ranges (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

ICP ID Number: TJA ET1_____ Date: 04/10/98

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	15.00	600000.0	P
Arsenic	15.00	30000.0	P
Barium	15.00	20000.0	P
Cadmium	15.00	30000.0	P
Chromium	15.00	60000.0	P
Lead	15.00	60000.0	P
Mercury			NR
Selenium	15.00	30000.0	P
Silver	15.00	30000.0	P

Comments:

12

ICP Linear Ranges (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162A

ICP ID Number: TJA ET2_____ Date: 04/17/98

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	15.00	600000.0	P
Arsenic	15.00	30000.0	P
Barium	15.00	40000.0	P
Cadmium	15.00	10000.0	P
Chromium	15.00	10000.0	P
Lead	15.00	60000.0	P
Mercury			NR
Selenium	15.00	60000.0	P
Silver	15.00	60000.0	P

Comments:

13

PREPARATION LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.:_34162 SAS No.: _____ SDG No.:34162A

Method: P_

Client Sample No.	Prep Date	Weight (gram)	Volume (mL)
LCSS	06/01/98	1.00	100
LCSSD	06/01/98	1.00	100
MFAICS582	06/01/98	1.04	100
MFAICS582FD	06/01/98	1.01	100
MFAICS584	06/01/98	1.01	100
MFAICS585	06/01/98	1.04	100
MFAICS587	06/01/98	1.03	100
MFAICS588	06/01/98	1.00	100
MFAICS590	06/01/98	1.02	100
MFAICS591	06/01/98	1.01	100
MFAICS591M	06/01/98	1.05	100
MFAICS591S	06/01/98	1.05	100
MFAICS593	06/01/98	1.03	100
MFAICS593FD	06/01/98	1.03	100
PBS	06/01/98	1.00	100

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PREPARATION LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.:_34162 SAS No.: _____ SDG No.:34162A

Method: AV

Client Sample No.	Prep Date	Weight (gram)	Volume (mL)
LCSS	06/01/98	0.60	100
LCSSD	06/01/98	0.60	100
MFAICS582	06/01/98	0.64	100
MFAICS582FD	06/01/98	0.64	100
MFAICS584	06/01/98	0.62	100
MFAICS585	06/01/98	0.61	100
MFAICS587	06/01/98	0.60	100
MFAICS588	06/01/98	0.60	100
MFAICS590	06/01/98	0.63	100
MFAICS591	06/01/98	0.63	100
MFAICS591M	06/01/98	0.63	100
MFAICS591S	06/01/98	0.63	100
MFAICS593	06/01/98	0.61	100
MFAICS593FD	06/01/98	0.60	100
PBS	06/01/98	0.60	100

ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162_ SAS No.: _____ SDG No.:34162A

Instrument ID Number: TJA ET2_____ Method: P_

Start Date: 06/01/98 End Date: 06/02/98

Client Sample No.	D/F	Time	% R	Analytes																						
				AL	AS	BA	CD	CR	PB	HG	SE	AG														
S0	1	2215		X	X	X	X	X	X		X	X														
S	1	2221		X	X	X	X	X	X		X	X														
ICV	1	2227		X	X	X	X	X	X		X	X														
ICB	1	2233		X	X	X	X	X	X		X	X														
CRI	1	2238		X	X	X	X	X	X		X	X														
ICSA	1	2244		X	X	X	X	X	X		X	X														
ICSAB	1	2250		X	X	X	X	X	X		X	X														
CCV	1	2255		X	X	X	X	X	X		X	X														
CCB	1	2301		X	X	X	X	X	X		X	X														
PBS	1	2307		X	X	X	X	X	X		X	X														
LCSS	1	2312		X	X	X	X	X	X		X	X														
LCSSD	1	2318		X	X	X	X	X	X		X	X														
MFAICS582	1	2324		X	X	X	X	X	X		X	X														
MFAICS582FD	1	2330		X	X	X	X	X	X		X	X														
MFAICS584	1	2335		X	X	X	X	X	X		X	X														
MFAICS585	1	2341		X	X	X	X	X	X		X	X														
MFAICS587	1	2347		X	X	X	X	X	X		X	X														
MFAICS588	1	2352		X	X	X	X	X	X		X	X														
ZZZZZZ	1	2358																								
CCV	1	0004		X	X	X	X	X	X		X	X														
CCB	1	0009		X	X	X	X	X	X		X	X														
MFAICS590	1	0015		X	X	X	X	X	X		X	X														
MFAICS591	1	0021		X	X	X	X	X	X		X	X														
MFAICS591S	1	0027		X	X	X	X	X	X		X	X														
MFAICS591M	1	0032		X	X	X	X	X	X		X	X														
MFAICS591L	5	0040		X	X	X	X	X	X		X	X														
MFAICS593	1	0046		X	X	X	X	X	X		X	X														
MFAICS593FD	1	0052		X	X	X	X	X	X		X	X														
ZZZZZZ	1	0057																								
ZZZZZZ	1	0103																								
ZZZZZZ	1	0109																								
CCV	1	0114		X	X	X	X	X	X		X	X														

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14

ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162_ SAS No.: _____ SDG No.:34162A

Instrument ID Number: TJA ET2_____ Method: P_

Start Date: 06/01/98 End Date: 06/02/98

Client Sample No.	D/F	Time	% R	Analytes																						
				AL	AS	BA	CD	CR	PB	HG	SE	AG														
CCB	1	0120		X	X	X	X	X	X		X	X														
ZZZZZZ	1	0126																								
ZZZZZZ	1	0132																								
ZZZZZZ	1	0137																								
ZZZZZZ	1	0145																								
CRI	1	0151		X	X	X	X	X	X		X	X														
ICSA	1	0157		X	X	X	X	X	X		X	X														
ICSAB	1	0202		X	X	X	X	X	X		X	X														
CCV	1	0208		X	X	X	X	X	X		X	X														
CCB	1	0214		X	X	X	X	X	X		X	X														

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04

ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162_ SAS No.: _____ SDG No.:34162

Instrument ID Number: TJA ET1_____ Method: P_

Start Date: 06/08/98 End Date: 06/08/98

Client Sample No.	D/F	Time	% R	Analytes																				
				AL	AS	BA	CD	CR	PB	HG	SE	AG												
S0	1	1708						X	X		X													
S	1	1713						X	X		X													
ICV	1	1719						X	X		X													
ICB	1	1724						X	X		X													
CRI	1	1729						X	X		X													
ICSA	1	1735						X	X		X													
ICSAB	1	1740						X	X		X													
CCV	1	1746						X	X		X													
CCB	1	1751						X	X		X													
MFAICS591A	1	1756						X	X		X													
ZZZZZ	1	1803																						
ZZZZ	1	1808																						
ZZZZZ	1	1814																						
ZZZZZZ	1	1819																						
ZZZZZZ	1	1824																						
ZZZZZZ	1	1830																						
ZZZZZZ	1	1835																						
ZZZZZZ	1	1841																						
ZZZZZZ	1	1846																						
CCV	1	1851						X	X		X													
CCB	1	1857						X	X		X													
ZZZZZZ	1	1902																						
ZZZZZZ	1	1907																						
ZZZZZZ	1	1913																						
CRI	1	1921						X	X		X													
ICSA	1	1926						X	X		X													
ICSAB	1	1932						X	X		X													
CCV	1	1937						X	X		X													
CCB	1	1942						X	X		X													

FORM XIV - IN

14

ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162_ SAS No.: _____ SDG No.:34162A

Instrument ID Number: PS200B_____ Method: AV

Start Date: 06/01/98 End Date: 06/01/98

Client Sample No.	D/F	Time	% R	Analytes																						
				AL	AS	BA	CD	CR	PB	HG	SE	AG														
S0	1	1046								X																
S0.2	1	1048								X																
S0.5	1	1051								X																
S1	1	1054								X																
S5	1	1057								X																
S10	1	1059								X																
ICV	1	1103								X																
ICB	1	1106								X																
CRA	1	1109								X																
CCV	1	1111								X																
CB	1	1114								X																
ZZZZZ	1	1128																								
ZZZZZ	1	1131																								
ZZZZZ	1	1133																								
ZZZZZ	1	1136																								
ZZZZZ	1	1139																								
ZZZZZ	1	1141																								
ZZZZZ	1	1144																								
ZZZZZ	1	1146																								
ZZZZZ	1	1149																								
ZZZZZ	1	1152																								
CCV	1	1154								X																
CCB	1	1157								X																
ZZZZZ	1	1200																								
ZZZZZ	1	1202																								
ZZZZZ	1	1205																								
ZZZZZ	1	1208																								
ZZZZZ	1	1210																								
ZZZZZ	1	1213																								
ZZZZZ	1	1216																								
ZZZZZ	1	1218																								
ZZZZZ	1	1221																								

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ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162_ SAS No.: _____ SDG No.:34162A

Instrument ID Number: PS200B_____ Method: AV

Start Date: 06/01/98 End Date: 06/01/98

Client Sample No.	D/F	Time	% R	Analytes																							
				AL	AS	BA	CD	CR	PB	HG	SE	AG															
ZZZZZZ	1	1224																									
CCV	1	1226								X																	
CCB	1	1229								X																	
ZZZZZZ	1	1232																									
ZZZZZZ	1	1234																									
ZZZZZZ	1	1237																									
ZZZZZZ	1	1240																									
PBS	1	1242								X																	
LCSS	1	1245								X																	
LCSSD	1	1247								X																	
ZZZZZZ	1	1250																									
ZZZZZZ	1	1253																									
ZZZZZZ	1	1255																									
CCV	1	1258								X																	
CCB	1	1301								X																	
ZZZZZZ	1	1303																									
MFAICS582	1	1306								X																	
MFAICS582FD	1	1309								X																	
MFAICS584	1	1311								X																	
MFAICS585	1	1314								X																	
MFAICS587	1	1317								X																	
MFAICS588	1	1319								X																	
MFAICS590	1	1322								X																	
MFAICS591	1	1325								X																	
MFAICS591S	1	1328								X																	
CCV	1	1330								X																	
CCB	1	1333								X																	
MFAICS591M	1	1336								X																	
MFAICS593	1	1338								X																	
MFAICS593FD	1	1341								X																	
ZZZZZZ	1	1344																									
CCV	1	1346								X																	

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14

ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162_ SAS No.: _____ SDG No.:34162A

Instrument ID Number: PS200B_____ Method: AV

Start Date: 06/01/98 End Date: 06/01/98

Client Sample No.	D/F	Time	% R	Analytes																							
				AL	AS	BA	CD	CR	PB	HG	SE	AG															
CCB	1	1349								X																	

FORM XIV - IN

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany / Broken Arrow, Oklahoma 74012 / Office (918) 251-2858 / Fax (918) 251-2599

SDG NARRATIVE

CONTRACT: MKF-OH **DATE: 06/09/98**
CASE: 34162 **SOW NO.: SW846**
SDG: 34162B **EPISODE NO.: 34162**

Rinse Blank

INORGANIC METAL FRACTION:

One water sample was submitted for ICP and Hg analysis. No major problems occurred during the digestion or analyses of this sample. The sample's analyses were completed according to the following:

SWL SOP #	Method SOP is based
SWL-IN-205	SW846 3010A & 3050A
SWL-IN-209	SW846 6010A
SWL-IN-207	SW846 7470A & 7471A

Initial and Continuing Calibration Checks: No problems.

Initial and Continuing Calibration Blanks: The following element showed low level concentrations below the Contract Required Detection Limit in the Calibration Blanks: Al. No action required.

Linearity near the CRDL (CRA & CRI): No problems.

Preparation Blanks: The following element showed low level concentrations below the Contract Required Detection Limit in the Preparation Blank: Al. No action required.

Lab Control Spikes: No problems.

Matrix Spike (and MSD): Hg only/no problems.

Duplicate (LCSD and MSD): Hg only/no problems.

SW846 MDLs: The IDL column on the Form 10s contain our MDLs rather than IDLs and the CRDL column on the Form 10s contain our PQLS rather than CRDLs. MDLs are done on an annual basis (SWOK SOP states between November and February) instead of requiring the quarterly change needed for IDLs.

Sincerely,

Deborah J. Inman for...
Jason D. Ruckman
Inorganic Program Manager

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 West Albany • Broken Arrow, Oklahoma 74012 • Office (918) 251-2858 • Fax (918) 251-2599

INORGANICS CLP QUALIFIER FLAGS

B	The reported values was obtained from a reading that was less than the Contract Required Detection Limit (CRDL) but greater than or equal to the Instrument Detection Limit (IDL), if the analyte was analyzed for but not detected, a "U" must be entered.
E	The reported value is estimated because of the presence of interference. An explanatory note must be included under Comments on the Cover Page (if the problem applies to all samples) or on the specific FORM I - IN (if it is an isolated problem).
M	Duplicate injection precision not met.
N	Spike sample recovery not within control limits.
S	The reported value was determined by the Method of Standard Additions (MSA).
W	Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance. (See Exhibit E.)
*	Duplicate analysis not within control limits.
+	Correlation coefficient for the MSA is less than 0.995.

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.:34162B

SOW No.: 3/90___

Client Sample ID	Lab Sample ID
_MFAR0528_____	_34162.17_____
_MFAR0528S____	_34162.17S_____
_MFAR0528M____	_34162.17SD_____

Were ICP interelement corrections applied ? Yes/No **YES**

Were ICP background corrections applied ? Yes/No **YES**
If yes - were raw data generated before application of background corrections ? Yes/No **NO_**

Comments:
____BATCH_#:__ICP=980601I1_____
_____AV=980601HG1_____

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: Deborah J. Inman for... Jason D. Ruckman

Date: June 9, 1998 Title: Inorganic Program Manager

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INORGANIC ANALYSES DATA SHEET

CLIENT SAMPLE ID

MFAR0528

Lab Name: SOUTHWEST_LAB_OF_OK Contract: MKF-OH
Lab Code: SWOK Case No.: 34162 SAS No.: SDG No.: 34162B
Matrix (soil/water): WATER Lab Sample ID: 34162.17
Level (low/med): LOW Date Received: 05/29/98
% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	65.5	B		P
7440-38-2	Arsenic	2.9	U		P
7440-39-3	Barium	3.3	B		P
7440-43-9	Cadmium	0.30	U		P
7440-47-3	Chromium	0.70	U		P
7439-92-1	Lead	2.1	B		P
7439-97-6	Mercury	0.10	U		AV
7782-49-2	Selenium	3.1	U		P
7440-22-4	Silver	1.4	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 3416

Initial Calibration Source: EPA-LV_____

Continuing Calibration Source: IN.VEN._____

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	
Aluminum	1000.0	971.94	97.2	5000.0	5083.93	101.7	5019.75	100.4	P
Arsenic	250.0	242.95	97.2	500.0	501.41	100.3	509.85	102.0	P
Barium	1000.0	971.77	97.2	500.0	500.98	100.2	505.87	101.2	P
Cadmium	125.0	117.69	94.2	500.0	497.36	99.5	502.77	100.6	P
Chromium	100.0	95.47	95.5	500.0	495.22	99.0	499.01	99.8	P
Lead	250.0	238.35	95.3	500.0	498.04	99.6	504.43	100.9	P
Mercury	4.1	3.91	95.4	5.0	5.50	110.0	5.29	105.8	A
Selenium	250.0	240.03	96.0	500.0	499.29	99.9	502.90	100.6	P
Silver	125.0	120.71	96.6	500.0	494.17	98.8	496.61	99.3	P

2A

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162B

Initial Calibration Source: EPA-LV_____

Continuing Calibration Source: IN.VEN._____

Concentration Units: ug/L

Analyte	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(1)	Continuing Calibration Found	Continuing Calibration %R(1)	M
Aluminum				5000.0	4950.81	99.0	4992.42	99.8	P
Arsenic				500.0	500.59	100.1	494.34	98.9	P
Barium				500.0	500.86	100.2	493.59	98.7	P
Cadmium				500.0	498.14	99.6	491.54	98.3	P
Chromium				500.0	492.47	98.5	486.63	97.3	P
Lead				500.0	503.86	100.8	497.97	99.6	P
Mercury									NR
Selenium				500.0	499.61	99.9	493.95	98.8	P
Silver				500.0	492.80	98.6	487.57	97.5	P

2B
CRDL STANDARD FOR AA AND ICP

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162B

AA CRDL Standard Source: PLASMACHEM__

ICP CRDL Standard Source: IN.VEN._____

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
	True	Found	%R	True	Initial Found	%R	Final Found	%R
Aluminum				160.0	158.32	98.9	160.14	100.1
Arsenic				20.0	17.29	86.4	21.87	109.3
Barium				6.0	5.93	98.8	6.02	100.3
Cadmium				6.0	5.77	96.2	6.00	100.0
Chromium				10.0	8.97	89.7	10.19	101.9
Lead				6.0	5.89	98.2	5.24	87.3
Mercury	0.2	0.17	85.0					
Selenium				10.0	10.90	109.0	8.63	86.3
Silver				14.0	12.66	90.4	13.49	96.4

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BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162B

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	M
Aluminum	17.0	U	17.0	U	17.0	U	17.0	U	39.57	B	P
Arsenic	2.9	U	2.9	U	2.9	U	2.9	U	2.90	U	P
Barium	0.6	U	0.6	U	0.6	U	0.6	U	0.60	U	P
Cadmium	0.3	U	0.3	U	0.3	U	0.3	U	0.30	U	P
Chromium	0.7	U	0.7	U	0.7	U	0.7	U	0.70	U	P
Lead	1.5	U	1.5	U	1.5	U	1.5	U	1.50	U	P
Mercury	0.1	U	0.1	U	0.1	U			0.10	U	AV
Selenium	3.1	U	3.1	U	3.1	U	3.1	U	3.10	U	P
Silver	1.4	U	1.4	U	1.4	U	1.4	U	1.40	U	P

3
BLANKS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162

Preparation Blank Matrix (soil/water): _____

Preparation Blank Concentration Units (ug/L or mg/kg): _____

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank	C	
Aluminum			20.1	B							P
Arsenic			2.9	U							P
Barium			0.6	U							P
Cadmium			0.3	U							P
Chromium			0.7	U							P
Lead			1.5	U							P
Mercury											N
Selenium			3.1	U							P
Silver			1.4	U							P

4

ICP INTERFERENCE CHECK SAMPLE

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No: _____ SDG No.: 34162B

ICP ID Number: TJA ET2_____ ICS Source: EPA-LV91____

Concentration Units: ug/L

Analyte	True Sol. A	True Sol. AB	Initial Found Sol. A	Initial Found Sol. AB	%R	Final Found Sol. A	Final Found Sol. AB	%R
Aluminum	500000	500000	474484	476098.5	95.2	477613	478295.5	95.7
Arsenic	0	100	4	95.5	95.5	4	95.2	95.2
Barium	0	500	5	465.8	93.2	5	470.5	94.1
Cadmium	0	1000	-4	871.9	87.2	-4	878.9	87.9
Chromium	0	500	0	440.3	88.1	0	441.9	88.4
Lead	0	50	2	44.3	88.6	3	47.1	94.2
Mercury								
Selenium	0	50	-2	48.4	96.8	-1	48.3	96.6
Silver	0	200	-1	187.2	93.6	0	187.9	93.9

5A
SPIKE SAMPLE RECOVERY

Client SAMPLE ID

MFAR0528M

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162B
Matrix: __WATER_____ Level (low/med): _LOW____
% Solids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Arsenic									NR
Barium									NR
Cadmium									NR
Chromium									NR
Lead									NR
Mercury	75-125	0.7870		0.1000	U	1.00	78.7		AV
Selenium									NR
Silver									NR

Comments:

5A
SPIKE SAMPLE RECOVERY

Client SAMPLE ID

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____ MFAR0528S

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162B
Matrix: __WATER_____ Level (low/med): _LOW____
% Solids for Sample: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Aluminum									NR
Arsenic									NR
Barium									NR
Cadmium									NR
Chromium									NR
Lead									NR
Mercury	75-125	0.8030		0.1000	U	1.00	80.3		AV
Selenium									NR
Silver									NR

Comments:

6
DUPLICATES

CLIENT SAMPLE ID

LCSWD

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162E

Matrix (soil/water): WATER Level (low/med): _LOW_

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		2021.7010		1951.9070		3.5		P
Arsenic	60.0	81.0120		77.2890		4.7		P
Barium		250.2390		244.8320		2.2		P
Cadmium		48.9480		47.6690		2.6		P
Chromium		197.8470		193.5900		2.2		P
Lead		79.2650	B	77.4560	B	2.3		P
Mercury	0.2	0.9080		0.8290		9.1		AV
Selenium		75.6800	B	75.2190	B	0.6		P
Silver	10.0	49.7090		48.2960		2.9		P

6
DUPLICATES

CLIENT SAMPLE ID

MFAR0528M

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162B

Matrix (soil/water): WATER Level (low/med): _LOW__

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum								NR
Arsenic								NR
Barium								NR
Cadmium								NR
Chromium								NR
Lead								NR
Mercury	0.2	0.8030		0.7870		2.0		AV
Selenium								NR
Silver								NR

LABORATORY CONTROL SAMPLE

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162B

Solid LCS Source: _____

Aqueous LCS Source: EPA0392_____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	2000.0	2021.7	101.1						
Arsenic	80.0	81.0	101.3						
Barium	250.0	250.2	100.1						
Cadmium	50.0	48.9	97.9						
Chromium	200.0	197.8	98.9						
Lead	80.0	79.3	99.1						
Mercury	1.0	0.9	91.0						
Selenium	80.0	75.7	94.6						
Silver	50.0	49.7	99.4						

LABORATORY CONTROL SAMPLE

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162B

Solid LCS Source: _____

Aqueous LCS Source: EPA0392_____

Analyte	Aqueous (ug/L) True	Found	%R	Solid (mg/kg) True	Found	C	Limits		%R
Aluminum	2000.0	1951.9	97.6						
Arsenic	80.0	77.3	96.6						
Barium	250.0	244.8	97.9						
Cadmium	50.0	47.7	95.3						
Chromium	200.0	193.6	96.8						
Lead	80.0	77.5	96.8						
Mercury	1.0	0.8	83.0						
Selenium	80.0	75.2	94.0						
Silver	50.0	48.3	96.6						

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STANDARD ADDITION RESULTS

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract:MKF-OH____

Lab Code: SWOK__ Case No.: 34162_ SAS No.:_____ SDG No.:34162

Concentration Units: ug/L

EPA Sample No.	An	0 ADD ABS	1 ADD CON	1 ADD ABS	2 ADD CON	2 ADD ABS	3 ADD CON	3 ADD ABS	Final Conc.	r

10

Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK Contract: MKF-OH
Lab Code: SWOK Case No.: 34162 SAS No.: SDG No.: 34162B
ICP ID Number: TJA_ET2 Date: 03/20/98
Flame AA ID Number :
Furnace AA ID Number :

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum	308.22		100	17.0	P
Arsenic	189.04		60	2.9	P
Barium	445.40		10	0.6	P
Cadmium	226.50		5	0.3	P
Chromium	267.72		10	0.7	P
Lead	220.35		100	1.5	P
Mercury			0.2		NR
Selenium	196.03		250	3.1	P
Silver	328.07		10	1.4	P

Comments:

FORM X - IN

10

Instrument Detection Limits (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK
Lab Code: SWOK Case No.: 34162
ICP ID Number:
Flame AA ID Number : PS200B
Furnace AA ID Number :

Contract: MKF-OH
SAS No.:
Date: 12/18/96
SDG No.: 34162B

Analyte	Wave-length (nm)	Back-ground	CRDL (ug/L)	IDL (ug/L)	M
Aluminum			100		NR
Arsenic			60		NR
Barium			10		NR
Cadmium			5		NR
Chromium			10		NR
Lead			100		NR
Mercury	254.00		0.2	0.1	AV
Selenium			250		NR
Silver			10		NR

Comments:

FORM X - IN

11A
ICP Interelement Correction Factors (Annually)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162B

ICP ID Number: TJA ET2_____ Date: 01/09/98

Analyte	Wave-length (nm)	Interelement Correction Factors for : Al	Ca	Fe	Mg	BA_
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic	189.04	0.0000000	0.0000000	-0.0000310	0.0000000	0.0000000
Barium	445.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.50	0.0000000	0.0000000	0.0000770	0.0000000	0.0000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.35	0.0006490	0.0000000	0.0000530	0.0000000	0.0000000
Mercury						
Selenium	196.03	0.0000000	0.0000000	-0.0000310	0.0000000	0.0000000
Silver	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

11B

ICP Interelement Correction Factors (Annually)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162B

ICP ID Number: TJA ET2_____ Date: 01/09/98

Analyte	Wave-length (nm)	Interelement Correction Factors for : CO_	CR_	CU_	MN_	NI_
Aluminum	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.000000
Arsenic	189.04	0.0000000	0.0000000	0.0000000	0.0000000	0.000000
Barium	445.40	0.0000000	0.0000000	0.0000000	0.0000000	0.000000
Cadmium	226.50	-0.0000800	0.0000000	0.0000000	0.0000000	0.000000
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0003370	0.000000
Lead	220.35	-0.0006220	0.0000000	0.0000000	0.0000000	0.000276
Mercury						
Selenium	196.03	0.0004010	0.0000000	0.0000000	0.0008230	0.000000
Silver	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.000000

Comments:

11B

ICP Interelement Correction Factors (Annually)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162B

ICP ID Number: TJA ET2_____ Date: 01/09/98

Analyte	Wave-length (nm)	Interelement Correction Factors for : SC_	SN_	TI_	TL_	V__
Aluminum_	308.22	0.0000000	0.0000000	0.0000000	0.0000000	0.0159360
Arsenic__	189.04	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium___	445.40	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium__	226.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium_	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead_____	220.35	0.0000000	0.0000000	0.0000000	0.0000000	-0.0002030
Mercury__						
Selenium_	196.03	0.0000000	0.0000000	0.0000000	0.0000000	0.0002840
Silver___	328.07	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

ICP Linear Ranges (Quarterly)

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162 SAS No.: _____ SDG No.: 34162B

ICP ID Number: TJA ET2_____ Date: 04/17/98

Analyte	Integ. Time (sec.)	Concentration (ug/L)	M
Aluminum	15.00	600000.0	P
Arsenic	15.00	30000.0	P
Barium	15.00	40000.0	P
Cadmium	15.00	10000.0	P
Chromium	15.00	10000.0	P
Lead	15.00	60000.0	P
Mercury			NR
Selenium	15.00	60000.0	P
Silver	15.00	60000.0	P

Comments:

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PREPARATION LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.:_34162 SAS No.: _____ SDG No.:34162B

Method: P_

Client Sample No.	Prep Date	Weight (gram)	Volume (mL)
LCSW	06/01/98		100
LCSWD	06/01/98		100
MFAR0528	06/01/98		100
PBW	06/01/98		100

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PREPARATION LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.:_34162 SAS No.: _____ SDG No.:34162B

Method: AV

Client Sample No.	Prep Date	Weight (gram)	Volume (mL)
LCSW	06/01/98		100
LCSWD	06/01/98		100
MFAR0528	06/01/98		100
MFAR0528M	06/01/98		100
MFAR0528S	06/01/98		100
PBW	06/01/98		100

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ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162_ SAS No.: _____ SDG No.:34162B

Instrument ID Number: TJA ET2_____ Method: P_

Start Date: 06/05/98 End Date: 06/05/98

Client Sample No.	D/F	Time	% R	Analytes																							
				AL	AS	BA	CD	CR	PB	HG	SE	AG															
S0	1	1455		X	X	X	X	X	X		X	X															
S	1	1500		X	X	X	X	X	X		X	X															
ICV	1	1506		X	X	X	X	X	X		X	X															
ICB	1	1511		X	X	X	X	X	X		X	X															
CRI	1	1516		X	X	X	X	X	X		X	X															
ICSA	1	1521		X	X	X	X	X	X		X	X															
ICSAB	1	1526		X	X	X	X	X	X		X	X															
CCV	1	1531		X	X	X	X	X	X		X	X															
CCB	1	1537		X	X	X	X	X	X		X	X															
PBW	1	1542		X	X	X	X	X	X		X	X															
SW	1	1550		X	X	X	X	X	X		X	X															
SWD	1	1556		X	X	X	X	X	X		X	X															
ZZZZZZ	1	1601																									
MFAR0528	1	1606		X	X	X	X	X	X		X	X															
ZZZZZZ	1	1611																									
ZZZZZZ	1	1616																									
ZZZZZZ	1	1621																									
ZZZZZZ	1	1626																									
ZZZZZZ	1	1632																									
CCV	1	1637		X	X	X	X	X	X		X	X															
CCB	1	1642		X	X	X	X	X	X		X	X															
ZZZZZZ	1	1647																									
ZZZZZZ	1	1652																									
ZZZZZZ	1	1657																									
ZZZZZZ	1	1703																									
ZZZZZZ	1	1708																									
ZZZZZZ	1	1713																									
ZZZZZZ	1	1718																									
ZZZZZZ	1	1723																									
ZZZZZZ	1	1728																									
ZZZZZZ	1	1733																									
CCV	1	1739		X	X	X	X	X	X		X	X															

FORM XIV - IN

ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162_ SAS No.: _____ SDG No.:34162B

Instrument ID Number: TJA ET2_____ Method: P_

Start Date: 06/05/98 End Date: 06/05/98

Client Sample No.	D/F	Time	% R	Analytes																							
				AL	AS	BA	CD	CR	PB	HG	SE	AG															
CCB	1	1744		X	X	X	X	X	X		X	X															
ZZZZZZ	1	1749																									
ZZZZZZ	1	1754																									
ZZZZZZ	1	1759																									
ZZZZZZ	1	1804																									
ZZZZZZ	1	1810																									
ZZZZZZ	1	1815																									
ZZZZZZ	1	1820																									
CRI	1	1825		X	X	X	X	X	X		X	X															
ICSA	1	1830		X	X	X	X	X	X		X	X															
ICSAB	1	1835		X	X	X	X	X	X		X	X															
J	1	1840		X	X	X	X	X	X		X	X															
CCB	1	1846		X	X	X	X	X	X		X	X															

FORM XIV - IN

14

ANALYSIS RUN LOG

Lab Name: SOUTHWEST_LAB_OF_OK_____ Contract: MKF-OH____

Lab Code: SWOK__ Case No.: 34162_ SAS No.: _____ SDG No.:34162B

Instrument ID Number: PS200B_____ Method: AV

Start Date: 06/01/98 End Date: 06/01/98

Client Sample No.	D/F	Time	% R	Analytes																							
				AL	AS	BA	CD	CR	PB	HG	SE	AG															
S0	1	1046								X																	
S0.2	1	1048								X																	
S0.4	1	1051								X																	
S1	1	1054								X																	
S5	1	1057								X																	
S10	1	1059								X																	
ICV	1	1103								X																	
ICB	1	1106								X																	
CRA	1	1109								X																	
CCV	1	1111								X																	
[illegible]	1	1114								X																	
[illegible]N	1	1128								X																	
LCSW	1	1131								X																	
LCSWD	1	1133								X																	
ZZZZZZ	1	1136																									
MFAR0528	1	1139								X																	
MFAR0528S	1	1141								X																	
MFAR0528M	1	1144								X																	
ZZZZZZ	1	1146																									
ZZZZZZ	1	1149																									
ZZZZZZ	1	1152																									
CCV	1	1154								X																	
CCB	1	1157								X																	

FORM XIV - IN

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2.WB1) / SWL-GA-115 REV 5.0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA

RECEIVED BY (PRINT NAME): SARAH HODSON

RECEIVED BY (SIGNATURE): S. Hodson

LOGGED IN BY (SIGNATURE): S. Hodson.

RECD DATE 06/22/99

TIME REC'D 09:50

LOG-IN DATE 1999-06-22 10:

PROJECT: NSWC CRANE

EPISODE: 39088

SAMPLE DELIVERY GROUP: 39088

Remarks

1. CUSTODY SEAL(S): Present/Absent
   Intact/ Broken
2. CUSTODY SEALS NOS.:
   NA
3. CHAIN-OF CUSTODY. Present/Absent
   Sealed In Plastic? Yes/ No
   Taped To Lid? Yes/ No
   Properly Filled Out (Ink, Signed, ETC.)? Yes/ No
4. AIRBILL AirBill/ Sticker
   Present/Absent
5. AIRBILL NO:
   8116740174173
6. COOLER CONDITIONS
   Enough Ice? Yes/ No
   Type of Ice? WET
   Type of Packing? BUB
7. SAMPLE TAGS Present/Absent
8. SAMPLE CONDITION: Intact/ Broken*/ Leaking
   Bottles Sealed In Separate Plastic Bags? Yes/ No
   Correct Containers Used For Tests Indicated? Yes/ No
   Correct Preservative? Yes/ No
   Sufficient Sample? Yes/ No
   Labels Complete (I.D., Date, Time, Signature, Preservative? Yes/ No
   VOA Samples Without Bubbles? Yes/ No~
9. Does Information on Custody Records,Labels,Tags Agree? Yes/ No*
10. RAD SCREEN WITH GIEGER COUNTER? Yes/ No
11. P.O. Called? Yes/ No

Client Sample #	Sample Fraction @	Assigned LAB#	Cooler I.D.	pH Check	ACID/ BASE LOT#	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
MFAPES270	gc,m	39088.01	06/22/99-1	N		4.0 C
MFAPES270FD	↓	39088.02		N		
MFAPES271	V	39088.03		N		
MFAPES271 ms	↓	39088.04		N		
MFAPES271 msd	↓	39088.05		N		
MFAPES272	gc,m	39088.06		N		
MFAPES273	V	39088.07		N		
MFAPES274	gc,m	39088.08		N		
MFAPES275	V	39088.09		N		
MFAPES276	gc,m	39088.10		N		
MFAPES277	V	39088.11		N		
MFAPES278	gc,m	39088.12		N		
MFAPES279	V	39088.13		N		
MFAPES280	gc,m	39088.14		N		
MFAPES281	V	39088.15		N		
MFATB062199	↓	39088.16		N		
MFARB062199	gc,m	39088.17	↓	Y		↓

* Contact PO and attach record of resolution

@ Sample Fractions: B=SV GC/MS, V= VOA GC/MS or GC, P=Pesticide,H=Herbicide, D=Dioxin, A=Air, I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.

TOLTEST, INC.

1915 N. 12th St., P.O. Box 2186, Toledo, OH 43603-2186; Voice (419) 241-7175, Fax (419) 321-6259
Ship To Address: ATTN: RECEIVING LAB, 1810 N. 12th St., Toledo, OH 43624-1304; Voice (419) 241-7175, Fax (419) 241-1808

Sent From: ☐ Corporate ☐ Plymouth ☐ Monroe ☐ Pittsburgh ☐ Other _____

MFA-050

Chain of Custody Record

25791

Project No.: 37324	Client:		
P.O. No.:	Project/Location: NSWC Crane Mine Fill A		
Project Mgr.:		Sampler's Name: Peter J. Chevalier	
Phone No.		Sampler's Signature: [signature]	

Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	8330	RETN	602	7471	6060				Preserved Yes/No	LAB USE ONLY Lab #
1	MFA PES 270	6/21/99	0910	C	Soil	Grid 78 0-6"	1	✓	✓	✓	✓						
2	MFA PES 270 FD		0910	C		Grid 78 0-6"	1	✓	✓	✓	✓						
3	MFA PES 271		0913	G		Grid 78 6"	5				✓		MS/MSD				
4	MFA PES 272		0918	G		Grid 78 Sidewall 0-6"	1	✓	✓	✓	✓						
5	MFA PES 273		0922	G		Grid 78 Sidewall 6"	3				✓						
6	MFA PES 274		1407	C		Grid 82 0-6"	1	✓	✓	✓	✓						
7	MFA PES 275		1409	G		Grid 82 6"	3				✓						
8	MFA PES 276		1416	C		Grid 83 0-6"	1	✓	✓	✓	✓						
9	MFA PES 277		1416	G		Grid 83 6"	3				✓						
10	MFA PES 278		1423	C		Grid 84 0-6"	1	✓	✓	✓	✓						

Item No.	Relinquished By:	Date / Time	Received By:	Date / Time
	[signature]	6/21/99 1530	[signature]	/ 1750
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time

LAB USE ONLY

Were samples delivered ☐ in person ☐ by courier
Were samples preserved ☐ in field ☐ in lab ☐ N/A
Temp of samples 4 °C
Did samples arrive intact and sealed? ☐ yes ☐ no ☐ N/A
Were proper containers used? ☐ yes ☐ no
Was container labeled properly for contents? ☐ yes ☐ no
Were samples packaged properly for type of material? ☐ yes ☐ no
Was shipping label completed properly per regulations? (49 CFR 170, etc.) ☐ yes ☐ no

Comments: _____

TAT

TOLTEST, inc.
1915 N. 12th St., P.O. Box 2186, Toledo, OH 43603-2186; Voice (419) 241-7175, Fax (419) 321-6259
Ship To Address: ATTN: RECEIVING LAB, 1810 N. 12th St., Toledo, OH 43604-1304; Voice (419) 241-7175, Fax (419) 241-1808
Sent From: ☐ Corporate ☐ Plymouth ☐ Monroe ☐ Pittsburgh ☐ Other _____

MFA-050

Chain of Custody Record

5792

364

Project No.: 37324
Client:
P.O. No.:
Project/Location: NKWC Crane Mine Fill A
Project Mgr.:
Sampler's Name: Peter J. Chevalier
Phone No.:
Sampler's Signature: [signature]

Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	8330	PETN	6010	7471	8260			Preserved Yes/No	LAB USE ONLY Lab #
1	MFA PES 279	6/24/99	1424	G	soil	Grid 84 6"	3					✓				
2	MFA PES 280		1432	C		Grid 92 0-6"	1	✓	✓	✓	✓					
3	MFA PES 281		1431	G		Grid 92 6"	3					✓				
4	MFA TB 062199		1500	G	liquid	trip blank	2					✓				
5	MFA RS 062199		1500	G	liquid	rinse blank	3	✓	✓	✓	✓					
6																
7																
8																
9																
10																

Item No.	Relinquished By:	Date	Time	Received By:	Date	Time
	[signature]	6/24/99	1530			
Item No.	Relinquished By:	Date	Time	Received By:	Date	Time
Item No.	Relinquished By:	Date	Time	Received By:	Date	Time
Item No.	Relinquished By:	Date	Time	Received By:	Date	Time

LAB USE ONLY

Were samples delivered ☐ in person ☐ by courier
Were samples preserved ☐ in field ☐ in lab ☐ N/A
Temp of samples _____ °C
Did samples arrive intact and sealed? ☐ yes ☐ no ☐ N/A
Were proper containers used? ☐ yes ☐ no
Was container labeled proper for contents? ☐ yes ☐ no
Were samples packaged properly for type of material? ☐ yes ☐ no
Was shipping label complete properly per regulations? (49 CFR 170, etc.) ☐ yes ☐ no

Comments: _____

TAT

Distribution: Original plus one accompanies shipment (white and yellow); copy to coordinator field files (pink)

Rev. 7/9

WEST LABORATORY OF OKLAHOMA

West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE
August 6, 1999

: TOLTEST

ECT : NSWC CRANE

SDG NO : 39088

EPISODE(S): 39088

EXPLOSIVE FRACTION

This SDG consisted of 7 soil samples and 1 water sample for the explosive analysis. The samples, blanks and spikes were extracted and nalyzed according to EPA protocol, SW-846, method 8330, REV. 0, 1994.

For soil samples, the percent moisture is determined by drying them at 105° C at the time of receipt. Additional portion of the samples is air-dried prior to analysis. The results are reported on the basis of the air-dried samples. For high-level water samples, direct injection method is used. For low-level water samples, salting out method is used. All of the extracts are diluted by a factor of two prior to analysis according to method 8330. The extracts are diluted in order to be the same consistency as the Mobile Phase.

"P" flags were used when the appropriate compound with sufficient response exceeded 40% deviation, possibly due to interference in the quantitation or confirmation columns.

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

CASE SUMMARY:

Blanks: No problems.

Surrogate(s): The surrogate was out of the laboratory QC limits in the LD0618SD.

Matrix Spikes: Tetryl and 26DNT were out of the laboratory QC limits in the samples MFARB062199MS and MFARB062199MSD. All of the other analytes were within the laboratory QC samples for these samples.

Laboratory Control Spikes: Tetryl was out of the laboratory QC limits in the LC0623WH. All of the analytes were within the laboratory QC limits in the LD0623WH. 2NT was out of the laboratory QC limits in the LC0622SF. All of the analytes were within the laboratory QC limits in the LD0622SF.

2ADNT exceeded 15% D in the CCAL 1-062527. This analyte was not detected in any of the associated samples. 2ADNT and 4NT exceeded 15% D in the CCAL 1-062537. These two analytes were not detected in any of the associated samples.

Enviroquant software was utilized to process the above samples. The Response Factor in the standard is calculated by dividing the area of each analyte by the concentration of the respective analyte.

Multiplier = (final volume / extracted amount) * dilution.

The following is an example of the calculations for RDX in the quantitation and confirmation columns of the undiluted sample MFAPES270:

[Sample's response (area) / mean calibration factor] * Multiplier = the concentration

(72947307/ 261600) * 10 = 2789 ug/Kg

(37270038 / 109500) * 10 = 3404 ug/Kg

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

The explosives referred to in the data package by the abbreviations found in method 8330 are as follows: HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine), RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine), TNB (1,3,5-Trinitrobenzene), DNB (1,3-Dinitrobenzene), Tetryl (Methyl-2,4,6-trinitrophenylnitramine), NB (Nitrobenzene), TNT (2,4,6- Trinitrotoluene), 24DNT (2,4-Dinitrotoluene), 26DNT (2,6-Dinitrotoluene), 2NT (o-Nitrotoluene), 3NT m-Nitrotoluene), 4NT (p-Nitrotoluene) , PETN (Pentaerythritol tetranitrate), 2ADNT (2-Amino-4,6-dinitrotoluene), 4ADNT (4-Amino-2,6-dinitrotoluene).

The laboratory utilizes the following flags where appropriate: "J" - indicates a quantitated result, which is below the quantitation limit, but above the detection limit and has been confirmed by the second column. "E"- indicates an out of range value, i.e., a peak that is off-scale or out of the linear calibration range of the detector. The value reported is not to be used. The sample must be diluted and re-run. "D" - indicates a value derived from a secondary dilution. "U" - indicates the compound that is undetected above the quantitation limit. "X" - indicates a comment that is explained in the case narrative.

Phuong Vo
LC Analyst

2F
SOIL EXPLOSIVES SURROGATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

LC Column(1): CARBOSORB

	CLIENT SAMPLE NO.	S1 1 %REC #	TOT OUT
01	BL0622SF	86	0
02	LC0622SF	91	0
03	LD0622SF	91	0
04	MFAPES270	88	0
05	MFAPES270MS	81	0
06	MFAPES270MSD	84	0
07	MFAPES270FD	81	0
08	MFAPES272	89	0
09	MFAPES274	84	0
10	MFAPES276	87	0
11	MFAPES278	90	0
12	MFAPES280	70	0
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

S1 = 3,4-DNT

QC LIMITS
(60-140)

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

FORM II

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix Spike - Client Sample NO.: MFAPES270

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
HMX	9500	0	9970	105	54-128
RDX	9500	2790	10900	86	66-109
TNB	9500	0	9080	96	57-130
DNB	9500	0	9680	102	74-122
TETRYL	9500	0	9680	102	32-119
NB	9500	0	10100	106	70-135
TNT	9500	531	10900	109	44-124
4ADNT	9500	0	9230	97	60-140
2ADNT	9500	0	9280	98	60-140
26DNT	9500	0	9150	96	58-125
24DNT	9500	0	9230	97	59-120
2NT	9500	0	7980	84	79-124
4NT	9500	0	8930	94	74-128
3NT	9500	0	9280	98	79-121

FORM III

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix Spike - Client Sample NO.: MFAPES270

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	9500	10200	108	3	30	54-12
RDX	9500	9870	74	10	30	66-10
TNB	9500	9350	98	3	30	57-13
DNB	9500	9860	104	2	45	74-12
TETRYL	9500	9910	104	2	30	32-11
NB	9500	10200	107	1	35	70-13
TNT	9500	10900	109	0	30	44-12
4ADNT	9500	9270	98	0	40	60-14
2ADNT	9500	9380	99	1	40	60-14
26DNT	9500	9440	99	3	35	58-12
24DNT	9500	9500	100	3	35	59-12
2NT	9500	8230	87	3	35	79-12
4NT	9500	9210	97	3	35	74-12
3NT	9500	9570	101	3	35	79-12

Column to be used to flag recovery values

Values outside of QC limits

RPD: 0 out of 14 outside limits
Spike Recovery: 0 out of 28 outside limits

Comments: _____

FORM III

3F

SOIL PETN MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix Spike - Client Sample NO.: MFAPES270

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
PETN	3000	0	3100	103	70-130

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
PETN	3000	3130	104	1	50	70-130

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 1 outside limits
Spike Recovery: 0 out of 2 outside limits

Comments:

3H
SOIL EXPLOSIVES LABORATORY CONTROL SPIKE RECOVERY

b Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

LCS Sample NO.: LC0622SF

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
HMX	9500	8840	93	57-137
RDX	9500	8150	86	77-113
TNB	9500	8280	87	64-125
DNB	9500	8920	94	82-118
TETRYL	9500	8690	91	23-124
NB	9500	9280	98	69-143
TNT	9500	8920	94	75-118
4ADNT	9500	8440	89	60-140
2ADNT	9500	8410	88	60-140
26DNT	9500	8510	90	78-117
24DNT	9500	8530	90	74-126
2NT	9500	7330	77 *	78-123
4NT	9500	8180	86	79-125
3NT	9500	8670	91	78-121

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 1 out of 14 outside limits

Comments: _____

3H

SOIL EXPLOSIVES LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

LCS Sample NO.: LD0622SF

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
HMX	9500	9860	104	57-137
RDX	9500	9060	95	77-113
TNB	9500	9270	98	64-125
DNB	9500	9890	104	82-118
TETRYL	9500	9960	105	23-124
NB	9500	10300	109	69-143
TNT	9500	9880	104	75-118
4ADNT	9500	9370	99	60-140
2ADNT	9500	9650	102	60-140
26DNT	9500	9260	97	78-117
24DNT	9500	9440	99	74-126
2NT	9500	8230	87	78-123
4NT	9500	9180	97	79-125
3NT	9500	9560	101	78-121

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 0 out of 14 outside limits

Comments:

3H
SOIL PETN LABORATORY CONTROL SPIKE RECOVERY

ab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

LCS Sample NO.: LC0622SG

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
PETN	3000	3210	107	70-130

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 0 out of 1 outside limits

Comments:

3H
SOIL PETN LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

LCS Sample NO.: LD0622SG

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
PETN	3000	3310	110	70-130

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 0 out of 1 outside limits

Comments:

4C

EXPLOSIVES METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

BL0622SF

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Lab Sample ID : BL0622SF Lab File ID : 3_062408

Matrix: (soil/water) SOIL

Date Extracted : 06/22/99 Extraction Method : SONC

Date Analyzed (1): 06/25/99 Date Analyzed (2): 06/25/99

Time Analyzed (1): 0034 Time Analyzed (2): 0432

Instrument ID (1): LC3 Instrument ID (2): LC5

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

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	LC0622SF	LC0622SF	06/25/99	
02	LD0622SF	LD0622SF	06/25/99	
03	MFAPES270	39088.01	06/25/99	06/25/99
04	MFAPES270MS	39088.01MS	06/25/99	
05	MFAPES270MSD	39088.01MSD	06/25/99	
06	MFAPES270FD	39088.02	06/25/99	07/27/99
07	MFAPES272	39088.06	06/25/99	07/27/99
08	MFAPES274	39088.08	06/25/99	06/25/99
09	MFAPES276	39088.10	06/25/99	06/25/99
10	MFAPES278	39088.12	06/25/99	06/25/99
11	MFAPES280	39088.14	06/25/99	06/25/99
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

Comments:

FORM IV

4C

PETN METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

BL0622SG

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Lab Sample ID : BL0622SG Lab File ID : 4_063040

Matrix: (soil/water) SOIL

Date Extracted : 06/22/99 Extraction Method : SONC

Date Analyzed : 07/01/99 Time Analyzed : 1102

Instrument ID : LC4 LC Column ID : ODS II

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LC0622SG	LC0622SG	07/01/99
02	LD0622SG	LD0622SG	07/01/99
03	MFAPES270	39088.01	07/01/99
04	MFAPES270MS	39088.01MS	07/01/99
05	MFAPES270MSD	39088.01MSD	07/01/99
06	MFAPES270FD	39088.02	07/01/99
07	MFAPES272	39088.06	07/01/99
08	MFAPES274	39088.08	07/01/99
09	MFAPES276	39088.10	07/01/99
10	MFAPES278	39088.12	07/01/99
11	MFAPES280	39088.14	07/01/99
12			
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24			
25			
26			

Comments:

FORM IV

2E
WATER EXPLOSIVES SURROGATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

LC Column(1): CARBOSORB

	CLIENT SAMPLE NO.	S1 1 %REC #	TOT OUT
01	BL0623WH	88	0
02	LC0623WH	107	0
03	LD0623WH	103	0
04	MFARB062199	90	0
05	MFARB062199MS	108	0
06	MFARB062199MSD	112	0
07			
08			
09			
10			
11			
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27			
28			
29			
30			

S1 = 3,4-DNT

QC LIMITS
(60-140)

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

FORM II

3E

WATER EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix Spike - Client Sample NO.: MFARB062199

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC. LIMITS REC.
HMX	200	0	195	97	44-154
RDX	200	0	168	84	66-139
TNB	200	0	196	98	56-129
DNB	200	0	186	93	76-122
TETRYL	200	0	113	56*	76-120
NB	200	0	171	85	82-111
TNT	200	0	183	92	76-137
4ADNT	200	0	166	83	60-140
2ADNT	200	0	159	79	60-140
26DNT	200	0	165	82*	86-118
24DNT	200	0	176	88	72-123
2NT	200	0	151	76	74-130
4NT	200	0	176	88	78-116
3NT	200	0	182	91	72-126

FORM III

3E

WATER EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix Spike - Client Sample NO.: MFARB062199

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	200	204	102	5	15	44-154
RDX	200	172	86	2	12	66-139
TNB	200	200	100	2	10	56-129
DNB	200	190	95	2	15	76-122
TETRYL	200	110	55 *	2	14	76-120
NB	200	180	90	5	13	82-111
TNT	200	182	91	1	15	76-137
4ADNT	200	169	84	1	40	60-140
2ADNT	200	158	79	0	40	60-140
26DNT	200	164	82 *	1	13	86-118
24DNT	200	177	88	1	14	72-123
2NT	200	158	79	4	15	74-130
4NT	200	191	96	8	14	78-116
3NT	200	193	96	6	15	72-126

Column to be used to flag recovery values

Values outside of QC limits

RPD: 0 out of 14 outside limits
Spike Recovery: 4 out of 28 outside limits

Comments: _____

3G

WATER EXPLOSIVES LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

LCS Sample NO.: LC0623WH

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
HMX	200	182	91	46-151
RDX	200	162	81	72-129
TNB	200	184	92	74-118
DNB	200	179	89	79-132
TETRYL	200	105	52 *	58-120
NB	200	167	83	68-135
TNT	200	181	91	61-145
4ADNT	200	155	78	60-140
2ADNT	200	158	79	60-140
26DNT	200	168	84	77-125
24DNT	200	166	83	70-134
2NT	200	147	73	73-131
4NT	200	170	85	73-116
3NT	200	172	86	71-127

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 1 out of 14 outside limits

Comments: _____

FORM III

3G

WATER EXPLOSIVES LABORATORY CONTROL SPIKE RECOVERY

ıb Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

LCS Sample NO.: LD0623WH

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
HMX	200	197	98	46-151
RDX	200	169	84	72-129
TNB	200	193	96	74-118
DNB	200	185	92	79-132
TETRYL	200	120	60	58-120
NB	200	169	85	68-135
TNT	200	182	91	61-145
4ADNT	200	162	81	60-140
2ADNT	200	157	78	60-140
26DNT	200	169	84	77-125
24DNT	200	168	84	70-134
2NT	200	153	76	73-131
4NT	200	178	89	73-116
3NT	200	184	92	71-127

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 0 out of 14 outside limits

Comments: _____

FORM III

3G

WATER PETN LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

LCS Sample NO.: LC0625WH

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
PETN	1200	1090	91	70-130

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 0 out of 1 outside limits

Comments: _____

3G

WATER PETN LABORATORY CONTROL SPIKE RECOVERY

:b Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

LCS Sample NO.: LD0625WH

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
PETN	1200	976	81	70-130

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 0 out of 1 outside limits

Comments:

4C

EXPLOSIVES METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

BL0623WH

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Lab Sample ID : BL0623WH Lab File ID : 1_062531

Matrix: (soil/water) WATER

Date Extracted : 06/23/99 Extraction Method : SEPF

Date Analyzed : 06/26/99 Time Analyzed : 1119

Instrument ID : LC1 LC Column ID : CARBOSORB

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LC0623WH	LC0623WH	06/26/99
02	LD0623WH	LD0623WH	06/26/99
03	MFARB062199	39088.17	06/26/99
04	MFARB062199MS	39088.17MS	06/26/99
05	MFARB062199MSD	39088.17MSD	06/26/99
06			
07			
08			
09			
10			
11			
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Comments:

FORM IV

4C
PETN METHOD BLANK SUMMARY

CLIENT SAMPLE NO

BL0625WH

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Lab Sample ID : BL0625WH Lab File ID : 4_063009

Matrix: (soil/water) WATER

Date Extracted : 06/25/99 Extraction Method : SEPF

Date Analyzed : 06/30/99 Time Analyzed : 1755

Instrument ID : LC4 LC Column ID : ODS II

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

	CLIENT CLIENT SAMPLE NO.	LAB LAB SAMPLE ID	DATE DATE ANALYZED
01	LC0625WH	LC0625WH	06/30/99
02	LD0625WH	LD0625WH	06/30/99
03	MFARB062199	39088.17	06/30/99
04			
05			
06			
07			
08			
09			
10			
11			
12			
13			
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Comments:

FORM IV

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MFAPES270

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix: (soil/water) SOIL Lab Sample ID: 39088.01

Sample Amt: 2.0 G % Moisture: 17.6 Date Received: 06/22/99

Extraction Volume: 10 ML Date Extracted: 06/22/99

Extraction Method: SONC Date Analyzed: 06/25/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	2790	
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	531	
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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0624\3_062411.D Vial: 11
Acq On : 25 Jun 1999 02:48 Operator: BW
Sample : 39088.01 Inst : LC3
Misc : MFAPES270 Multiplr: 10.0000
IntFile : EVENTS1.E
Quant Time: Jun 25 11:59 1999 Quant Results File: 200SF24.RES

Method : F:\HPCHEM\LC3\DATA\3_0624\200SF24.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0624\
Last Update : Fri Jun 25 11:28:10 1999
Response via : Initial Calibration

7/31/99

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	15.54	46437859	1753.4	m	A
Target Compounds:					
1) HMX	5.13	6711307	299.4	mJ	A
2) RDX	7.65	72947307	2788.9*	m	A
3) TNB	10.23	2306624	40.5	mJ	A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	16.01	26021970	530.9*	m	A
9) 4ADNT	17.22	1480647	37.3	mJ	A
10) 2ADNT	18.09	1961710	43.0	mJ	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

JM 6-25-99

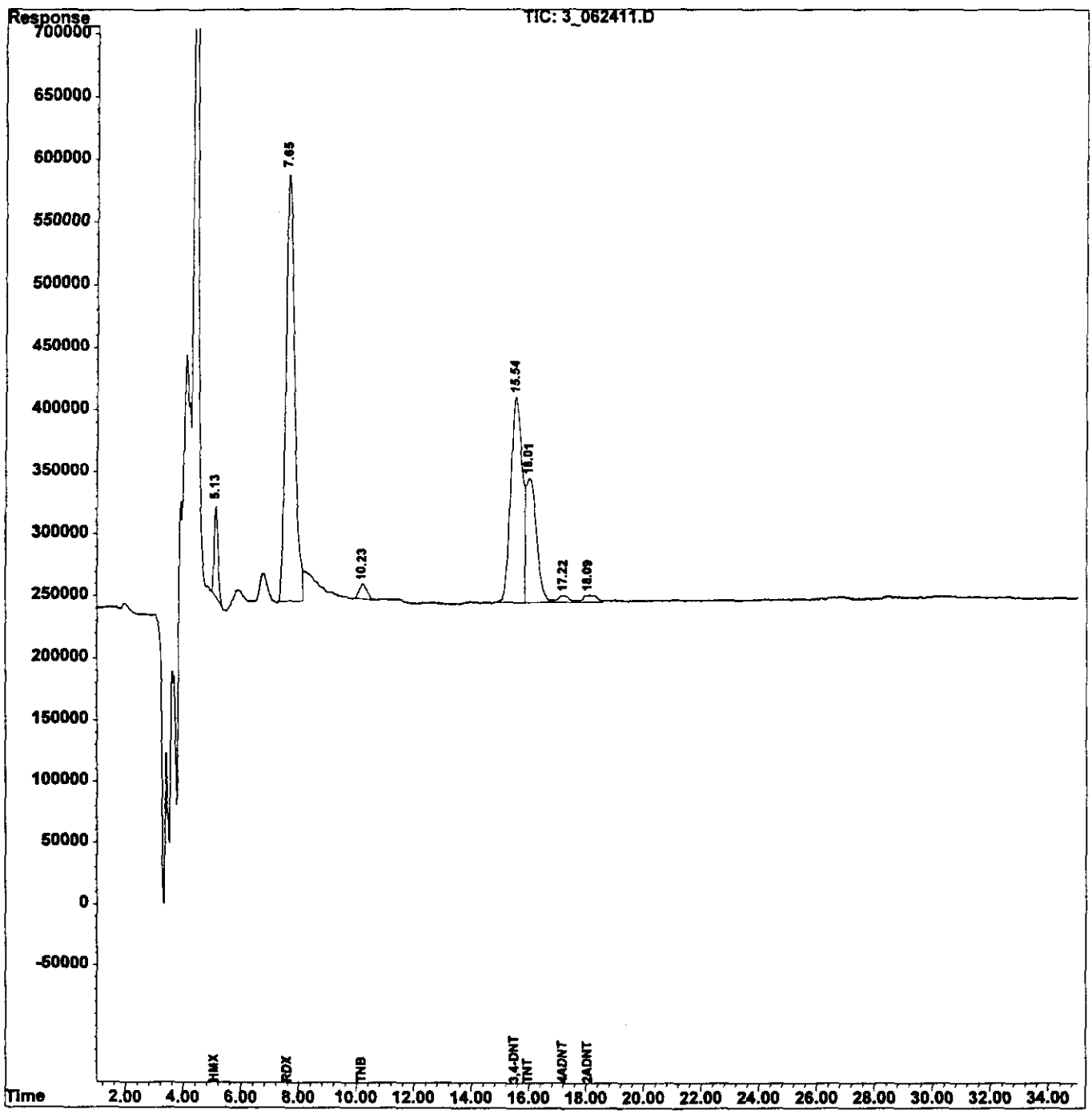
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0624\3_062411.D Vial: 11
Acq On : 25 Jun 1999 02:48 Operator: BW
Sample : 39088.01 Inst : LC3
Misc : MFAPES270 Multiplr: 10.0000
IntFile : EVENTS1.E
Quant Time: Jun 25 11:59 1999 Quant Results File: 200SF24.RES

Method : F:\HPCHEM\LC3\DATA\3_0624\200SF24.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0624\
Last Update : Fri Jun 25 11:28:10 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0624\5_062438.D Vial: 27
Acq On : 25 Jun 1999 06:10 Operator: SM
Sample : 39088.01 Inst : LC5
Misc : MFAPES270 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jun 26 14:12 1999 Quant Results File: 200SF20C.RES

Method : F:\HPCHEM\LC5\DATA\5_0624\200SF20C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0620\
Last Update : Fri Jun 25 17:26:04 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.11	25895915	2187.9	m	A
Target Compounds:					
1) A HMX	4.51	2039954	194.7	mJ	A
2) B RDX	6.88W	37270038	3403.5	m	A
3) A TNB	0.00	0	N.D.	d	A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.	d	A
8) A TNT	9.94W	14185558	610.4	m	A
9) B 4ADNT	13.58	980111	85.6	mJ	A
10) B 2ADNT	13.68	1503382	56.8	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.		A

JM
6-26-99

2 verified
06/26/99

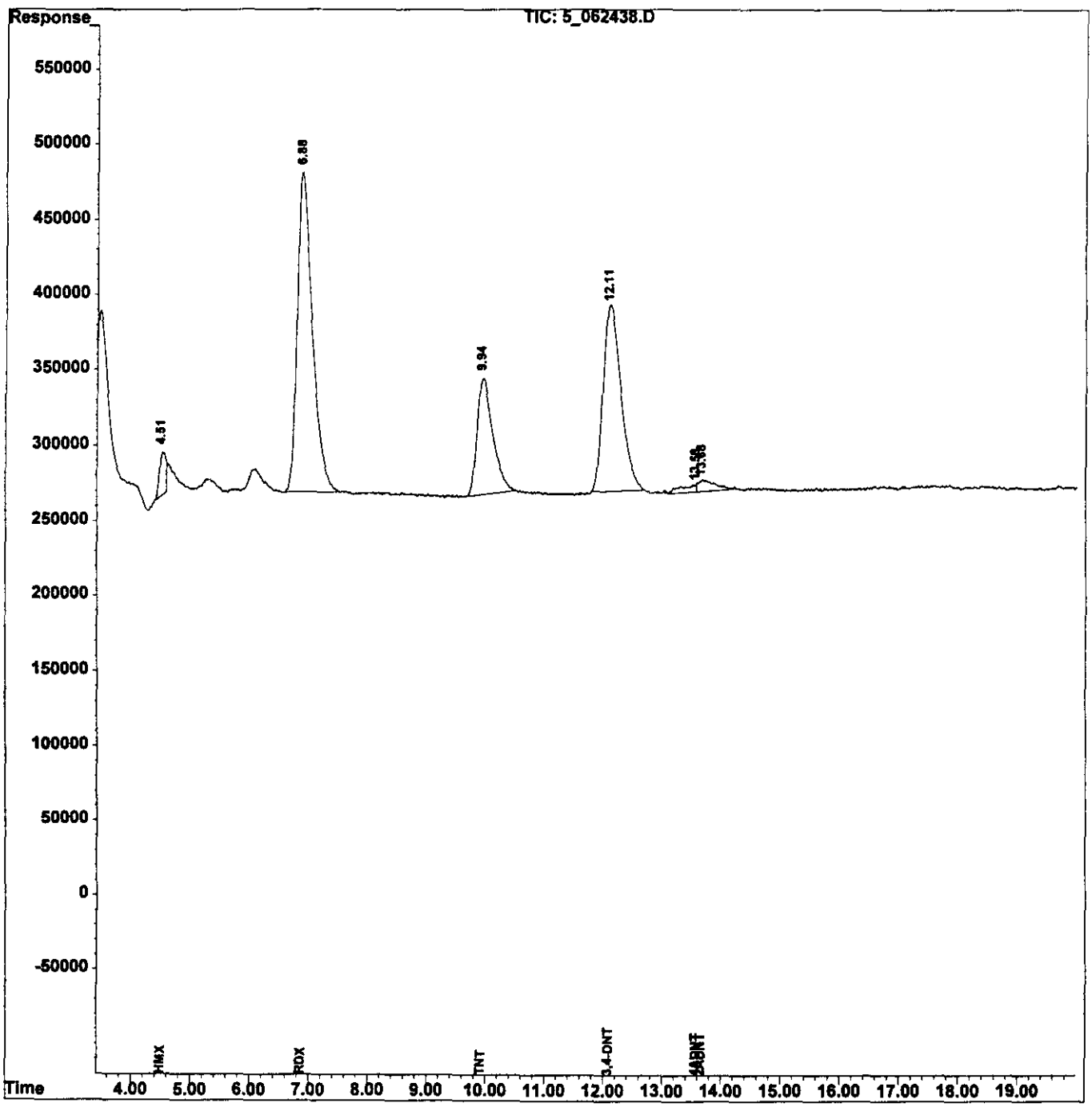
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0624\5_062438.D Vial: 27
Acq On : 25 Jun 1999 06:10 Operator: SM
Sample : 39088.01 Inst : LC5
Misc : MFAPES270 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jun 26 14:12 1999 Quant Results File: 200SF20C.RES

Method : F:\HPCHEM\LC5\DATA\5_0624\200SF20C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0620\
Last Update : Fri Jun 25 17:26:04 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
PETN ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MFAPES270

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix: (soil/water) SOIL Lab Sample ID: 39088.01

Sample Amt: 2.0 G % Moisture: 17.6 Date Received: 06/22/99

Extraction Volume: 10 ML Date Extracted: 06/22/99

Extraction Method: SONC Date Analyzed: 07/01/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
75-11-5	PETN	250	U

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC4\DATA\4_0630\4_063043.D Vial: 43
Acq On : 01-Jul-1999, 12:41 Operator: JF
Sample : 39088.01 Inst : LC4
Misc : MFAPES270 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jul 5 10:38 1999 Quant Results File: 201SF30.RES

07/05/99

Method : F:\HPCHEM\LC4\DATA\4_0630\201SF30.M
Title-Path : - F:\HPCHEM\LC4\DATA\4_0630\
Last Update : Fri Jul 02 15:18:31 1999
Response via : Initial Calibration

Volume Inj. : 200uL
Signal Phase : ODS II

Compound	R.T.	Response	ug/Kg	Curve
Target Compounds:				
1) PETN	0.00	0	N.D.	A

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

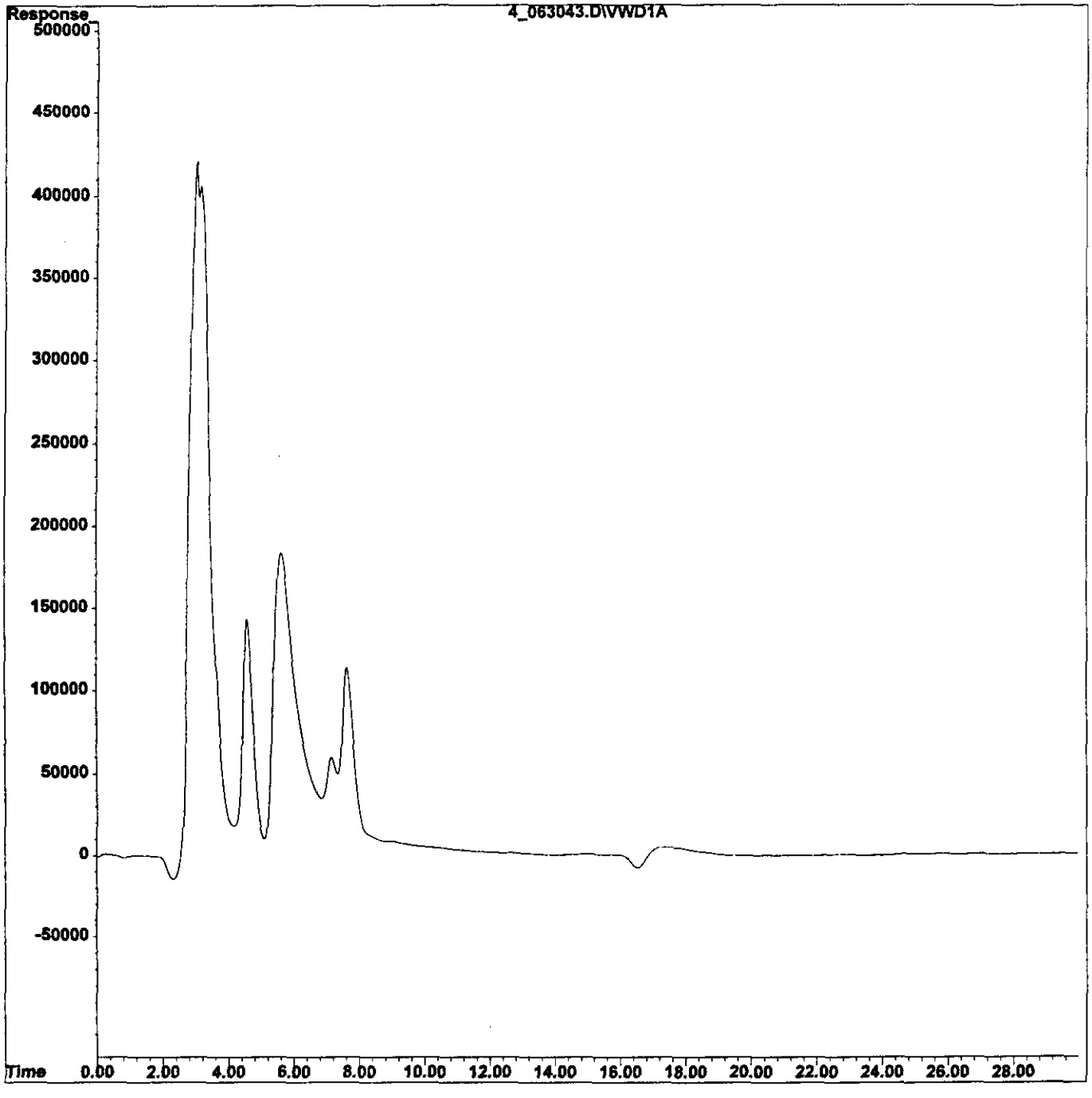
29

Chromatographic Report

Data File : F:\HPCHEM\LC4\DATA\4_0630\4_063043.D Vial: 43
Acq On : 01-Jul-1999, 12:41 Operator: JF
Sample : 39088.01 Inst : LC4
Misc : MFAPES270 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jul 5 10:38 1999 Quant Results File: 201SF30.RES

Method : F:\HPCHEM\LC4\DATA\4_0630\201SF30.M
Title-Path : - F:\HPCHEM\LC4\DATA\4_0630\
Last Update : Fri Jul 02 15:18:31 1999
Response via : Multiple Level Calibration

Volume Inj. : 200uL
Signal Phase : ODS II



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MFAPES270FD

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix: (soil/water) SOIL Lab Sample ID: 39088.02

Sample Amt: 2.0 G % Moisture: 17.8 Date Received: 06/22/99

Extraction Volume: 10 ML Date Extracted: 06/22/99

Extraction Method: SONC Date Analyzed: 06/25/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	827	J
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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0624\3_062414.D Vial: 14
Acq On : 25 Jun 1999 05:02 Operator: BW
Sample : 39088.02 Inst : LC3
Misc : MFAPES270FD Multiplr: 10.0000
IntFile : EVENTS1.E
Quant Time: Jun 25 12:15 1999 Quant Results File: 200SF24.RES

Method : F:\HPCHEM\LC3\DATA\3_0624\200SF24.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0624\
Last Update : Fri Jun 25 11:28:10 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	15.68	42882436	1619.1	m	A
Target Compounds:					
1) HMX	5.15	5820512	259.7	mJ	A
2) RDX	7.70	21637627	827.2	m	A
3) TNB	10.34	2003228	35.2	mJ	A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	16.13	30522764	622.8	m	A
9) 4ADNT	17.27	1377770	34.7	mJ	A
10) 2ADNT	18.38	1659200	36.4	mJ	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

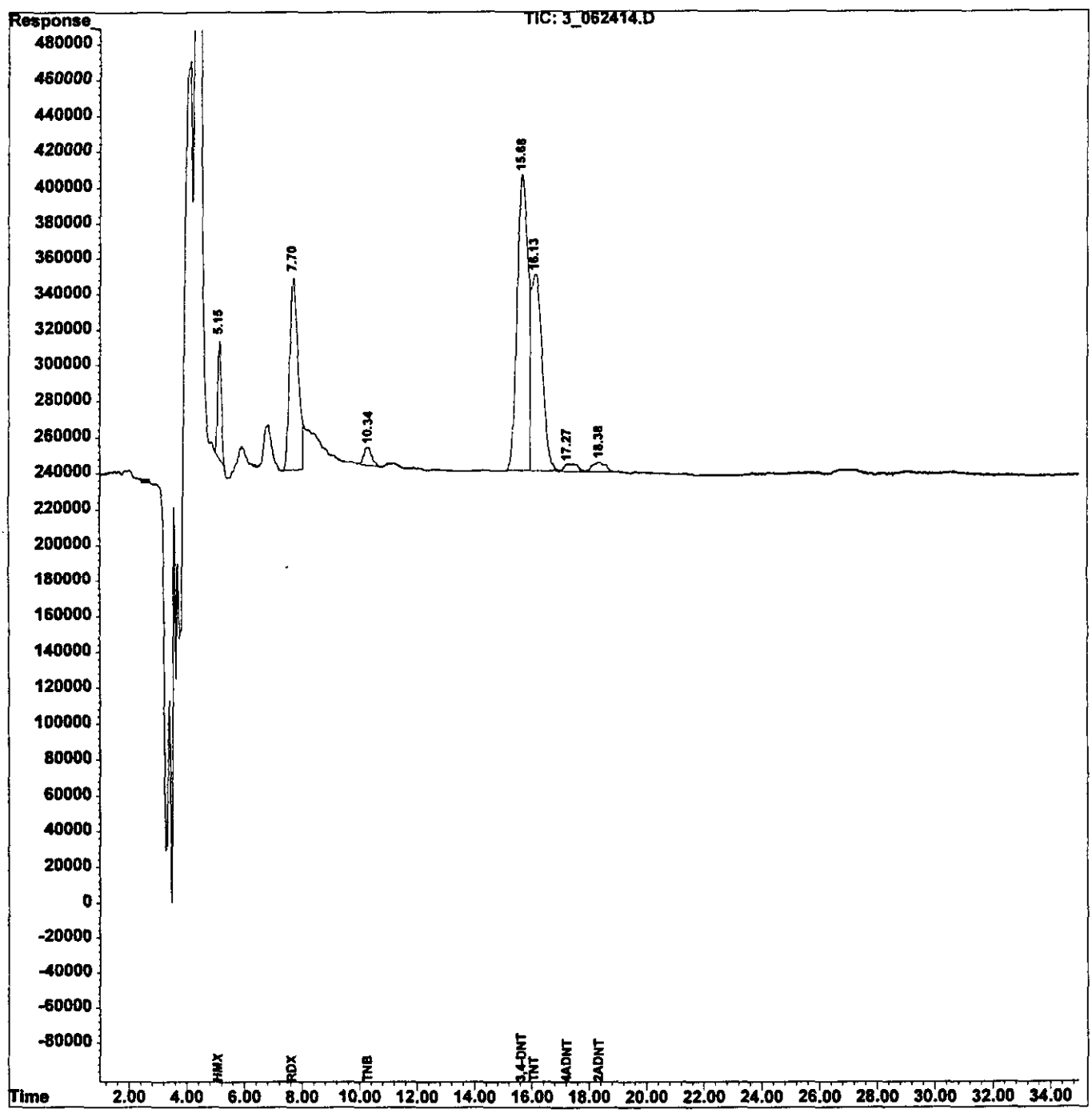
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0624\3_062414.D Vial: 14
Acq On : 25 Jun 1999 05:02 Operator: BW
Sample : 39088.02 Inst : LC3
Misc : MFAPES270FD Multiplr: 10.0000
IntFile : EVENTS1.E
Quant Time: Jun 25 12:15 1999 Quant Results File: 200SF24.RES

Method : F:\HPCHEM\LC3\DATA\3_0624\200SF24.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0624\
Last Update : Fri Jun 25 11:28:10 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC2\DATA\2_0727\2_072722.D Vial: 22
Acq On : 27 Jul 1999 23:19 Operator: SM
Sample : 39088.02 Inst : LC2
Misc : MFAPES270FD Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jul 28 16:14 1999 Quant Results File: 200sg27c.RES

Method : f:\hpchem\lc2\data\2_0727\200sg27c.m
Title-Path : - F:\HPCHEM\LC2\DATA\2_0727\
Last Update : Wed Jul 28 13:34:18 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	15.86	34437840	1671.0	m	A
Target Compounds:					
1) A HMX	5.22	3209967	368.9	m	A
2) B RDX	8.20	11409928	1070.7	m	A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.		A
8) A TNT	12.86	18916701	644.1	m	A
9) B 4ADNT	16.32	835454	77.9	m	A
10) B 2ADNT	17.54	2737851	78.8	m	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

07/28/99

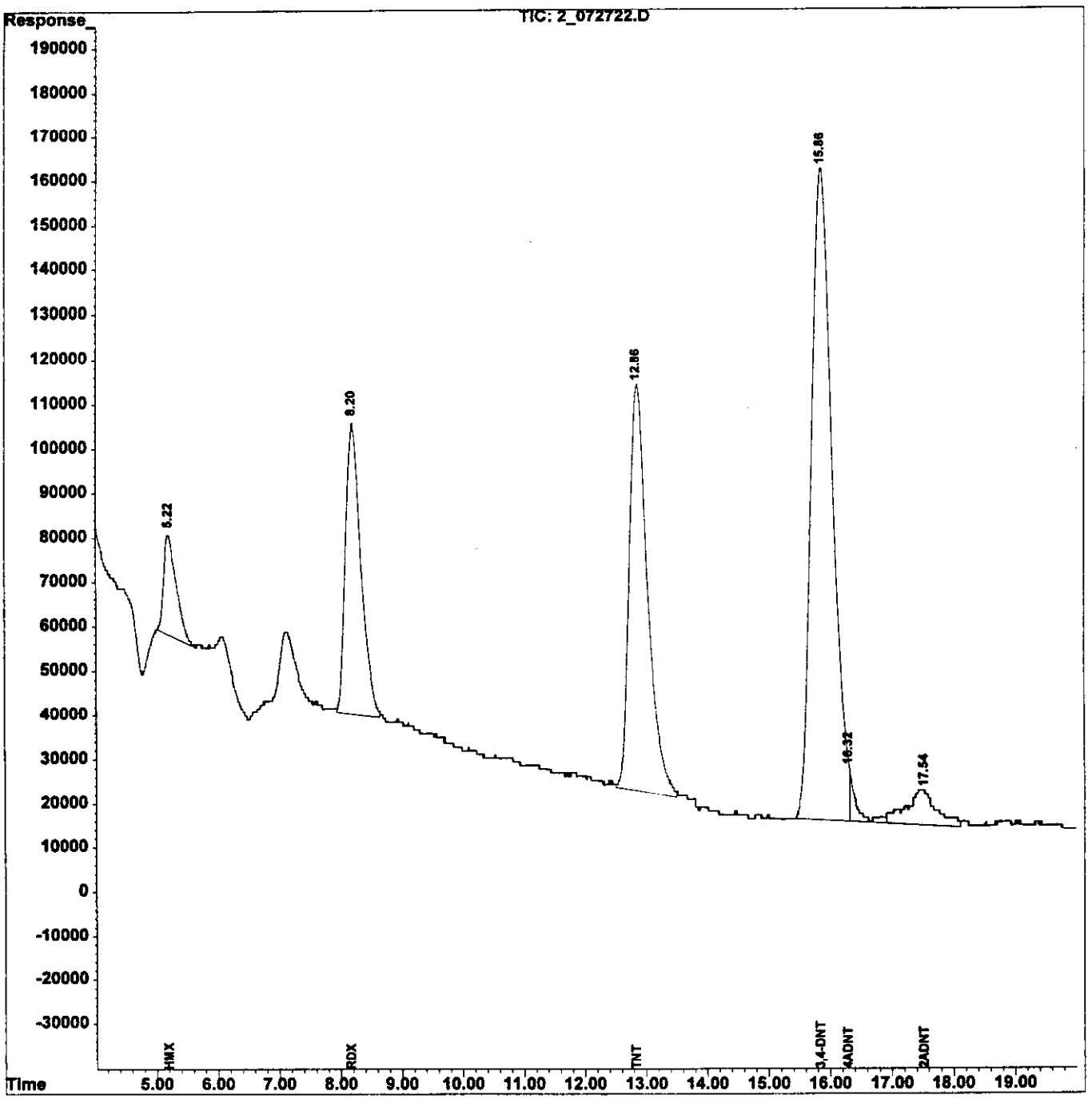
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC2\DATA\2_0727\2_072722.D Vial: 22
Acq On : 27 Jul 1999 23:19 Operator: SM
Sample : 39088.02 Inst : LC2
Misc : MFAPES270FD Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jul 28 16:14 1999 Quant Results File: 200sg27c.RES

Method : f:\hpchem\lc2\data\2_0727\200sg27c.m
Title-Path : - F:\HPCHEM\LC2\DATA\2_0727\
Last Update : Wed Jul 28 13:34:18 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
PETN ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MFAPES270FD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix: (soil/water) SOIL Lab Sample ID: 39088.02

Sample Amt: 2.0 G % Moisture: 17.8 Date Received: 06/22/99

Extraction Volume: 10 ML Date Extracted: 06/22/99

Extraction Method: SONC Date Analyzed: 07/01/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
75-11-5	PETN	250	U

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC4\DATA\4_0630\4_063046.D Vial: 46
Acq On : 01-Jul-1999, 14:21 Operator: JF
Sample : 39088.02 Inst : LC4
Misc : MFAPES270FD Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jul 5 10:38 1999 Quant Results File: 201SF30.RES

07/05/99

Method : F:\HPCHEM\LC4\DATA\4_0630\201SF30.M
Title-Path : - F:\HPCHEM\LC4\DATA\4_0630\
Last Update : Fri Jul 02 15:18:31 1999
Response via : Initial Calibration

Volume Inj. : 200uL
Signal Phase : ODS II

Compound	R.T.	Response	ug/Kg	Curve
Target Compounds:				
1) PETN	0.00	0	N.D.	A

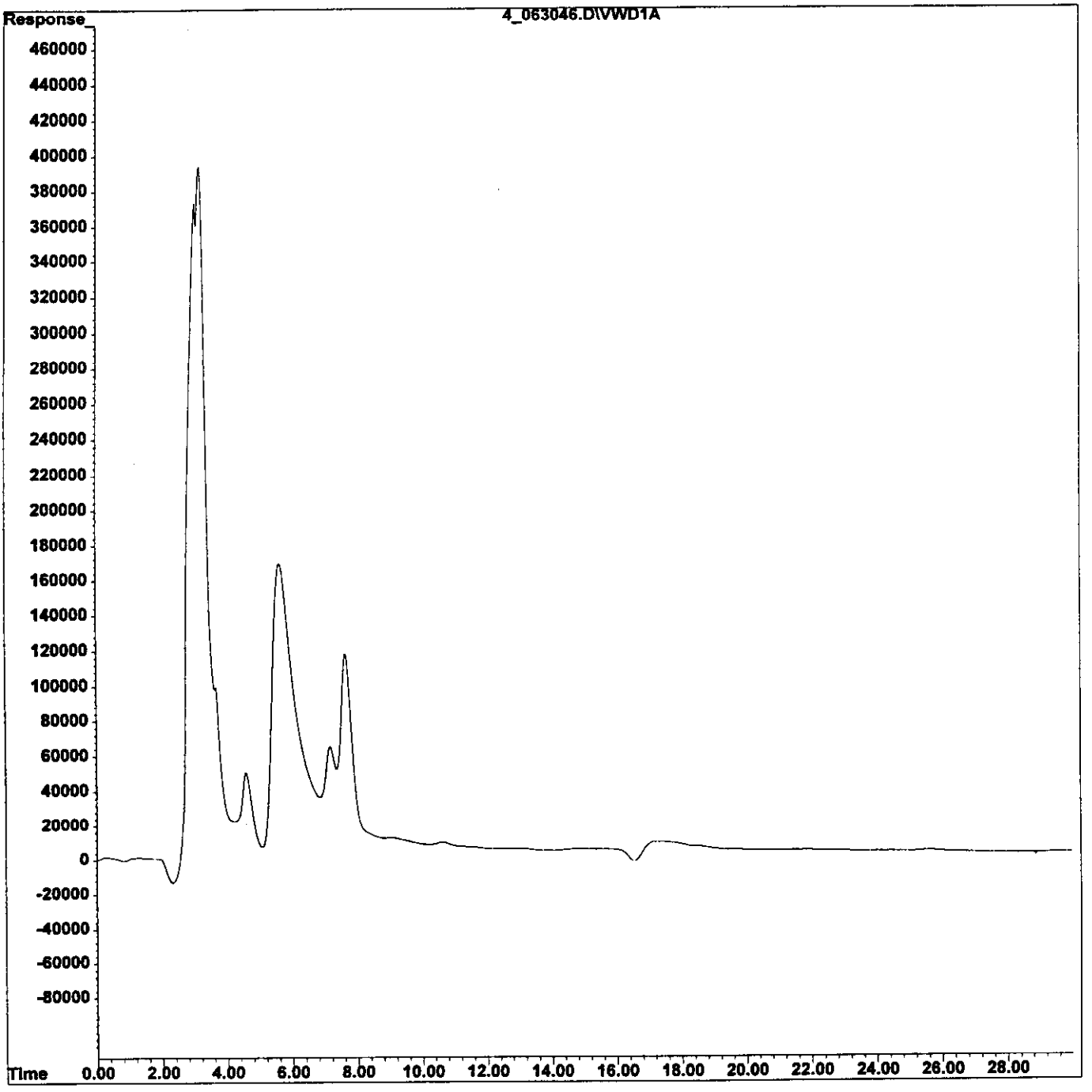
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC4\DATA\4_0630\4_063046.D Vial: 46
Acq On : 01-Jul-1999, 14:21 Operator: JF
Sample : 39088.02 Inst : LC4
Misc : MFAPES270FD Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jul 5 10:38 1999 Quant Results File: 201SF30.RES

Method : F:\HPCHEM\LC4\DATA\4_0630\201SF30.M
Title-Path : - F:\HPCHEM\LC4\DATA\4_0630\
Last Update : Fri Jul 02 15:18:31 1999
Response via : Multiple Level Calibration

Volume Inj. : 200uL
Signal Phase : ODS II



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MFAPES274

Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix: (soil/water) SOIL Lab Sample ID: 39088.08

Sample Amt: 2.0 G % Moisture: 18.6 Date Received: 06/22/99

Extraction Volume: 10 ML Date Extracted: 06/22/99

Extraction Method: SONC Date Analyzed: 06/25/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: 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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0624\3_062416.D Vial: 16
Acq On : 25 Jun 1999 06:31 Operator: BW
Sample : 39088.08 Inst : LC3
Misc : MFAPES274 Multiplr: 10.0000
IntFile : EVENTS1.E
Quant Time: Jun 25 12:25 1999 Quant Results File: 200SF24.RES

Method : F:\HPCHEM\LC3\DATA\3_0624\200SF24.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0624\
Last Update : Fri Jun 25 11:28:10 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	15.71	44539176	1681.7	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	0.00	0	N.D.		A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	0.00	0	N.D.	d	A
9) 4ADNT	0.00	0	N.D.		A
10) 2ADNT	0.00	0	N.D.		A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

JM
6-25-99

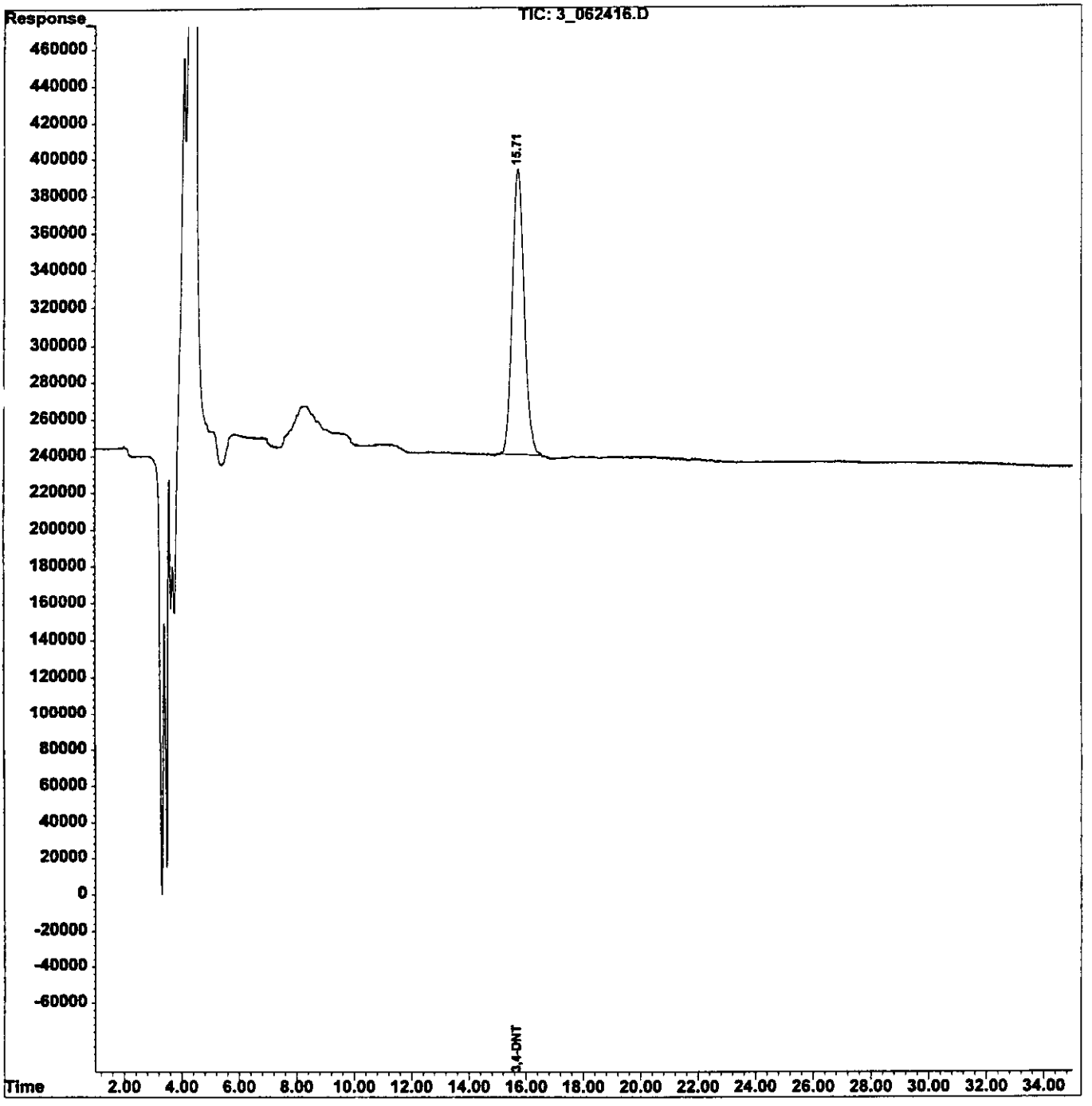
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0624\3_062416.D Vial: 16
Acq On : 25 Jun 1999 06:31 Operator: BW
Sample : 39088.08 Inst : LC3
Misc : MFAPES274 Multiplr: 10.0000
IntFile : EVENTS1.E
Quant Time: Jun 25 12:25 1999 Quant Results File: 200SF24.RES

Method : F:\HPCHEM\LC3\DATA\3_0624\200SF24.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0624\
Last Update : Fri Jun 25 11:28:10 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



1D
PETN ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MFAPES274

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix: (soil/water) SOIL Lab Sample ID: 39088.08

Sample Amt: 2.0 G % Moisture: 18.6 Date Received: 06/22/99

Extraction Volume: 10 ML Date Extracted: 06/22/99

Extraction Method: SONC Date Analyzed: 07/01/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
75-11-5	PETN	250	U

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC4\DATA\4_0630\4_063050.D Vial: 50
Acq On : 01-Jul-1999, 16:33 Operator: JF
Sample : 39088.08 Inst : LC4
Misc : MFAPES274 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jul 5 10:46 1999 Quant Results File: 201SF30.RES

Method : F:\HPCHEM\LC4\DATA\4_0630\201SF30.M
Title-Path : - F:\HPCHEM\LC4\DATA\4_0630\
Last Update : Fri Jul 02 15:18:31 1999
Response via : Initial Calibration

Volume Inj. : 200uL
Signal Phase : ODS II

Compound	R.T.	Response	ug/Kg		Curve
Target Compounds:					
1) PETN	9.32W	484147	92.5	m	A

07/05/99

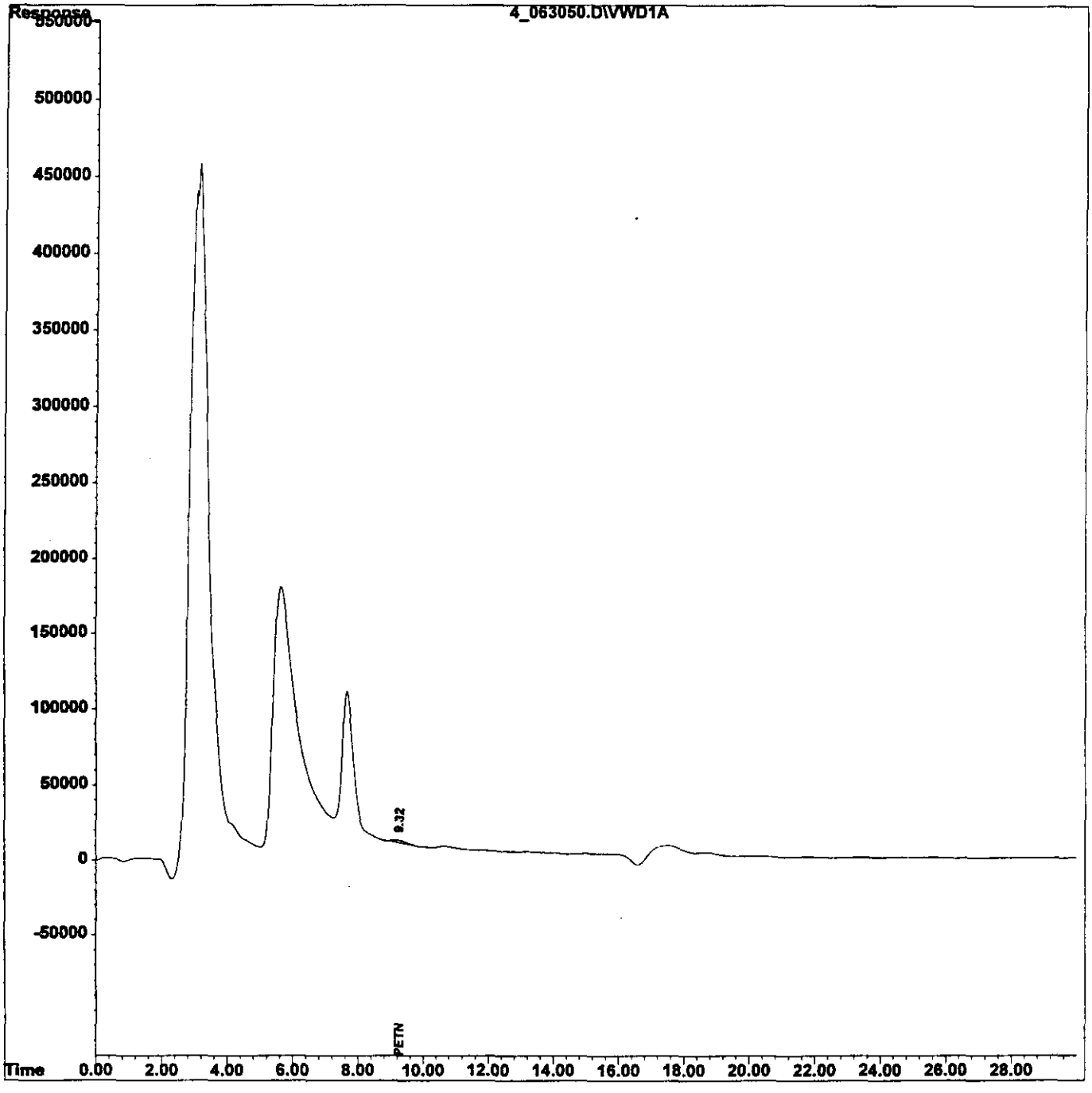
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC4\DATA\4_0630\4_063050.D Vial: 50
Acq On : 01-Jul-1999, 16:33 Operator: JF
Sample : 39088.08 Inst : LC4
Misc : MFAPES274 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jul 5 10:46 1999 Quant Results File: 201SF30.RES

Method : F:\HPCHEM\LC4\DATA\4_0630\201SF30.M
Title-Path : - F:\HPCHEM\LC4\DATA\4_0630\
Last Update : Fri Jul 02 15:18:31 1999
Response via : Multiple Level Calibration

Volume Inj. : 200uL
Signal Phase : ODS II



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MFAPES276

Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix: (soil/water) SOIL Lab Sample ID: 39088.10

Sample Amt: 2.0 G % Moisture: 17.7 Date Received: 06/22/99

Extraction Volume: 10 ML Date Extracted: 06/22/99

Extraction Method: SONC Date Analyzed: 06/25/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	7290	
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		2000.00	

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0624\3_062417.D Vial: 17
Acq On : 25 Jun 1999 07:16 Operator: BW
Sample : 39088.10 Inst : LC3
Misc : MFAPES276 Multiplr: 10.0000
IntFile : EVENTS1.E
Quant Time: Jun 25 12:28 1999 Quant Results File: 200SF24.RES

Method : F:\HPCHEM\LC3\DATA\3_0624\200SF24.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0624\
Last Update : Fri Jun 25 11:28:10 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	15.75	46141211	1742.2	m	A
Target Compounds:					
1) HMX	5.15	14915460	665.4	*	A
2) RDX	7.73	190641445	7288.5	m*	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	0.00	0	N.D.	d	A
9) 4ADNT	0.00	0	N.D.		A
10) 2ADNT	18.50	2855022	62.6	mJ	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

JM
6-25-99
Jun
1 Jun
06/26/99

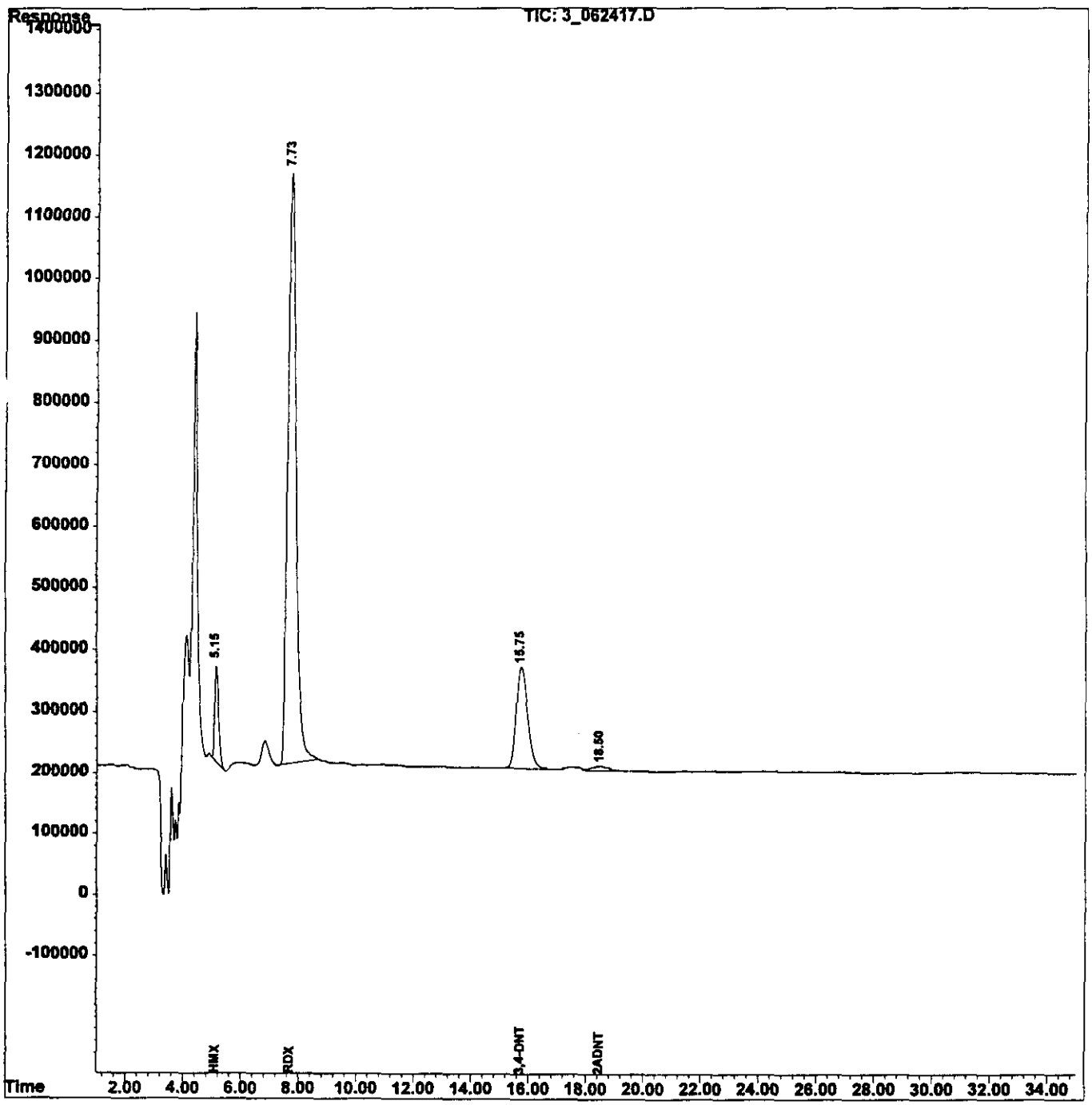
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0624\3_062417.D Vial: 17
Acq On : 25 Jun 1999 07:16 Operator: BW
Sample : 39088.10 Inst : LC3
Misc : MFAPES276 Multiplr: 10.0000
IntFile : EVENTS1.E
Quant Time: Jun 25 12:28 1999 Quant Results File: 200SF24.RES

Method : F:\HPCHEM\LC3\DATA\3_0624\200SF24.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0624\
Last Update : Fri Jun 25 11:28:10 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Data File : F:\HPCHEM\LC5\DATA\5_0624\5_062449.D Vial: 38
Acq On : 25 Jun 1999 15:33 Operator: SM
Sample : 39088.10 Inst : LC5
Misc : MFAPES276 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jun 25 17:30 1999 Quant Results File: 200SF20C.RES

Method : F:\HPCHEM\LC5\DATA\5_0624\200SF20C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0620\
Last Update : Fri Jun 25 17:26:04 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

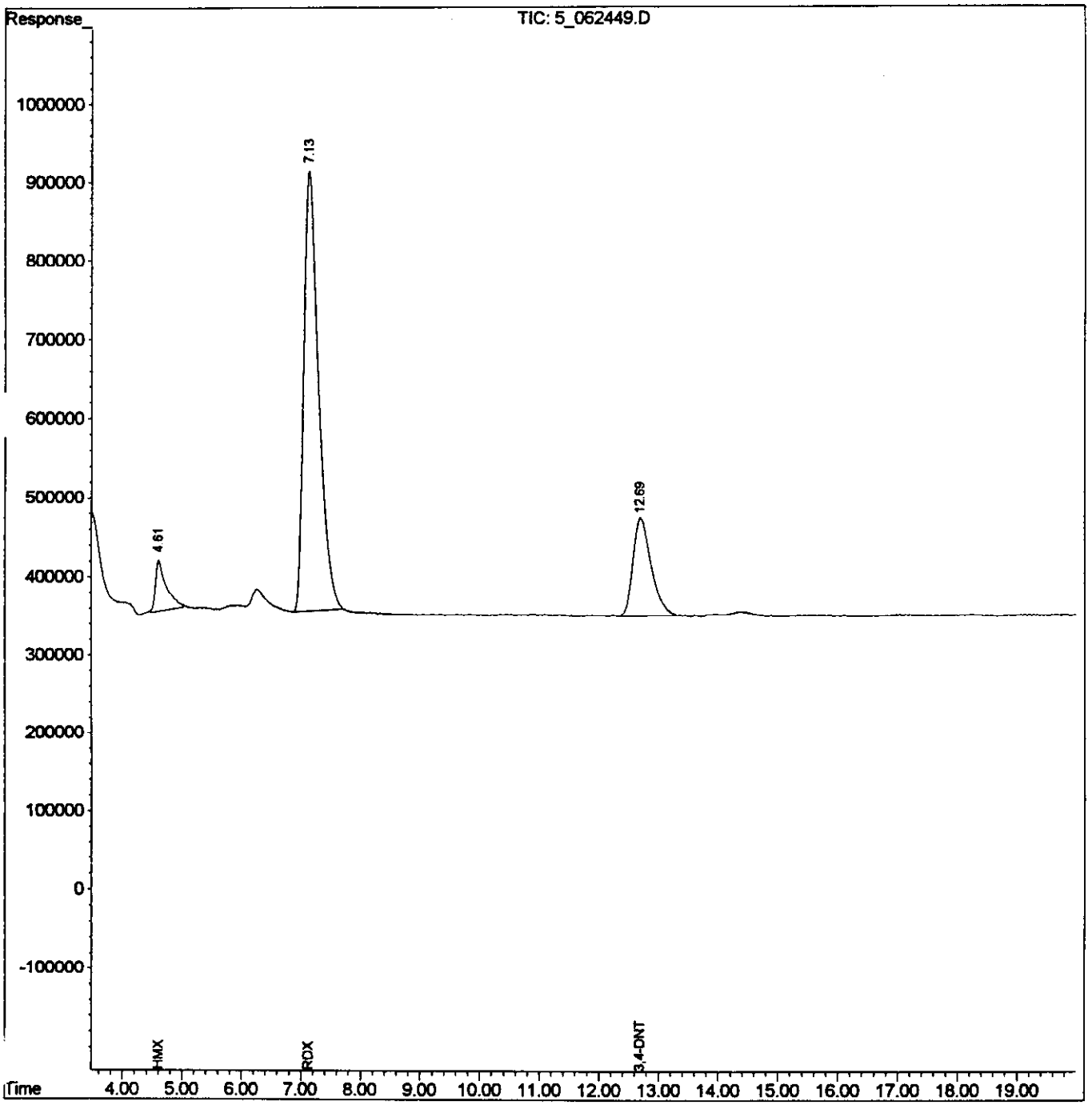
Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.69	26640842	2250.8	m	A
Target Compounds:					
1) A HMX	4.61W	8279942	790.2	m	A
2) B RDX	7.13	96197083	8784.8		A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.		A
8) A TNT	0.00	0	N.D.		A
9) B 4ADNT	0.00	0	N.D.		A
10) B 2ADNT	0.00	0	N.D.		A
11) A 26DNT	0.00	0	N.D.	d	A
12) B 24DNT	0.00	0	N.D.	d	A

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Data File : F:\HPCHEM\LC5\DATA\5_0624\5_062449.D Vial: 38
Acq On : 25 Jun 1999 15:33 Operator: SM
Sample : 39088.10 Inst : LC5
Misc : MFAPES276 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jun 25 17:30 1999 Quant Results File: 200SF20C.RES

Method : F:\HPCHEM\LC5\DATA\5_0624\200SF20C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0620\
Last Update : Fri Jun 25 17:26:04 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
PETN ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MFAPES276

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix: (soil/water) SOIL Lab Sample ID: 39088.10

Sample Amt: 2.0 G % Moisture: 17.7 Date Received: 06/22/99

Extraction Volume: 10 ML Date Extracted: 06/22/99

Extraction Method: SONC Date Analyzed: 07/01/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
75-11-5	PETN	250	U

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC4\DATA\4_0630\4_063051.D Vial: 51
Acq On : 01-Jul-1999, 17:07 Operator: JF
Sample : 39088.10 Inst : LC4
Misc : MFAPES276 Multiplr: 10.0000
ntFile : EVENTS.E
Quant Time: Jul 5 10:38 1999 Quant Results File: 201SF30.RES

Method : F:\HPCHEM\LC4\DATA\4_0630\201SF30.M
Title-Path : - F:\HPCHEM\LC4\DATA\4_0630\
Last Update : Fri Jul 02 15:18:31 1999
Response via : Initial Calibration

Volume Inj. : 200uL
Signal Phase : ODS II

Compound	R.T.	Response	ug/Kg	Curve
Target Compounds:				
1) PETN	0.00	0	N.D.	A

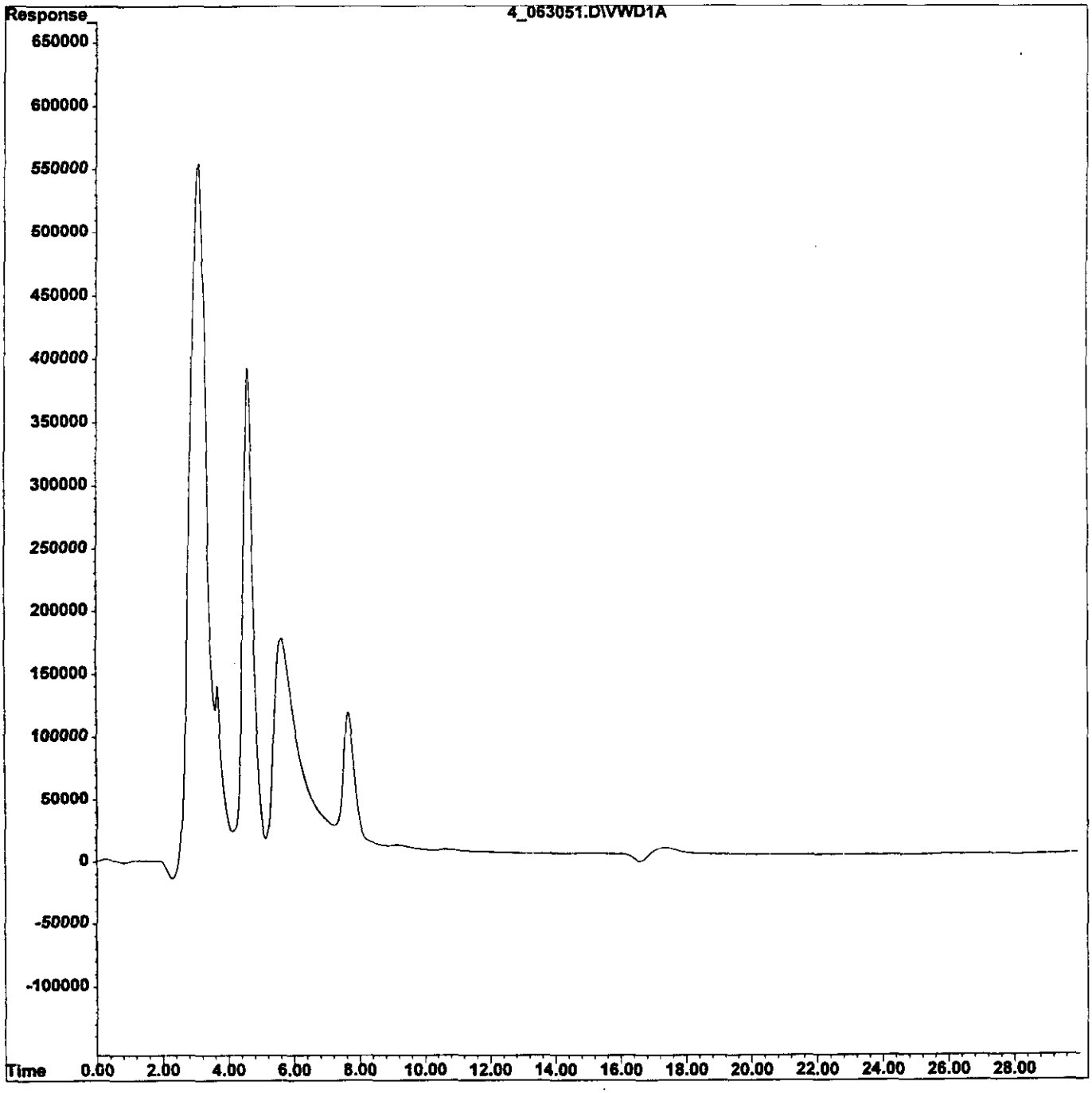
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC4\DATA\4_0630\4_063051.D Vial: 51
Acq On : 01-Jul-1999, 17:07 Operator: JF
Sample : 39088.10 Inst : LC4
Misc : MFAPES276 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jul 5 10:38 1999 Quant Results File: 201SF30.RES

Method : F:\HPCHEM\LC4\DATA\4_0630\201SF30.M
Title-Path : - F:\HPCHEM\LC4\DATA\4_0630\
Last Update : Fri Jul 02 15:18:31 1999
Response via : Multiple Level Calibration

Volume Inj. : 200uL
Signal Phase : ODS II



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MFAPES278

Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix: (soil/water) SOIL Lab Sample ID: 39088.12

Sample Amt: 2.0 G % Moisture: 17.7 Date Received: 06/22/99

Extraction Volume: 10 ML Date Extracted: 06/22/99

Extraction Method: SONC Date Analyzed: 06/25/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	2920	
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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0624\3_062420.D Vial: 20
Acq On : 25 Jun 1999 09:29 Operator: BW
Sample : 39088.12 Inst : LC3
Misc : MFAPES278 Multiplr: 10.0000
IntFile : EVENTS1.E
Quant Time: Jun 26 10:39 1999 Quant Results File: 200SF24.RES

Method : F:\HPCHEM\LC3\DATA\3_0624\200SF24.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0624\
Last Update : Sat Jun 26 10:29:16 1999
Response via : Initial Calibration

07/31/99

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	15.72	47430497	1790.9	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	7.71	76342019	2918.7	m*	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	0.00	0	N.D.	d	A
9) 4ADNT	17.61	412419	10.4	mJ	A
10) 2ADNT	0.00	0	N.D.	d	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

6-26-99

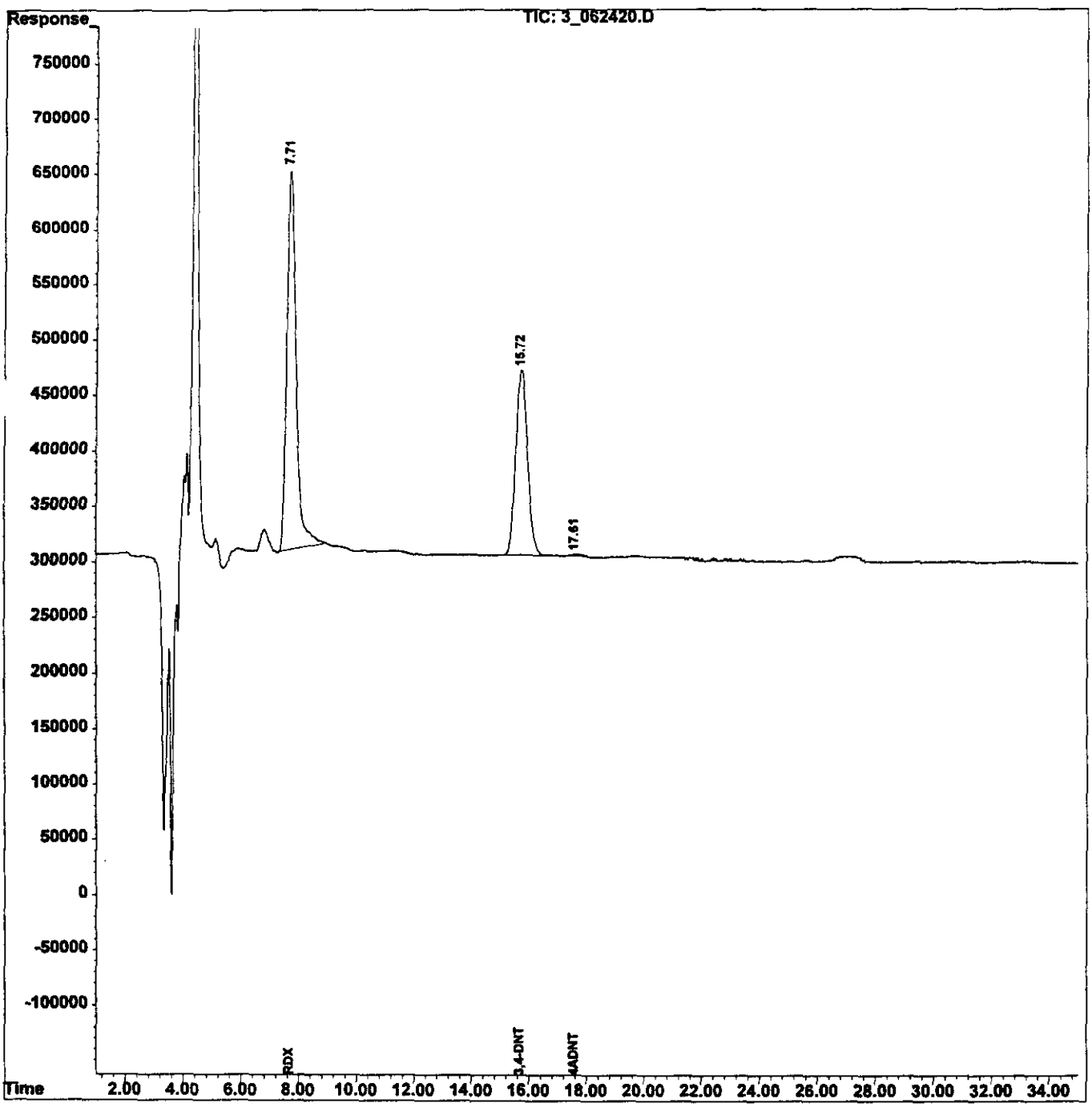
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0624\3_062420.D Vial: 20
Acq On : 25 Jun 1999 09:29 Operator: BW
Sample : 39088.12 Inst : LC3
Misc : MFAPES278 Multiplr: 10.0000
IntFile : EVENTS1.E
Quant Time: Jun 26 10:39 1999 Quant Results File: 200SF24.RES

Method : F:\HPCHEM\LC3\DATA\3_0624\200SF24.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0624\
Last Update : Sat Jun 26 10:29:16 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Data File : F:\HPCHEM\LC5\DATA\5_0624\5_062443.D Vial: 32
Acq On : 25 Jun 1999 11:34 Operator: SM
Sample : 39088.12 Inst : LC5
Misc : MFAPES278 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jun 25 15:01 1999 Quant Results File: 200SF20C.RES

Method : F:\HPCHEM\LC5\DATA\5_0624\200SF20C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0620\
Last Update : Fri Jun 25 14:54:40 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

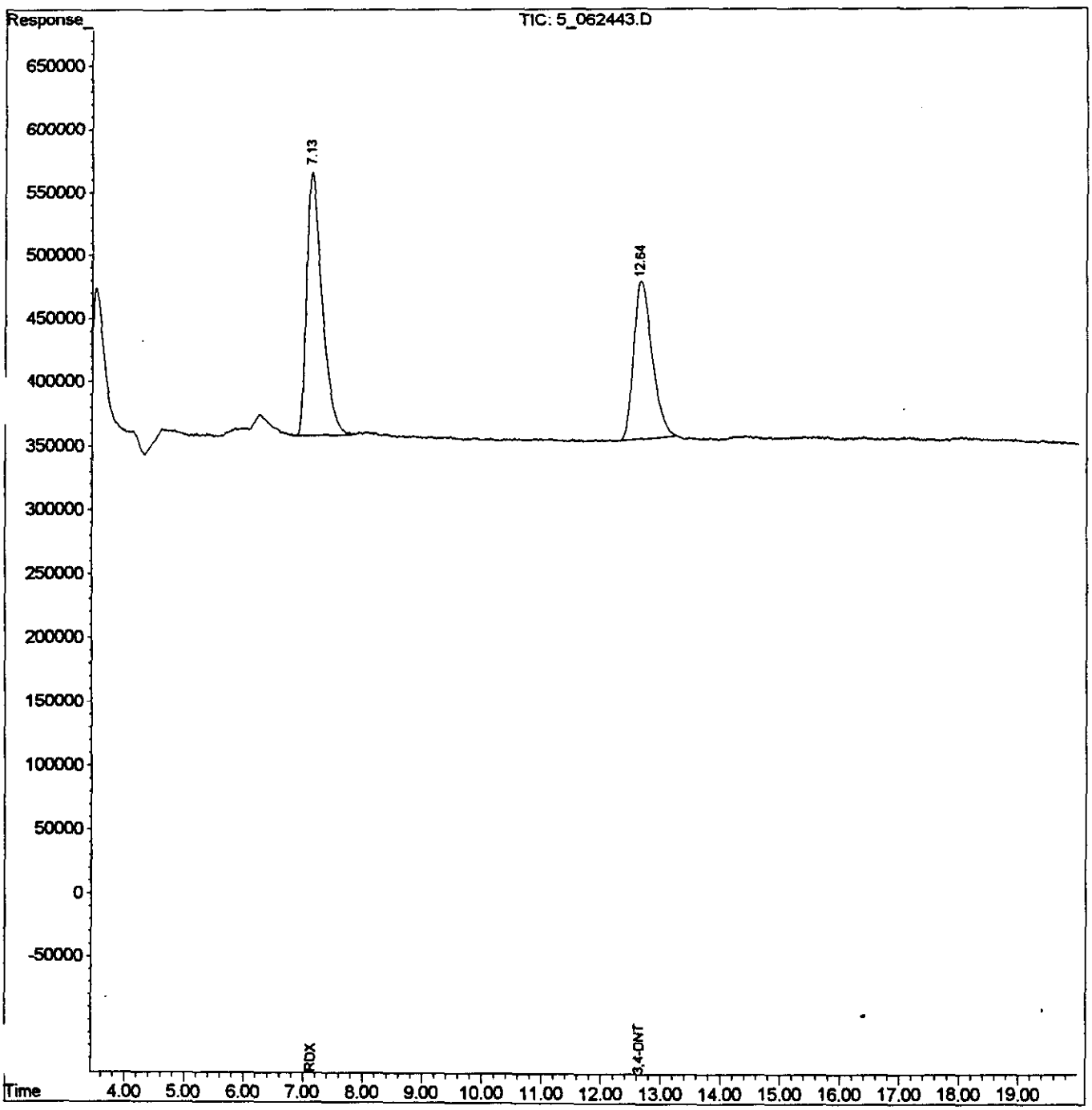
Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.64W	26730496	2258.4	m	A
Target Compounds:					
1) A HMX	0.00	0	N.D.		A
2) B RDX	7.13W	37244269	3401.2	m	A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.		A
8) A TNT	0.00	0	N.D.		A
9) B 4ADNT	0.00	0	N.D.		A
10) B 2ADNT	0.00	0	N.D.		A
11) A 26DNT	0.00	0	N.D.	d	A
12) B 24DNT	0.00	0	N.D.	d	A

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Data File : F:\HPCHEM\LC5\DATA\5_0624\5_062443.D Vial: 32
Acq On : 25 Jun 1999 11:34 Operator: SM
Sample : 39088.12 Inst : LC5
Misc : MFAPES278 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jun 25 15:01 1999 Quant Results File: 200SF20C.RES

Method : F:\HPCHEM\LC5\DATA\5_0624\200SF20C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0620\
Last Update : Fri Jun 25 14:54:40 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
PETN ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MFAPES278

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix: (soil/water) SOIL Lab Sample ID: 39088.12

Sample Amt: 2.0 G % Moisture: 17.7 Date Received: 06/22/99

Extraction Volume: 10 ML Date Extracted: 06/22/99

Extraction Method: SONC Date Analyzed: 07/01/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
75-11-5	PETN	250	U

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC4\DATA\4_0630\4_063052.D
Acq On : 01-Jul-1999, 17:40
Sample : 39088.12
Misc : MFAPES278
ntFile : EVENTS.E
Quant Time: Jul 5 10:39 1999 Quant Results File: 201SF30.RES

Vial: 52
Operator: JF
Inst : ~~G1314A~~ LC4
Multiplr: 10.0000

JF 07/05/99

Method : F:\HPCHEM\LC4\DATA\4_0630\201SF30.M
Title-Path : - F:\HPCHEM\LC4\DATA\4_0630\
Last Update : Fri Jul 02 15:18:31 1999
Response via : Initial Calibration

07/05/99

Volume Inj. : 200uL
Signal Phase : ODS II

Compound	R.T.	Response	ug/Kg	Curve
Target Compounds:				
1) PETN	0.00	0	N.D.	A

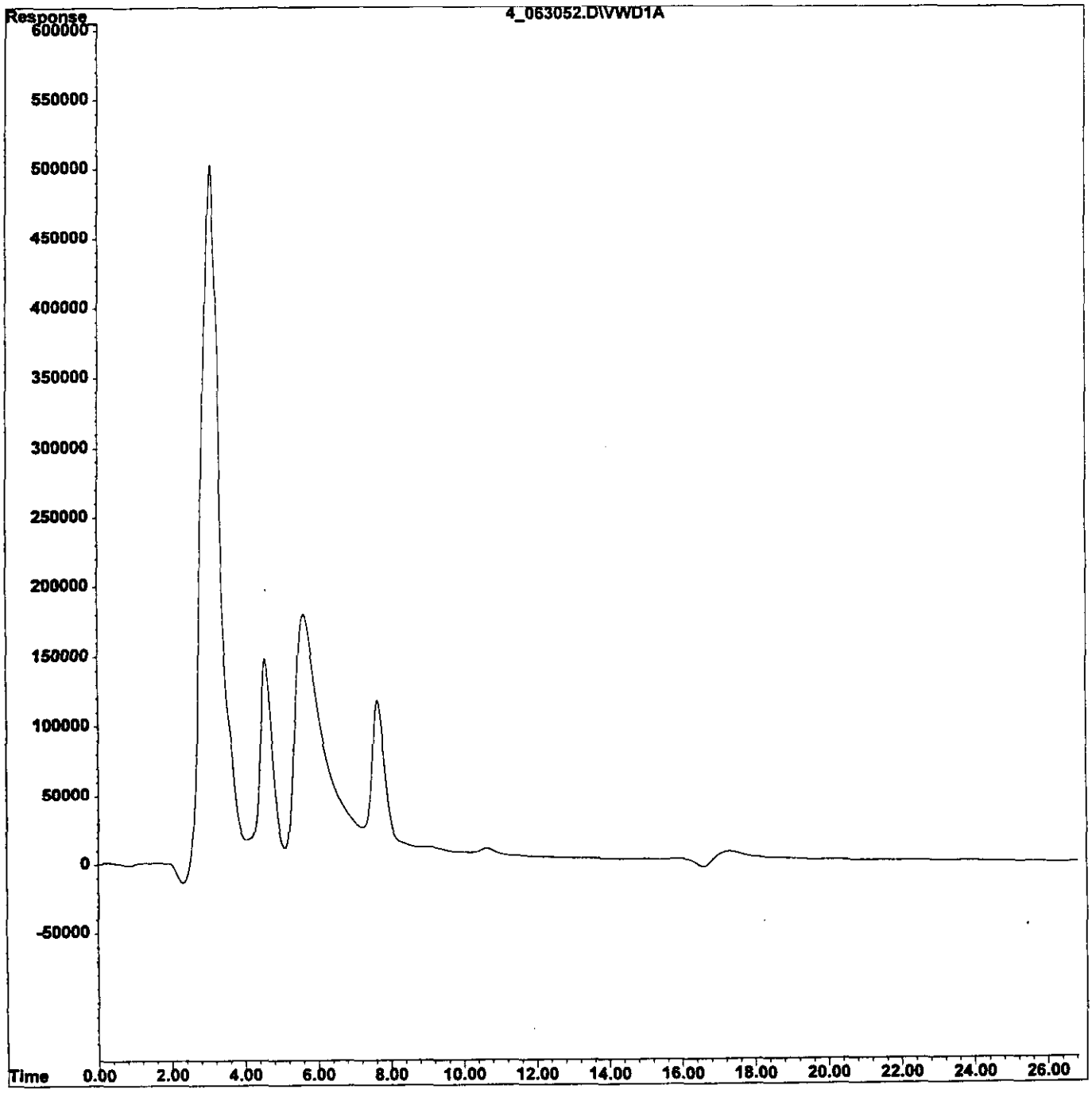
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC4\DATA\4_0630\4_063052.D Vial: 52
Acq On : 01-Jul-1999, 17:40 Operator: JF
Sample : 39088.12 Inst : ~~G1314A~~ LC4
Misc : MFAPES278 Multiplr: 10.0000 07/05/99
IntFile : EVENTS.E
Quant Time: Jul 5 10:39 1999 Quant Results File: 201SF30.RES

Method : F:\HPCHEM\LC4\DATA\4_0630\201SF30.M
Title-Path : - F:\HPCHEM\LC4\DATA\4_0630\
Last Update : Fri Jul 02 15:18:31 1999
Response via : Multiple Level Calibration

Volume Inj. : 200uL
Signal Phase : ODS II



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MFARB062199

.b Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix: (soil/water) WATER Lab Sample ID: 39088.17

Sample Amt: 5 ML % Moisture: _____ Date Received: 06/22/99

Extraction Volume: 5 ML Date Extracted: 06/23/99

Extraction Method: SEPF Date Analyzed: 06/26/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: 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	7.90	U
99-08-1	3NT	8.00	U
Surrogate amount spiked		200.00	

FORM I

Data File : F:\HPCHEM\LC1\DATA\1_0625\1_062534.D Vial: 34
Acq On : 26 Jun 1999 13:33 Operator: SM
Sample : 39088.17 Inst : LC1
Misc : MFARB062199 Multiplr: 2.0000
IntFile : EVENTS.E
Quant Time: Jul 15 15:48 1999 Quant Results File: 200WF25H.RES

Method : F:\HPCHEM\LC1\DATA\1_0625\200WF25H.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0625\
Last Update : Mon Jun 28 10:39:24 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/L		Curv
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	14.93	11130005	179.8	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	0.00	0	N.D.		A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	0.00	0	N.D.		A
9) 4ADNT	0.00	0	N.D.		A
10) 2ADNT	0.00	0	N.D.		A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

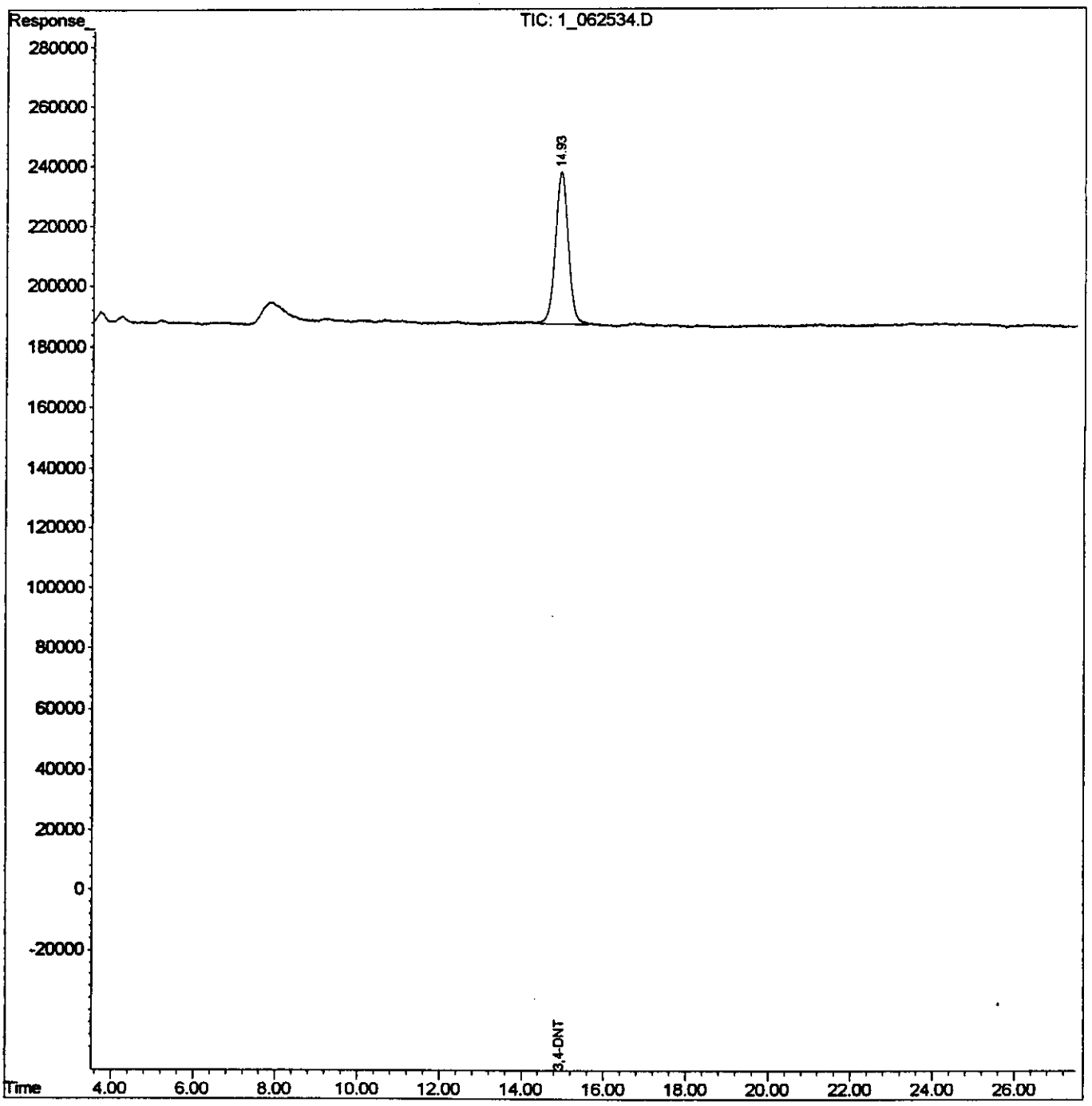
Sum 07/15/99

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
1_062534.D 200WF25H.M Thu Jul 15 15:48:43 1999 Page :

Data File : F:\HPCHEM\LC1\DATA\1_0625\1_062534.D Vial: 34
Acq On : 26 Jun 1999 13:33 Operator: SM
Sample : 39088.17 Inst : LC1
Misc : MFARB062199 Multiplr: 2.0000
IntFile : EVENTS.E
Quant Time: Jul 15 15:48 1999 Quant Results File: 200WF25H.RES

Method : F:\HPCHEM\LC1\DATA\1_0625\200WF25H.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0625\
Last Update : Mon Jun 28 10:39:24 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



1D
PETN ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

MFARB062199

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

Matrix: (soil/water) WATER Lab Sample ID: 39088.17

Sample Amt: 5 ML % Moisture: _____ Date Received: 06/22/99

Extraction Volume: 5 ML Date Extracted: 06/25/99

Extraction Method: SEPF Date Analyzed: 06/30/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/L	Q
75-11-5	PETN	20.0	U

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC4\DATA\4_0630\4_063015.D Vial: 15
Acq On : 30-Jun-1999, 21:14 Operator: JF
Sample : 39088.17 Inst : LC4
Misc : MFARB062199 Multiplr: 2.0000
IntFile : EVENTS.E
Quant Time: Jul 1 9:33 1999 Quant Results File: 201WF30.RES

07/03/99

Method : F:\HPCHEM\LC4\DATA\4_0630\201WF30.M
Title-Path : - F:\HPCHEM\LC4\DATA\4_0630\
Last Update : Thu Jul 01 09:24:29 1999
Response via : Initial Calibration

Volume Inj. : 200uL
Signal Phase : ODS II

Compound	R.T.	Response	ug/L	Curve
Target Compounds:				
1) PETN	0.00	0	N.D.	L

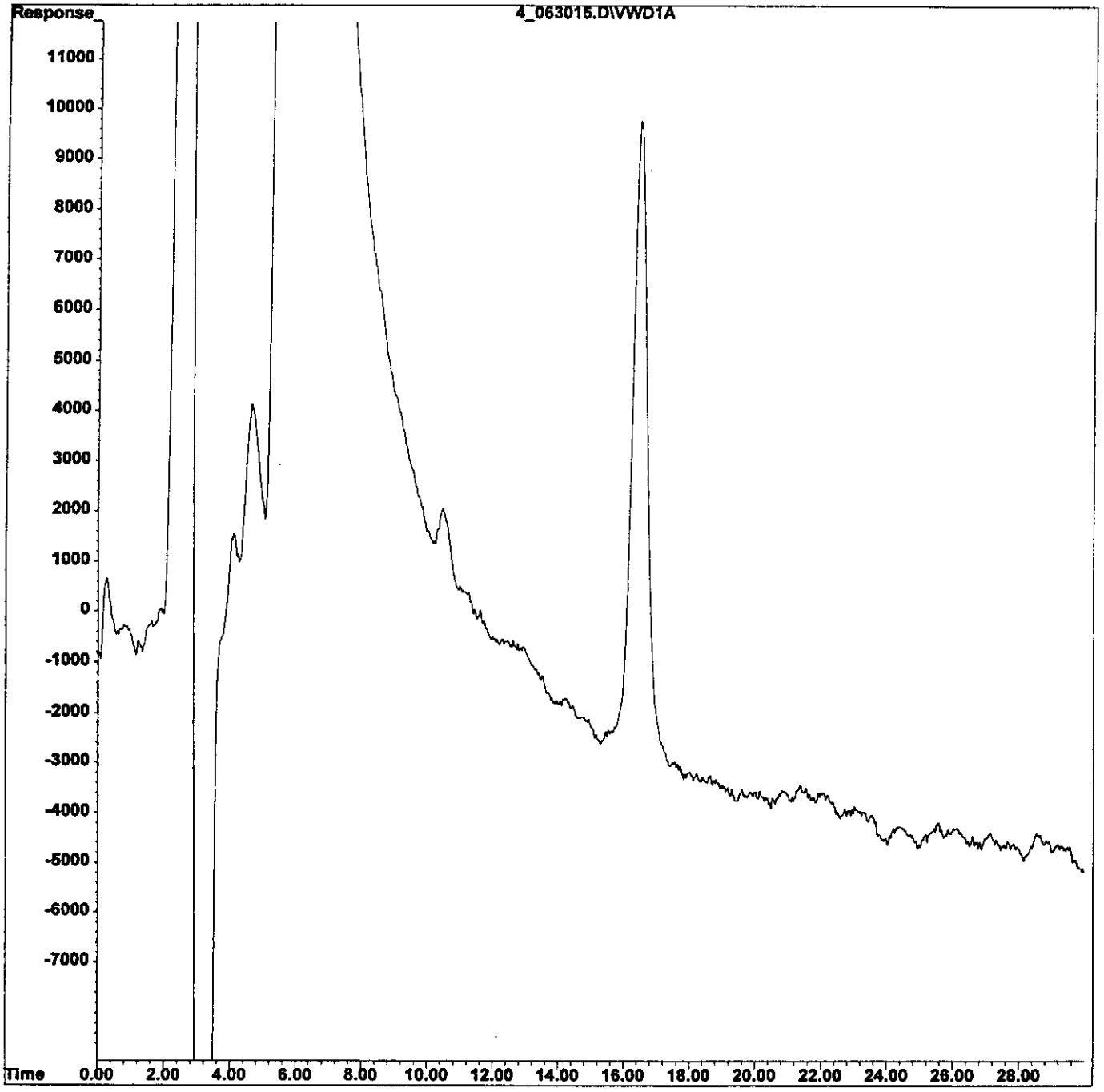
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
4_063015.D 201WF30.M Thu Jul 01 09:40:35 1999

Chromatographic Report

Data File : F:\HPCHEM\LC4\DATA\4_0630\4_063015.D Vial: 15
Acq On : 30-Jun-1999, 21:14 Operator: JF
Sample : 39088.17 Inst : LC4
Misc : MFARB062199 Multiplr: 2.0000
IntFile : EVENTS.E
Quant Time: Jul 1 9:33 1999 Quant Results File: 201WF30.RES

Method : F:\HPCHEM\LC4\DATA\4_0630\201WF30.M
Title-Path : - F:\HPCHEM\LC4\DATA\4_0630\
Last Update : Thu Jul 01 09:24:29 1999
Response via : Multiple Level Calibration

Volume Inj. : 200uL
Signal Phase : ODS II



8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

LC Column: METASIL Init. Calib. Date(s): 06/19/99 06/20/99

Instrument ID: LC5

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 12.36

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	06/19/99	2044	0.00	*
02	EXPL1A	L1A 5-186	06/19/99	2149	12.27	
03	EXPL2A	L2A 5-185	06/19/99	2221	12.27	
04	EXPL3A	L3A 6-5	06/19/99	2254	12.31	
05	EXPL4A	L4A 5-183	06/19/99	2326	12.25	
06	EXPL5A	L5A 5-184	06/19/99	2359	12.27	
07	EXPL1B	L1B 5-191	06/20/99	0031	0.00	*
08	EXPL2B	L2B 5-190	06/20/99	0104	0.00	*
09	EXPL3B	L3B 6-3	06/20/99	0137	0.00	*
10	EXPL4B	L4B 5-188	06/20/99	0209	0.00	*
11	EXPL5B	L5B 5-205	06/20/99	0242	0.00	*
12	EXPL3A	L3A 6-03	06/24/99	2235	12.44	
13	EXPL3B	L3B 6-05	06/24/99	2307	0.00	*
14	BL0622SF	BL0622SF	06/25/99	0432	12.41	
15	EXPL3A	L3A 6-05	06/25/99	0505	12.38	
16	EXPL3B	L3B 6-03	06/25/99	0537	0.00	*
17	MFAPES270	39088.01	06/25/99	0610	12.10	
18	MFAPES274	39088.08	06/25/99	1029	12.36	
19	MFAPES278	39088.12	06/25/99	1134	12.64	
20	MFAPES280	39088.14	06/25/99	1207	12.72	
21	EXPL3A	L3A 6-05	06/25/99	1344	12.67	
22	EXPL3B	L3B 6-03	06/25/99	1417	0.00	*
23	MFAPES276	39088.10	06/25/99	1533	12.69	
24	EXPL3A	L3A 6-05	06/25/99	1606	12.60	
25	EXPL3B	L3B 6-03	06/25/99	1638	0.00	*
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Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

LC Column: CARBOSORB Init. Calib. Date(s): 06/24/99 06/24/99

Instrument ID: LC3

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 15.38

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #
01	INSTRUMENT BLANK	INSTRUMENT B	06/24/99	1922	0.00 *
02	EXPL1	L1 5-190A	06/24/99	2051	15.33
03	EXPL2	L2 5-173	06/24/99	2136	15.31
04	EXPL3	L3 6-34	06/24/99	2220	15.33
05	EXPL4	L4 5-192	06/24/99	2305	15.35
06	EXPL5	L5 5-141	06/24/99	2349	15.37
07	BL0622SF	BL0622SF	06/25/99	0034	15.42
08	LC0622SF	LC0622SF	06/25/99	0119	15.56
09	LD0622SF	LD0622SF	06/25/99	0203	15.58
10	MFAPES270	39088.01	06/25/99	0248	15.54
11	MFAPES270MS	39088.01MS	06/25/99	0332	15.63
12	MFAPES270MSD	39088.01MSD	06/25/99	0417	15.67
13	MFAPES270FD	39088.02	06/25/99	0502	15.68
14	MFAPES272	39088.06	06/25/99	0546	15.70
15	MFAPES274	39088.08	06/25/99	0631	15.71
16	MFAPES276	39088.10	06/25/99	0716	15.75
17	EXPL3	L3 6-34	06/25/99	0845	15.73
18	MFAPES278	39088.12	06/25/99	0929	15.72
19	MFAPES280	39088.14	06/25/99	1014	15.74
20	EXPL3	L3 6-34	06/25/99	1655	15.22
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Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

LC Column: CARBOSORB Init. Calib. Date(s): 06/25/99 06/25/99

Instrument ID: LC1

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 14.81

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #
01	INSTRUMENT BLANK	INSTRUMENT B	06/25/99	1846	0.00 *
02	EXPL1	L1 6-41	06/25/99	2015	14.75
03	EXPL2	L2 6-40	06/25/99	2100	14.92
04	EXPL3	L3 6-39	06/25/99	2145	14.71
05	EXPL4	L4 6-38	06/25/99	2229	14.86
06	EXPL5	L5 5-102	06/25/99	2314	14.74
07	EXPL3	L3 6-39	06/26/99	0811	14.78
08	BL0623WH	BL0623WH	06/26/99	1119	14.91
09	LC0623WH	LC0623WH	06/26/99	1204	15.04
10	LD0623WH	LD0623WH	06/26/99	1248	15.01
11	MFARB062199	39088.17	06/26/99	1333	14.93
12	MFARB062199MS	39088.17MS	06/26/99	1418	14.95
13	MFARB062199MSD	39088.17MSD	06/26/99	1503	14.95
14	EXPL3	L3 6-39	06/26/99	1556	14.92
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Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

LC Column: METASIL Init. Calib. Date(s): 07/27/99 07/27/99

Instrument ID: LC2

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 15.76

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	07/27/99	1323	0.00	*
02	EXPL1A	L1A 6-95	07/27/99	1352	15.74	
03	EXPL2A	L2A 6-94	07/27/99	1420	15.71	
04	EXPL3A	L3A 6-93	07/27/99	1448	15.69	
05	EXPL4A	L4A 6-101	07/27/99	1518	15.66	
06	EXPL5A	L5A 6-91	07/27/99	1547	15.64	
07	EXPL1B	L1B 6-85	07/27/99	1615	0.00	*
08	EXPL2B	L2B 6-86	07/27/99	1643	0.00	*
09	EXPL3B	L3B 6-87	07/27/99	1711	0.00	*
10	EXPL4B	L4B 6-88	07/27/99	1740	0.00	*
11	EXPL5B	L5B 6-89	07/27/99	1808	0.00	*
12	EXPL3B	L3B 6-87	07/27/99	2154	0.00	*
13	EXPL3A	L3A 6-93	07/27/99	2222	15.86	
14	MFAPES270FD	39088.02	07/27/99	2319	15.86	
15	MFAPES272	39088.06	07/27/99	2347	15.83	
16	EXPL3A	L3A 6-93	07/28/99	0448	16.06	
17	EXPL3B	L3B 6-87	07/28/99	0516	0.00	*
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Column to be used to flag retention time values with an asterisk
* Values outside of QC limits

FORM VIII

8D
PETN ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

LC Column: ODS II Init. Calib. Date(s): 06/30/99 06/30/99

Instrument ID: LC4

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
01	INSTRUMENT BLANK	INSTRUMENT B	06/30/99	1330
02	PETNL1	L1 6-42	06/30/99	1436
03	PETNL2	L2 6-19	06/30/99	1509
04	PETNL3	L3 6-18	06/30/99	1542
05	PETNL4	L4 6-17	06/30/99	1615
06	PETNL5	L5 6-16	06/30/99	1648
07	PETNL3	ICV 6-26	06/30/99	1722
08	BL0625WH	BL0625WH	06/30/99	1755
09	LC0625WH	LC0625WH	06/30/99	1828
10	LD0625WH	LD0625WH	06/30/99	1901
11	MFARB062199	39088.17	06/30/99	2114
12	PETNL3	L3 6-18	06/30/99	2147
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Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

8D
PETN ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088

LC Column: ODS II Init. Calib. Date(s): 06/30/99 07/01/99

Instrument ID: LC4

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
01	INSTRUMENT BLANK	INSTRUMENT B	06/30/99	2253
02	PETNL1	L1 6-42	06/30/99	2359
03	PETNL2	L2 6-19	07/01/99	0032
04	PETNL3	L3 6-18	07/01/99	0106
05	PETNL4	L4 6-17	07/01/99	0139
06	PETNL5	L5 6-16	07/01/99	0212
07	PETNL3	ICV 6-26	07/01/99	0245
08	PETNL3	L3 6-37	07/01/99	0849
09	BL0622SG	BL0622SG	07/01/99	1102
10	LC0622SG	LC0622SG	07/01/99	1135
11	LD0622SG	LD0622SG	07/01/99	1208
12	MFAPES270	39088.01	07/01/99	1241
13	MFAPES270MS	39088.01MS	07/01/99	1315
14	MFAPES270MSD	39088.01MSD	07/01/99	1348
15	MFAPES270FD	39088.02	07/01/99	1421
16	MFAPES272	39088.06	07/01/99	1454
17	PETNL5	L5 6-62	07/01/99	1527
18	MFAPES274	39088.08	07/01/99	1633
19	MFAPES276	39088.10	07/01/99	1707
20	MFAPES278	39088.12	07/01/99	1740
21	MFAPES280	39088.14	07/01/99	1813
22	PETNL3	L3 6-37	07/01/99	1846
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Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC3

LC Column: CARBOSORB Date(s) Analyzed: 06/24/99 06/24/99

Method: 200SF24

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	208356000	235120271	221601286
RDX	276661542	284014192	248437530
TNB	584964722	608033444	550353980
DNB	591005800	676106360	638191500
TETRYL	285252455	320250182	327734580
NB	302525250	340434040	324576190
TNT	452099750	502914363	504048515
4ADNT	390915571	416911000	381949897
2ADNT	461805357	463485543	449144437
26DNT	330190625	348417742	309699578
24DNT	598686571	598282014	580825306
2NT	284593100	246653542	234639605
4NT	200159300	167017082	153280319
3NT	244890600	206096432	200008283
3,4-DNT	259474067	280250260	248666904

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	220847543	234909148	224166850	5.00
RDX	239422853	259287969	261564817	7.15
TNB	534246258	571467604	569813202	5.07
DNB	635776674	680611035	644338274	5.64
TETRYL	320793402	311071822	313020488	5.31
NB	327139496	348577600	328650515	5.35
TNT	471552451	520023037	490127623	5.63
4ADNT	378800993	415511176	396817727	4.60
2ADNT	440544593	465261156	456048217	2.35
26DNT	310230758	344896685	328687078	5.60
24DNT	590254387	606637401	594937136	1.65
2NT	234120976	251033082	250208061	8.23
4NT	153940539	165683705	168016189	11.35
3NT	202497642	216773385	214053268	8.59
3,4-DNT	266014191	269839725	264849029	4.44
MEAN RSD				5.73

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC3 Method: 200

LC Column: CARBOSORB Init. Calib Date(s): 06/24/99 06/24/99

Client Sample No.: EXPL3 Date Analyzed : 06/25/99

Lab Sample ID : L3 6-34 Time Analyzed : 0845

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D
HMX	5.15	5.06	5.16	224928281	224166850	-0.
RDX	7.71	7.43	7.77	255529568	261564817	2.
TNB	10.29	9.96	10.34	559493493	569813202	1.
DNB	12.67	12.14	12.76	645410892	644338274	-0.
TETRYL	13.63	12.91	13.75	320345615	313020488	-2.
NB	14.39	13.79	14.47	323462084	328650515	1.
TNT	16.19	15.52	16.30	503976840	490127623	-2.
4ADNT	17.42	16.22	17.64	391382943	396817727	1.
2ADNT	18.41	17.06	18.66	419072631	456048217	8.
26DNT	19.14	18.15	19.31	336815412	328687078	-2.
24DNT	19.85	18.77	20.03	563856023	594937136	5.
2NT	23.29	22.10	23.48	233741000	250208061	6.
4NT	24.95	23.59	25.17	154464626	168016189	8.
3NT	26.88	25.44	27.12	204851263	214053268	4.
3,4-DNT	15.73	14.89	15.87	255101812	264849029	3.

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC3 Method: 200SF24

LC Column: CARBOSORB Init. Calib Date(s): 06/24/99 06/24/99

Client Sample No.: EXPL3 Date Analyzed : 06/25/99

Lab Sample ID : L3 6-34 Time Analyzed : 1655

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.10	5.06	5.16	228164493	224166850	-1.8
RDX	7.53	7.43	7.77	252424553	261564817	3.5
TNB	10.09	9.96	10.34	561412558	569813202	1.5
DNB	12.34	12.14	12.76	654245988	644338274	-1.5
TETRYL	13.20	12.91	13.75	318282675	313020488	-1.7
NB	14.03	13.79	14.47	329331293	328650515	-0.2
TNT	15.79	15.52	16.30	488840803	490127623	0.3
4ADNT	16.64	16.22	17.64	394322924	396817727	0.6
2ADNT	17.55	17.06	18.66	459842400	456048217	-0.8
26DNT	18.53	18.15	19.31	319032035	328687078	2.9
24DNT	19.17	18.77	20.03	585068665	594937136	1.7
2NT	22.57	22.10	23.48	237252527	250208061	5.2
4NT	24.13	23.59	25.17	158477150	168016189	5.7
3NT	26.00	25.44	27.12	204563830	214053268	4.4
3,4-DNT	15.22	14.89	15.87	268459122	264849029	-1.4

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

HIGH WATER EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.010	0.096	0.388	1.54	6.16
RDX	0.004	0.037	0.151	0.598	2.39
TNB	0.003	0.028	0.113	0.450	1.80
DNB	0.002	0.016	0.063	0.251	1.00
TETRYL	0.003	0.034	0.140	0.554	2.21
NB	0.003	0.031	0.127	0.502	2.01
TNT	0.003	0.025	0.101	0.402	1.61
4ADNT	0.002	0.022	0.089	0.352	1.41
2ADNT	0.002	0.022	0.088	0.351	1.40
26DNT	0.004	0.037	0.150	0.596	2.38
24DNT	0.002	0.021	0.087	0.344	1.37
2NT	0.003	0.031	0.125	0.495	1.98
4NT	0.003	0.031	0.126	0.499	2.00
3NT	0.003	0.031	0.126	0.499	2.00
3,4-DNT	0.005	0.046	0.186	0.736	2.94

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.[illegible]
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 06/24/99 06/24/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	5.11	5.11	5.11	5.11	5.11
RDX	7.60	7.58	7.58	7.58	7.59
TNB	10.15	10.13	10.13	10.14	10.15
DNB	12.43	12.41	12.42	12.44	12.45
TETRYL	13.28	13.27	13.29	13.31	13.34
NB	14.09	14.09	14.10	14.12	14.13
TNT	15.86	15.86	15.86	15.89	15.91
4ADNT	16.90	16.85	16.86	16.89	16.94
2ADNT	17.76	17.77	17.80	17.84	17.89
26DNT	18.70	18.64	18.67	18.70	18.73
24DNT	19.35	19.33	19.34	19.36	19.40
2NT	22.72	22.68	22.72	22.75	22.79
4NT	24.26	24.28	24.31	24.34	24.38
3NT	26.22	26.16	26.19	26.23	26.28
3,4-DNT	15.33	15.31	15.33	15.35	15.37

COMPOUND	RT CCAL 1	RT CCAL 2
HMX	5.15	5.10
RDX	7.71	7.53
TNB	10.29	10.09
DNB	12.67	12.34
TETRYL	13.63	13.20
NB	14.38	14.03
TNT	16.19	15.79
4ADNT	17.42	16.64
2ADNT	18.41	17.55
26DNT	19.14	18.53
24DNT	19.85	19.17
2NT	23.29	22.57
4NT	24.95	24.13
3NT	26.88	26.00
3,4-DNT	15.73	15.22

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	5.11	0.017	0.050	5.06 - 5.16
RDX	7.60	0.055	0.166	7.43 - 7.76
TNB	10.15	0.063	0.190	9.96 - 10.34
DNB	12.45	0.103	0.309	12.14 - 12.76

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 06/24/99 06/24/99

COMPOUND	AVG RT	STD DEV	3X STD	RT WINDOW
TETRYL	13.33	0.139	0.416	12.91 - 13.7
NB	14.13	0.113	0.339	13.79 - 14.4
TNT	15.91	0.130	0.389	15.52 - 16.3
4ADNT	16.93	0.237	0.712	16.22 - 17.6
2ADNT	17.86	0.265	0.795	17.06 - 18.6
26DNT	18.73	0.192	0.577	18.15 - 19.3
24DNT	19.40	0.211	0.634	18.77 - 20.0
2NT	22.79	0.232	0.695	22.10 - 23.4
4NT	24.38	0.264	0.792	23.59 - 25.1
3NT	26.28	0.279	0.837	25.44 - 27.1
3,4-DNT	15.38	0.163	0.488	14.89 - 15.8

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

`b Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC5

LC Column: METASIL Date(s) Analyzed: 06/19/99 06/20/99

Method: 200SF20C

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	108359800	102092123	102502243
RDX	120375094	118843624	73077464
TNB	269686230	267786110	260374311
DNB	349134098	348293020	218653427
TETRYL	190919200	189131558	181389930
NB	201299354	202510475	127696286
TNT	233380109	234497561	228731722
4ADNT	125541935	128291073	87966911
2ADNT	278317850	288051016	174021845
26DNT	187688740	190451718	180372404
24DNT	303463400	314634241	197079188
3,4-DNT	121686803	117621208	113818210

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	109077659	101904299	104787225	3.44
RDX	118738881	116485547	109504122	18.64
TNB	278700386	261806101	267670628	2.73
DNB	343834737	338416490	319666354	17.71
TETRYL	198002068	187066981	189301947	3.19
NB	199469812	197664769	185728139	17.49
TNT	239373627	225944765	232385557	2.25
4ADNT	116196613	114633923	114526091	13.94
2ADNT	292975394	288946239	264462469	19.23
26DNT	194607072	184421065	187508200	2.92
24DNT	306998726	301461572	284727425	17.30
3,4-DNT	121474799	117194462	118359096	2.78
MEAN RSD				10.13

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC5 Method: 200S[illegible]C

LC Column: METASIL Init. Calib Date(s): 06/19/99 06/20/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 06/24/99 : 06/24/99

Lab Sample IDs : L3A 6-03 : L3B 6-05 Time Analyzed : 2235 : 2307

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.56	4.46	4.62	105885320	104787225	-1.0
RDX	7.03	6.88	7.06	121045262	109504122	-10.5
TNB	6.85	6.73	6.93	265325152	267670628	0.9
DNB	8.77	8.56	8.80	354661740	319666354	-10.9
TETRYL	10.81	10.45	11.07	161403703	189301947	14.7
NB	9.97	9.69	10.01	203045462	185728139	-9.3
TNT	10.17	9.91	10.35	232403056	232385557	-0.0
4ADNT	13.72	13.09	13.83	124037242	114526091	-8.3
2ADNT	14.09	13.45	14.21	294580818	264462469	-11.4
26DNT	12.95	12.45	13.29	186044651	187508200	0.8
24DNT	12.63	12.21	12.71	318198835	284727425	-11.8
3,4-DNT	12.44	11.93	12.79	116067535	118359096	1.9

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC5 Method: 200SF20C

LC Column: METASIL Init. Calib Date(s): 06/19/99 06/20/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 06/25/99 : 06/25/99

Lab Sample IDs : L3A 6-05 : L3B 6-03 Time Analyzed : 0505 : 0537

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.54	4.46	4.62	106336599	104787225	-1.5
RDX	6.97	6.88	7.06	120911770	109504122	-10.4
TNB	6.82	6.73	6.93	269205510	267670628	-0.6
DNB	8.68	8.56	8.80	351947161	319666354	-10.1
TETRYL	10.74	10.45	11.07	177223215	189301947	6.4
NB	9.84	9.69	10.01	205372036	185728139	-10.6
TNT	10.13	9.91	10.35	233689710	232385557	-0.6
4ADNT	13.33	13.09	13.83	122801847	114526091	-7.2
2ADNT	13.69	13.45	14.21	301122354	264462469	-13.9
26DNT	12.90	12.45	13.29	186633275	187508200	0.5
24DNT	12.37	12.21	12.71	321580489	284727425	-12.9
3,4-DNT	12.38	11.93	12.79	117088909	118359096	1.1

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC5 Method: 200

LC Column: METASIL Init. Calib Date(s): 06/19/99 06/20/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 06/25/99 : 06/

Lab Sample IDs : L3A 6-05 : L3B 6-03 Time Analyzed : 1344 : 1417

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D
HMX	4.60	4.46	4.62	102726102	104787225	2.
RDX	7.10	6.88	7.06	120921776	109504122	-10.
TNB	6.90	6.73	6.93	260028454	267670628	2.
DNB	8.84	8.56	8.80	353136827	319666354	-10.
TETRYL	11.00	10.45	11.07	176565116	189301947	6.
NB	10.06	9.69	10.01	203215658	185728139	-9.
TNT	10.30	9.91	10.35	231517280	232385557	0.
4ADNT	13.92	13.09	13.83	131457843	114526091	-14.
2ADNT	14.32	13.45	14.21	287038283	264462469	-8.
26DNT	13.17	12.45	13.29	182833928	187508200	2.
24DNT	12.77	12.21	12.71	315298749	284727425	-10.
3,4-DNT	12.67	11.93	12.79	113016767	118359096	4.

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC5 Method: 200SF20C

LC Column: METASIL Init. Calib Date(s): 06/19/99 06/20/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 06/25/99 : 06/25/99

Lab Sample IDs : L3A 6-05 : L3B 6-03 Time Analyzed : 1606 : 1638

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.59	4.46	4.62	102489724	104787225	2.2
RDX	7.12	6.88	7.06	123082634	109504122	-12.4
TNB	6.89	6.73	6.93	257941350	267670628	3.6
DNB	8.86	8.56	8.80	353480672	319666354	-10.6
TETRYL	10.95	10.45	11.07	175744644	189301947	7.2
NB	10.08	9.69	10.01	202489093	185728139	-9.0
TNT	10.27	9.91	10.35	230096684	232385557	1.0
4ADNT	13.94	13.09	13.83	131124450	114526091	-14.5
2ADNT	14.34	13.45	14.21	291650532	264462469	-10.3
26DNT	13.11	12.45	13.29	183104674	187508200	2.3
24DNT	12.79	12.21	12.71	310628846	284727425	-9.1
3,4-DNT	12.60	11.93	12.79	112267078	118359096	5.1

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

HIGH WATER EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.010	0.096	0.388	1.54	6.16
RDX	0.004	0.037	0.151	0.598	2.39
TNB	0.003	0.028	0.113	0.450	1.80
DNB	0.002	0.016	0.063	0.251	1.00
TETRYL	0.003	0.034	0.140	0.554	2.21
NB	0.003	0.031	0.127	0.502	2.01
TNT	0.003	0.025	0.101	0.402	1.61
4ADNT	0.002	0.022	0.089	0.352	1.41
2ADNT	0.002	0.022	0.088	0.351	1.40
26DNT	0.004	0.037	0.150	0.596	2.38
24DNT	0.002	0.021	0.087	0.344	1.37
2NT	0.003	0.031	0.125	0.495	1.98
4NT	0.003	0.031	0.126	0.499	2.00
3NT	0.003	0.031	0.126	0.499	2.00
3,4-DNT	0.005	0.046	0.186	0.736	2.94

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Instrument ID: LC5

LC Column: METASIL Date(s) ICAL Analyzed: 06/19/99 06/20/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	4.54	4.53	4.54	4.53	4.52
RDX	6.96	6.94	6.97	6.97	6.94
TNB	6.81	6.81	6.83	6.81	6.80
DNB	8.66	8.65	8.68	8.68	8.64
TETRYL	10.72	10.70	10.74	10.68	10.69
NB	9.83	9.82	9.86	9.85	9.81
TNT	10.08	10.09	10.12	10.08	10.09
4ADNT	13.42	13.42	13.47	13.47	13.42
2ADNT	13.78	13.80	13.87	13.83	13.76
26DNT	12.79	12.78	12.82	12.76	12.78
24DNT	12.44	12.42	12.47	12.46	12.40
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	12.27	12.27	12.31	12.25	12.27

COMPOUND	RT CCAL 1	RT CCAL 2	RT CCAL 3	RT CCAL 4	RT CCAL 5
HMX	4.56	0.00	4.54	0.00	4.60
RDX	0.00	7.03	0.00	6.97	0.00
TNB	6.85	0.00	6.82	0.00	6.90
DNB	0.00	8.76	0.00	8.68	0.00
TETRYL	10.80	0.00	10.74	0.00	11.00
NB	0.00	9.97	0.00	9.84	0.00
TNT	10.17	0.00	10.13	0.00	10.30
4ADNT	0.00	13.72	0.00	13.33	0.00
2ADNT	0.00	14.09	0.00	13.69	0.00
26DNT	12.95	0.00	12.90	0.00	13.17
24DNT	0.00	12.63	0.00	12.37	0.00
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	12.44	0.00	12.38	0.00	12.67

COMPOUND	RT CCAL 6	RT CCAL 7	RT CCAL 8
HMX	0.00	4.59	0.00
RDX	7.10	0.00	7.12
TNB	0.00	6.89	0.00
DNB	8.84	0.00	8.86

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Instrument ID: LC5

LC Column: METASIL Date(s) ICAL Analyzed: 06/19/99 06/20/99

COMPOUND	RT CCAL 6	RT CCAL 7	RT CCAL 8
TETRYL	0.00	10.94	0.00
NB	10.06	0.00	10.08
TNT	0.00	10.27	0.00
4ADNT	13.92	0.00	13.94
2ADNT	14.32	0.00	14.34
26DNT	0.00	13.11	0.00
24DNT	12.77	0.00	12.79
2NT	0.00	0.00	0.00
4NT	0.00	0.00	0.00
3NT	0.00	0.00	0.00
3,4-DNT	0.00	12.60	0.00

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	4.54	0.026	0.077	4.46 - 4.62
RDX	6.97	0.030	0.091	6.88 - 7.06
TNB	6.83	0.033	0.098	6.73 - 6.93
DNB	8.68	0.039	0.118	8.56 - 8.80
TETRYL	10.76	0.105	0.314	10.45 - 11.07
NB	9.85	0.054	0.162	9.69 - 10.01
TNT	10.13	0.074	0.223	9.91 - 10.35
4ADNT	13.46	0.122	0.366	13.09 - 13.83
2ADNT	13.83	0.127	0.382	13.45 - 14.21
26DNT	12.87	0.139	0.416	12.45 - 13.28
24DNT	12.46	0.084	0.253	12.21 - 12.71
2NT	0.00	0.000	0.000	0.00 - 0.00
4NT	0.00	0.000	0.000	0.00 - 0.00
3NT	0.00	0.000	0.000	0.00 - 0.00
3,4-DNT	12.36	0.142	0.427	11.93 - 12.79

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC2

LC Column: METASIL Date(s) Analyzed: 07/27/99 07/27/99

Method: 200SG27C

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	83427243	86165305	88306958
RDX	93167980	96092188	111119553
TNB	275941261	284235291	284041689
DNB	328999400	337711385	396407412
TETRYL	222932144	228640917	231193902
NB	260003760	272447576	315247680
TNT	289714326	294711251	294901349
4ADNT	97337402	95358459	121706283
2ADNT	305209420	314680828	358313258
26DNT	199589740	210949040	211212492
24DNT	315379640	323936584	380891677
3,4-DNT	199670894	208236033	208115371

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	89238525	87977702	87023147	2.64
RDX	113568586	118877162	106565094	10.60
TNB	285971768	282643074	282566617	1.38
DNB	400412471	413167129	375339559	10.38
TETRYL	232409602	225414318	228118177	1.73
NB	318199038	331858092	299551229	10.47
TNT	296420847	292660867	293681728	0.88
4ADNT	118881051	102673735	107191386	11.47
2ADNT	364658682	394070871	347386612	10.62
26DNT	211776272	209985446	208702598	2.46
24DNT	382624266	394486124	359463658	10.25
3,4-DNT	209026394	205411096	206091958	1.86
MEAN RSD				6.23

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC2 Method: 2008G..C

LC Column: METASIL Init. Calib Date(s): 07/27/99 07/27/99

Client Sample Nos.: EXPL3B : EXPL3A Date Analyzed : 07/27/99 : 06/25/99

Lab Sample IDs : L3B 6-87 : L3B 6-03 Time Analyzed : 2154 : 1638

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.19	5.11	5.25	88287057	87023147	-1.5
RDX	8.19	7.99	8.33	111586852	106565094	-4.7
TNB	8.25	8.16	8.32	285125706	282566617	-0.9
DNB	10.67	10.45	10.83	393501726	375339559	-4.8
TETRYL	13.61	13.19	13.89	225951330	228118177	0.9
NB	12.24	11.98	12.42	314229828	299551229	-4.9
TNT	12.87	12.60	13.04	300641827	293681728	-2.4
4ADNT	17.11	16.42	17.64	104509217	107191386	2.5
2ADNT	17.42	16.69	17.97	372892836	347386612	-7.3
26DNT	16.55	16.02	16.90	211488067	208702598	-1.3
24DNT	15.94	15.52	16.24	381043520	359463658	-6.0
3,4-DNT	15.86	15.31	16.21	209118268	206091958	-1.5

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC2 Method: 200SG27C

LC Column: METASIL Init. Calib Date(s): 07/27/99 07/27/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 07/28/99 : 07/28/99

Lab Sample IDs : L3A 6-93 : L3B 6-87 Time Analyzed : 0448 : 0516

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.23	5.11	5.25	89961648	87023147	-3.4
RDX	8.27	7.99	8.33	114820103	106565094	-7.7
TNB	8.28	8.16	8.32	295403784	282566617	-4.5
DNB	10.75	10.45	10.83	406356148	375339559	-8.3
TETRYL	13.77	13.19	13.89	233611801	228118177	-2.4
NB	12.34	11.98	12.42	316419013	299551229	-5.6
TNT	12.96	12.60	13.04	310824750	293681728	-5.8
4ADNT	17.45	16.42	17.64	117719173	107191386	-9.8
2ADNT	17.78	16.69	17.97	374122519	347386612	-7.7
26DNT	16.75	16.02	16.90	219358995	208702598	-5.1
24DNT	16.11	15.52	16.24	394921370	359463658	-9.9
3,4-DNT	16.06	15.31	16.21	215464760	206091958	-4.5

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

HIGH WATER EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level
HMX	0.010	0.096	0.388	1.54	[illegible]
RDX	0.004	0.037	0.151	0.598	[illegible]
TNB	0.003	0.028	0.113	0.450	[illegible]
DNB	0.002	0.016	0.063	0.251	[illegible]
TETRYL	0.003	0.034	0.140	0.554	[illegible]
NB	0.003	0.031	0.127	0.502	[illegible]
TNT	0.003	0.025	0.101	0.402	[illegible]
4ADNT	0.002	0.022	0.089	0.352	[illegible]
2ADNT	0.002	0.022	0.088	0.351	[illegible]
26DNT	0.004	0.037	0.150	0.596	[illegible]
24DNT	0.002	0.021	0.087	0.344	[illegible]
2NT	0.003	0.031	0.125	0.495	[illegible]
4NT	0.003	0.031	0.126	0.499	[illegible]
3NT	0.003	0.031	0.126	0.499	[illegible]
3,4-DNT	0.005	0.046	0.186	0.736	[illegible]

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level
HMX#2	0.070	0.350	0.875	1.75	[illegible]
RDX#2	0.050	0.250	0.625	1.25	[illegible]
TNB#2	0.046	0.230	0.575	1.15	[illegible]
DNB#2	0.040	0.200	0.500	1.00	[illegible]
TETRYL#2	0.090	0.450	1.13	2.25	[illegible]
NB#2	0.050	0.250	0.625	1.25	[illegible]
TNT#2	0.046	0.230	0.575	1.15	[illegible]
4ADNT#2	0.092	0.460	1.15	2.30	[illegible]
2ADNT#2	0.100	0.500	1.25	2.50	[illegible]
26DNT#2	0.050	0.250	0.625	1.25	[illegible]
24DNT#2	0.050	0.250	0.625	1.25	[illegible]
2NT#2	0.050	0.250	0.625	1.25	[illegible]
4NT#2	0.050	0.250	0.625	1.25	[illegible]
3NT#2	0.100	0.500	1.25	2.50	[illegible]
3,4-DNT#2	0.066	0.330	0.825	1.65	[illegible]

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Instrument ID: LC2

LC Column: METASIL Date(s) ICAL Analyzed: 07/27/99 07/27/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	5.19	5.18	5.18	5.16	5.16
RDX	8.09	8.15	8.15	8.15	8.15
TNB	8.26	8.22	8.25	8.21	8.21
DNB	10.55	10.60	10.62	10.63	10.63
TETRYL	13.54	13.50	13.48	13.46	13.44
NB	12.11	12.16	12.18	12.19	12.18
TNT	12.84	12.80	12.79	12.77	12.75
4ADNT	16.83	16.93	16.98	16.98	16.94
2ADNT	17.13	17.24	17.25	17.26	17.26
26DNT	16.46	16.41	16.38	16.36	16.33
24DNT	15.73	15.82	15.84	15.85	15.86
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	15.74	15.71	15.69	15.66	15.64

COMPOUND	RT CCAL 1	RT CCAL 2	RT CCAL 3	RT CCAL 4
HMX	0.00	5.19	5.23	0.00
RDX	8.19	0.00	0.00	8.27
TNB	0.00	8.25	8.28	0.00
DNB	10.67	0.00	0.00	10.75
TETRYL	0.00	13.61	13.77	0.00
NB	12.24	0.00	0.00	12.34
TNT	0.00	12.87	12.96	0.00
4ADNT	17.10	0.00	0.00	17.45
2ADNT	17.42	0.00	0.00	17.78
26DNT	0.00	16.55	16.75	0.00
24DNT	15.94	0.00	0.00	16.11
2NT	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00
3,4-DNT	0.00	15.86	16.06	0.00

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	5.18	0.024	0.072	5.11 - 5.25
RDX	8.16	0.055	0.166	7.99 - 8.32
TNB	8.24	0.027	0.081	8.16 - 8.32
DNB	10.64	0.062	0.187	10.45 - 10.83

FORM IX

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Instrument ID: LC2

LC Column: METASIL Date(s) ICAL Analyzed: 07/27/99 07/27/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	13.54	0.115	0.345	13.19 - 13.88
NB	12.20	0.073	0.218	11.98 - 12.42
TNT	12.82	0.072	0.216	12.60 - 13.04
4ADNT	17.03	0.202	0.605	16.42 - 17.64
2ADNT	17.33	0.214	0.642	16.69 - 17.97
26DNT	16.46	0.146	0.438	16.02 - 16.90
24DNT	15.88	0.119	0.358	15.52 - 16.24
2NT	0.00	0.000	0.000	0.00 - 0.00
4NT	0.00	0.000	0.000	0.00 - 0.00
3NT	0.00	0.000	0.000	0.00 - 0.00
3,4-DNT	15.76	0.148	0.445	15.31 - 16.20

FORM IX

6E

SOIL PETN INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC4

LC Column: ODS II Date(s) Analyzed: 06/30/99 07/01/99

Method: 201SF30

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
PETN	40086	53009	55645

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
PETN	56091	56808	52328	13.36
MEAN RSD				13.36

FORM VI

7E

PETN CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC4 Method: 20

LC Column: ODS II Init. Calib Date(s): 06/30/99 07/01/99

Client Sample No.: PETNL3 Date Analyzed : 07/01/99

Lab Sample ID : ICV 6-26 Time Analyzed : 0245

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%I
PETN	9.08	9.00	9.22	55095	52328	-5.

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

PETN CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC4 Method: 201SF30

LC Column: ODS II Init. Calib Date(s): 06/30/99 07/01/99

Client Sample No.: PETNL3 Date Analyzed : 07/01/99

Lab Sample ID : L3 6-37 Time Analyzed : 0849

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
PETN	9.09	9.00	9.22	55830	52328	-6.7

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

7E

PETN CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC4 Method: 201SF

LC Column: ODS II Init. Calib Date(s): 06/30/99 07/01/99

Client Sample No.: PETNL5 Date Analyzed : 07/01/99

Lab Sample ID : L5 6-62 Time Analyzed : 1527

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
PETN	9.11	9.00	9.22	51349	52328	1.9

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

PETN CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC4 Method: 201SF30

LC Column: ODS II Init. Calib Date(s): 06/30/99 07/01/99

Client Sample No.: PETNL3 Date Analyzed : 07/01/99

Lab Sample ID : L3 6-37 Time Analyzed : 1846

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
PETN	9.20	9.00	9.22	56052	52328	-7.1

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL PETN CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS Level 1	Level 2	Level 3	Level 4	Leve
PETN	20.0	160	320	1280	

9E
PETN RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Instrument ID: LC4

LC Column: ODS II Date(s) ICAL Analyzed: 06/30/99 07/01/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
PETN	9.10	9.12	9.12	9.09	9.08

COMPOUND	RT CCAL 1	RT CCAL 2	RT CCAL 3	RT CCAL 4
PETN	9.08	9.09	9.11	9.20

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
PETN	9.11	0.037	0.111	9.00 - 9.22

6E

HIGH WATER EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC1

LC Column: CARBOSORB Date(s) Analyzed: 06/25/99 06/25/99

Method: 200WF25H

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	59192604	59223466	61056231
RDX	117121351	77415121	79735715
TNB	171941429	163717778	185085053
DNB	270119375	249801603	247002512
TETRYL	136673235	135378338	104396007
NB	203105161	233889167	160859968
TNT	178662400	226505261	172318914
4ADNT	179036818	179318394	120634870
2ADNT	248436364	255815622	176786376
26DNT	161478378	145123054	120914048
24DNT	318473333	240901502	229603857
2NT	167824194	117675993	114011299
4NT	121635161	94088091	81062753
3NT	147079032	105748706	101045553
3,4-DNT	101709130	156655592	116417445

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	69996325	69733068	63840339	8.70
RDX	84944998	88630179	89569473	17.88
TNB	197853241	203383681	184396236	9.09
DNB	259221780	269819161	259192886	4.18
TETRYL	104856550	115617640	119384354	13.27
NB	160906048	177879100	187327889	16.68
TNT	180075456	191643601	189841126	11.40
4ADNT	125306795	134944216	147848219	19.66
2ADNT	182604636	193257348	211380069	17.86
26DNT	128270133	133548249	137866773	11.52
24DNT	243344537	246844049	255833456	13.92
2NT	121953690	125964393	129485914	16.91
4NT	87051102	91981136	95163648	16.42
3NT	111872913	115656961	116280633	15.57
3,4-DNT	117776445	126480778	123807878	16.48
MEAN RSD				13.97

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC1 Method: 200WF-JH

LC Column: CARBOSORB Init. Calib Date(s): 06/25/99 06/25/99

Client Sample No.: EXPL3 Date Analyzed : 06/26/99

Lab Sample ID : L3 6-39 Time Analyzed : 0811

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.66	4.61	4.67	63943916	63840339	-0.2
RDX	7.17	7.09	7.21	78696005	89569473	12.1
TNB	9.75	9.63	9.85	179949929	184396236	2.4
DNB	11.93	11.78	12.10	251879731	259192886	2.8
TETRYL	12.67	12.48	12.92	108313950	119384354	9.3
NB	13.67	13.52	13.88	164971343	187327889	11.9
TNT	15.39	15.18	15.68	175111066	189841126	7.8
4ADNT	15.97	15.75	16.31	125383754	147848219	15.2*
2ADNT	16.78	16.59	17.07	177063817	211380069	16.2*
26DNT	18.09	17.83	18.39	120814740	137866773	12.4
24DNT	18.68	18.46	18.96	230753845	255833456	9.8
2NT	22.22	21.90	22.58	113078436	129485914	12.7
4NT	23.74	23.40	24.12	82038337	95163648	13.8
3NT	25.67	25.25	25.99	101466030	116280633	12.7
3,4-DNT	14.78	14.55	15.07	121338059	123807878	2.0

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC1 Method: 200

LC Column: CARBOSORB Init. Calib Date(s): 06/25/99 06/25/99

Client Sample No.: EXPL3 Date Analyzed : 06/26/99

Lab Sample ID : L3 6-39 Time Analyzed : 1556

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D
HMX	4.64	4.61	4.67	65461680	63840339	-2.5
RDX	7.15	7.09	7.21	89495075	89569473	0.1
TNB	9.78	9.63	9.85	178319244	184396236	3.3
DNB	12.01	11.78	12.10	250728752	259192886	3.3
TETRYL	12.81	12.48	12.92	108330280	119384354	9.3
NB	13.77	13.52	13.88	166636588	187327889	11.0
TNT	15.54	15.18	15.68	173008825	189841126	8.9
4ADNT	16.14	15.75	16.31	125518850	147848219	15.1
2ADNT	16.93	16.59	17.07	177520747	211380069	16.0
26DNT	18.24	17.83	18.39	120153515	137866773	12.8
24DNT	18.82	18.46	18.96	230514550	255833456	9.9
2NT	22.39	21.90	22.58	111696881	129485914	13.7
4NT	23.92	23.40	24.12	80005497	95163648	15.9
3NT	25.77	25.25	25.99	105610756	116280633	9.2
3,4-DNT	14.92	14.55	15.07	117929849	123807878	4.7

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL PETN CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS Level 1	Level 2	Level 3	Level 4	Level 5
PETN	20.0	160	320	1280	2560

FORM IX

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Instrument ID: LC1

LC Column: CARBOSORB Date(s) ICAL Analyzed: 06/25/99 06/25/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	4.64	4.64	4.65	4.65	4.64
RDX	7.13	7.15	7.14	7.18	7.12
TNB	9.71	9.77	9.71	9.79	9.70
DNB	11.89	11.99	11.89	11.99	11.89
TETRYL	12.64	12.77	12.63	12.77	12.65
NB	13.66	13.77	13.64	13.74	13.64
TNT	15.35	15.53	15.34	15.47	15.38
4ADNT	15.98	16.15	15.91	16.07	15.97
2ADNT	16.81	16.92	16.72	16.87	16.78
26DNT	18.04	18.22	17.99	18.15	18.06
24DNT	18.69	18.80	18.58	18.75	18.66
2NT	22.17	22.35	22.08	22.29	22.15
4NT	23.77	23.85	23.58	23.82	23.63
3NT	25.54	25.71	25.45	25.71	25.49
3,4-DNT	14.75	14.92	14.71	14.86	14.74

COMPOUND	RT CCAL 1	RT CCAL 2
HMX	4.66	4.64
RDX	7.17	7.15
TNB	9.75	9.78
DNB	11.93	12.01
TETRYL	12.67	12.80
NB	13.67	13.77
TNT	15.39	15.54
4ADNT	15.97	16.14
2ADNT	16.78	16.93
26DNT	18.09	18.24
24DNT	18.68	18.82
2NT	22.22	22.39
4NT	23.74	23.92
3NT	25.67	25.77
3,4-DNT	14.78	14.92

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	4.64	0.010	0.030	4.61 - 4.67
RDX	7.15	0.021	0.064	7.09 - 7.21
TNB	9.74	0.038	0.113	9.63 - 9.85
DNB	11.94	0.054	0.162	11.78 - 12.10

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Instrument ID: LC1

LC Column: CARBOSORB Date(s) ICAL Analyzed: 06/25/99 06/25/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	12.70	0.073	0.218	12.48 - 12.92
NB	13.70	0.059	0.178	13.52 - 13.88
TNT	15.43	0.084	0.252	15.18 - 15.68
4ADNT	16.03	0.093	0.280	15.75 - 16.31
2ADNT	16.83	0.079	0.236	16.59 - 17.07
26DNT	18.11	0.094	0.281	17.83 - 18.39
24DNT	18.71	0.084	0.252	18.46 - 18.96
2NT	22.24	0.113	0.338	21.90 - 22.58
4NT	23.76	0.120	0.361	23.40 - 24.12
3NT	25.62	0.125	0.374	25.24 - 25.99
3,4-DNT	14.81	0.088	0.263	14.55 - 15.07

6E

HIGH WATER PETN INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC4

LC Column: ODS II Date(s) Analyzed: 06/30/99 06/30/99

Method: 201WF30

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
PETN	41111	41768	50941

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
PETN	57597	67615	51806	21.57
MEAN RSD				21.57

7E

HIGH WATER PETN CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC4 Method: 201Wh

LC Column: ODS II Init. Calib Date(s): 06/30/99 06/30/99

Client Sample No.: PETNL3 Date Analyzed : 06/30/99

Lab Sample ID : ICV 6-26 Time Analyzed : 1722

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. AMOUNT	NOMINAL AMOUNT	%D #
PETN	9.09	9.01	9.19	315	320	-1.7

QC LIMITS: % Drift of amounts must be less than or equal to 15.0%.

FORM VII

7E

HIGH WATER PETN CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39088 Inst. ID: LC4 Method: 201WF30

LC Column: ODS II Init. Calib Date(s): 06/30/99 06/30/99

Client Sample No.: PETNL3 Date Analyzed : 06/30/99

Lab Sample ID : L3 6-18 Time Analyzed : 2147

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. AMOUNT	NOMINAL AMOUNT	%D #
PETN	9.16	9.01	9.19	314	320	-1.8

QC LIMITS: % Drift of amounts must be less than or equal to 15.0%.

9D

SOIL PETN CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS Level 1	Level 2	Level 3	Level 4	Level 5
PETN	20.0	160	320	1280	2560

9E
PETN RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39088

Lab Code: SWOK Instrument ID: LC4

LC Column: ODS II Date(s) ICAL Analyzed: 06/30/99 06/30/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level
PETN	9.08	9.10	9.10	9.10	9.0

COMPOUND	RT CCAL 1	RT CCAL 2
PETN	9.09	9.16

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
PETN	9.10	0.031	0.092	9.01 - 9.19

	SV	T • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

☐ RUSH ☐ REEXTRACT ☐ TCLP [OXIN

SAMPLE EXTRACTION L

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 990622SF

EXTRACT DATE 1999-06-22 12:08

000008
Page: 1 of 1

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE %	DRY WEIGHT g	AMOUNT EXTRACTED g • ml	EXTRACTED VOLUME ml	GPC VOLUME ml	GPC ELUTE VOL ml	FLORISIL VOL CONC ml	FLORISIL FIN VOL CONC ml	VOL SV - P ml	FIN PROCESS VOLUME ml	SCREEN Y/N Y/N	MS SV - P µL	SURR SV - P µL	BASE pH CONFIRMATION	ACID pH CONFIRMATION
BL0622SF			S/L				2.01	10.00						10.0	N		1000		
BB0622SF			S/L				2.04	10.00						10.0	N		1000		
LC0622SF			S/L				2.00	10.00						10.0	N	500	1000		
LD0622SF			S/L				2.01	10.00						10.0	N	500	1000		
39088.01 GC200	TOLTEST	06/22/1999 10:55 MFAPES270	S/L		17.58	1.6	2.00	10.00						10.0	N		1000		
39088.01MS GC200	TOLTEST	06/22/1999 10:55 MFAPES270	S/L		17.58	1.7	2.03	10.00						10.0	N	500	1000		
39088.01MSD GC200	TOLTEST	06/22/1999 10:55 MFAPES270	S/L		17.58	1.7	2.05	10.00						10.0	N	500	1000		
39088.02 GC200	TOLTEST	06/22/1999 10:55 MFAPES270FD	S/L		17.75	1.7	2.02	10.00						10.0	N		1000		
39088.06 GC200	TOLTEST	06/22/1999 10:55 MFAPES272	S/L		17.34	1.7	2.03	10.00						10.0	N		1000		
39088.08 GC200	TOLTEST	06/22/1999 10:55 MFAPES274	S/L		18.56	1.6	2.00	10.00						10.0	N		1000		
39088.10 GC200	TOLTEST	06/22/1999 10:55 MFAPES276	S/L		17.71	1.7	2.02	10.00						10.0	N		1000		
39088.12 GC200	TOLTEST	06/22/1999 10:55 MFAPES278	S/L		17.70	1.7	2.05	10.00						10.0	N		1000		
39088.14 GC200	TOLTEST	06/22/1999 10:55 MFAPES280	S/L		15.85	1.7	2.04	10.00						10.0	N		1000		

35

INITIALS		
WEIGHING: JR	EXTRACTION: GS	FLORISIL:
CLEANUP:	XD:	
BLOWDOWN:	TV:	
SURROG. SPIKER: GS	VERIFIER: BW	
MATRIX SPIKER: GS	VERIFIER: BW	
SUBMITTED BY: GS	REVIEWED BY: DC	

(6-2) 99

ID NUMBERS
FLORISIL CARTRIDGE #:
GPC COLUMN #:
SURROGATES ID CONC #: 6-7
MATRIX SPIKE SOLID/CONC #(s): 5-158
SOP - METHOD # : SWL-OP- 200 Rev. 4.0

COMMENTS

	SV	T • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

☐ RUSH ☐ REEXTRACT ☐ TCLP [OXIN

SAMPLE EXTRACTION L(

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 990622SG

EXTRACT DATE 1999-06-22 12:15

000009
Page: 1 of 1

SAMPLE ID (EPISODE #)	CLIENT / CASE	DATE RECEIVED / CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE (%)	DRY WEIGHT (g)	AMOUNT EXTRACTED (g • ml)	EXTRACTED VOLUME (ml)	GPC VOLUME (ml)	GPC ELUTE VOL (ml)	FLORISIL VOL CONC (ml)	FLORISIL FIN VOL CONC (ml)	VOL SV - P (ml)	FIN PROCESS VOLUME (ml)	SCREEN Y/N (Y/N)	MS SV - P (µL)	SURR SV - P (µL)	BASE pH CONFIRMATION	ACID pH CONFIRMATION
BL0622SG			S/L				2.01	10.00						10.0	N				
BB0622SG			S/L				2.02	10.00						10.0	N				
LC0622SG			S/L				2.04	10.00						10.0	N	120			
LD0622SG			S/L				2.03	10.00						10.0	N	120			
39088.01 GC201	TOLTEST	06/22/1999 10:55 MFAPES270	S/L		17.58	1.6	2.00	10.00						10.0	N				
39088.01MS GC201	TOLTEST	06/22/1999 10:55 MFAPES270	S/L		17.58	1.7	2.01	10.00						10.0	N	120			
39088.01MSD GC201	TOLTEST	06/22/1999 10:55 MFAPES270	S/L		17.58	1.7	2.03	10.00						10.0	N	120			
39088.02 GC201	TOLTEST	06/22/1999 10:55 MFAPES270FD	S/L		17.75	1.7	2.02	10.00						10.0	N				
39088.06 GC201	TOLTEST	06/22/1999 10:55 MFAPES272	S/L		17.34	1.7	2.03	10.00						10.0	N				
39088.08 GC201	TOLTEST	06/22/1999 10:55 MFAPES274	S/L		18.56	1.6	2.00	10.00						10.0	N				
39088.10 GC201	TOLTEST	06/22/1999 10:55 MFAPES276	S/L		17.71	1.7	2.02	10.00						10.0	N				
39088.12 GC201	TOLTEST	06/22/1999 10:55 MFAPES278	S/L		17.70	1.7	2.05	10.00						10.0	N				
39088.14 GC201	TOLTEST	06/22/1999 10:55 MFAPES280	S/L		15.85	1.7	2.04	10.00						10.0	N				

354

INITIALS		
WEIGHING: JR	EXTRACTION: GS	FLORISIL:
CLEANUP:	KD:	
BLOWDOWN:	TV:	
SURROG. SPIKER:	VERIFIER:	
MATRIX SPIKER: GS	VERIFIER: BM	
SUBMITTED BY:	REVIEWED BY:	

6-23-99

ID NUMBERS

FLORISIL CARTRIDGE #:
GPC COLUMN #:
SURROGATES ID CONC #:
MATRIX SPIKE SOLID/CONC #(s): 5-187

SOP - METHOD # : SWL-OP- 201 - 1.0

COMMENTS

[redacted]	SV	[redacted] ST • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			XXXXX
SHAKER			
SONC. (3550)			
SOXHLET			

☐ RUSH ☐ REEXTRACT ☐ TCLP [XIN

SAMPLE EXTRACTION L

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 990625WH

EXTRACT DATE: 1999-06-25 13:55

000036
Page: 1 of 1

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	g • ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
BL0625WH			W/L				5.0							5.0	N				
BB0625WH			W/L				5.0							5.0	N				
LC0625WH			W/L				5.0							5.0	N	120			
LD0625WH			W/L				5.0							5.0	N	120			
39088.17 GC201	TOLTEST	06/22/1999 10:55 MFARB062199	W/L				5.0							5.0	N				
39123.14 GC201	TOLTEST	06/24/1999 10:20 MFBRB062399	W/L				5.0							5.0	N				
39123.14MS GC201	TOLTEST	06/24/1999 10:20 MFBRB062399	W/L				5.0							5.0	N	120			
39123.14MSD GC201	TOLTEST	06/24/1999 10:20 MFBRB062399	W/L				5.0							5.0	N	120			

355

INITIALS		
WEIGHING:	EXTRACTION:	FLORISIL:
CLEANUP:	KD:	
BLOWDOWN:	TV:	
SURROG. SPIKER:	VERIFIER:	
MATRIX SPIKER: SM	VERIFIER: JF	
SUBMITTED BY:	REVIEWED BY:	06/30/99

ID NUMBERS	
FLORISIL CARTRIDGE #:	
GPC COLUMN #:	
SURROGATES ID CONC #:	
MATRIX SPIKE SOLID/CONC #(s):	6-9
SOP - METHOD # : SWL-OL	206 Rev. 1.1

COMMENTS

	SV	ST • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			XXXXX
SHAKER			
SONC. (3550)			
SOXHLET			

☐ RUSH ☐ REEXTRACT ☐ TCLP ☐ 'OXIN

SAMPL

BATCH: 990623WH

EXTRACT DATE: 1999-06-23 15:45

000019

Page: 1 of 1

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PRO VO
					%	g	g • ml	ml	ml	ml	ml	ml	ml	ml
BL0623WH			W/L				5.0							5.0
BB0623WH			W/L				5.0							5.0
LC0623WH			W/L				5.0							5.0
LD0623WH			W/L				5.0							5.0
39088.17 GC200	TOLTEST	06/22/1999 10:55 MFARB062199	W/L				5.0							5.0
39088.17MS GC200	TOLTEST	06/22/1999 10:55 MFARB062199	W/L				5.0							5.0
39088.17MSD GC200	TOLTEST	06/22/1999 10:55 MFARB062199	W/L				5.0							5.0

356

INITIALS		
WEIGHING: SM	EXTRACTION:	FLORISIL:
CLEANUP:	KD:	
BLOWDOWN:	TV:	
SURROG. SPIKER: SM	VERIFIER: GW	
MATRIX SPIKER: SM	VERIFIER: GW	
SUBMITTED BY:	REVIEWED BY:	06/24/99

ID NUMBERS	
FLORISIL CARTRIDGE #:	
GPC COLUMN #:	
SURROGATES ID CONC #:	5-160
MATRIX SPIKE SOLID/CONC #(s):	5-161
SOP - METHOD # : SWL-OP-02 200	Rev. 4.1

MORRISON KNUDSEN CORPORATION

CHAIN OF CUSTODY RECORD

720 Park Blvd., P.O. Box 73
Boise, Idaho 83729
(208) 386-5000

BIO-062

Project No.: 4324-0009-07-35
Project Name: NSWC Crane Bioremediation
Samplers: (Signature)
Sampler: (Print) Ryan H. Erwin

Sample Type	Sampling Point Description	Sample Date	Time	Sample I.D. Number	Split Samples Yes	Split Samples No	Analysis Required: 4-SBD GRP	Remarks
Composite	Column 03 SL1	8/11/98	1258	BIO-M-013 07-03-1		✓	✓	MS/MSD
	03 SL2		1310	BIO-M-013 07-03-2		✓	✓	Day 07
	03 2		1310	BIO-M-013 07-03FD		✓	✓	M/013
	03 3		1301	BIO-M-013 07-03-3		✓	✓	
	Column 05 SL1		1313	BIO-M-013 07-05-1		✓	✓	
	05 2		1319	BIO-M-013 07-05-2		✓	✓	
	05 3		1322	BIO-M-013 07-05-3		✓	✓	
	Column 07 SL1		1326	BIO-M-013 07-07-1		✓	✓	
	07 2		1331	BIO-M-013 07-07-2		✓	✓	
	07 3		1335	BIO-M-013 07-07-3		✓	✓	
Liquid	Rinse Blank		1340	BIO-RB-081198		✓	✓	
								South West Labs

Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:	Relinquished By: (Signature) / Company:	Date/Time	Received By: (Signature) / Company:
	8/11/98 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:	Date/Time	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 2361, 2362

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115 ATT2 7/8/1) SWL-GA-115 Rev 5.0 / GA-115 CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA / AMERICAN ANALYTICAL & TECH SRVS

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): SARAH HODSON/ LIZ MAIMBOURG/ SUE HALL

RECEIVED BY (SIGNATURE): E. Maimbourg

LOGGED IN BY (SIGNATURE): S. Hodson

RECD DATE: 8-13-98

TIME RECD: 925

LOG-IN DATE: 8-13-98

PROJECT:	EPISODE:	SAMPLE DELIVERY GROUP:
NSWC CRANE	35218	35218

REMARKS:

1. CUSTODY SEAL(S): PRESENT / ABSENT; INTACT / BROKEN
2. CUSTODY SEAL NOS.: 23621, 23622
3. CHAIN - OF - CUSTODY: PRESENT / ABSENT
   - SEALED IN PLASTIC? YES / NO
   - TAPED TO LID? YES / NO
   - PROPERLY FILLED OUT (INK, SIGNED, ETC.)? YES / NO
4. AIRBILL: AIRBILL STICKER PRESENT / ABSENT
5. AIRBILL NO: 0006 123994745
6. COOLER CONDITIONS
   - ENOUGH ICE? YES / NO
   - TYPE OF ICE? wet
   - TYPE OF PACKING? bubble wrap
7. SAMPLE TAGS: PRESENT / ABSENT
8. SAMPLE CONDITION: INTACT / BROKEN* / LEAKING
   - BOTTLES SEALED IN SEPARATE PLASTIC BAGS? YES / NO
   - CORRECT CONTAINERS USED FOR FOR TESTS INDICATED ? YES / NO
   - CORRECT PRESERVATIVE ? YES / NO
   - SUFFICIENT SAMPLE ? YES / NO
   - LABELS COMPLETE (I.D., DATE, TIME, SIGNATURE, PRESERVATIVE ? YES / NO
   - VOA SAMPLES WITHOUT BUBBLES ? YES / NO
9. DOES INFORMATION ON CUSTODY RECORDS, LABELS, TAGS AGREE? YES / NO*
10. RAD SCREEN WITH GIEGER COUNTER? YES / NO
11. P.O. CALLED ? YES / NO

CLIENT SAMPLE #	SAMPLE FRACTION#	ASSIGNED LAB #	COOLER I.D.	pH CHECK	ACID / BASE LOT #	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
B1OM01307031	9C	01	MKF-OH 8-13-98-1			6.1 C
31MS		02				
31MSD		03				
32		04				
32FD		05				
33		06				
51		07				
52		08				
53		09				
71		10				
72		11				
73		12				
B1ORB081198		13				

* Contact PO and attach record of resolution

Sample Fractions: 8= SV GC/MS V= VOA GC/MS or GC

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SDG NARRATIVE

September 19, 1998

CLIENT : MKF-OH
CASE : NSWC CRANE
SDG : 35218
EPISODE(S): 35218
FRACTION : EXPLOSIVES
SAMPLE(S) : BIOM01307031, BIOM01307032, BIOM01307033, BIOM01307051, BIOM01307052, BIOM01307053, BIOM01307071, BIOM01307072, BIOM01307073, BIORB081198

This SDG consisted of 10 soil and 1 water samples with applicable MS and MSD for the explosive analysis. The samples, blanks and spikes were extracted and analyzed according to EPA protocol, SW-846, method 8330, REV. 0, 1994.

For soil samples, the percent moisture is determined by drying them at 105° C at the time of receipt. Additional portion of the samples is air-dried prior to analysis. The results are reported on the basis of the air-dried samples. For high-level water samples, direct injection method is used. For low-level water samples, salting out method is used. All of the extracts are diluted by a factor of two prior to analysis according to method 8330. The extracts are diluted in order to be the same consistency as the Mobile Phase.

"P" flags were used when the appropriate compound with sufficient response exceeded 40% deviation, possibly due to interference in the quantitation or confirmation columns.

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CASE SUMMARY:

SOIL:

4ADNT was reported above the PQL in the preliminary data of the sample BIOM01307032. Since the analyte was not confirmed it was not reported in the data package.

4ADNT was reported above the PQL in the preliminary data of the sample BIOM01307032FD. Since the analyte was not confirmed it was not reported in the data package.

TNT was reported above the PQL in the preliminary data of the sample BIOM01307033. Since the analyte was not confirmed it was not reported in the data package.

RDX was reported above the PQL in the preliminary data of the sample BIOM01307051. Since the analyte was not confirmed it was not reported in the data package.

4ADNT was reported above the PQL in the preliminary data of the sample BIOM01307072. The analyte was "P" flagged in the data package.

HMX and RDX were not reported in the preliminary data of the sample BIOM01307073. The analytes were "J" flagged in the data package.

Percent RSD exceeded 20% for RDX in the initial calibration standard 5EX0814. Since the correlation coefficient for the analyte was greater than 0.99, the slope was utilized to calculate the concentration of the analyte.

NB was out of the QC limits in the samples BIOM01307031MS and BIOM01307031MSD. The analyte was within the QC limits in the LCS and LCSD.

All of the analytes were within the QC limits in the laboratory control spike (LCS) and the laboratory control spike duplicate (LCSD).

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WATER:

The ICV slightly exceeded 15% deviation in the initial calibration standard 081598W. Since the PETN was not detected in the associated sample, the sample was not re-analyzed.

Tetryl exceeded the QC limits in the LC0815WA and LD0815WA. The analyte was not reported in the associated samples.

To analyze PETN, LC ChemStation software was utilized. Unlike the VG software, the Response Factor in the ChemStation is calculated by dividing the concentration by the area.

Multiplier = final volume / extracted amount.

The following is an example of the calculation for the LC0815WB:

Mean response factor * area of the sample * dilution * Multiplier = the concentration

5.47 * 111.4 * 2 * 1 = 1219 ug/L

The explosives referred to in the data package by the abbreviations found in method 8330 are as follows: HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine), RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine), TNB (1,3,5-Trinitrobenzene), DNB (1,3-Dinitrobenzene), Tetryl (Methyl-2,4,6-trinitrophenylnitramine), NB (Nitrobenzene), TNT (2,4,6- Trinitrotoluene), 24DNT (2,4-Dinitrotoluene), 26DNT (2,6-Dinitrotoluene), 2NT (o-Nitrotoluene), 3NT m-Nitrotoluene), 4NT (p-Nitrotoluene) , PETN (Pentaerythritol tetranitrate), 2ADNT (2-Amino-4,6-dinitrotoluene), 4ADNT (4-Amino-2,6-dinitrotoluene).

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We use the following flags where appropriate. "J" - indicates a quantitated result, which is below the quantitation limit, but above the detection limit and has been confirmed by the second column. "E"- indicates an out of range value, i.e., a peak that is off-scale or out of the linear calibration range of the detector. The value reported is not to be used. The sample must be diluted and re-run. "D" - indicates a value derived from a secondary dilution. "U" - indicates the compound that is undetected above the quantitation limit. "X" - indicates a comment that is explained in the case narrative.

Shahriar Shahreza
LC Supervisor

2E

EXPLOSIVE SURROGATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Code: SWOK Case No: MKF-OH SDG No:35218

	SAMPLE NUMBER	S1 #	OTHER
1	BIOM01307031	81.6	0
2	BIOM01307031 MS	78.8	0
3	BIOM01307031 MSD	78.2	0
4	BIOM01307032	85.2	0
5	BIOM01307032FD	85.3	0
6	BIOM01307033	85.4	0
7	BIOM01307051	81.1	0
8	BIOM01307052	85.0	0
9	BIOM01307053	84.0	0
10	BIOM01307071	81.3	0
11	BIOM01307072	87.9	0
12	BIOM01307073	85.4	0
13	BIORB081198	100	0
14	BL0815SB	92.5	0
15	BL0815WA	95.7	0
16	LC0815SB	114	0
17	LC0815WA	84.6	0
18	LD0815SB	112	0
19	LD0815WA	73.5	0
20			
21			
22			
23			
24			
25			
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

SOIL EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:35218

Client Sample No: BIOM01307031 MSD

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		9060	95	66-109
TNB	9500		9770	103	57-130
DNB	9500		7960	84	74-122
TETRYL	9500		3380	36	32-119
NB	9500		6560	69*	70-135
TNT	9500		9710	102	44-124
4ADNT	9500		9850	104	60-140
2ADNT	9500		9280	98	60-140
26DNT	9500		9130	96	58-125
24DNT	9500		9680	102	59-120
2NT	9500		9420	99	79-124
4NT	9500		10100	106	74-128
3NT	9500		9700	102	79-121

No of Analyte recoveries out of QC Advisory Limits = 1

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD#	QC LIMITS RPD	QC LIMITS REC.
HMX	9500	8570	90	17	30	54-128
RDX	9500	9500	100	5	30	66-109
TNB	9500	9890	104	1	30	57-130
DNB	9500	7970	84	0	45	74-122
TETRYL	9500	3760	40	11	30	32-119
NB	9500	6530	69*	0	35	70-135
TNT	9500	8320	88	15	30	44-124
4ADNT	9500	9680	102	2	40	60-140
2ADNT	9500	9350	98	1	40	60-140
26DNT	9500	8910	94	2	35	58-125
24DNT	9500	9600	101	1	35	59-120
2NT	9500	9820	103	4	35	79-124
4NT	9500	10300	108	2	35	74-128
3NT	9500	9740	102	0	35	79-121

No of Analyte recoveries out of QC Advisory Limits = 1
No of RPD's out of QC Limits 0

3F

SOIL EXPLOSIVE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:35218

Client Sample No: BIOM01307031MSD

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC LIMITS REC.
PETN	3000		2920	97	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	2830	94	3	30	70-130

No of Analyte recoveries out of QC Advisory Limits = 0
No of RPD's out of QC Limits 0

SOIL EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:35218

Client Sample No: LC0815SB

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
HMX	9500		10100	106	57-137
RDX	9500		8690	92	77-113
TNB	9500		10100	106	64-125
DNB	9500		8270	87	82-118
TETRYL	9500		9470	100	23-124
NB	9500		7240	76	69-143
TNT	9500		8160	86	75-118
4ADNT	9500		8440	89	60-140
2ADNT	9500		9790	103	60-140
26DNT	9500		9560	101	78-117
24DNT	9500		10000	105	74-126
2NT	9500		9780	103	78-123
4NT	9500		10200	107	79-125
3NT	9500		10000	105	78-121

No 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:35218

Client Sample No: LD0815SB

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	QC LIMITS REC.
HMX	9500		10300	108	57-137
RDX	9500		8710	92	77-113
TNB	9500		10000	105	64-125
DNB	9500		8220	87	82-118
TETRYL	9500		8320	88	23-124
NB	9500		7180	76	69-143
TNT	9500		8140	86	75-118
4ADNT	9500		8940	94	60-140
2ADNT	9500		9770	103	60-140
26DNT	9500		9530	100	78-117
24DNT	9500		10000	105	74-126
2NT	9500		9770	103	78-123
4NT	9500		10200	107	79-125
3NT	9500		10000	105	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:35218

Client Sample No: LC0815SA

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC LIMITS REC.
PETN	3000		3200	107	70-130

No 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:35218

Client Sample No: LD0815SA

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCSD CONCENTRATION (ug/Kg)	LCSD % REC #	QC LIMITS REC.
PETN	3000		3210	107	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:35218

Client Sample No: LC0815WA

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC LIMITS REC.
HMX	400		376	94	46-151
RDX	150		152	101	72-129
TNB	225		205	91	74-118
DNB	125		116	93	79-132
TETRYL	413		548	133*	58-120
NB	213		219	103	68-135
TNT	188		190	101	61-145
4ADNT	313		305	97	60-140
2ADNT	313		310	99	60-140
26DNT	288		271	94	77-125
24DNT	175		163	93	70-134
2NT	363		356	98	73-131
4NT	250		286	114	73-116
3NT	238		246	103	71- 127

# of Analyte recoveries out of QC Advisory Limits = 1

3G

WATER EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:35218

Client Sample No: LD0815WA

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	QC LIMITS REC.
HMX	400		364	91	46-151
RDX	150		137	91	72-129
TNB	225		198	88	74-118
DNB	125		112	90	79-132
TETRYL	413		524	127*	58-120
NB	213		215	101	68-135
TNT	188		194	103	61-145
4ADNT	313		294	94	60-140
2ADNT	313		299	96	60-140
26DNT	288		269	93	77-125
24DNT	175		161	92	70-134
2NT	363		337	93	73-131
4NT	250		272	109	73-116
3NT	238		237	100	71- 127

No of Analyte recoveries out of QC Advisory Limits = 1

3G

WATER EXPLOSIVE CONTROL SPIKE RECOVERY FORM

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No: MKF-OH SDG No:35218

Client Sample No: LC0815WB

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC LIMITS REC.
PETN	1200		1220	102	70-130

No 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:35218

Client Sample No: LD0815WB

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC #	QC LIMITS REC.
PETN	1200		1240	103	70-130

No of Analyte recoveries out of QC Advisory Limits = 0

Lab Name: SWL-TULSA Contract:

Lab Sample ID: BL0815SB

Lab Code: SWOK Case No: MKF-OH SDG No:35218

Matrix: (soil/water) Soil

Date Extracted: 08/15/97 Extn. Method: SONC

Date Analyzed (1): 08/17/98 Date Analyzed(2): 09/13/98

Time Analyzed (1): 19:12:15 Time Analyzed(2): 22:44:10

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

LC Column ID (1): CARB-02 LC Column ID (2): MET-01

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

	CUSTOMER SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	LC0815SB	LC0815SB	08/17/98	
2	LD0815SB	LD0815SB	08/17/98	
3	BIOM01307031	35218.01	08/18/98	
4	BIOM01307031 MS	35218.02MS	08/18/98	
	BIOM01307031 MSD	35218.03MSD	08/18/98	
	BIOM01307032	35218.04	08/18/98	09/14/98
7	BIOM01307032FD	35218.05	08/18/98	09/14/98
8	BIOM01307033	35218.06	08/18/98	09/14/98
9	BIOM01307051	35218.07	08/18/98	09/14/98
10	BIOM01307052	35218.08	08/18/98	
11	BIOM01307053	35218.09	08/18/98	
12	BIOM01307071	35218.10	08/18/98	
13	BIOM01307072	35218.11	08/18/98	09/14/98
14	BIOM01307073	35218.12	08/18/98	09/15/98
15				
16				
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25				

page 1

FORM IV

4C

Lab Name: SWL-TULSA Contract:

Sample ID: BL0815SA

Lab Code: SWOK Case No: MKF-OH SDG No:35218

Matrix: (soil/water) Soil

Date Extracted: 08/15/97 Extn. Method: SONC

Date Analyzed (1): 08/21/98 Date Analyzed(2):

Time Analyzed (1): 00:43:14 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	LC0815SA	LC0815SA	08/21/98	
2	LD0815SA	LD0815SA	08/21/98	
3	BIOM01307031	35218.01	08/21/98	
4	BIOM01307031MS	35218.02MS	08/21/98	
5	BIOM01307031MSD	35218.03MSD	08/21/98	
6	BIOM01307032	35218.04	08/21/98	
7	BIOM01307032FD	35218.05	08/21/98	
8	BIOM01307033	35218.06	08/21/98	
9	BIOM01307051	35218.07	08/21/98	
10	BIOM01307052	35218.08	08/21/98	
11	BIOM01307053	35218.09	08/21/98	
12	BIOM01307071	35218.10	08/21/98	
13	BIOM01307072	35218.11	08/21/98	
14	BIOM01307073	35218.12	08/21/98	
15				
16				
17				
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19				
20				
21				
22				
23				
24				
25				

FORM IV

4C

Lab Name: SWL-TULSA Contract:

Sample ID: BL0815WA

Lab Code: SWOK Case No: MKF-OH SDG No:35218

Matrix: (soil/water) Water

Date Extracted: Extn. Method: DIRECT

Date Analyzed (1): 08/18/98 Date Analyzed(2):

Time Analyzed (1): 00:10:48 Time Analyzed(2):

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

LC Column ID (1): CARB-11 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	LC0815WA	LC0815WA	08/18/98	
2	LD0815WA	LD0815WA	08/18/98	
3	BIORB081198	35218.13	08/18/98	
4				
5				
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page 1

FORM IV

4C

Lab Name: SWL-TULSA Contract:

Sample ID: BL0815WB

Lab Code: SWOK Case No: MKF-OH SDG No:35218

Matrix: (soil/water) Water

Date Extracted: Extn. Method: DIRECT

Date Analyzed (1): 08/18/98 Date Analyzed(2):

Time Analyzed (1): 01:00:16 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	LC0815WB	LC0815WB	08/18/98	
2	LD0815WB	LD0815WB	08/18/98	
3	BIORB081198	35218.13	08/18/98	
4				
5				
6				
7				
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FORM IV

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307031

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.01

Sample Amt: 2g % Moisture 29.18 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/18/98

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	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

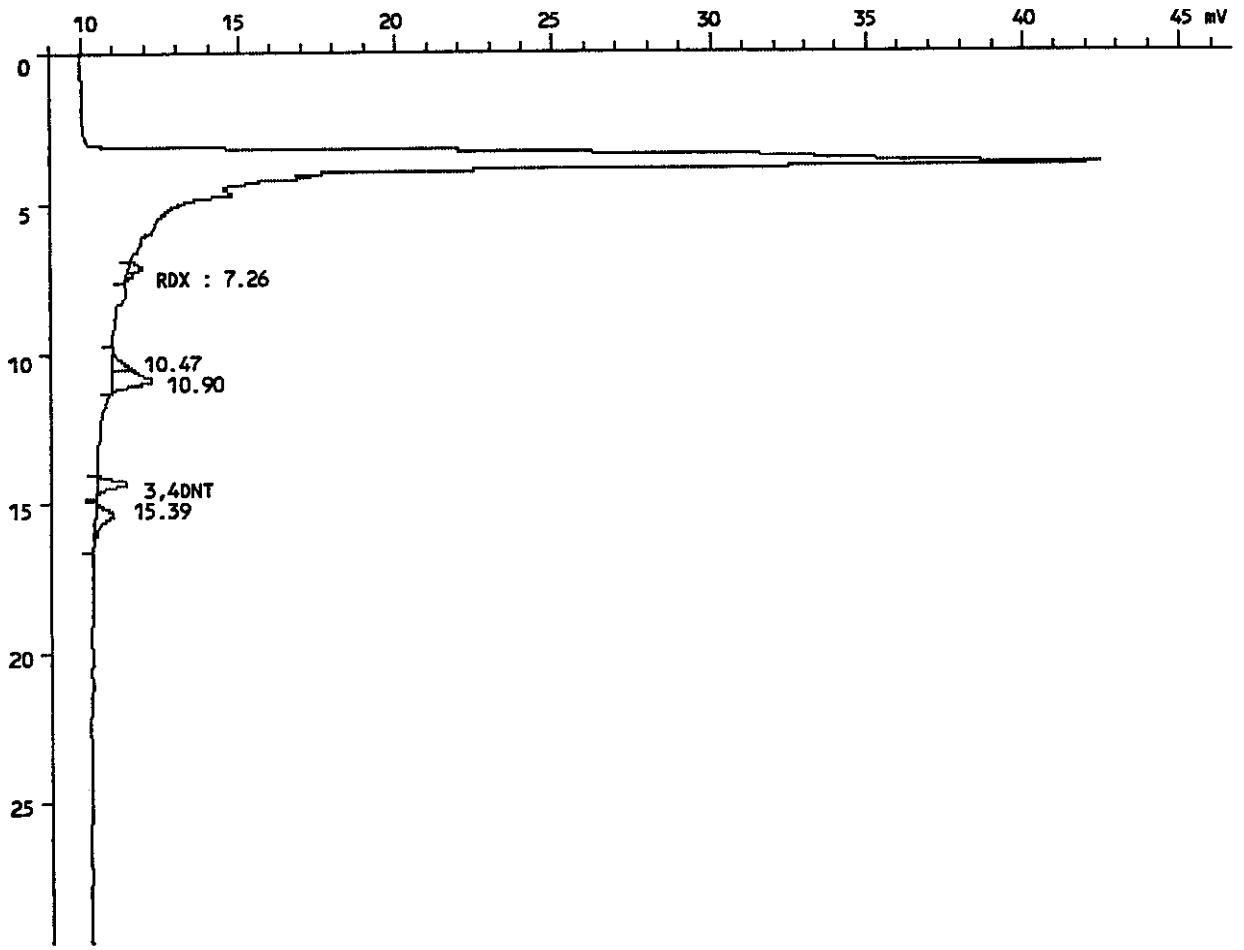
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0814E,11,1

Sample name.....: BIOM01307031
Sample ID.....: 35218.01
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02, INJ:200,COL#1

Acquired on 18-Aug-98 at 02:39:07
Reported on 18-Aug-98 at 19:32:45



INJECTION REPORT

Injection F: <MC3> 5 5EX0814E,11,1

Acquired on 18-Aug-98 at 02:39:07
Modified on 18-Aug-82 at 19:18:24
Reported on 18-Aug-98 at 19:26:23

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02,INJ:200,COL#1
Number of samples.: 26
Calibration file..: 5EX0814 Last modified on 18-Aug-82 at 19:18:06
Method file.....: EXPLOS Last modified on 18-Aug-82 at 19:17:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307031
Sample ID.....: 35218.01
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	7.152	438	6024	636.734	RDX
5	14.341	1026	19052	1631.183	3,4DNT 8|
Total		1464	25076	2267.917	
Residual		2701	69267	6919.861	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307031

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.01

Sample Amt: 2g % Moisture 29.18 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/21/98

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

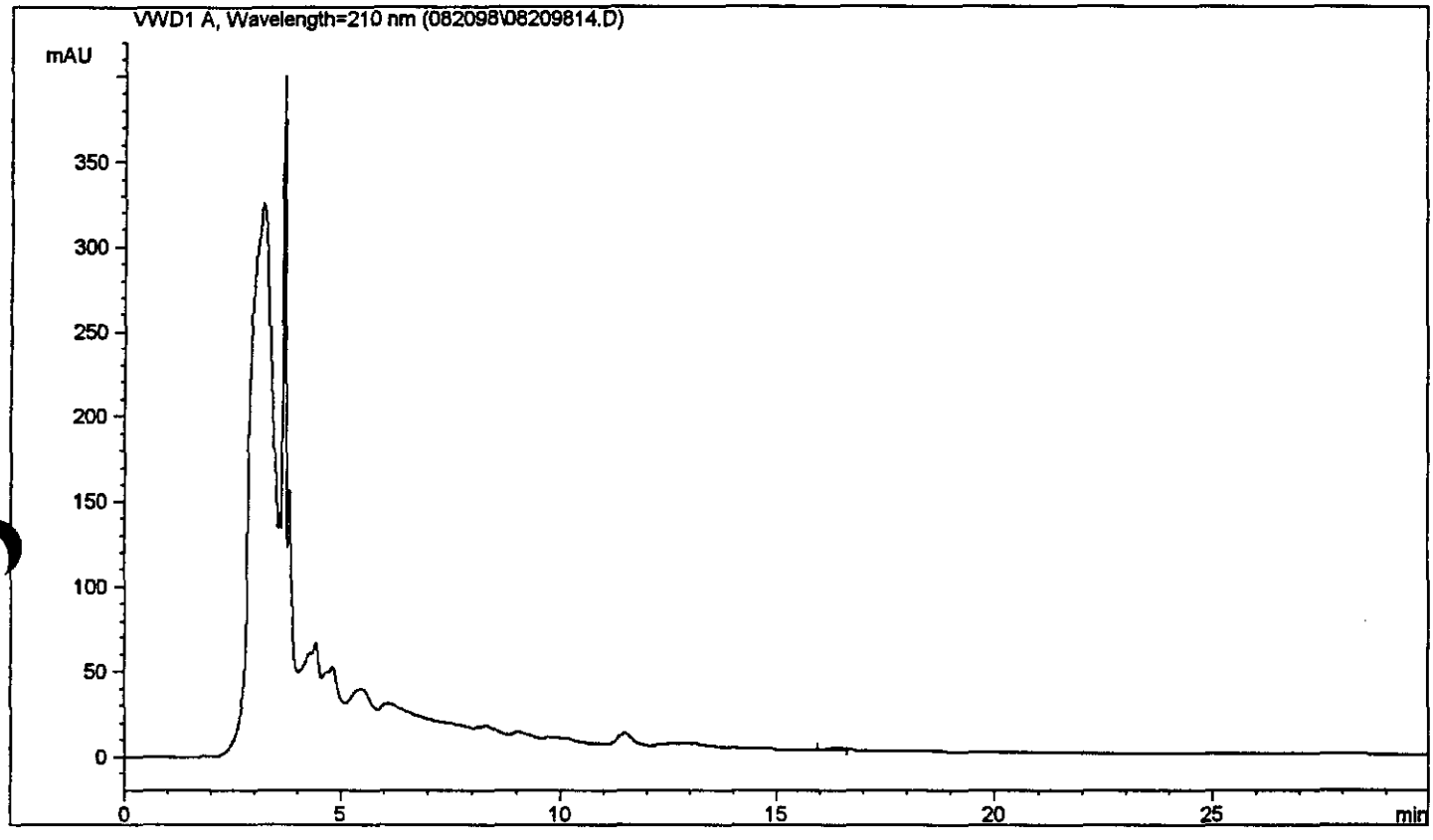
FORM I

Data file : F:\HPCHEM\LC4\DATA\082098\08209814.D
Sample Name: 35218.01 1

Injection Date	: Fri, 21. Aug. 1998	Seq Line	: 14
Sample Name	: 35218.01	Vial No.	: 14
Acq Operator	: MP	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 082098.M
Analysis Method : F:\HPCHEM\LC4\METHODS\082098.M
Last Changed : Fri, 21. Aug. 1998, 10:58:13 am

PETN SOIL



Customized Report: extstd.frp

Sorted By Signal
Calib. Data Modified : Fri, 21. Aug. 1998,10:57:25 am
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/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
16.386	PBA	30.69761	0.00000	0.00000	
Totals:				0.00000	

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1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307032

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.04

Sample Amt: 2g % Moisture 24.36 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/18/98

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	7040	
121-82-4	RDX	5370	
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

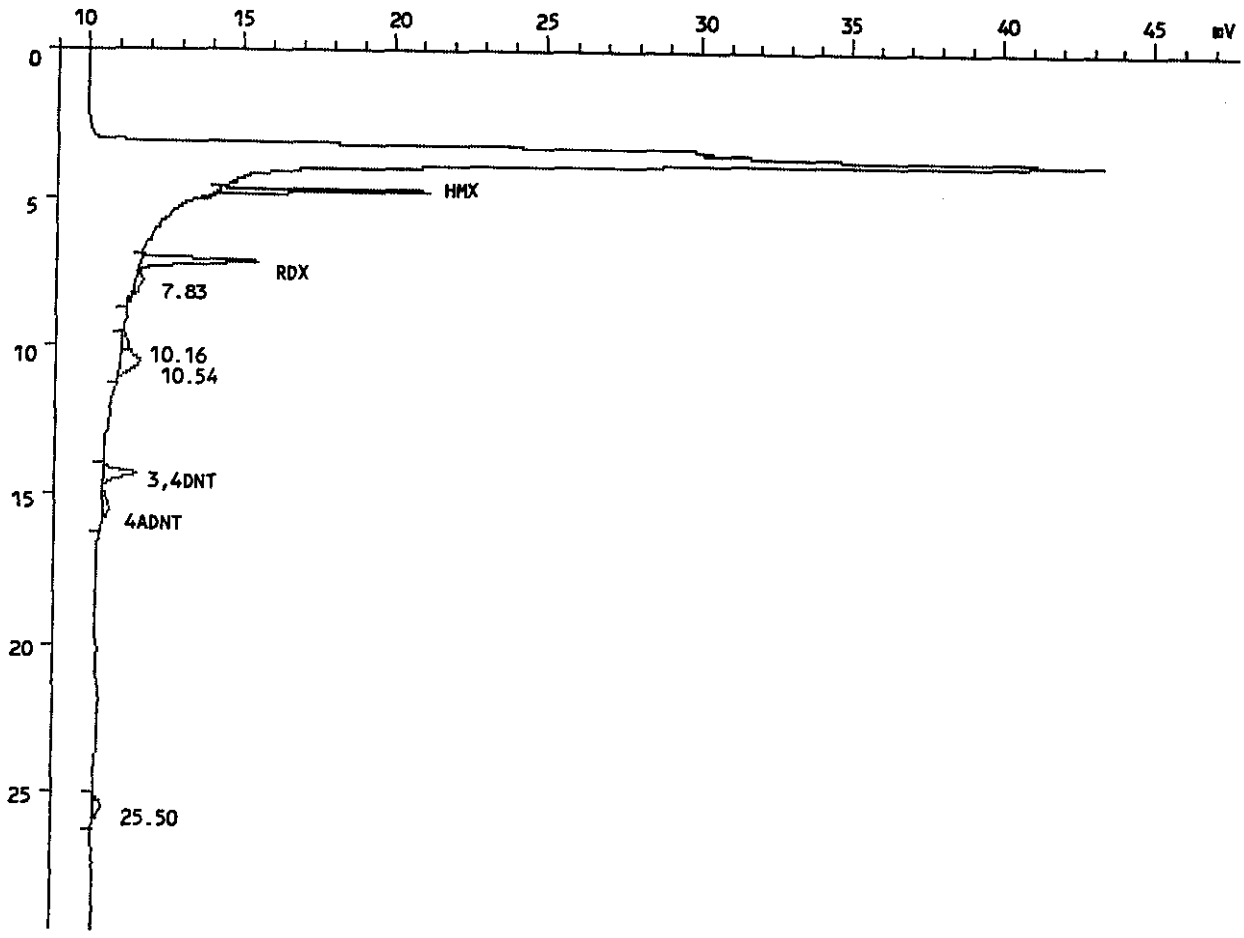
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0814E,14,1

Sample name.....: BIOM01307032
Sample ID.....: 35218.04
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02, INJ:200,COL#1

Acquired on 18-Aug-98 at 04:53:16
Reported on 16-Sep-98 at 16:54:23



INJECTION REPORT

Injection F: <MC3> 5 5EX0814E,14,1

Acquired on 18-Aug-98 at 04:53:16
Modified on 18-Aug-82 at 19:18:36
Reported on 16-Sep-98 at 16:48:57

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02,INJ:200,COL#1
Number of samples.: 26
Calibration file..: 5EX0814 Last modified on 14-Sep-82 at 09:11:00
Method file.....: EXPLOS Last modified on 16-Sep-82 at 16:12:18
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307032
Sample ID.....: 35218.04
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).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

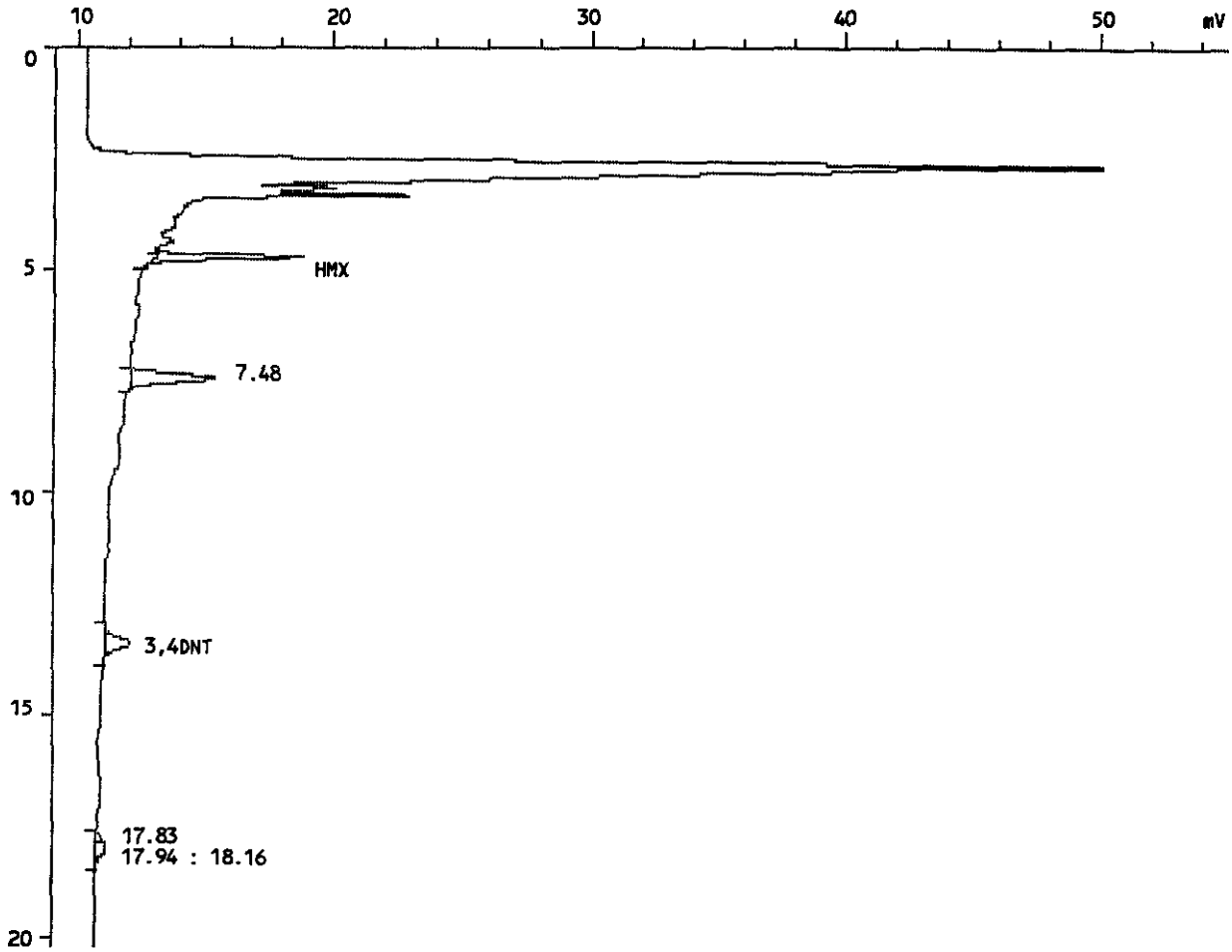
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.768	7039	50800	7036.016	HMX *
2	7.152	3806	50790	5368.944	RDX *
6	14.325	1047	19898	1703.617	3,4DNT 85
7	15.520	208	9100	525.398	4ADNT
Total		12099	130588	14633.975	
Residual		1500	49924	4797.195	

LONG PLOT

Injection F: <MC4> 1 1CN0911F,7,1

Sample name.....: BIOM01307032
Sample ID.....: 35218.04
INST ID: IN10, COL. TYPE: METASIL, ID: MET-01, INJ:100, UV

Acquired on 14-Sep-98 at 00:07:07
Reported on 16-Sep-98 at 16:28:46



INJECTION REPORT

Injection F: <MC4> 1 1CN0911F,7,1

Acquired on 14-Sep-98 at 00:07:07
Modified on 16-Sep-82 at 16:24:28
Reported on 16-Sep-98 at 16:28:27

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: METASIL, ID: MET-01,INJ:100, UV
Number of samples.: 14
Calibration file..: 1CN0911A Last modified on 16-Sep-82 at 16:26:00
Method file.....: LCCN Last modified on 16-Sep-82 at 16:27:16
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307032
Sample ID.....: 35218.04
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).....: 10.000
Dilution.....: 2.000
Amount (g or mL).....: 2.000

PEAK INFORMATION

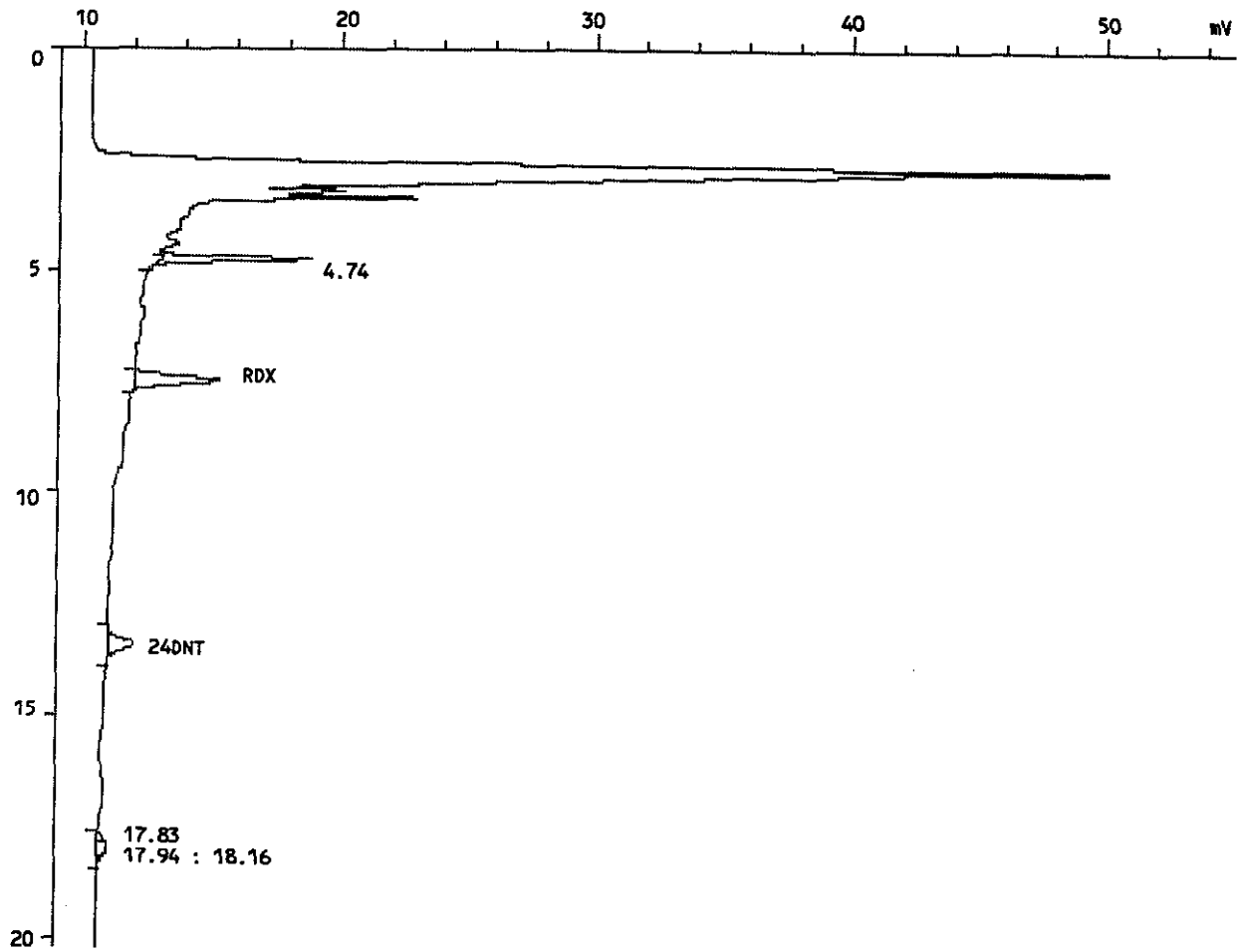
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.736	5910	45539	6422.970	HMX
3	13.397	1052	19093	395.146	3,4DNT
Total		6962	64632	6818.115	
Residual		4245	55891	0.000	

LONG PLOT

Injection F: <MC4> 1 1CN0911F,7,1

Sample name.....: BIOM01307032
Sample ID.....: 35218.04
INST ID: IN10, COL. TYPE: METASIL, ID: MET-01, INJ:100, UV

Acquired on 14-Sep-98 at 00:07:07
Reported on 16-Sep-98 at 16:35:11



INJECTION REPORT

Injection F: <MC4> 1 1CN0911F,7,1

Acquired on 14-Sep-98 at 00:07:07
Modified on 16-Sep-82 at 16:32:00
Reported on 16-Sep-98 at 16:34:57

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: METASIL, ID: MET-01,INJ:100, UV
Number of samples.: 14
Calibration file..: 1CN0911B Last modified on 16-Sep-82 at 16:33:04
Method file.....: LCCN Last modified on 16-Sep-82 at 16:33:50
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307032
Sample ID.....: 35218.04
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).....: 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	7.477	3365	45477	5883.224	RDX
3	13.397	1052	19093	900.634	24DNT
Total		4417	64571	6783.857	
Residual		6790	55953	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307032

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.04

Sample Amt: 2g % Moisture 24.36 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/21/98

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

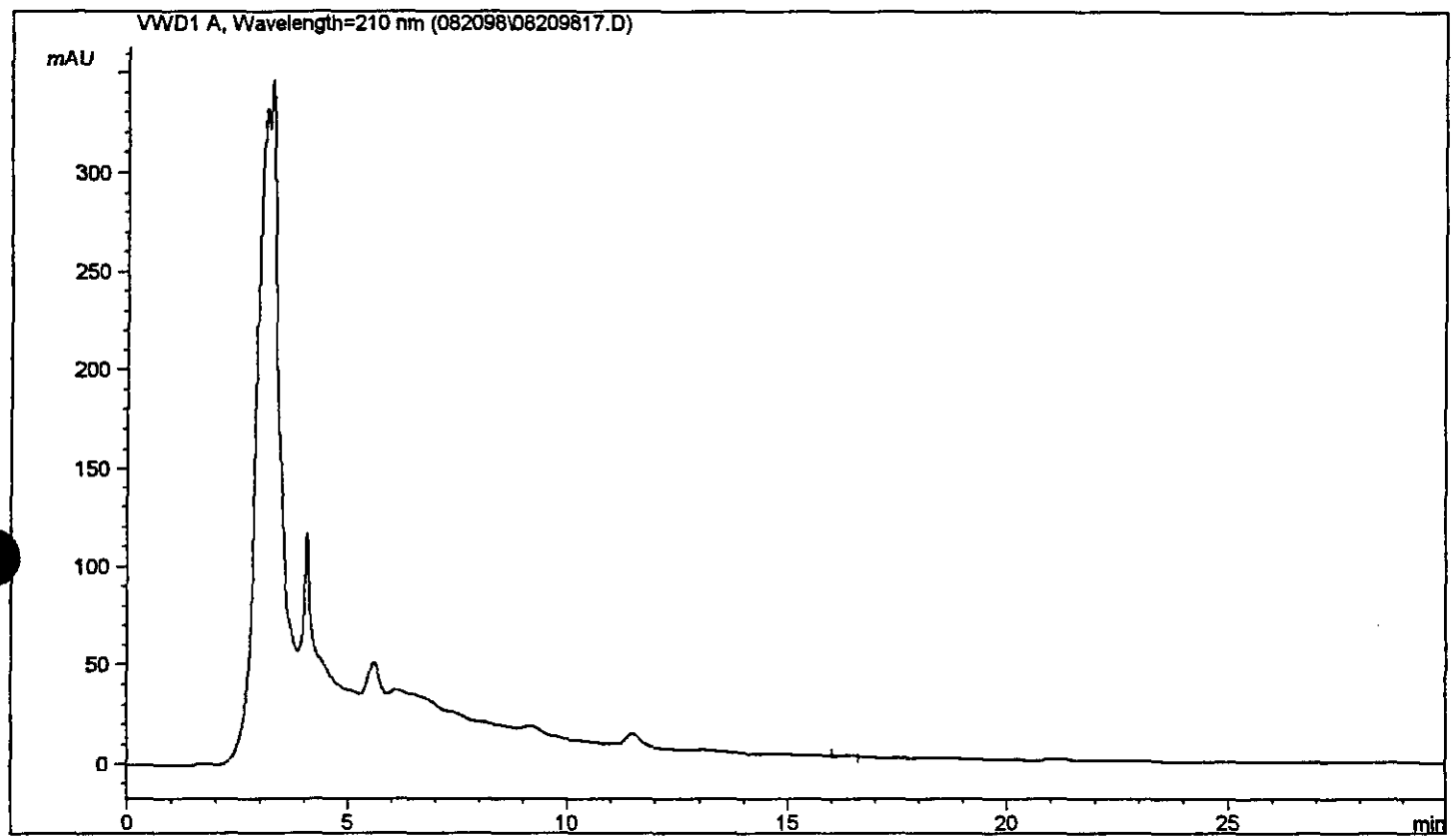
FORM I

Data file : F:\HPCHEM\LC4\DATA\082098\08209817.D
Sample Name: 35218.04 1

Injection Date	: Fri, 21. Aug. 1998	Seq Line	: 17
Sample Name	: 35218.04	Vial No.	: 17
Acq Operator	: MP	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 082098.M
Analysis Method : F:\HPCHEM\LC4\METHODS\082098.M
Last Changed : Fri, 21. Aug. 1998, 10:58:13 am

PETN SOIL



Customized Report: extstd.frp

Sorted By Signal
Calib. Data Modified : Fri, 21. Aug. 1998,10:57:25 am
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/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
16.384	PBA	9.35884	0.00000	0.00000	
Totals:				0.00000	

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1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO: BIOM01307032FD

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.05

Sample Amt: 2g % Moisture 27.53 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/18/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q	RPD of
2691-41-0	HMX	12600		56.6
121-82-4	RDX	12300		78.4
99-35-4	TNB	250	U	0
99-65-0	DNB	250	U	0
479-45-8	TETRYL	650	U	0
98-95-3	NB	260	U	0
118-96-7	TNT	250	U	0
1946-51-0	4ADNT	250	U	0
35572-78-2	2ADNT	250	U	0
606-20-2	26DNT	260	U	0
121-14-2	24DNT	250	U	0
88-72-2	2NT	250	U	0
99-99-0	4NT	250	U	0
99-08-1	3NT	250	U	0

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

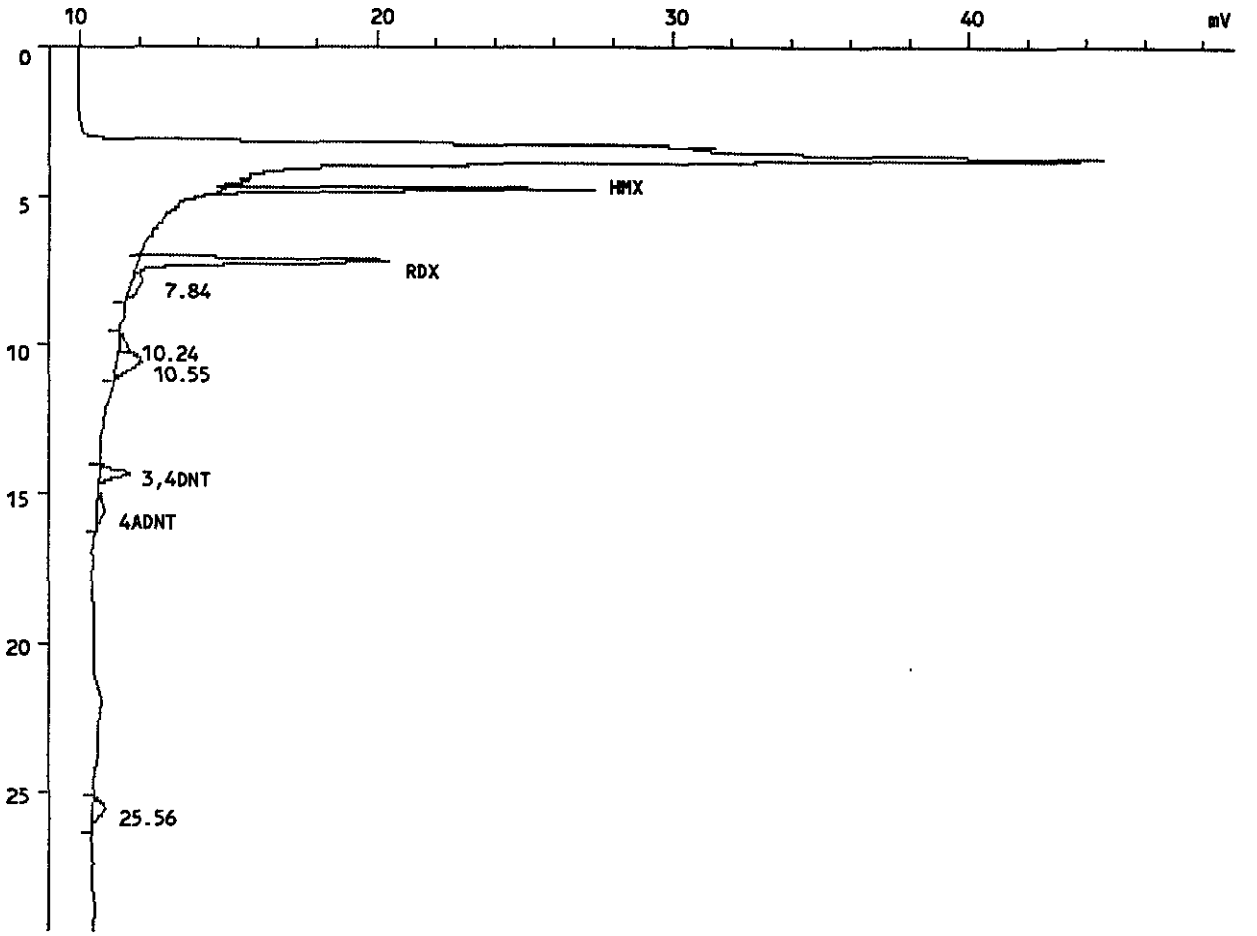
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0814E,15,1

Sample name.....: BIOM01307032FD
Sample ID.....: 35218.05
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02, INJ:200,COL#1

Acquired on 18-Aug-98 at 05:38:00
Reported on 16-Sep-98 at 16:56:14



INJECTION REPORT

Injection F: <MC3> 5 5EX0814E,15,1

Acquired on 18-Aug-98 at 05:38:00
Modified on 18-Aug-82 at 19:18:38
Reported on 16-Sep-98 at 16:55:43

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02,INJ:200,COL#1
Number of samples.: 26
Calibration file..: 5EX0814 Last modified on 14-Sep-82 at 09:11:00
Method file.....: EXPLOS Last modified on 16-Sep-82 at 16:12:18
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307032FD
Sample ID.....: 35218.05
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

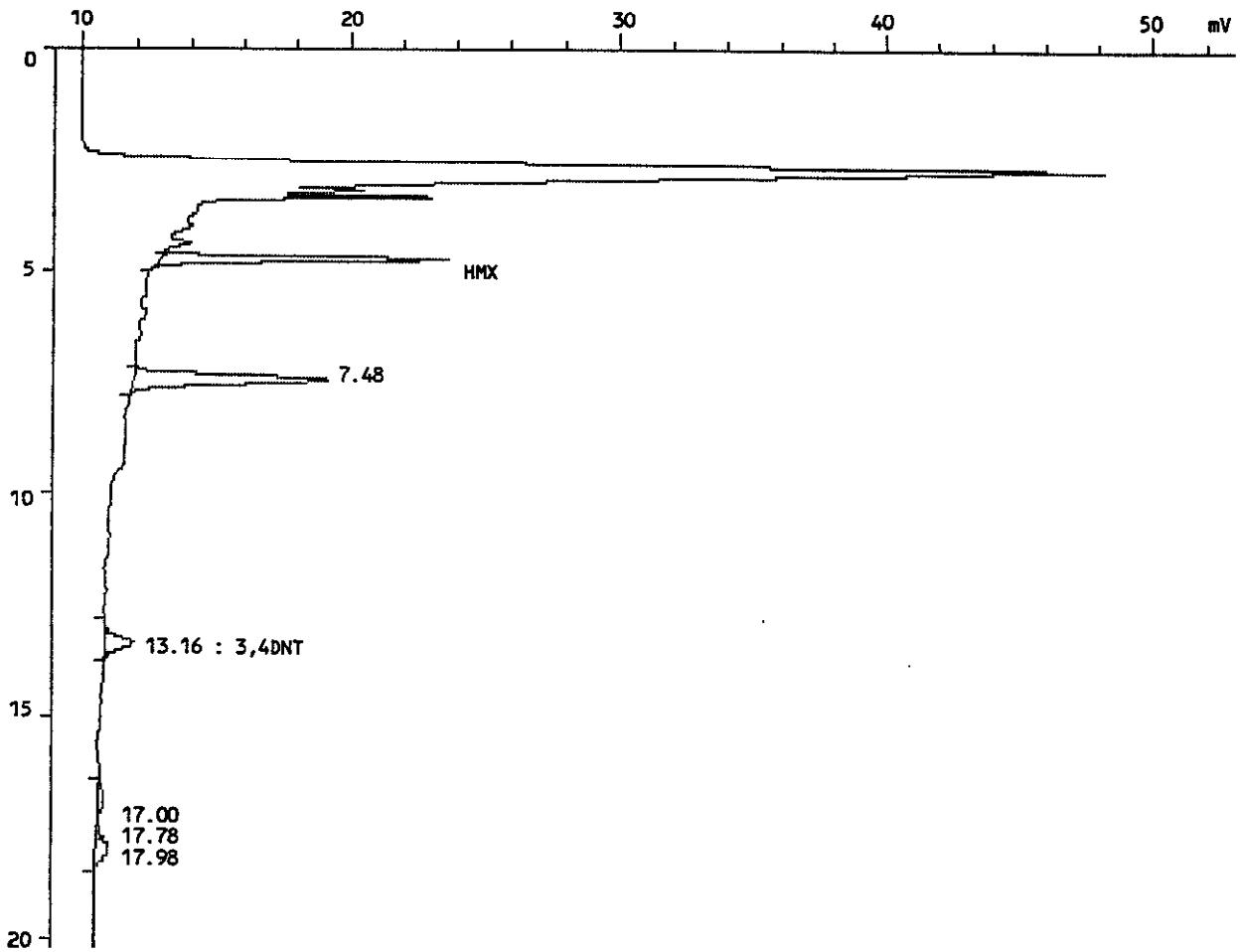
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.784	12584	90617	12550.814	HMX *
2	7.168	8444	116635	12329.309	RDX *
6	14.352	1047	19928	1706.129	3,4DNT 85
7	15.637	247	10342	597.134	4ADNT
Total		22322	237522	27183.387	
Residual		2116	70186	6784.824	

LONG PLOT

Injection F: <MC4> 1 1CN0911F,8,1

Sample name.....: BIOM01307032FD
Sample ID.....: 35218.05
INST ID: IN10, COL. TYPE: METASIL, ID: MET-01, INJ:100, UV

Acquired on 14-Sep-98 at 00:48:35
Reported on 16-Sep-98 at 16:29:12



INJECTION REPORT

Injection F: <MC4> 1 1CN0911F,8,1

Acquired on 14-Sep-98 at 00:48:35
Modified on 16-Sep-82 at 16:24:32
Reported on 16-Sep-98 at 16:28:58

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: METASIL, ID: MET-01,INJ:100, UV
Number of samples.: 14
Calibration file..: 1CN0911A Last modified on 16-Sep-82 at 16:26:00
Method file.....: LCCN Last modified on 16-Sep-82 at 16:27:16
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307032FD
Sample ID.....: 35218.05
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

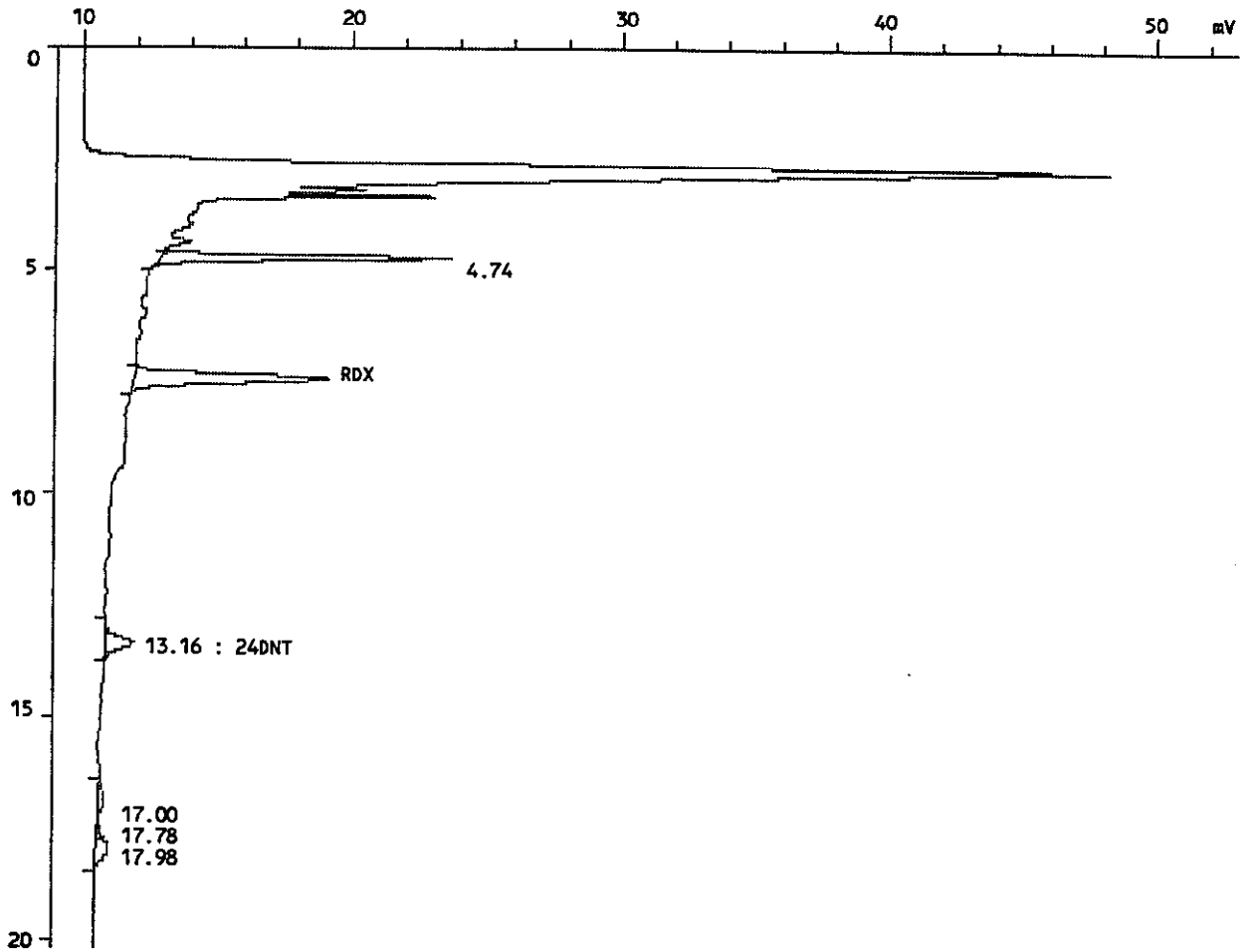
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.736	10827	86517	12202.706	HMX
4	13.397	1075	19120	395.702	3,4DNT
Total		11902	105638	12598.408	
Residual		8294	123065	0.000	

LONG PLOT

Injection F: <MC4> 1 1CN0911F,8,1

Sample name.....: BIOM01307032FD
Sample ID.....: 35218.05
INST ID: IN10, COL. TYPE: METASIL, ID: MET-01, INJ:100, UV

Acquired on 14-Sep-98 at 00:48:35
Reported on 16-Sep-98 at 16:35:38



INJECTION REPORT

Injection F: <MC4> 1 1CN0911F,8,1

Acquired on 14-Sep-98 at 00:48:35
Modified on 16-Sep-82 at 16:32:02
Reported on 16-Sep-98 at 16:35:24

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: METASIL, ID: MET-01,INJ:100, UV
Number of samples.: 14
Calibration file..: 1CN0911B Last modified on 16-Sep-82 at 16:33:04
Method file.....: LCCN Last modified on 16-Sep-82 at 16:33:50
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307032FD
Sample ID.....: 35218.05
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
2	7.483	7234	100660	13022.053	RDX
4	13.397	1075	19120	901.902	24DNT
Total		8309	119781	13923.954	
Residual		11887	108922	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307032FD

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.05

Sample Amt: 2g % Moisture 27.53 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/21/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q	RPD of FD
75-11-5	PETN----------	250	U	0

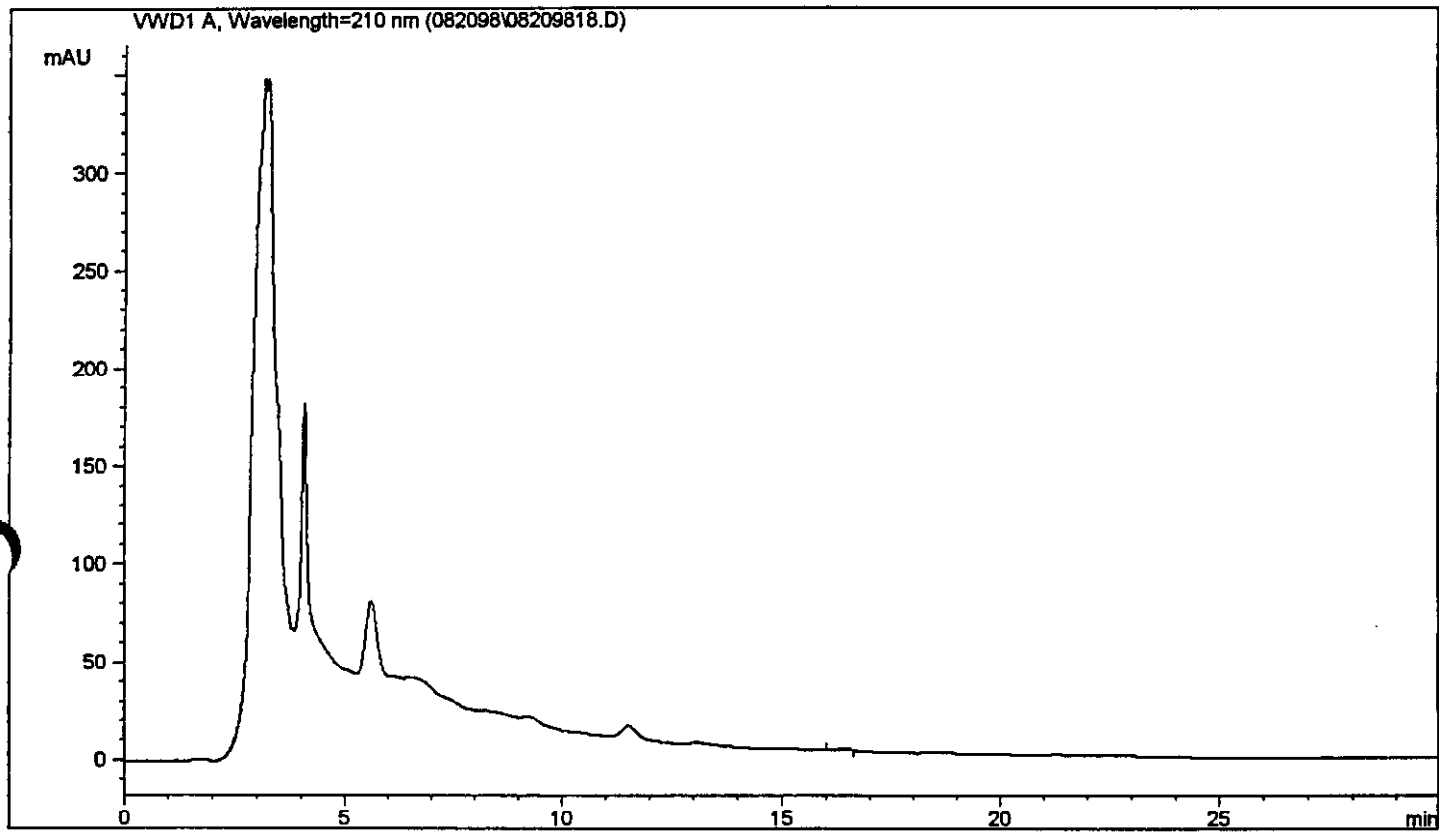
FORM I

Data file : F:\HPCHEM\LC4\DATA\082098\08209818.D
Sample Name: 35218.05 1

Injection Date	: Fri, 21. Aug. 1998	Seq Line	: 18
Sample Name	: 35218.05	Vial No.	: 18
Acq Operator	: MP	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 082098.M
Analysis Method : F:\HPCHEM\LC4\METHODS\082098.M
Last Changed : Fri, 21. Aug. 1998, 10:58:13 am

PETN SOIL



Customized Report: extstd.frp

Sorted By Signal
Calib. Data Modified : Fri, 21. Aug. 1998,10:57:25 am
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/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
16.411	PBA	11.90877	0.00000	0.00000	
Totals:				0.00000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307033

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.06

Sample Amt: 2g % Moisture 25.30 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/18/98

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	1230	J
121-82-4	RDX	398	J
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

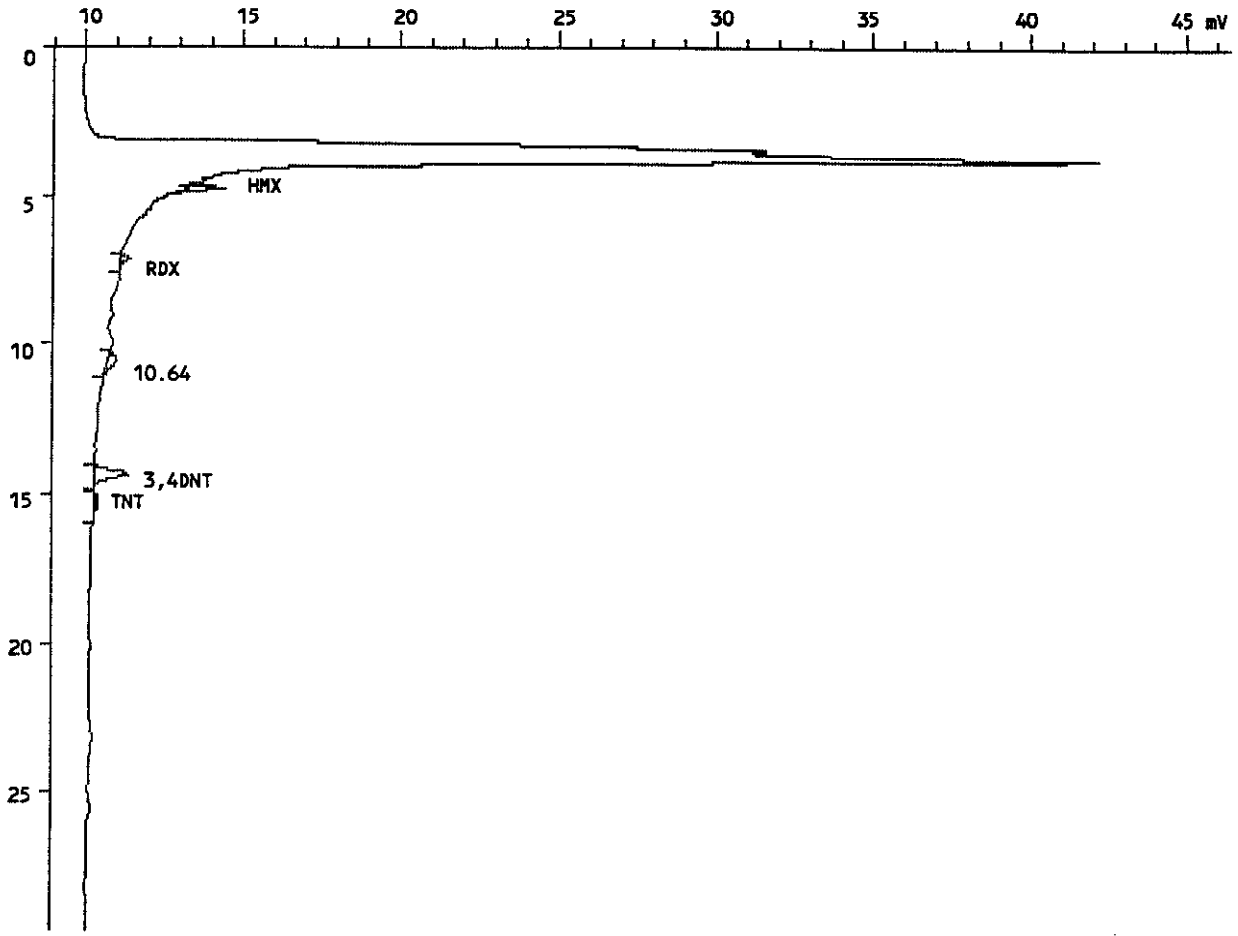
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0814E,16,1

Sample name.....: BIOM01307033
Sample ID.....: 35218.06
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02, INJ:200,COL#1

Acquired on 18-Aug-98 at 06:22:45
Reported on 16-Sep-98 at 16:58:24



INJECTION REPORT

Injection F: <MC3> 5 5EX0814E,16,1

Acquired on 18-Aug-98 at 06:22:45
Modified on 18-Aug-82 at 19:18:42
Reported on 16-Sep-98 at 16:57:44

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02,INJ:200,COL#1
Number of samples.: 26
Calibration file..: 5EX0814 Last modified on 14-Sep-82 at 09:11:00
Method file.....: EXPLOS Last modified on 16-Sep-82 at 16:12:18
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307033
Sample ID.....: 35218.06
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

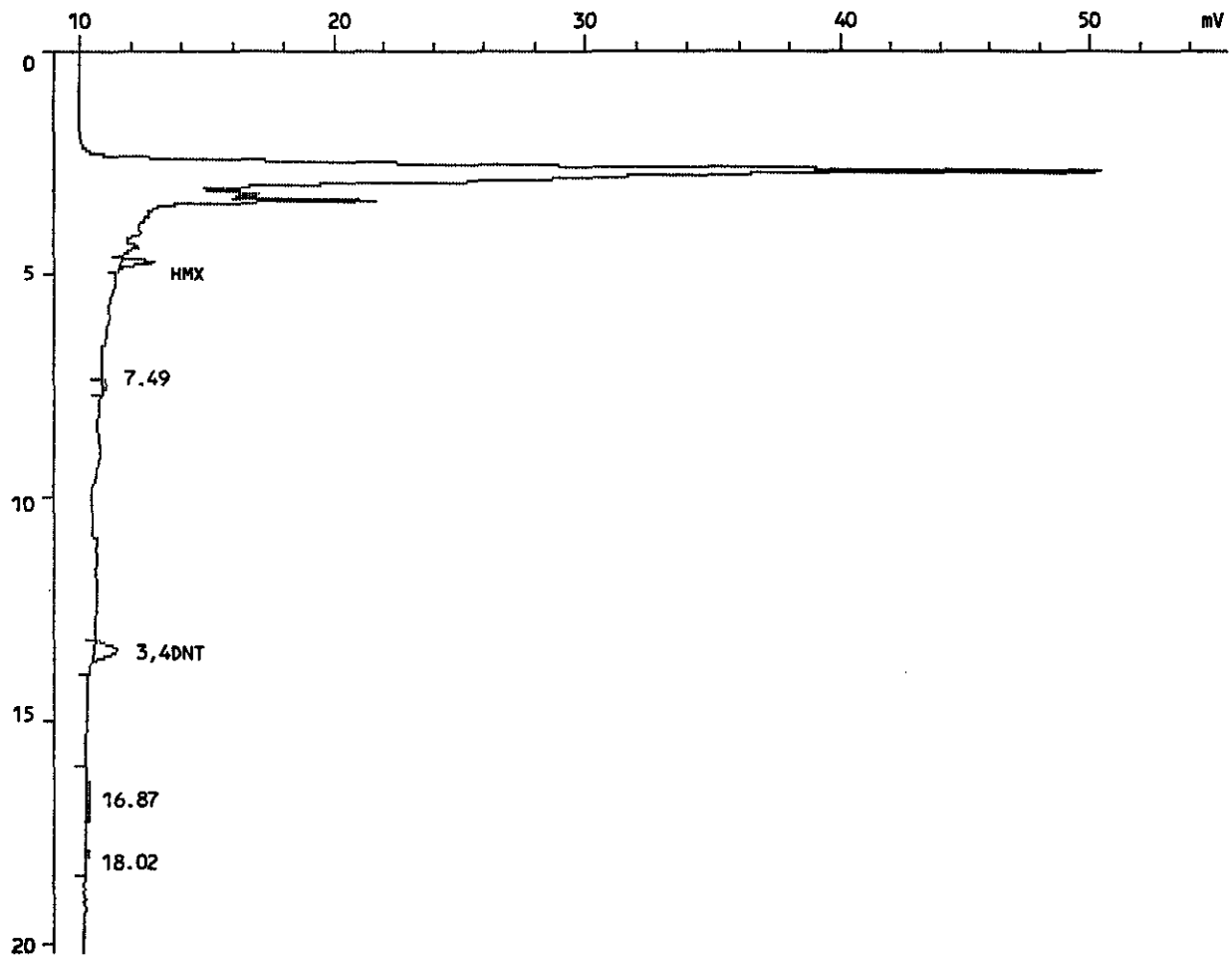
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.795	1351	8894	1231.886	HMX J
2	7.173	298	3764	397.861	RDX J
4	14.357	1063	19948	1707.874	3,4DNT 85
5	15.157	135	5551	267.407	TNT
Total		2846	38157	3605.027	
Residual		262	6650	702.909	

LONG PLOT

Injection F: <MC4> 1 1CN0911F,9,1

Sample name.....: BIOM01307033
Sample ID.....: 35218.06
INST ID: IN10, COL. TYPE: METASIL, ID: MET-01, INJ:100, UV

Acquired on 14-Sep-98 at 01:30:04
Reported on 16-Sep-98 at 16:29:40



INJECTION REPORT

Injection F: <MC4> 1 1CN0911F,9,1

Acquired on 14-Sep-98 at 01:30:04
Modified on 16-Sep-82 at 16:27:08
Reported on 16-Sep-98 at 16:29:26

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: METASIL, ID: MET-01,INJ:100, UV
Number of samples.: 14
Calibration file..: 1CN0911A Last modified on 16-Sep-82 at 16:26:00
Method file.....: LCCN Last modified on 16-Sep-82 at 16:27:16
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307033
Sample ID.....: 35218.06
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

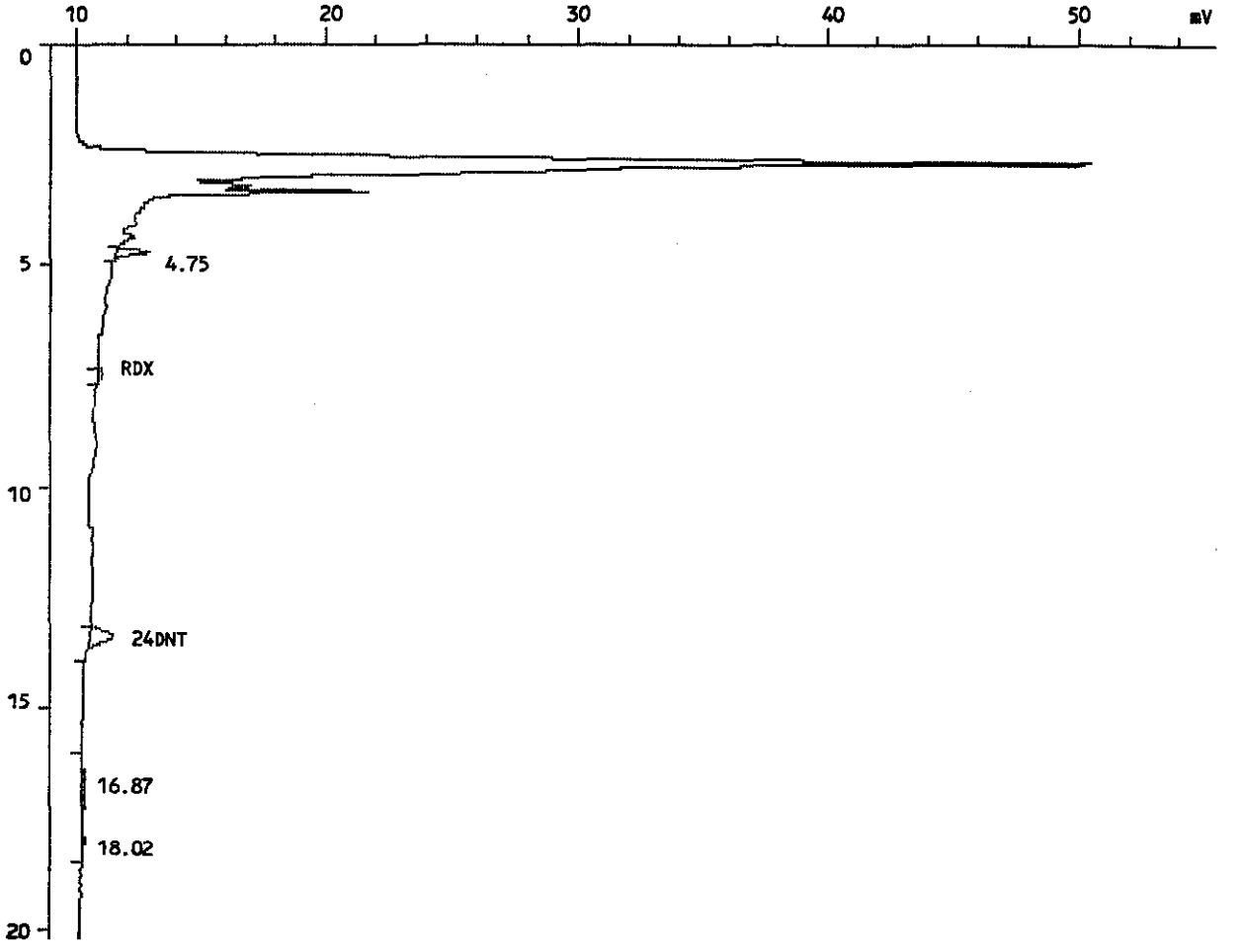
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.752	1255	9432	1330.357	HMX
3	13.429	954	16214	335.549	3,4DNT
Total		2208	25646	1665.907	
Residual		479	12608	0.000	

LONG PLOT

Injection F: <MC4> 1 1CN0911F,9,1

Sample name.....: BIOM01307033
Sample ID.....: 35218.06
INST ID: IN10, COL. TYPE: METASIL, ID: MET-01, INJ:100, UV

Acquired on 14-Sep-98 at 01:30:04
Reported on 16-Sep-98 at 16:36:05



INJECTION REPORT

Injection F: <MC4> 1 1CN0911F,9,1

Acquired on 14-Sep-98 at 01:30:04
Modified on 16-Sep-82 at 16:32:20
Reported on 16-Sep-98 at 16:35:51

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: METASIL, ID: MET-01,INJ:100, UV
Number of samples.: 14
Calibration file..: 1CN0911B Last modified on 16-Sep-82 at 16:33:04
Method file.....: LCCN Last modified on 16-Sep-82 at 16:33:50
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307033
Sample ID.....: 35218.06
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	7.493	224	2631	340.336	RDX
3	13.429	954	16214	764.799	24DNT
Total		1178	18845	1105.135	
Residual		1510	19409	0.000	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307033

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.06

Sample Amt: 2g % Moisture 25.30 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/21/98

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

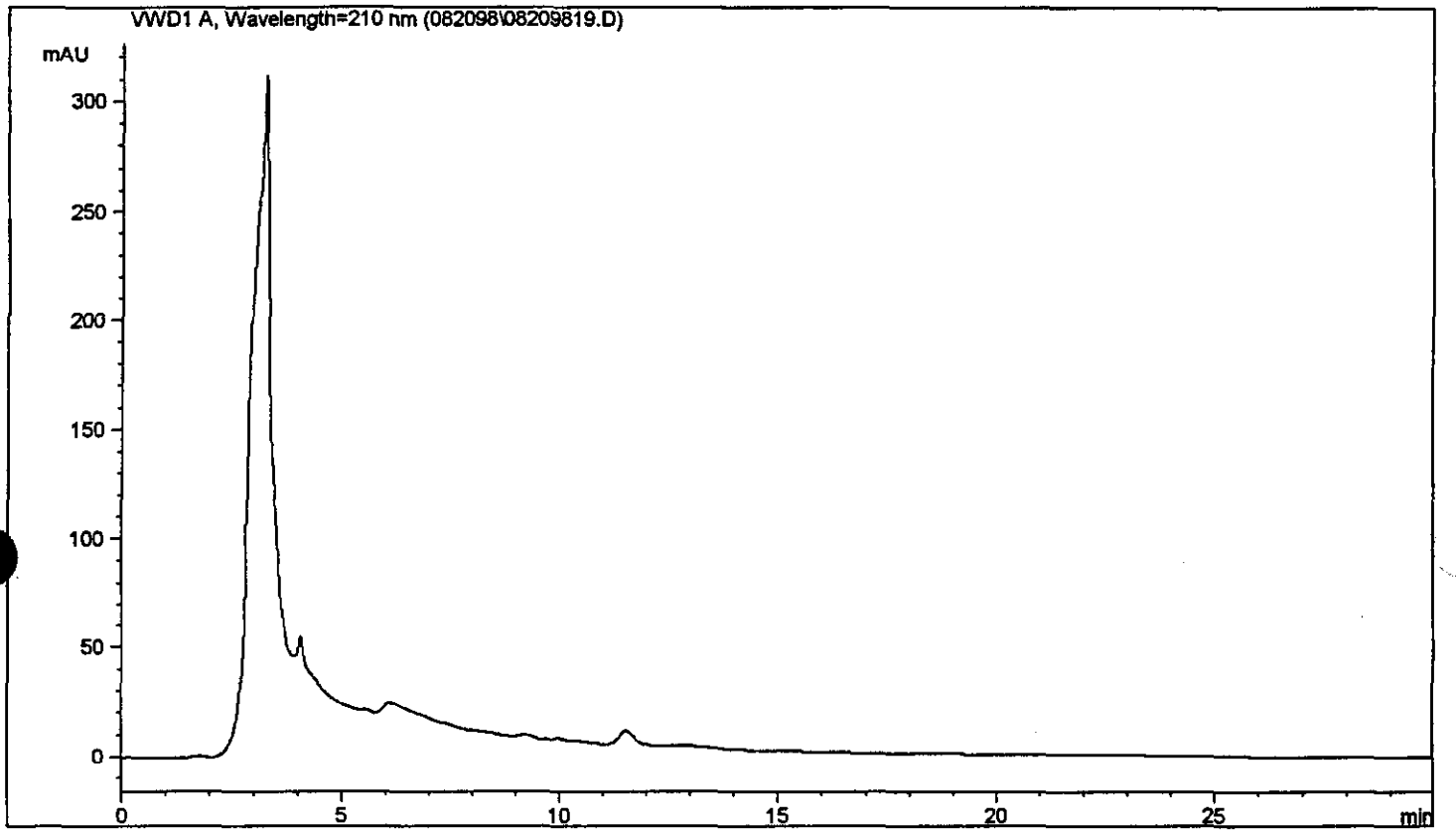
FORM I

Data file : F:\HPCHEM\LC4\DATA\082098\08209819.D
Sample Name: 35218.06 1

Injection Date	: Fri, 21. Aug. 1998	Seq Line	: 19
Sample Name	: 35218.06	Vial No.	: 19
Acq Operator	: MP	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 082098.M
Analysis Method : F:\HPCHEM\LC4\METHODS\082098.M
Last Changed : Fri, 21. Aug. 1998, 10:58:13 am

PETN SOIL



Customized Report: extstd.frp

Sorted By Signal
Calib. Data Modified : Fri, 21. Aug. 1998,10:57:25 am
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/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

*** End of Report ***

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307051

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.07

Sample Amt: 2g % Moisture 36.43 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/18/98

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	9710	
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

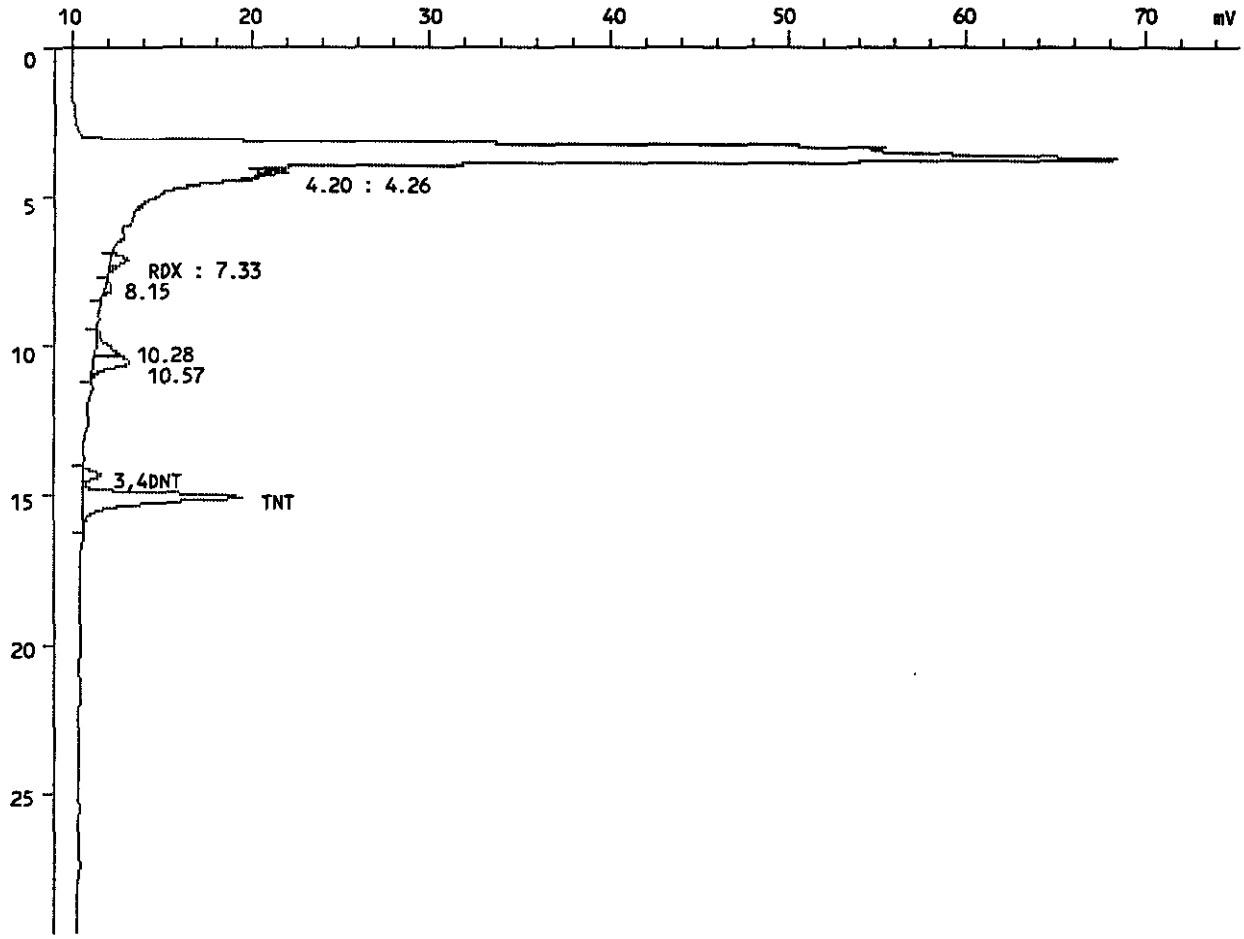
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0814E,17,1

Sample name.....: BIOM01307051
Sample ID.....: 35218.07
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02, INJ:200,COL#1

Acquired on 18-Aug-98 at 07:07:29
Reported on 16-Sep-98 at 16:59:47



INJECTION REPORT

Injection F: <MC3> 5 5EX0814E,17,1

Acquired on 18-Aug-98 at 07:07:29
Modified on 18-Aug-82 at 19:18:46
Reported on 16-Sep-98 at 16:59:01

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02,INJ:200,COL#1
Number of samples.: 26
Calibration file..: 5EX0814 Last modified on 14-Sep-82 at 09:11:00
Method file.....: EXPLOS Last modified on 16-Sep-82 at 16:12:18
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307051
Sample ID.....: 35218.07
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

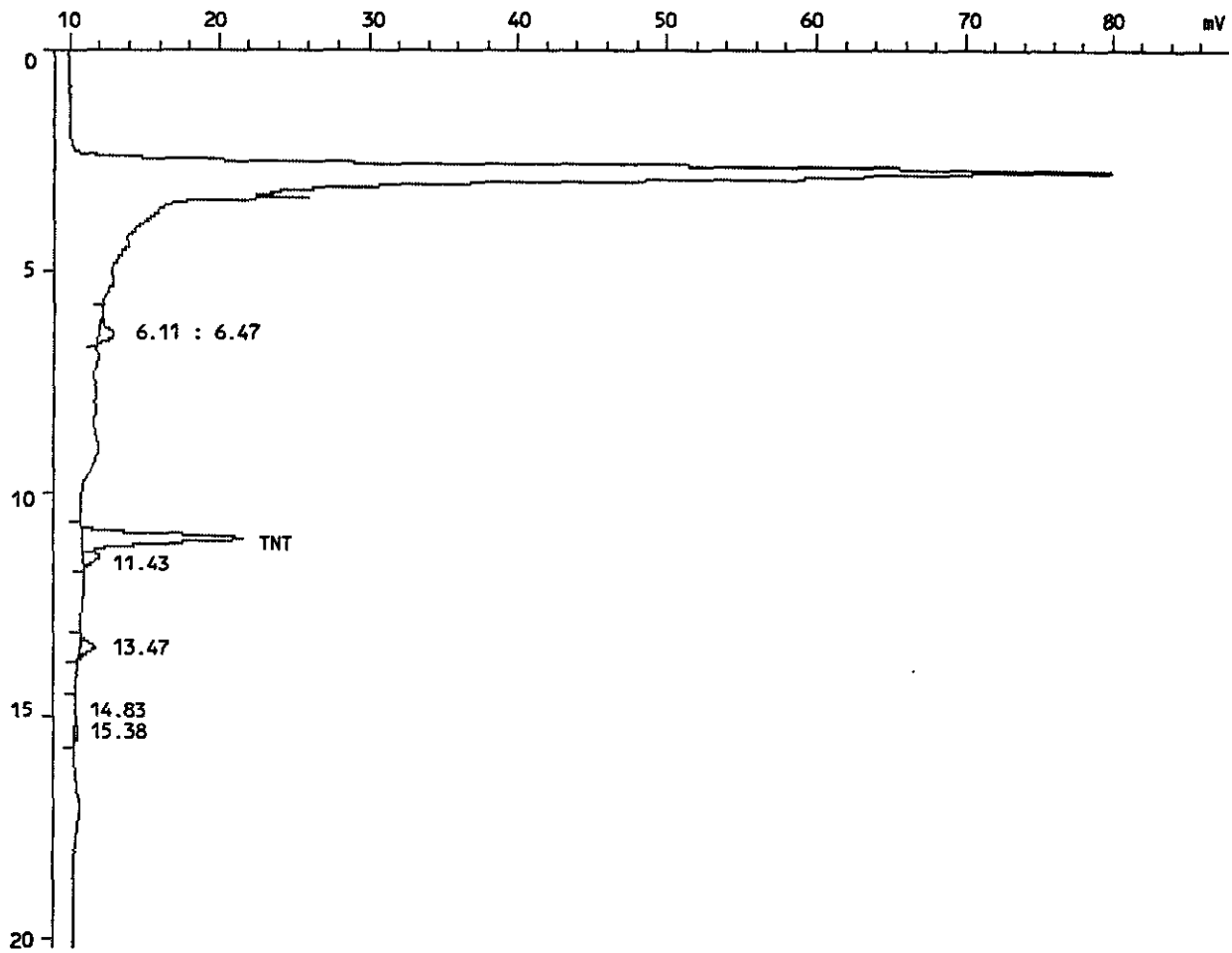
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	7.168	994	16181	1710.453	RDX
8	14.373	1039	18956	1622.979	3,4DNT 8|
9	15.115	8847	201672	9714.428	TNT *
Total		10880	236809	13047.861	
Residual		6925	117162	12384.992	

LONG PLOT

Injection F: <MC4> 1 1CN0911F,10,1

Sample name.....: BIOM01307051
Sample ID.....: 35218.07
INST ID: IN10, COL. TYPE: METASIL, ID: MET-01, INJ:100, UV

Acquired on 14-Sep-98 at 02:11:33
Reported on 16-Sep-98 at 16:30:07



INJECTION REPORT

Injection F: <MC4> 1 1CN0911F,10,1

Acquired on 14-Sep-98 at 02:11:33
Modified on 16-Sep-82 at 16:26:50
Reported on 16-Sep-98 at 16:29:53

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: METASIL, ID: MET-01,INJ:100, UV
Number of samples.: 14
Calibration file..: 1CN0911A Last modified on 16-Sep-82 at 16:26:00
Method file.....: LCCN Last modified on 16-Sep-82 at 16:27:16
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307051
Sample ID.....: 35218.07
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

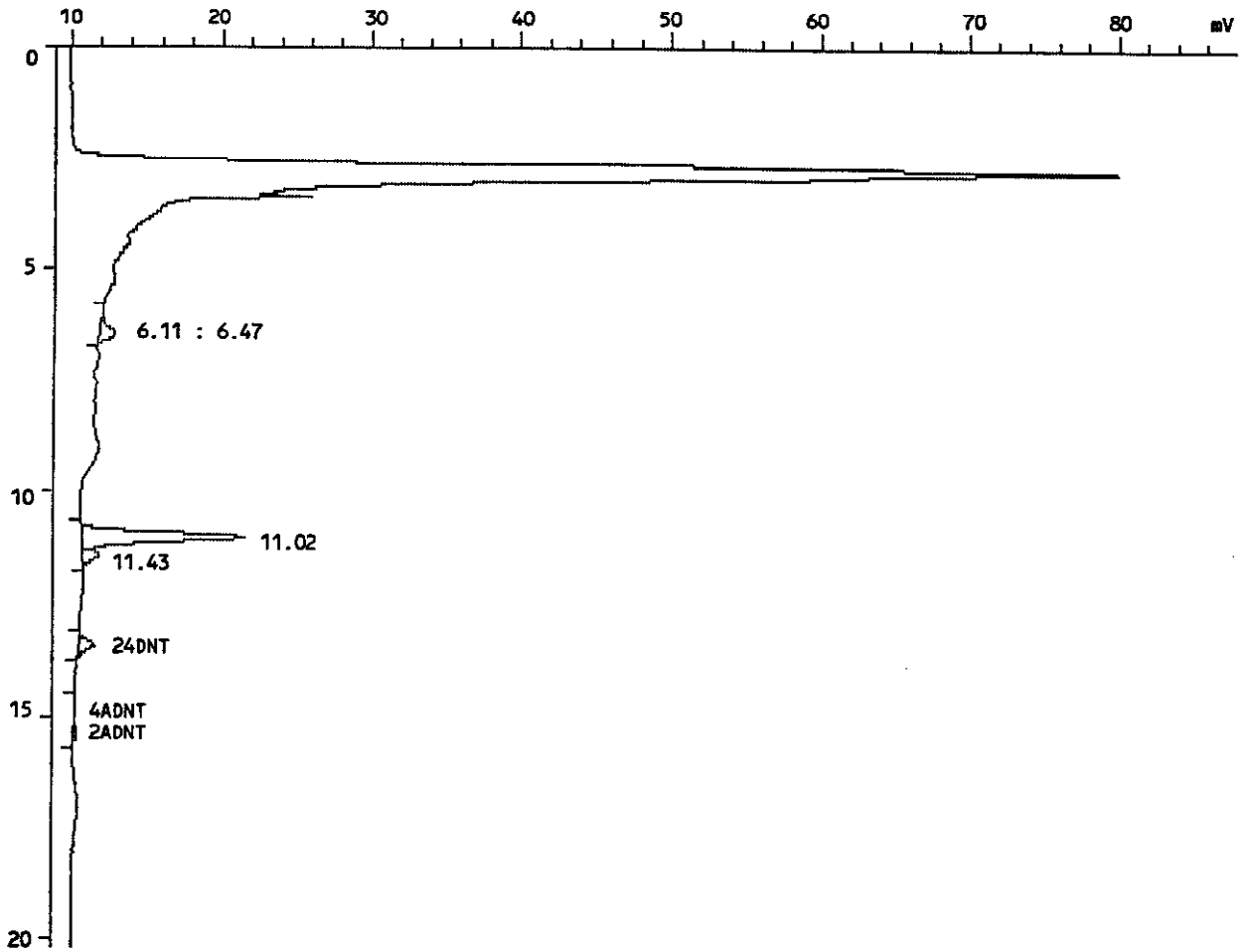
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
3	11.024	10800	152134	7122.359	TNT
Total		10800	152134	7122.359	
Residual		3596	62214	0.000	

LONG PLOT

Injection F: <MC4> 1 1CN0911F,10,1

Sample name.....: BIOM01307051
Sample ID.....: 35218.07
INST ID: IN10, COL. TYPE: METASIL, ID: MET-01, INJ:100, UV

Acquired on 14-Sep-98 at 02:11:33
Reported on 16-Sep-98 at 16:36:32



INJECTION REPORT

Injection F: <MC4> 1 1CN0911F,10,1

Acquired on 14-Sep-98 at 02:11:33
Modified on 16-Sep-82 at 16:33:36
Reported on 16-Sep-98 at 16:36:18

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: METASIL, ID: MET-01,INJ:100, UV
Number of samples.: 14
Calibration file..: 1CN0911B Last modified on 16-Sep-82 at 16:33:04
Method file.....: LCCN Last modified on 16-Sep-82 at 16:33:50
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307051
Sample ID.....: 35218.07
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
5	13.467	996	16362	771.810	24DNT
6	14.827	105	1767	164.093	4ADNT
7	15.376	158	4117	258.412	2ADNT
Total		1260	22246	1194.314	
Residual		13136	192101	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307051

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.07

Sample Amt: 2g % Moisture 36.43 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/21/98

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

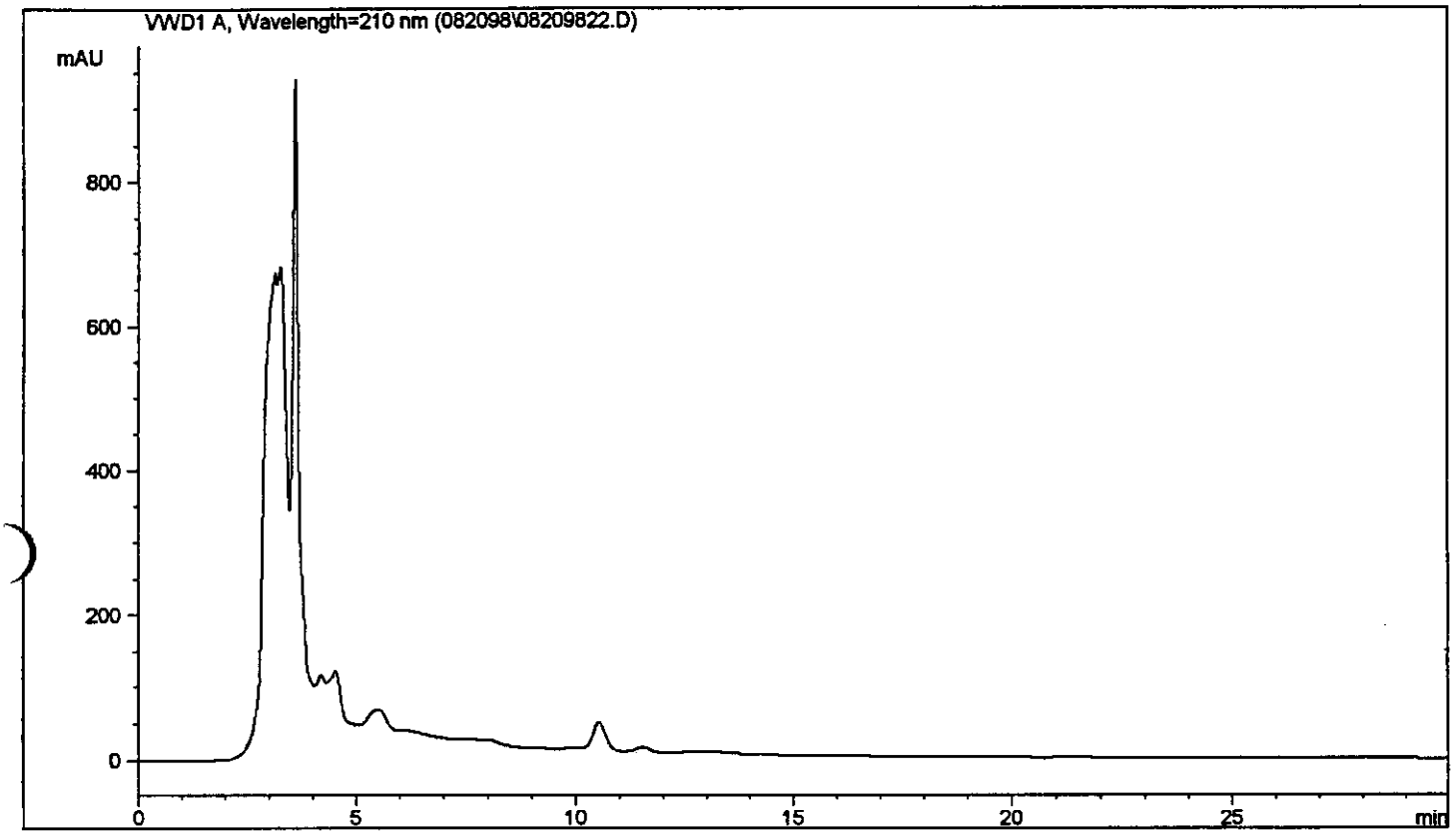
FORM I

Data file : F:\HPCHEM\LC4\DATA\082098\08209822.D
Sample Name: 35218.07 1

Injection Date	: Fri, 21. Aug. 1998	Seq Line	:	22
Sample Name	: 35218.07	Vial No.	:	22
Acq Operator	: MP	Inj. No.	:	1
		Inj. Vol.	:	200 µl

Acq. Method : 082098.M
Analysis Method : F:\HPCHEM\LC4\METHODS\082098.M
Last Changed : Fri, 21. Aug. 1998, 10:58:13 am

PETN SOIL



Customized Report: extstd.frp

Sorted By Signal
Calib. Data Modified : Fri, 21. Aug. 1998,10:57:25 am
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/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

*** End of Report ***

60

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307052

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.08

Sample Amt: 2g % Moisture 33.05 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/18/98

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	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

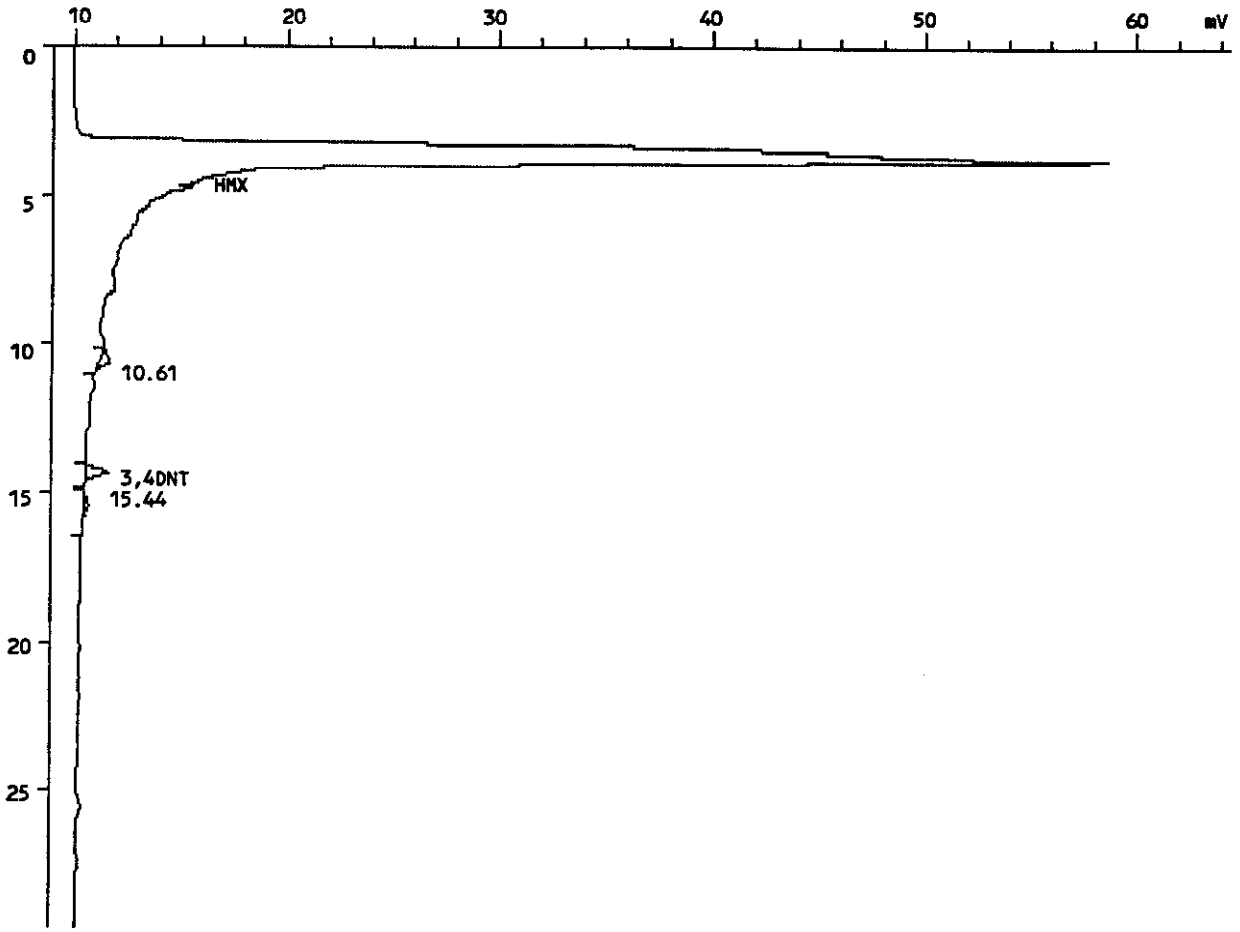
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0814E,18,1

Sample name.....: BIOM01307052
Sample ID.....: 35218.08
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02, INJ:200,COL#1

Acquired on 18-Aug-98 at 07:52:14
Reported on 18-Aug-98 at 19:34:22



INJECTION REPORT

Injection F: <MC3> 5 5EX0814E,18,1

Acquired on 18-Aug-98 at 07:52:14
Modified on 18-Aug-82 at 19:18:52
Reported on 18-Aug-98 at 19:28:18

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02,INJ:200,COL#1
Number of samples.: 26
Calibration file..: 5EX0814 Last modified on 18-Aug-82 at 19:18:06
Method file.....: EXPLOS Last modified on 18-Aug-82 at 19:17:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307052
Sample ID.....: 35218.08
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
1	4.789	386	2032	281.499	HMX
3	14.368	1066	19856	1699.969	3,4DNT 85
Total		1452	21888	1981.469	
Residual		800	22780	2634.978	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307052

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.08

Sample Amt: 2g % Moisture 33.05 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/21/98

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

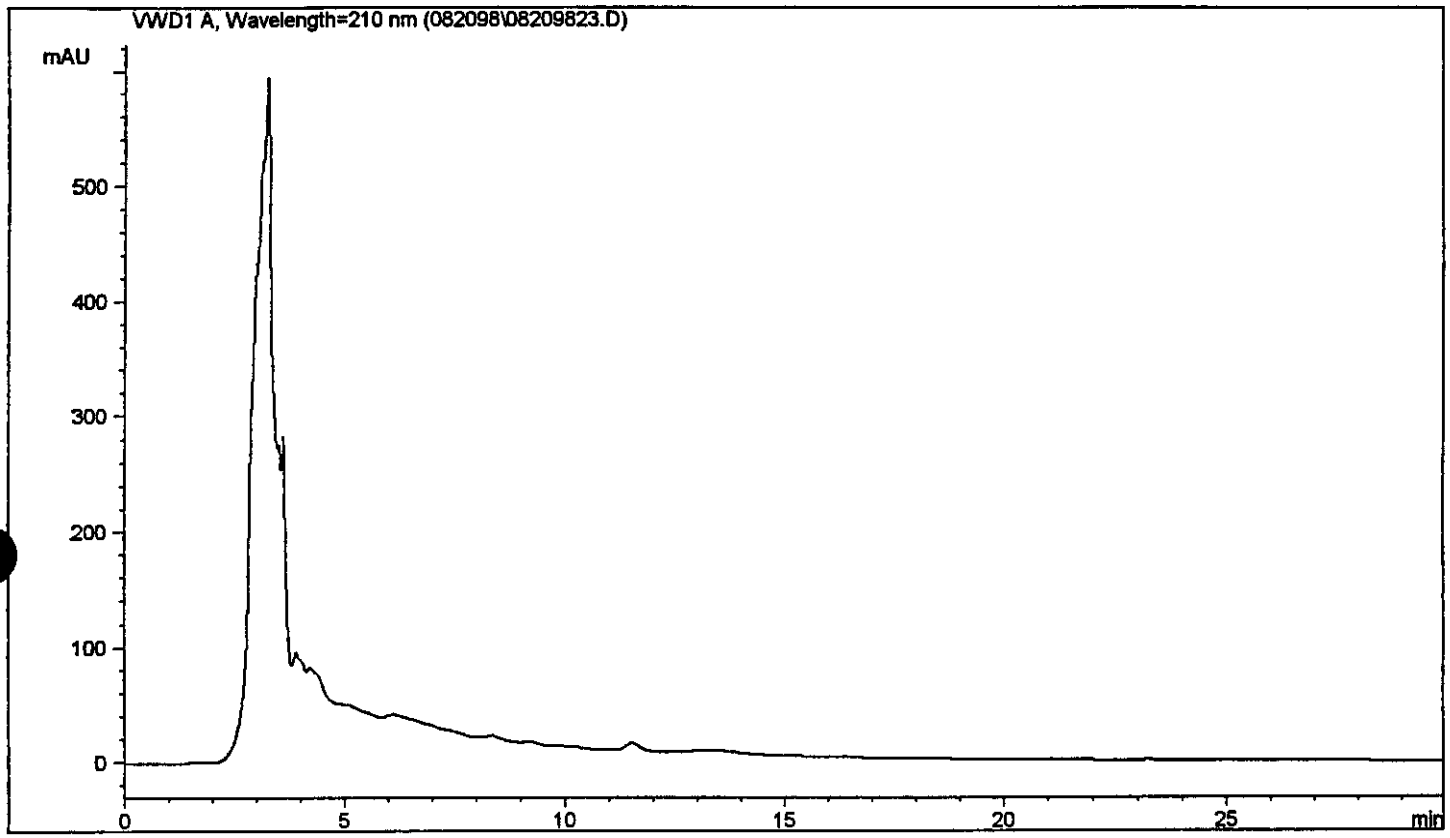
FORM I

Data file : F:\HPCHEM\LC4\DATA\082098\08209823.D
Sample Name: 35218.08 1

Injection Date	: Fri, 21. Aug. 1998	Seq Line	: 23
Sample Name	: 35218.08	Vial No.	: 23
Acq Operator	: MP	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 082098.M
Analysis Method : F:\HPCHEM\LC4\METHODS\082098.M
Last Changed : Fri, 21. Aug. 1998, 10:58:13 am

PETN SOIL



Customized Report: extstd.frp

Sorted By Signal
Calib. Data Modified : Fri, 21. Aug. 1998,10:57:25 am
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/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

*** End of Report ***

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307053

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.09

Sample Amt: 2g % Moisture 27.22 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/18/98

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	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

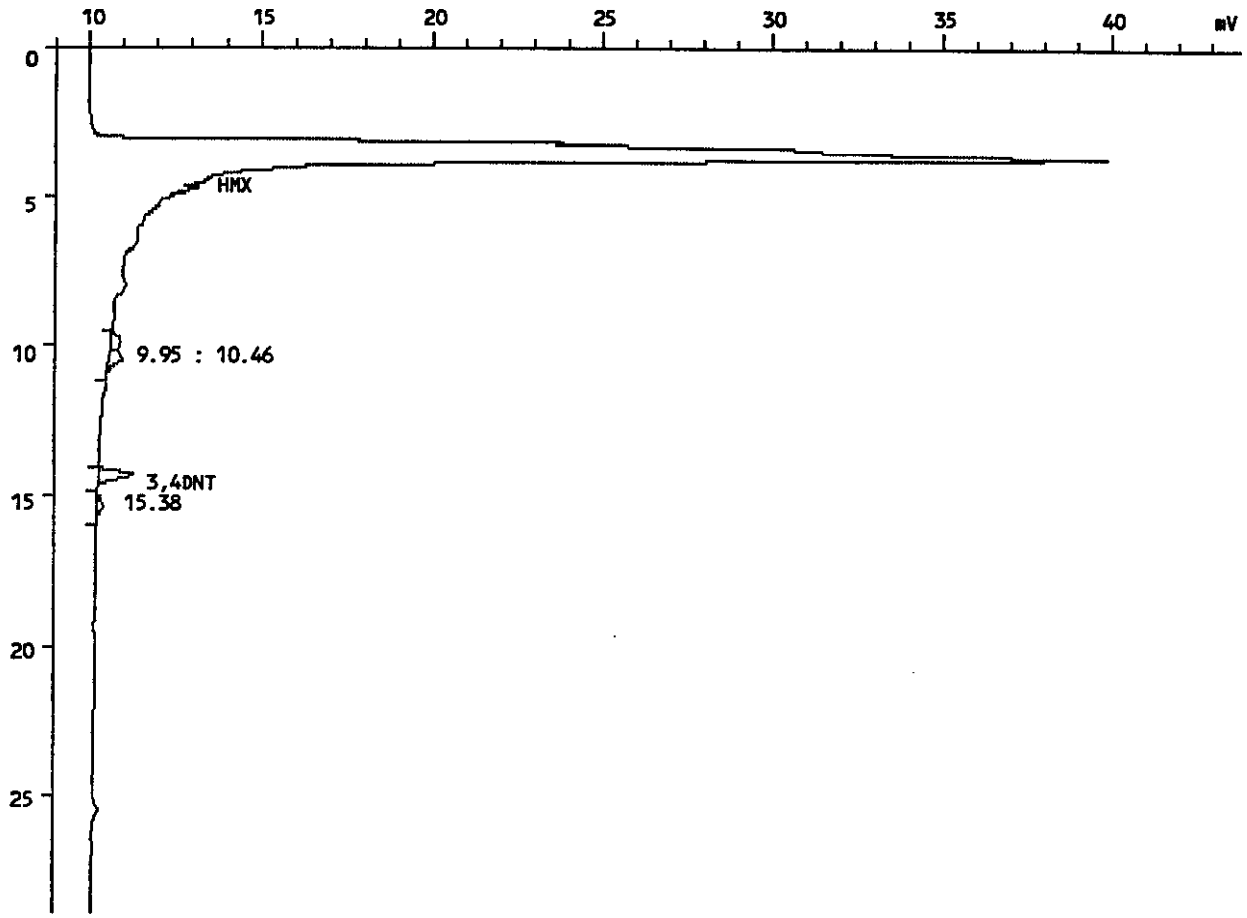
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0814E,21,1

Sample name.....: BIOM01307053
Sample ID.....: 35218.09
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02, INJ:200,COL#1

Acquired on 18-Aug-98 at 10:06:31
Reported on 18-Aug-98 at 19:34:49



INJECTION REPORT

Injection F: <MC3> 5 5EX0814E,21,1

Acquired on 18-Aug-98 at 10:06:31
Modified on 18-Aug-82 at 19:18:56
Reported on 18-Aug-98 at 19:28:31

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02,INJ:200,COL#1
Number of samples.: 26
Calibration file..: 5EX0814 Last modified on 18-Aug-82 at 19:18:06
Method file.....: EXPLOS Last modified on 18-Aug-82 at 19:17:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307053
Sample ID.....: 35218.09
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	4.779	256	1507	208.768	HMX
4	14.320	1045	19620	1679.797	3,4DNT 84
Total		1301	21127	1888.564	
Residual		858	23506	2987.249	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307053

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.09

Sample Amt: 2g % Moisture 27.22 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/21/98

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

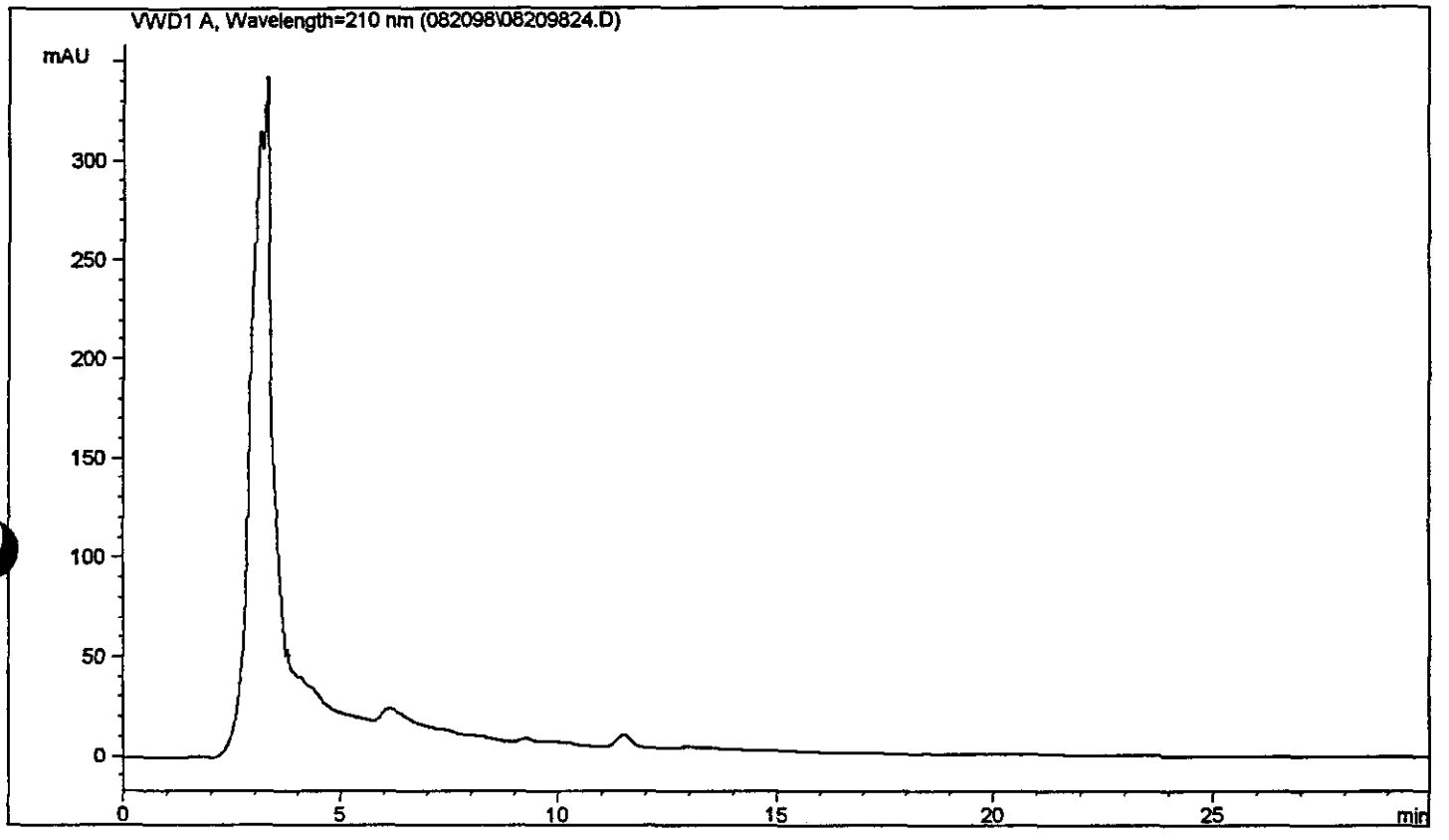
FORM I

Data file : F:\HPCHEM\LC4\DATA\082098\08209824.D
Sample Name: 35218.09 1

Injection Date	: Fri, 21. Aug. 1998	Seq Line	: 24
Sample Name	: 35218.09	Vial No.	: 24
Acq Operator	: MP	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 082098.M
Analysis Method : F:\HPCHEM\LC4\METHODS\082098.M
Last Changed : Fri, 21. Aug. 1998, 10:58:13 am

PETN SOIL



Customized Report: extstd.frp

Sorted By Signal
Calib. Data Modified : Fri, 21. Aug. 1998,10:57:25 am
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/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

*** End of Report ***

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1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307071

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.10

Sample Amt: 2g % Moisture 30.35 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/18/98

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	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

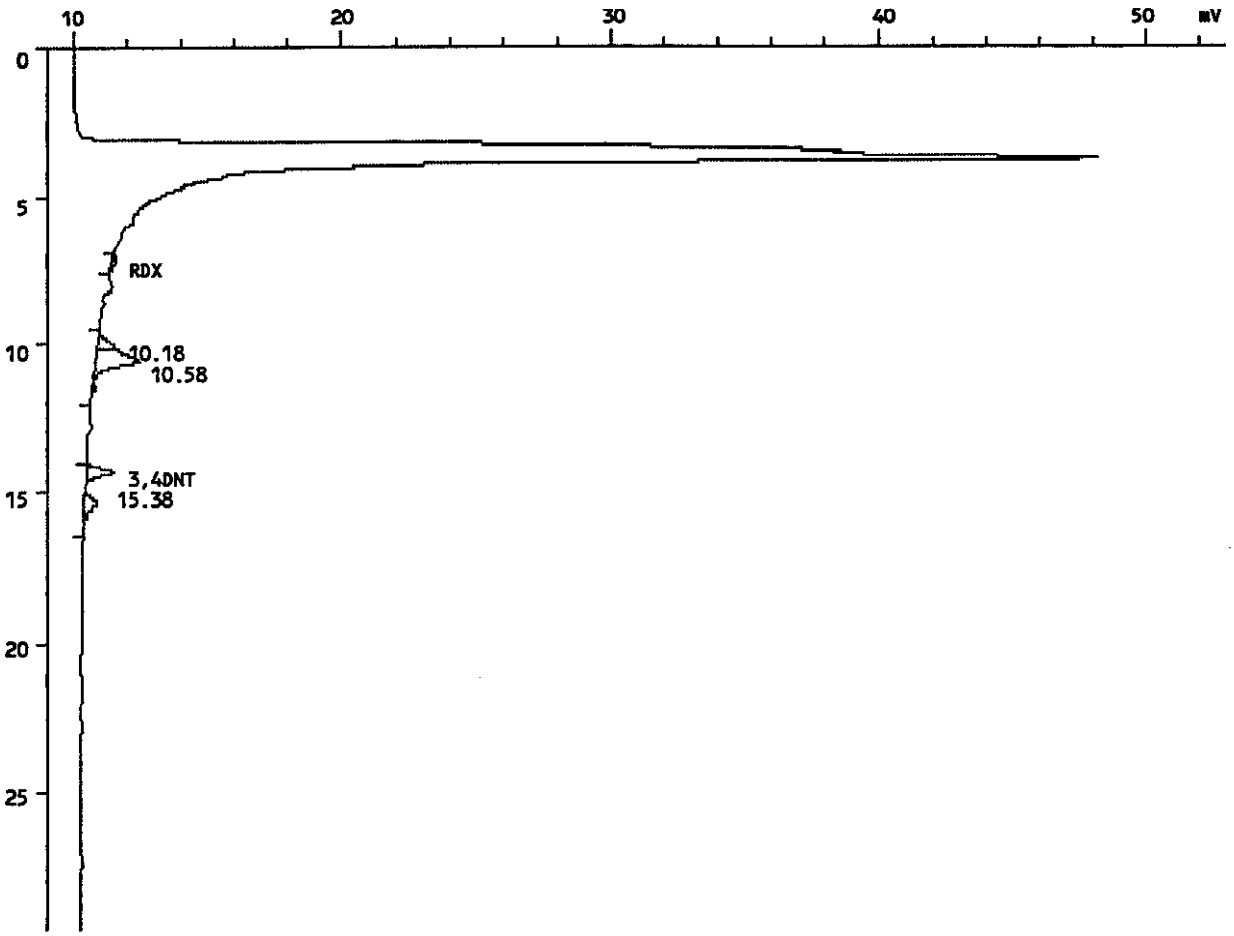
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0814E,22,1

Sample name.....: BIOM01307071
Sample ID.....: 35218.10
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02, INJ:200,COL#1

Acquired on 18-Aug-98 at 10:51:24
Reported on 18-Aug-98 at 19:36:46



INJECTION REPORT

Injection F: <MC3> 5 5EX0814E,22,1

Acquired on 18-Aug-98 at 10:51:24
Modified on 18-Aug-82 at 19:19:02
Reported on 18-Aug-98 at 19:28:44

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02,INJ:200,COL#1
Number of samples.: 26
Calibration file..: 5EX0814 Last modified on 18-Aug-82 at 19:18:06
Method file.....: EXPLOS Last modified on 18-Aug-82 at 19:17:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307071
Sample ID.....: 35218.10
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
1	7.152	185	5207	550.401	RDX
4	14.325	1024	18985	1625.386	3,4DNT 81
Total		1210	24191	2175.787	
Residual		2824	79929	8175.791	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307071

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.10

Sample Amt: 2g % Moisture 30.35 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/21/98

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

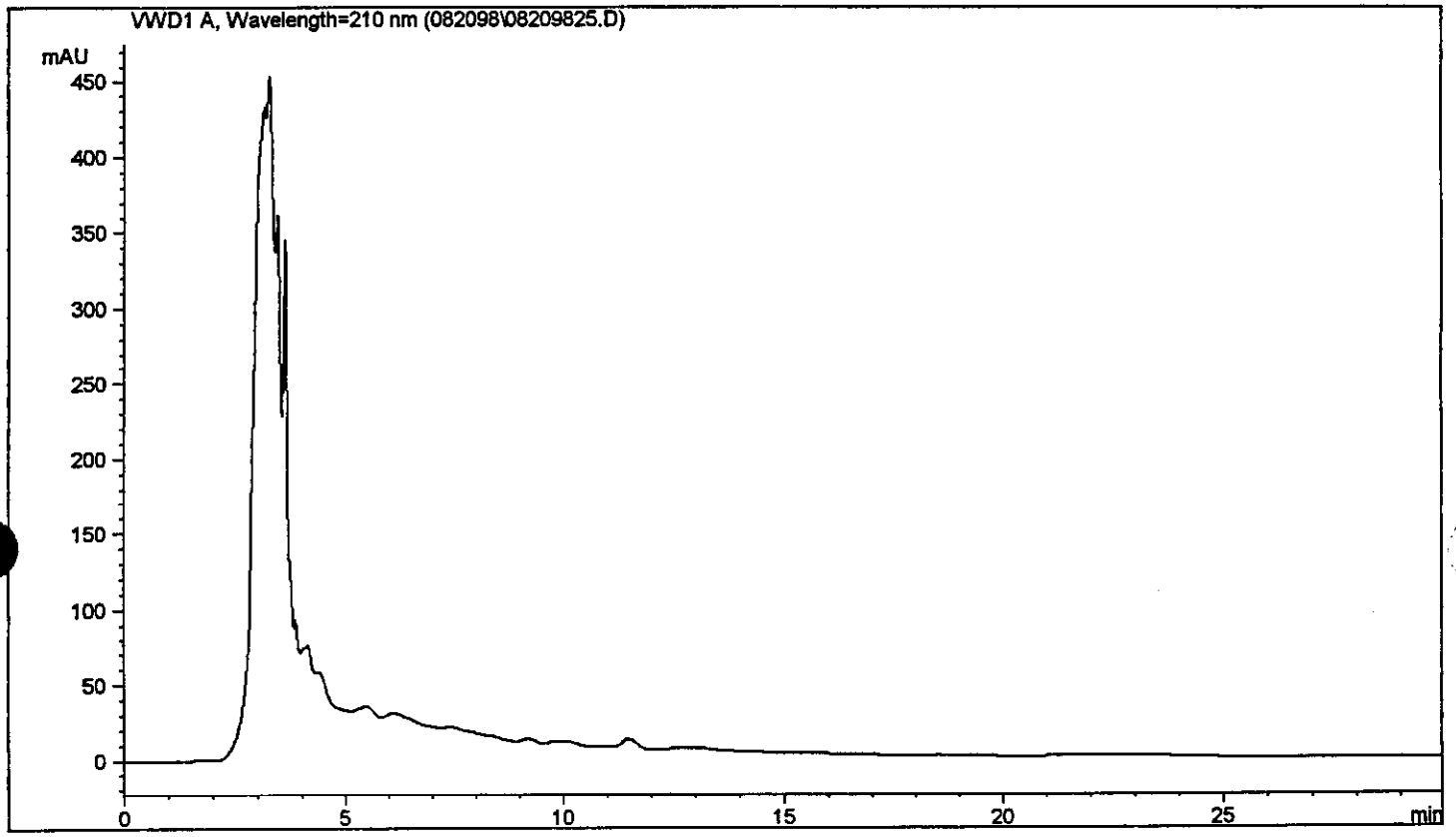
FORM I

Data file : F:\HPCHEM\LC4\DATA\082098\08209825.D
Sample Name: 35218.10 1

Injection Date	: Fri, 21. Aug. 1998	Seq Line	: 25
Sample Name	: 35218.10	Vial No.	: 25
Acq Operator	: MP	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 082098.M
Analysis Method : F:\HPCHEM\LC4\METHODS\082098.M
Last Changed : Fri, 21. Aug. 1998, 10:58:13 am

PETN SOIL



Customized Report: extstd.frp

Sorted By Signal
Calib. Data Modified : Fri, 21. Aug. 1998,10:57:25 am
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/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

*** End of Report ***

75

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307072

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.11

Sample Amt: 2g % Moisture 22.76 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/18/98

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	4610	
121-82-4	RDX	1250	
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	704	P
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

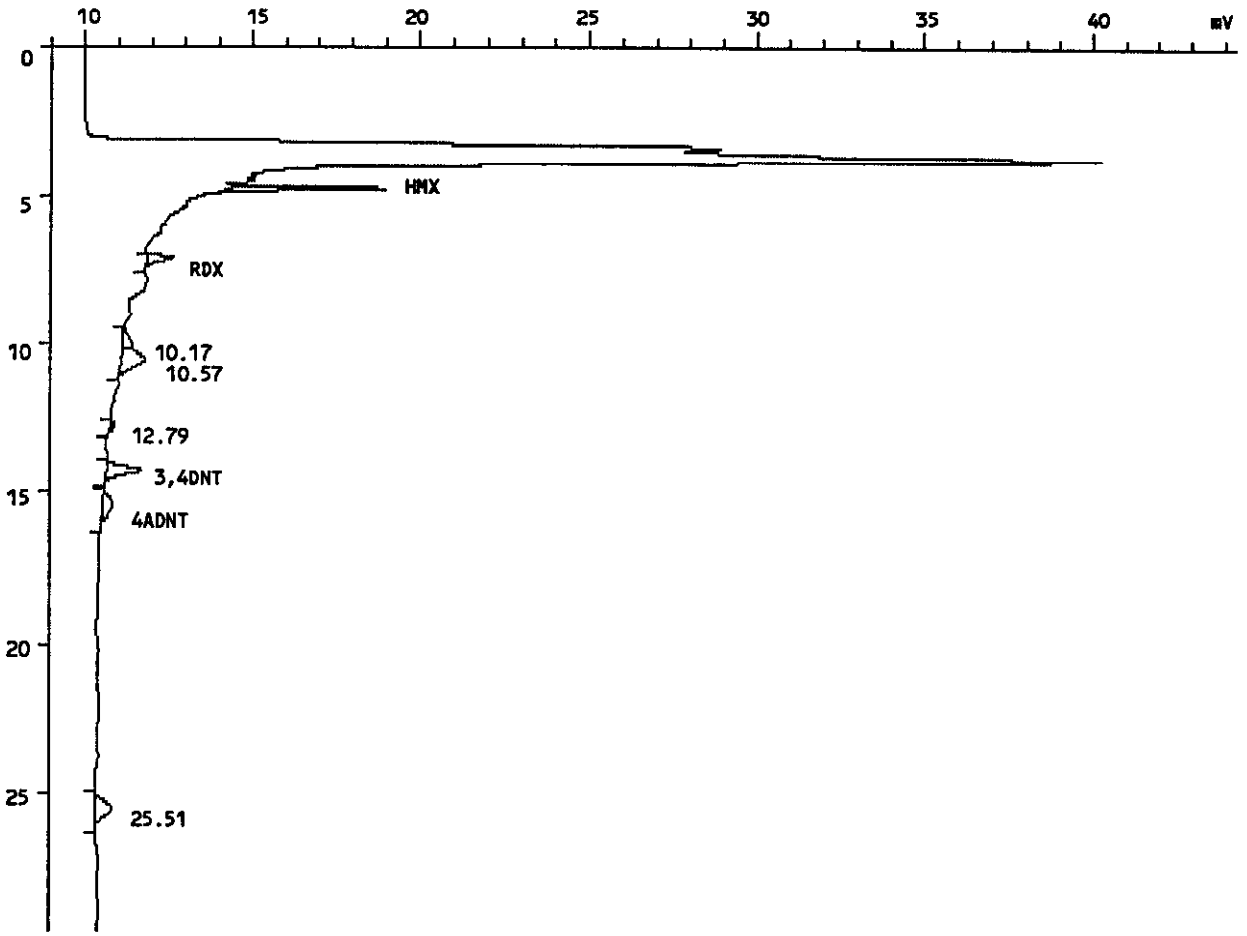
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0814E,23,1

Sample name.....: BIOM01307072
Sample ID.....: 35218.11
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02, INJ:200,COL#1

Acquired on 18-Aug-98 at 11:36:04
Reported on 18-Aug-98 at 19:36:59



INJECTION REPORT

Injection F: <MC3> 5 5EX0814E,23,1

Acquired on 18-Aug-98 at 11:36:04
Modified on 18-Aug-82 at 19:19:04
Reported on 18-Aug-98 at 19:28:57

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02,INJ:200,COL#1
Number of samples.: 26
Calibration file..: 5EX0814 Last modified on 18-Aug-82 at 19:18:06
Method file.....: EXPLOS Last modified on 18-Aug-82 at 19:17:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307072
Sample ID.....: 35218.11
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

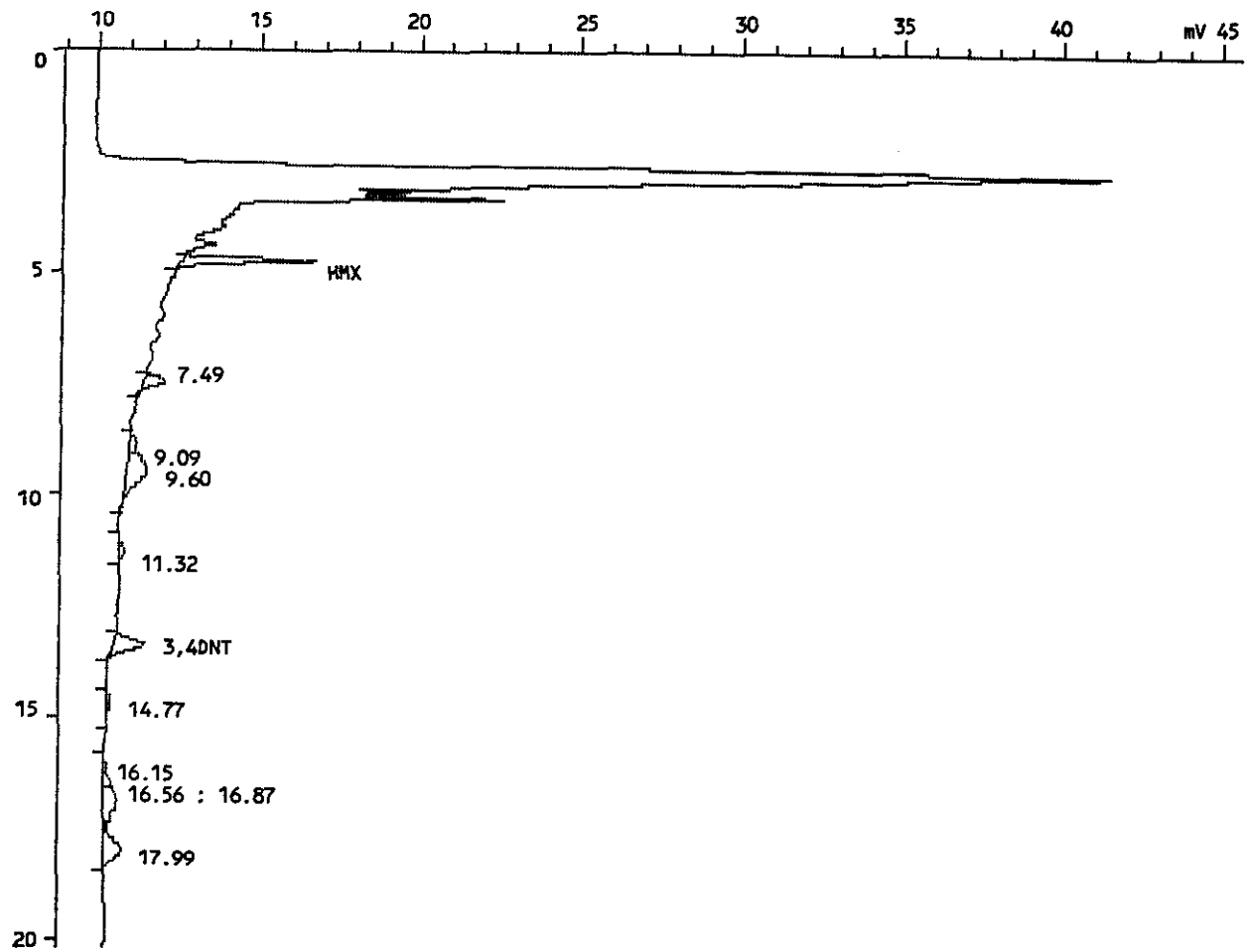
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.773	4760	33302	4612.407	HMX *
2	7.147	831	11834	1250.943	RDX *
6	14.315	1070	20526	1757.402	3,4DNT 88
7	15.536	301	12204	704.598	4ADNT *-P
Total		6962	77866	8325.350	
Residual		1817	55425	4985.148	

LONG PLOT

Injection F: <MC4> 1 1CN0911F,11,1

Sample name.....: BIOM01307072
Sample ID.....: 35218.11
INST ID: IN10, COL. TYPE: METASIL, ID: MET-01, INJ:100, UV

Acquired on 14-Sep-98 at 02:53:02
Reported on 16-Sep-98 at 16:30:33



INJECTION REPORT

Injection F: <MC4> 1 1CN0911F,11,1

Acquired on 14-Sep-98 at 02:53:02
Modified on 16-Sep-82 at 16:26:52
Reported on 16-Sep-98 at 16:30:20

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: METASIL, ID: MET-01,INJ:100, UV
Number of samples.: 14
Calibration file..: 1CN0911A Last modified on 16-Sep-82 at 16:26:00
Method file.....: LCCN Last modified on 16-Sep-82 at 16:27:16
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307072
Sample ID.....: 35218.11
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

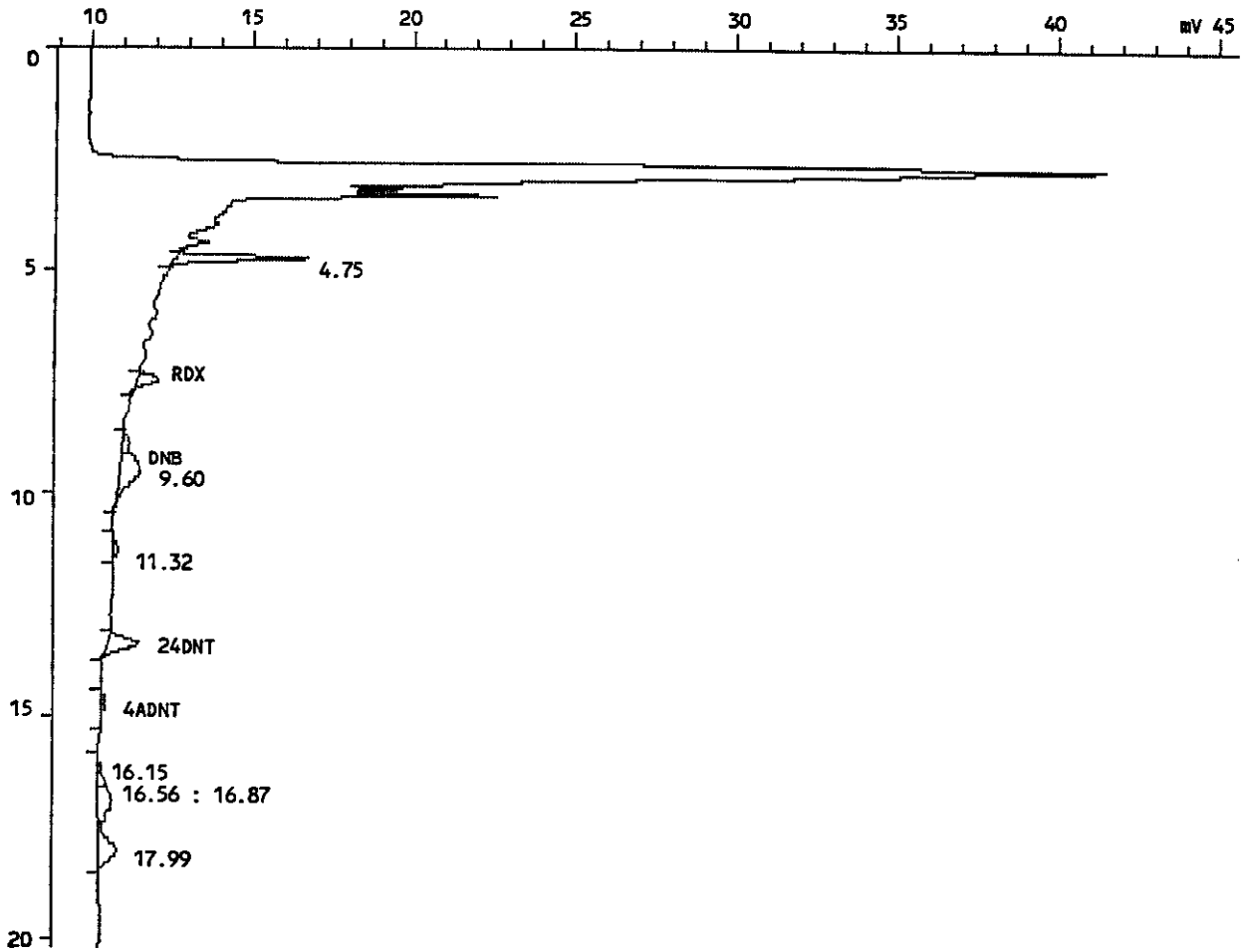
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.747	4118	32444	4576.050	HMX
6	13.419	991	16500	341.478	3,4DNT
Total		5109	48944	4917.529	
Residual		3099	84817	0.000	

LONG PLOT

Injection F: <MC4> 1 1CN0911F,11,1

Sample name.....: BIOM01307072
Sample ID.....: 35218.11
INST ID: IN10, COL. TYPE: METASIL, ID: MET-01, INJ:100, UV

Acquired on 14-Sep-98 at 02:53:02
Reported on 16-Sep-98 at 16:37:01



INJECTION REPORT

Injection F: <MC4> 1 1CN0911F,11,1

Acquired on 14-Sep-98 at 02:53:02
Modified on 16-Sep-82 at 16:33:40
Reported on 16-Sep-98 at 16:36:45

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: METASIL, ID: MET-01,INJ:100, UV
Number of samples.: 14
Calibration file..: 1CN0911B Last modified on 16-Sep-82 at 16:33:04
Method file.....: LCCN Last modified on 16-Sep-82 at 16:33:50
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307072
Sample ID.....: 35218.11
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	7.488	684	9323	1206.050	RDX
3	9.088	229	4048	176.250	DNB
6	13.419	991	16500	778.313	24DNT
7	14.768	117	2635	244.643	4ADNT
Total		2021	32506	2405.257	
Residual		6188	101255	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307072

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.11

Sample Amt: 2g % Moisture 22.76 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/21/98

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

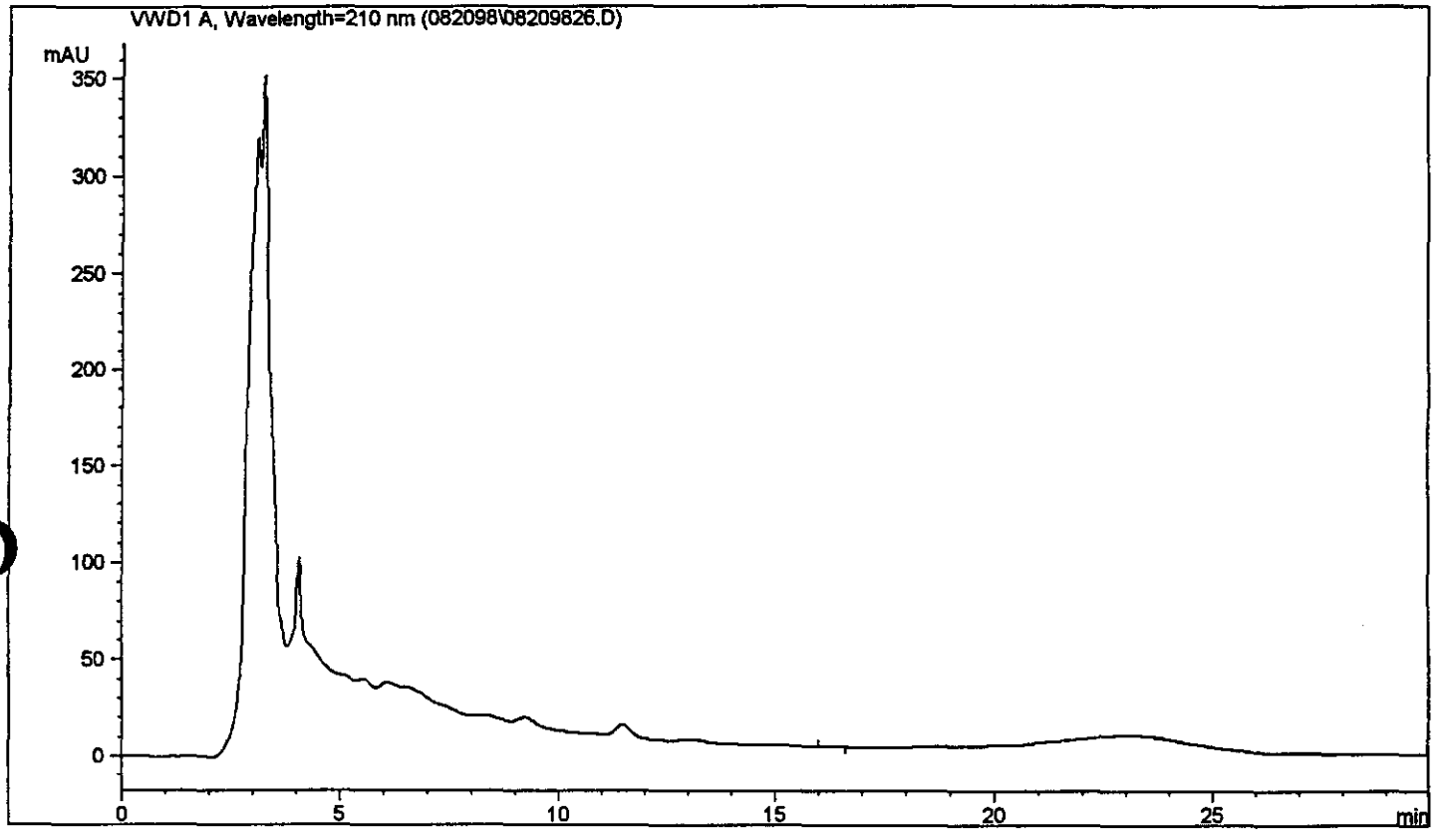
FORM I

Data file : F:\HPCHEM\LC4\DATA\082098\08209826.D
Sample Name: 35218.11 1

Injection Date	: Fri, 21. Aug. 1998	Seq Line	: 26
Sample Name	: 35218.11	Vial No.	: 26
Acq Operator	: MP	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 082098.M
Analysis Method : F:\HPCHEM\LC4\METHODS\082098.M
Last Changed : Fri, 21. Aug. 1998, 10:58:13 am

PETN SOIL



Customized Report: extstd.frp

Sorted By Signal
Calib. Data Modified : Fri, 21. Aug. 1998,10:57:25 am
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/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
16.386	PBA	4.18142	0.00000	0.00000	
Totals:				0.00000	

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1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307073

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.12

Sample Amt: 2g % Moisture 21.55 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/18/98

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	1570	J
121-82-4	RDX	820	J
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

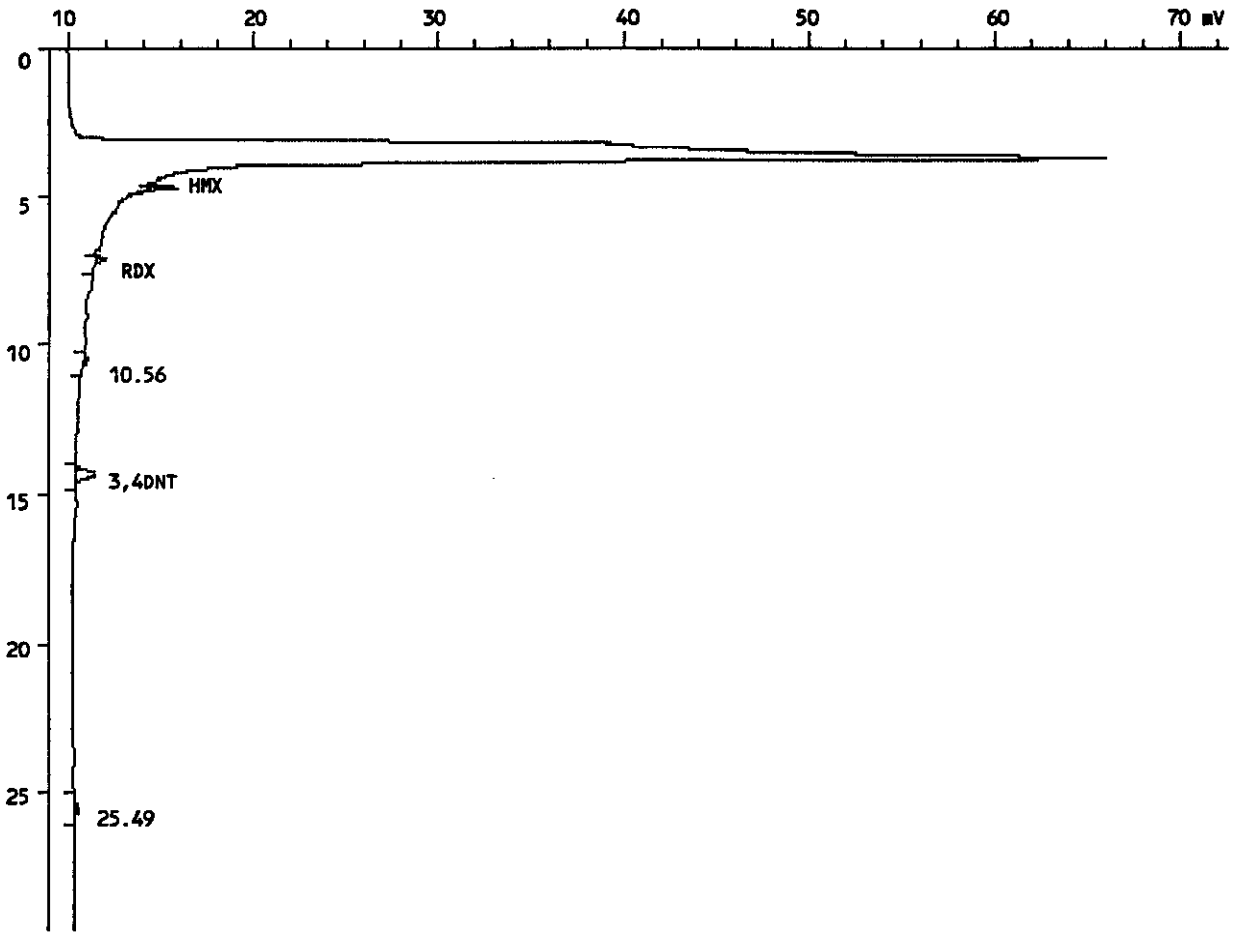
FORM I

LONG PLOT

Injection F: <MC3> 5 5EX0814E,24,1

Sample name.....: BIOM01307073
Sample ID.....: 35218.12
INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02, INJ:200,COL#1

Acquired on 18-Aug-98 at 12:20:44
Reported on 18-Aug-98 at 19:37:13



INJECTION REPORT

Injection F: <MC3> 5 5EX0814E,24,1

Acquired on 18-Aug-98 at 12:20:44
Modified on 18-Aug-82 at 19:19:10
Reported on 18-Aug-98 at 19:29:11

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN13, COL. TYPE: ODS-II, ID: CARB-02,INJ:200,COL#1
Number of samples.: 26
Calibration file..: 5EX0814 Last modified on 18-Aug-82 at 19:18:06
Method file.....: EXPLOS Last modified on 18-Aug-82 at 19:17:36
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307073
Sample ID.....: 35218.12
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

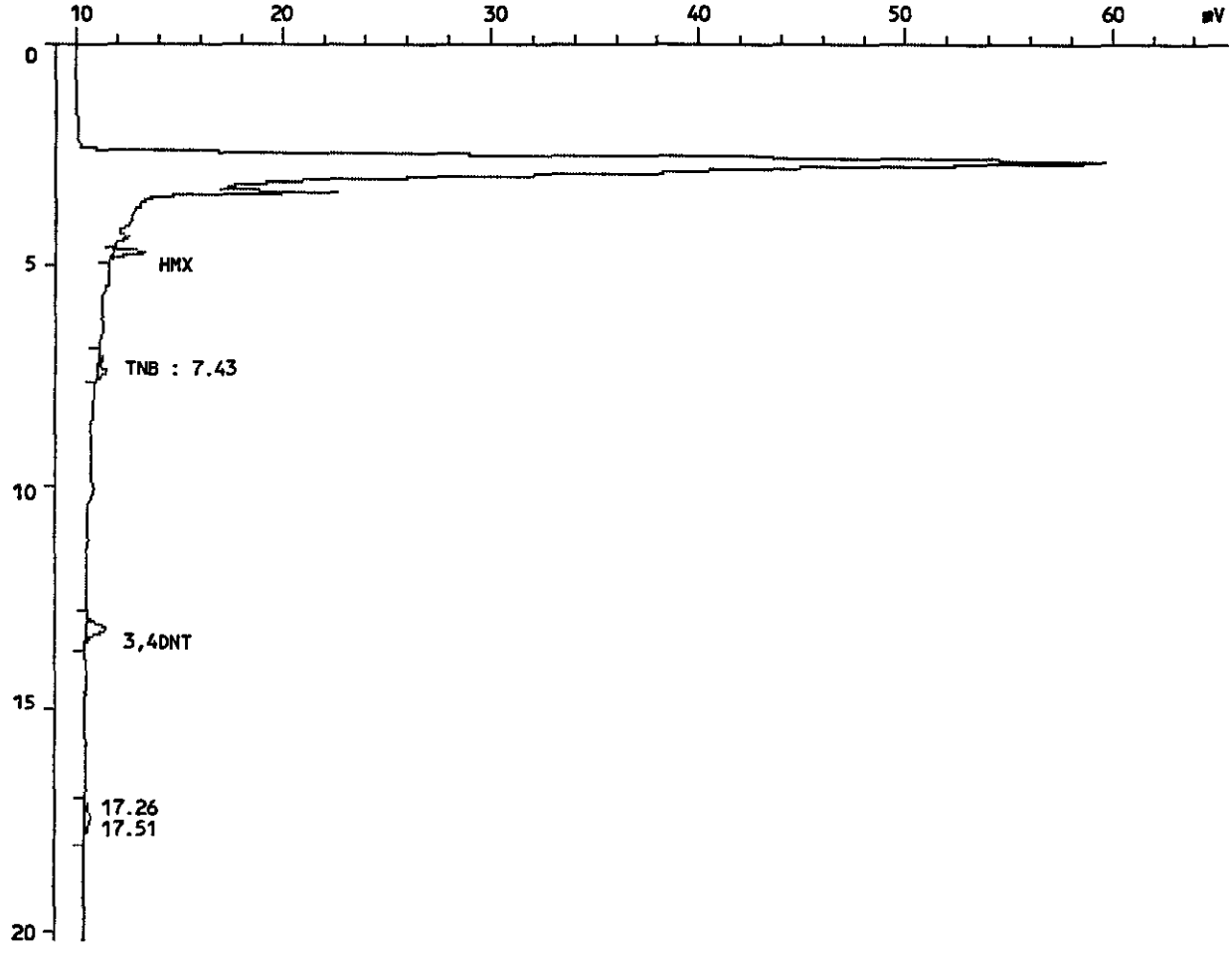
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.779	1759	11307	1566.005	HMX J
2	7.147	577	7758	820.109	RDX J
4	14.315	1047	19962	1709.050	3,4DNT 85
Total		3383	39026	4095.163	
Residual		397	10609	990.557	

LONG PLOT

Injection F: <MC4> 1 1CN0914A,3,1

Sample name.....: BIOM01307073
Sample ID.....: 35218.12
INST ID: IN10, COL. TYPE: METASIL, ID: MET-01, INJ:100, UV

Acquired on 15-Sep-98 at 11:10:03
Reported on 16-Sep-98 at 16:00:51



INJECTION REPORT

Injection F: <MC4> 1 1CN0914A,3,1

Acquired on 15-Sep-98 at 11:10:03
Modified on 16-Sep-82 at 15:59:52
Reported on 16-Sep-98 at 16:00:01

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: METASIL, ID: MET-01,INJ:100, UV
Number of samples.: 19
Calibration file..: 1CN0914A Last modified on 15-Sep-82 at 17:03:16
Method file.....: LCCN Last modified on 16-Sep-82 at 15:59:48
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307073
Sample ID.....: 35218.12
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

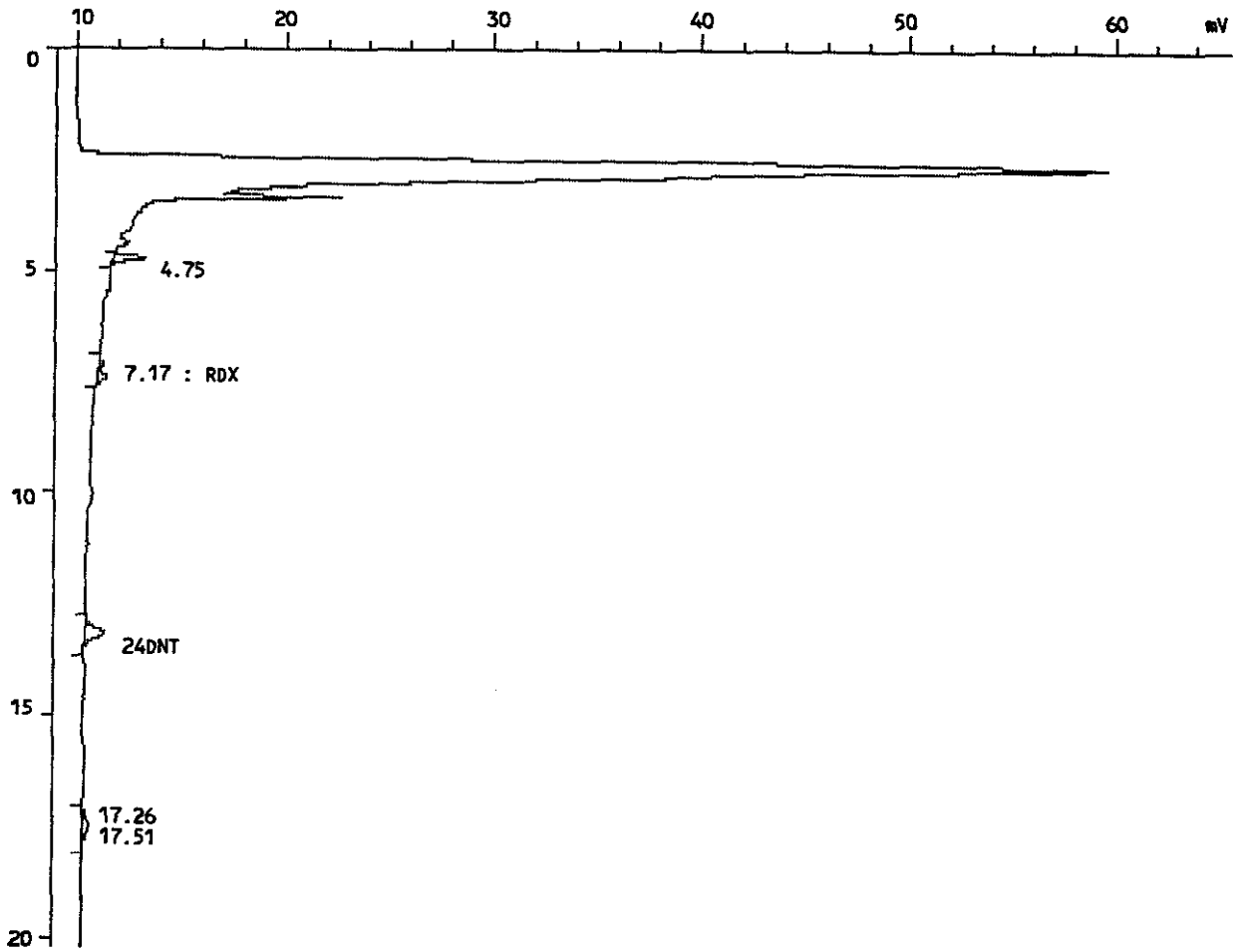
Peak	RT mins	Hght uV	Area uVs	ug/Kg	Peak name
1	4.747	1621	12687	1812.418	HMX
2	7.168	209	2408	135.224	TNB
4	13.195	973	16432	350.731	3,4DNT
Total		2803	31527	2298.373	
Residual		913	14713	0.000	

LONG PLOT

Injection F: <MC4> 1 1CN0914A,3,1

Sample name.....: BIOM01307073
Sample ID.....: 35218.12
INST ID: IN10, COL. TYPE: METASIL, ID: MET-01, INJ:100, UV

Acquired on 15-Sep-98 at 11:10:03
Reported on 16-Sep-98 at 16:03:04



INJECTION REPORT

Injection F: <MC4> 1 1CN0914A,3,1

Acquired on 15-Sep-98 at 11:10:03
Modified on 16-Sep-82 at 16:02:40
Reported on 16-Sep-98 at 16:02:47

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC200
Analyst name.....: SS
Comment.....: INST ID: IN10, COL. TYPE: METASIL, ID: MET-01,INJ:100, UV
Number of samples.: 19
Calibration file..: 1CN0914B Last modified on 16-Sep-82 at 11:03:50
Method file.....: LCCN Last modified on 16-Sep-82 at 15:59:48
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIOM01307073
Sample ID.....: 35218.12
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	7.435	509	7071	860.279	RDX
4	13.195	973	16432	779.125	24DNT
Total		1482	23503	1639.404	
Residual		2233	22737	0.000	

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIOM01307073

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) SOIL Lab Sample ID: 35218.12

Sample Amt: 2g % Moisture 21.55 Date Received: 08/13/98

Extraction Volume: 10ml Date Extracted: 08/15/98

Extraction Method: SONC Date Analyzed: 08/21/98

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

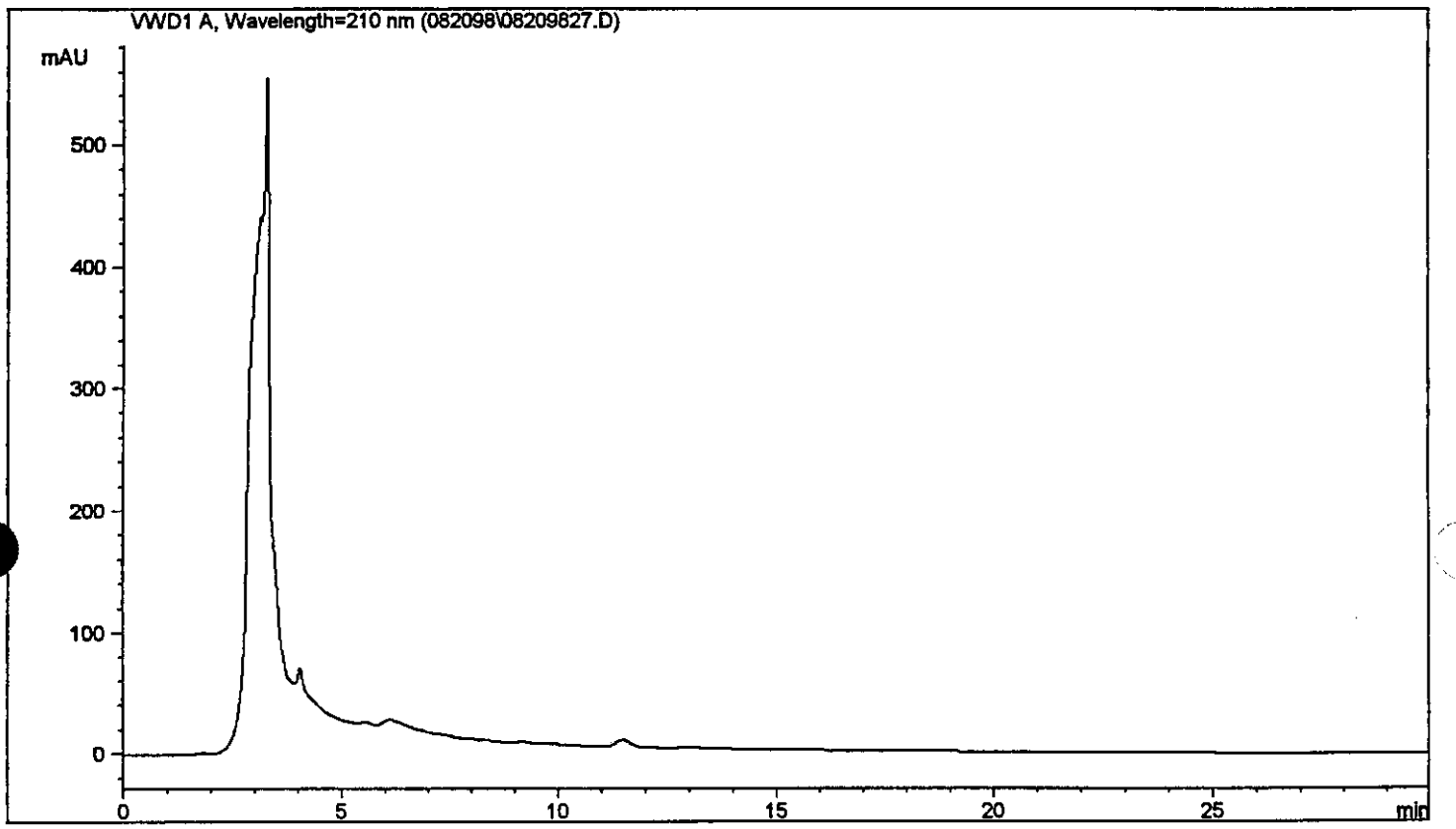
FORM I

Data file : F:\HPCHEM\LC4\DATA\082098\08209827.D
Sample Name: 35218.12 1

Injection Date	: Fri, 21. Aug. 1998	Seq Line	: 27
Sample Name	: 35218.12	Vial No.	: 27
Acq Operator	: MP	Inj. No.	: 1
		Inj. Vol.	: 200 µl

Acq. Method : 082098.M
Analysis Method : F:\HPCHEM\LC4\METHODS\082098.M
Last Changed : Fri, 21. Aug. 1998, 10:58:13 am

PETN SOIL



Customized Report: extstd.frp

Sorted By Signal
Calib. Data Modified : Fri, 21. Aug. 1998,10:57:25 am
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/Kg]	Name
0.000		0.00000	0.00000	0.00000	PETN
Totals:				0.00000	

*** End of Report ***

1D
EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIORB081198

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) WATER Lab Sample ID: 35218.13

Sample Amt: 1ml % Moisture Date Received: 08/13/98

Extraction Volume: 1ml Date Extracted: DIRECT INJ

Extraction Method: DIRECT Date Analyzed: 08/18/98

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

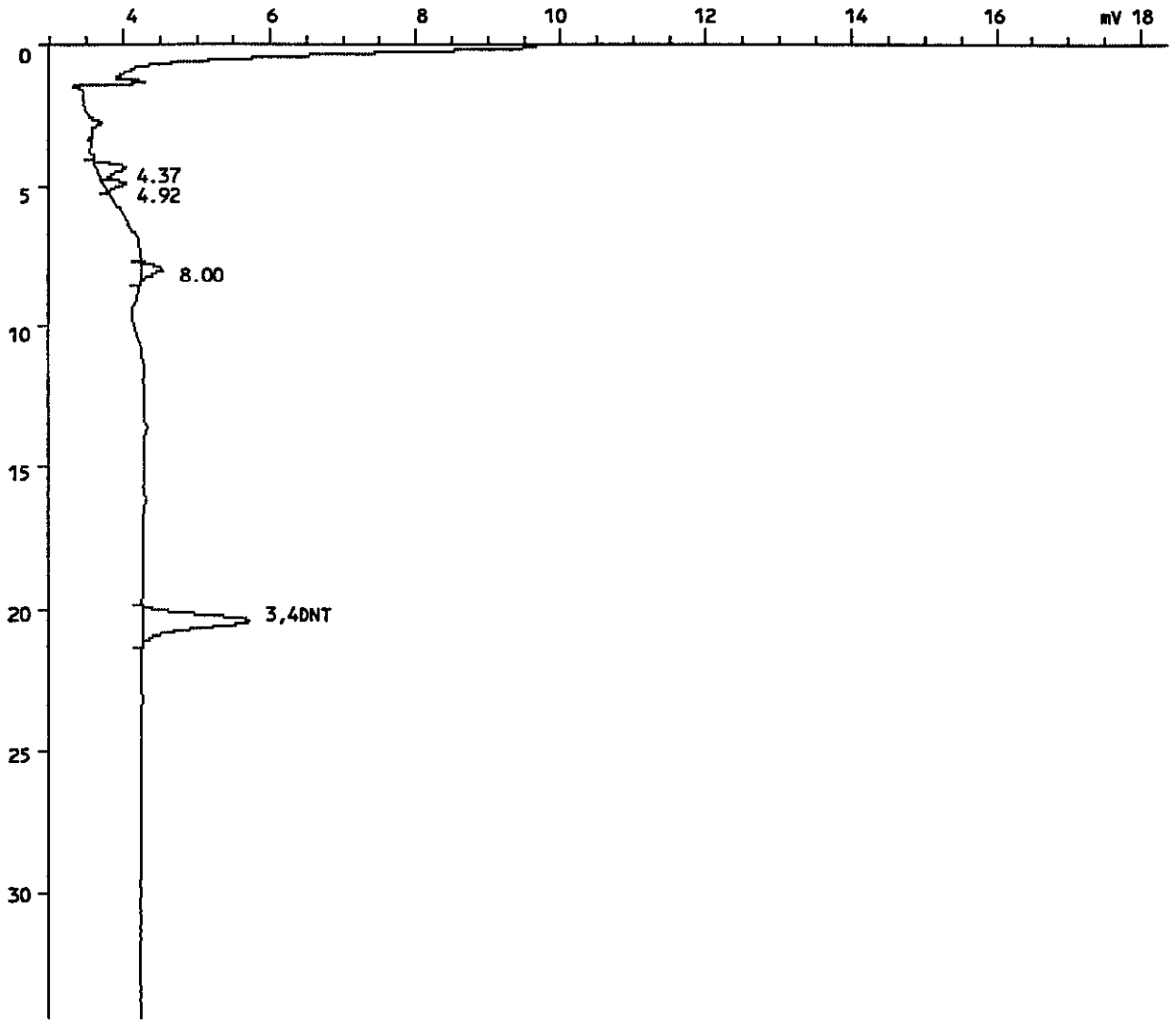
FORM I

LONG PLOT

Injection F: <MC3> 2 2E0817WA,11,1

Sample name.....: BIORB081198
Sample ID.....: 35218.13
INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-11, INJ:200,COL#1

Acquired on 18-Aug-98 at 07:37:08
Reported on 18-Aug-98 at 13:43:36



INJECTION REPORT

Injection F: <MC3> 2 2E0817WA,11,1

Acquired on 18-Aug-98 at 07:37:08
Modified on 18-Aug-82 at 11:51:44
Reported on 18-Aug-98 at 11:55:51

ANALYSIS INFORMATION

Analysis ID.....: EXP, GC 200
Analyst name.....: SS
Comment.....: INST ID: IN12, COL. TYPE: ODS-II, ID: CARB-11, INJ:200,COL#1
Number of samples.: 15
Calibration file..: 2E0817W Last modified on 18-Aug-82 at 11:51:44
Method file.....: EXPLOS Last modified on 18-Aug-82 at 11:52:48
Method title.....: SW846-8330

SAMPLE INFORMATION

Sample name.....: BIORB081198
Sample ID.....: 35218.13
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	20.400	1453	47843	200.682	3,4DNT 100
Total		1453	47843	200.682	
Residual		993	21176	-33.088	

1D

EXPLOSIVE ANALYSIS DATA SHEET

EPA SAMPLE NO:

BIORB081198

Lab Name: SWL-TULSA Contract:

Lab Code: SWOK Case No:MKF-OH SDG No: 35218

Matrix: (soil/water) WATER Lab Sample ID: 35218.13

Sample Amt: 1ml % Moisture Date Received: 08/13/98

Extraction Volume: 1ml Date Extracted: DIRECT INJ

Extraction Method: DIRECT Date Analyzed: 08/18/98

GPC Cleanup: (Y/N) N Dilution Factor: 2.00

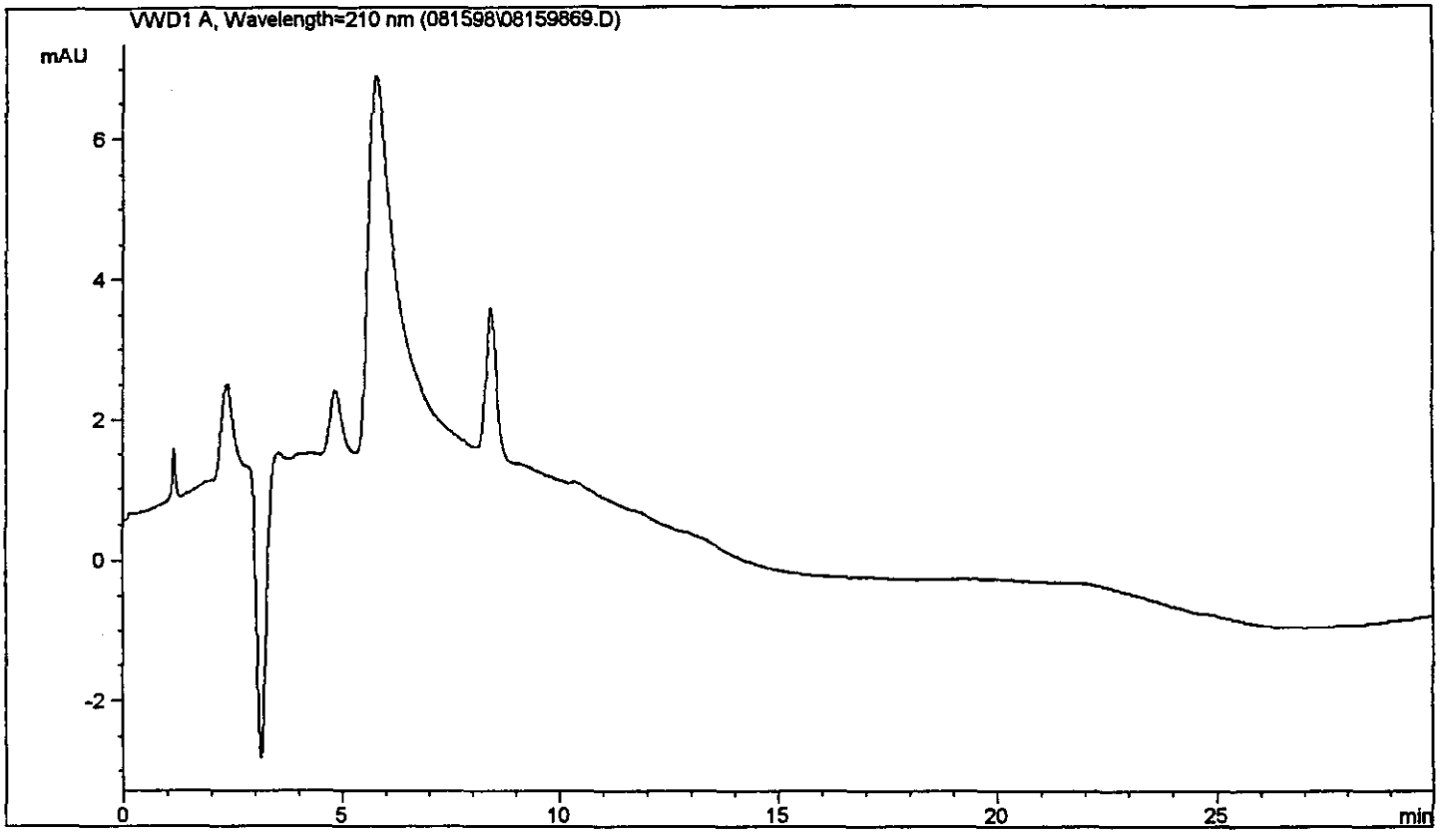
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-11-5	PETN	20.0	U

FORM I

Injection Date	: Tue, 18. Aug. 1998	Seq Line	: 69
Sample Name	: 35218.13	Vial No.	: 69
Acq Operator	: MP	Inj. No.	: 1
		Inj. Vol.	: 100 µl

Acq. Method : 081598W.M
Analysis Method : F:\HPCHEM\LC4\METHODS\081598W.M
Last Changed : Tue, 18. Aug. 1998, 02:36:58 pm

PETN SOIL



==========
Customized Report: extstd.frp
==========

Sorted By Signal
Calib. Data Modified : Tue, 18. Aug. 1998,01:45:05 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	

98

8D

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 35218
Instrument ID: IN13 Column ID: CARB-02
Calibration: 5EX0814
Dates of Anlayses: 08/14/98 to 08/18/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
EXP L1 SOIL STD	3-112:IA1	08/14/98	13:42
EXP L2 SOIL STD	3-111:IA2	08/14/98	14:27
EXP L3 SOIL STD	3-110:IA3	08/14/98	15:12
EXP L4 SOIL STD	3-109:IA4	08/14/98	15:56
EXP L5 SOIL STD	3-108:IA5	08/14/98	16:41
EXP L3 SOIL STD	3-128:CA9	08/17/98	17:43
BL0815SB	BL0815SB	08/17/98	19:12
LC0815SB	LC0815SB	08/17/98	20:41
LD0815SB	LD0815SB	08/17/98	21:26
EXP L3 SOIL STD	3-128:CA10	08/18/98	01:09
BIOM01307031	35218.01	08/18/98	02:39
BIOM01307031 MS	35218.02MS	08/18/98	03:23
BIOM01307031 MSD	35218.03MSD	08/18/98	04:08
BIOM01307032	35218.04	08/18/98	04:53
BIOM01307032FD	35218.05	08/18/98	05:38
BIOM01307033	35218.06	08/18/98	06:22
BIOM01307051	35218.07	08/18/98	07:07
BIOM01307052	35218.08	08/18/98	07:52
EXP L3 SOIL STD	3-128:CA11	08/18/98	08:37

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 35218
Instrument ID: IN13 Column ID: CARB-02
Calibration: 5EX0814
Dates of Anlayses: 08/14/98 to 08/18/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
BIOM01307053	35218.09	08/18/98	10:06
BIOM01307071	35218.10	08/18/98	10:51
BIOM01307072	35218.11	08/18/98	11:36
BIOM01307073	35218.12	08/18/98	12:20
EXP L3 SOIL STD	3-128:CA12	08/18/98	13:05

FORM VIII

8D

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 35218
Instrument ID: LC4 Column ID:
Calibration: 082098
Dates of Anlayses: 08/20/98 to 08/21/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
instrument blank	instrument bla	08/20/98	19:44
L1 3-136:IA1	L1 3-136:IA1	08/20/98	21:24
L2 3-135:IA2	L2 3-135:IA2	08/20/98	21:57
L3 3-134:IA3	L3 3-134:IA3	08/20/98	22:30
L4 3-133:IA4	L4 3-133:IA4	08/20/98	23:03
L5 3-132:IA5	L5 3-132:IA5	08/20/98	23:36
ICV 3-100:CA1	ICV 3-100:CA1	08/21/98	00:10
BL0815SA	BL0815SA	08/21/98	00:43
LC0815SA	LC0815SA	08/21/98	01:49
LD0815SA	LD0815SA	08/21/98	02:22
BIOM01307031	35218.01	08/21/98	02:55
BIOM01307031MS	35218.02MS	08/21/98	03:29
BIOM01307031MSD	35218.03MSD	08/21/98	04:02
BIOM01307032	35218.04	08/21/98	04:35
BIOM01307032FD	35218.05	08/21/98	05:08
BIOM01307033	35218.06	08/21/98	05:41
L3 3-81:CA2	L3 3-81:CA2	08/21/98	06:15
BIOM01307051	35218.07	08/21/98	07:21
BIOM01307052	35218.08	08/21/98	07:54

FORM VIII

8D

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 35218
Instrument ID: LC4 Column ID:
Calibration: 082098
Dates of Anlayses: 08/20/98 to 08/21/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
BIOM01307053	35218.09	08/21/98	08:27
BIOM01307071	35218.10	08/21/98	09:00
BIOM01307072	35218.11	08/21/98	09:34
BIOM01307073	35218.12	08/21/98	10:07
L3 3-81:CA3	L3 3-81:CA3	08/21/98	12:53

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FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 35218
Instrument ID: IN12 Column ID: CARB-11
Calibration: 2E0817W
Dates of Anlayses: 08/17/98 to 08/18/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
INST. BLANK	INST.BLK.	08/17/98	18:13
EXP HIGH WATER L1 ST	3-96:IA1	08/17/98	20:27
EXP HIGH WATER L2 ST	3-95:IA2	08/17/98	21:12
EXP HIGH WATER L3 ST	3-94:IA3	08/17/98	21:56
EXP HIGH WATER L4 ST	3-93:IA4	08/17/98	22:41
EXP HIGH WATER L5 ST	3-92:IA5	08/17/98	23:26
BL0815WA	BL0815WA	08/18/98	00:10
LC0815WA	LC0815WA	08/18/98	01:40
LD0815WA	LD0815WA	08/18/98	02:24
EXP HIGH WATER L3 ST	3-94:CA1	08/18/98	05:23
BIORB081198	35218.13	08/18/98	07:37
EXP HIGH WATER L3 ST	3-94:CA2	08/18/98	09:51

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FORM VIII

8D

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 35218
Instrument ID: LC4 Column ID:
Calibration: 081598W
Dates of Anlayses: 08/17/98 to 08/18/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
instrument blank	instrument bla	08/17/98	20:13
L1 3-65:IA1	L1 3-65:IA1	08/17/98	20:45
L2 3-64:IA2	L2 3-64:IA2	08/17/98	22:21
L3 3-97:IA3	L3 3-97:IA3	08/17/98	22:52
L4 3-62:IA4	L4 3-62:IA4	08/17/98	23:24
L5 3-61:IA5	L5 3-61:IA5	08/17/98	23:56
BL0815WB	BL0815WB	08/18/98	01:00
LC0815WB	LC0815WB	08/18/98	02:04
LD0815WB	LD0815WB	08/18/98	02:35
BIORB081198	35218.13	08/18/98	05:15
L3 3-97:CA2	L3 3-97:CA2	08/18/98	06:18
ICV 3-124:CA1	ICV 3-124:CA1	08/18/98	12:13

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FORM VIII

8D

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 35218
Instrument ID: IN10 Column ID: MET-01
Calibration: 1CN0911
Dates of Anlayses: 09/11/98 to 09/14/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
EXP L1A STD	3-117:IA1	09/11/98	21:18
EXP L2A STD	3-116:IA2	09/11/98	21:59
EXP L3A STD	3-115:IA3	09/11/98	22:41
EXP L4A STD	3-114:IA4	09/11/98	23:22
EXP L5A STD	3-113:IA5	09/12/98	00:04
EXP L1B STD	3-141:IB1	09/12/98	00:45
EXP L2B STD	3-140:IB2	09/12/98	01:27
EXP L3B STD	3-139:IB3	09/12/98	02:08
EXP L4B STD	3-138:IB4	09/12/98	02:50
EXP L5B STD	3-137:IB5	09/12/98	03:31
EXP L3A STD	3-115:CA5	09/13/98	21:21
EXP L3B STD	3-139:CB5	09/13/98	22:02
BL0815SB	BL0815SB	09/13/98	22:44
BIOM01307032	35218.04	09/14/98	00:07
BIOM01307032FD	35218.05	09/14/98	00:48
BIOM01307033	35218.06	09/14/98	01:30
BIOM01307051	35218.07	09/14/98	02:11
BIOM01307072	35218.11	09/14/98	02:53
EXP L3A STD	3-115:CA6	09/14/98	04:16

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FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 35218
Instrument ID: IN10 Column ID: MET-01
Calibration: 1CN0911
Dates of Anlayses: 09/11/98 to 09/14/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
EXP L3B STD	3-139:CB6	09/14/98	04:57

FORM VIII

ANALYTICAL SEQUENCE SUMMARY

Lab Name: SOUTHWEST LABORATORY OF OKLAHOMA

Lab Code: SWOK Case No: MKF-OH SDG No: 35218
Instrument ID: IN10 Column ID: MET-01
Calibration: 1CN0914
Dates of Anlayses: 09/14/98 to 09/15/98

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED
EXP L1A STD	3-117:IA1	09/14/98	13:56
EXP L2A STD	3-116:IA2	09/14/98	14:38
EXP L3A STD	3-115:IA3	09/14/98	15:19
EXP L4A STD	3-114:IA4	09/14/98	16:01
EXP L5A STD	3-113:IA5	09/14/98	16:42
EXP L1B STD	3-141:IB1	09/14/98	17:24
EXP L2B STD	3-140:IB2	09/14/98	18:05
EXP L3B STD	3-139:IB3	09/14/98	18:47
EXP L4B STD	3-138:IB4	09/14/98	19:28
EXP L5B STD	3-137:IB5	09/14/98	20:16
EXP L3A STD	3-115:CA1	09/15/98	09:47
EXP L3B STD	3-139:CB1	09/15/98	10:28
BIOM01307073	35218.12	09/15/98	11:10
EXP L3A STD	3-115:CA2	09/15/98	12:33
EXP L3B STD	3-139:CB2	09/15/98	13:14

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FORM VIII

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN13
Column ID : CARB-02

Inj 1

Injection File Name Level 1 : 5EX0814,4
Injection File Name Level 2 : 5EX0814,5
Injection File Name Level 3 : 5EX0814,6
Injection File Name Level 4 : 5EX0814,7
Injection File Name Level 5 : 5EX0814,8

Calibration Date : 08/14/1998
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	3353	331	92490	364	248583	377	364972	369	483821	367
RDX	983	233	47878	453	131420	476	193369	469	260902	474
TNB	2373	786	68802	910	197843	1004	273256	923	370421	940
DNB	2434	1502	64543	1590	174101	1649	255249	1611	340949	1608
TETRYL	1468	395	43960	473	116683	482	176366	485	233342	482
NB	3595	1089	102723	1247	271037	1267	411686	1279	548789	1276
3,4-DNT	3027	596	72494	572	194590	590	287844	580	383055	580
TNT	2946	1091	67925	1005	182841	1039	271049	1027	361623	1027
4ADNT	2112	895	49821	842	135448	880	198426	855	264132	858
2ADNT	2068	876	54915	928	149489	971	220370	950	295011	958
26DNT	2280	588	59482	612	161217	635	237474	625	315793	624
4DNT	2796	1185	71077	1201	193553	1257	285378	1230	380853	1237
	1759	520	45566	539	123031	559	185757	563	247101	562
	1359	402	36999	437	101192	460	151398	459	201566	458
[illegible]	1567	487	46730	581	126890	604	190554	607	253730	607

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN13
Column ID : CARB-02

Inj 1

Injection File Name Level 1 : 5EX0814,4
Injection File Name Level 2 : 5EX0814,5
Injection File Name Level 3 : 5EX0814,6
Injection File Name Level 4 : 5EX0814,7
Injection File Name Level 5 : 5EX0814,8

Calibration Date : 08/14/1998
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	361	4.92	0.99989	369	0.000
RDX	421	25.08	0.99994	473	0.000
TNB	913	8.73	0.99901	944	0.000
DNB	1592	3.42	0.99990	1614	0.000
TETRYL	463	8.34	0.99999	483	0.000
NB	1231	6.53	0.99999	1275	0.000
2,4-DNT	584	1.60	0.99995	581	0.000
[illegible]	1038	3.11	0.99997	1028	0.000
4ADNT	866	2.45	0.99988	860	0.000
2ADNT	936	3.96	0.99992	957	0.000
26DNT	617	2.94	0.99994	626	0.000
24DNT	1222	2.36	0.99992	1237	0.000
2NT	549	3.39	0.99997	561	0.000
4NT	443	5.61	0.99996	458	0.000
3NT	577	8.97	0.99998	606	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 08/14/1998
Continuing Calibration #: 9
Continuing Cal Date : 08/17/1998
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-02
Injection File Name : 5EX0814D,32
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	253293	384	361	6.21	369	4.14
RDX	133945	485	421	15.21	473	2.67
TNB	187414	951	913	4.24	944	0.81
DNB	173770	1646	1592	3.36	1614	1.93
TETRYL	124504	514	463	11.07	483	6.59
NB	278210	1300	1231	5.57	1275	1.96
3,4-DNT	197629	599	584	2.62	581	2.99
TNT	187173	1063	1038	2.48	1028	3.42
4ADNT	137706	894	866	3.28	860	4.03
2ADNT	152918	993	936	6.03	957	3.80
26DNT	161869	637	617	3.34	626	1.87
24DNT	195638	1270	1222	3.98	1237	2.73
2NT	124495	566	549	3.16	561	0.83
NT	102619	466	443	5.23	458	1.81
T	128820	613	577	6.28	606	1.21

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 08/14/1998
Continuing Calibration #: 10
Continuing Cal Date : 08/18/1998
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-02
Injection File Name : 5EX0814E,9
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	264132	400	361	10.76	369	8.59
RDX	140104	508	421	20.51	473	7.39
TNB	186956	949	913	3.98	944	0.56
DNB	182256	1726	1592	8.40	1614	6.91
TETRYL	121178	501	463	8.10	483	3.74
NB	284324	1329	1231	7.89	1275	4.20
3,4-DNT	206101	625	584	7.02	581	7.41
TNT	193512	1100	1038	5.95	1028	6.93
4ADNT	142648	926	866	6.99	860	7.76
2ADNT	157581	1023	936	9.27	957	6.97
26DNT	168947	665	617	7.86	626	6.33
24DNT	203429	1321	1222	8.12	1237	6.82
2NT	128133	582	549	6.18	561	3.78
4NT	105681	480	443	8.37	458	4.85
T	131670	627	577	8.63	606	3.45

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 08/14/1998
Continuing Calibration #: 11
Continuing Cal Date : 08/18/1998
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-02
Injection File Name : 5EX0814E,19
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	270946	411	361	13.62	369	11.40
RDX	141813	514	421	21.98	473	8.70
TNB	202359	1027	913	12.55	944	8.85
DNB	185529	1757	1592	10.35	1614	8.83
TETRYL	134976	558	463	20.41	483	15.56
NB	274808	1284	1231	4.28	1275	0.71
3,4-DNT	210817	639	584	9.47	581	9.87
TNT	199546	1134	1038	9.25	1028	10.26
4ADNT	149546	971	866	12.16	860	12.97
2ADNT	163486	1062	936	13.36	957	10.98
26DNT	175332	690	617	11.94	626	10.34
24DNT	213058	1383	1222	13.24	1237	11.87
2NT	124025	564	549	2.77	561	0.45
4NT	104340	474	443	7.00	458	3.52
T	130464	621	577	7.63	606	2.50

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 08/14/1998
Continuing Calibration #: 12
Continuing Cal Date : 08/18/1998
Continuing Cal Level : 3
Instrument ID : IN13
Column ID : CARB-02
Injection File Name : 5EX0814E,25
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	266967	404	361	11.95	369	9.76
RDX	141023	511	421	21.30	473	8.09
TNB	200579	1018	913	11.56	944	7.89
DNB	181505	1719	1592	7.96	1614	6.47
TETRYL	143190	592	463	27.73	483	22.59
NB	283427	1324	1231	7.55	1275	3.87
3,4-DNT	208203	631	584	8.11	581	8.50
TNT	197485	1122	1038	8.12	1028	9.12
4ADNT	148108	962	866	11.08	860	11.88
2ADNT	162028	1052	936	12.35	957	9.99
26DNT	171782	676	617	9.67	626	8.11
24DNT	206305	1340	1222	9.65	1237	8.33
2NT	127763	581	549	5.87	561	3.48
[illegible]T	106207	483	443	8.91	458	5.37
[illegible]	132232	630	577	9.09	606	3.89

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

5EX0814
CA6 → CA10
page 1

CALIBRATION FACTOR DAT
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN13
Column ID : CARB-02
Calibration Date : 08/14/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	4.78	4.77	4.79	4.78	4.77
RDX	7.16	7.15	7.17	7.16	7.15
TNB	9.65	9.64	9.65	9.65	9.64
DNB	11.77	11.76	11.77	11.76	11.75
TETRYL	12.43	12.45	12.46	12.45	12.45
NB	13.37	13.34	13.36	13.35	13.34
3,4-DNT	14.37	14.35	14.36	14.35	14.34
TNT	15.12	15.09	15.10	15.09	15.09
4ADNT	15.67	15.64	15.66	15.64	15.64
2ADNT	16.50	16.46	16.47	16.46	16.45
26DNT	17.61	17.58	17.60	17.58	17.58
24DNT	18.22	18.18	18.19	18.17	18.17
2NT	21.44	21.38	21.40	21.38	21.38
4NT	22.86	22.83	22.85	22.83	22.83
3NT	24.63	24.59	24.61	24.59	24.59

COMPONENT NAME	RT Cont CA6	RT Cont CA7	RT Cont CA8	RT Cont CA9	RT Cont CA10
HMX	4.77	4.78	4.78	4.77	4.78
RDX	7.15	7.16	7.17	7.13	7.16
TNB	9.64	9.64	9.66	9.62	9.64
DNB	11.74	11.76	11.77	11.71	11.74
TETRYL	12.45	12.46	12.49	12.39	12.42
NB	13.34	13.36	13.37	13.30	13.34
3,4-DNT	14.33	14.36	14.37	14.27	14.32
TNT	15.07	15.10	15.11	15.02	15.07
4ADNT	15.64	15.69	15.66	15.52	15.61
2ADNT	16.45	16.51	16.48	16.32	16.42
26DNT	17.57	17.61	17.61	17.49	17.55
24DNT	18.16	18.20	18.20	18.06	18.13
2NT	21.37	21.40	21.42	21.27	21.34
4NT	22.82	22.86	22.88	22.70	22.78
3NT	24.57	24.62	24.64	24.45	24.54

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	4.78	0.007	0.020	4.76 - 4.80
RDX	7.16	0.010	0.031	7.13 - 7.19
TNB	9.64	0.011	0.032	9.61 - 9.67
DNB	11.75	0.016	0.048	11.70 - 11.80
TETRYL	12.44	0.022	0.066	12.38 - 12.51
NB	13.34	0.017	0.052	13.29 - 13.40
3,4-DNT	14.33	0.026	0.078	14.26 - 14.41
TNT	15.08	0.022	0.065	15.01 - 15.14
4ADNT	15.63	0.039	0.118	15.51 - 15.75

5EX0814
CAL→CALC
page 2

2ADNT	16.44	0.044	0.132	16.31 - 16.57
26DNT	17.57	0.031	0.092	17.48 - 17.66
24DNT	18.16	0.035	0.106	18.05 - 18.26
2NT	21.36	0.037	0.111	21.25 - 21.47
NT	22.81	0.040	0.119	22.69 - 22.93
I	24.57	0.043	0.129	24.44 - 24.70

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CA11→CA15
page 1

CALIBRATION FACTOR DAT
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN13
Column ID : CARB-02
Calibration Date : 08/14/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	4.78	4.77	4.79	4.78	4.77
RDX	7.16	7.15	7.17	7.16	7.15
TNB	9.65	9.64	9.65	9.65	9.64
DNB	11.77	11.76	11.77	11.76	11.75
TETRYL	12.43	12.45	12.46	12.45	12.45
NB	13.37	13.34	13.36	13.35	13.34
3,4-DNT	14.37	14.35	14.36	14.35	14.34
TNT	15.12	15.09	15.10	15.09	15.09
4ADNT	15.67	15.64	15.66	15.64	15.64
2ADNT	16.50	16.46	16.47	16.46	16.45
26DNT	17.61	17.58	17.60	17.58	17.58
24DNT	18.22	18.18	18.19	18.17	18.17
2NT	21.44	21.38	21.40	21.38	21.38
4NT	22.86	22.83	22.85	22.83	22.83
3NT	24.63	24.59	24.61	24.59	24.59

COMPONENT NAME	RT Cont CA11	RT Cont CA12	RT Cont CA13	RT Cont CA14	RT Cont CA15
HMX	4.78	4.79	4.79	4.78	4.77
RDX	7.17	7.15	7.15	7.16	7.14
TNB	9.66	9.64	9.63	9.64	9.63
DNB	11.77	11.73	11.72	11.76	11.73
TETRYL	12.46	12.42	12.41	12.45	12.42
NB	13.37	13.34	13.32	13.36	13.33
3,4-DNT	14.36	14.31	14.29	14.35	14.32
TNT	15.10	15.06	15.05	15.09	15.07
4ADNT	15.66	15.58	15.57	15.66	15.60
2ADNT	16.46	16.38	16.38	16.48	16.40
26DNT	17.59	17.54	17.52	17.60	17.55
24DNT	18.18	18.12	18.11	18.19	18.13
2NT	21.38	21.34	21.31	21.40	21.35
4NT	22.83	22.78	22.75	22.85	22.80
3NT	24.58	24.54	24.51	24.61	24.56

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	4.78	0.007	0.020	4.76 - 4.80
RDX	7.16	0.010	0.031	7.13 - 7.19
TNB	9.64	0.011	0.032	9.61 - 9.67
DNB	11.75	0.016	0.048	11.70 - 11.80
TETRYL	12.44	0.022	0.066	12.38 - 12.51
NB	13.34	0.017	0.052	13.29 - 13.40
3,4-DNT	14.33	0.026	0.078	14.26 - 14.41
TNT	15.08	0.022	0.065	15.01 - 15.14
4ADNT	15.63	0.039	0.118	15.51 - 15.75

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page 2

2ADNT	16.44	0.044	0.132	16.31 - 16.57
26DNT	17.57	0.031	0.092	17.48 - 17.66
24DNT	18.16	0.035	0.106	18.05 - 18.26
2NT	21.36	0.037	0.111	21.25 - 21.47
NT	22.81	0.040	0.119	22.69 - 22.93
T	24.57	0.043	0.129	24.44 - 24.70

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: LC4
Column ID :

Inj 1

Injection File Name Level 1 : 082098,4
Injection File Name Level 2 : 082098,5
Injection File Name Level 3 : 082098,6
Injection File Name Level 4 : 082098,7
Injection File Name Level 5 : 082098,8

Calibration Date : 08/20/98
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	6.48059	3.09E0	53.3067	3.00E0	110.658	2.89E0	441.446	2.90E0	888.094	2.88E0

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: LC4
Column ID :

	Inj 1
Injection File Name Level 1	: 082098,4
Injection File Name Level 2	: 082098,5
Injection File Name Level 3	: 082098,6
Injection File Name Level 4	: 082098,7
Injection File Name Level 5	: 082098,8

Calibration Date : 08/20/98
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	2.95E0	3.01	0.99999	2.89E0	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 08/20/98
Continuing Calibration #: 1
Continuing Cal Date : 08/21/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 082098,9
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	110.628	2.89E0	2.95E0	2.02	2.89E0	0.21

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 08/20/98
Continuing Calibration #: 2
Continuing Cal Date : 08/21/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 082098,20
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	109.675	2.92E0	2.95E0	1.17	2.89E0	1.09

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 08/20/98
Continuing Calibration #: 3
Continuing Cal Date : 08/21/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 082098,32
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	111.664	2.87E0	2.95E0	2.93	2.89E0	0.72

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 : 08/20/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
PETN	15.76	15.76	15.78	15.75	15.77

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
PETN	15.77	15.89	15.79	15.74	16.02

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
PETN	15.82	0.111	0.334	15.49 - 16.16

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN12
Column ID : CARB-11

Inj 1

Injection File Name Level 1 : 2E0817W,4
Injection File Name Level 2 : 2E0817W,5
Injection File Name Level 3 : 2E0817W,6
Injection File Name Level 4 : 2E0817W,7
Injection File Name Level 5 : 2E0817W,8

Calibration Date : 08/17/1998
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	1083	846	3189	1003	189332	1191	388627	1222	777540	1223
RDX	1351	1299	3584	1378	214596	1651	439961	1692	869519	1679
TNB	2392	3322	6635	3686	337240	3764	694022	3877	1368634	3823
DNB	2196	5779	5098	5310	279542	5873	574478	6047	1141829	6010
TETRYL	1059	1177	3509	1553	182136	1612	324501	1436	548702	1219
NB	2673	3931	7591	4465	392886	4622	832953	4900	1714023	5041
3,4-DNT	2805	2191	7626	2368	385889	2412	815856	2550	1535472	2399
TNT	3082	4816	8426	5266	394384	4930	831970	5200	1726663	5396
4ADNT	2517	2517	6579	2611	330209	2642	685923	2744	1363829	2728
2ADNT	2177	3888	5649	4035	295213	4217	615080	4393	1233466	4405
26DNT	2398	2498	5201	2167	278702	2423	581471	2528	1130260	2457
24DNT	2874	5132	7494	5353	403356	5762	842170	6016	1708887	6103
	2244	2004	7113	2540	379632	2618	788627	2719	1578760	2722
	1427	1784	4849	2425	251938	2519	518346	2592	1036516	2591
	3186	3983	5385	2693	304317	3203	625129	3290	1252817	3297

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN12
Column ID : CARB-11

Inj 1

Injection File Name Level 1 : 2E0817W,4
Injection File Name Level 2 : 2E0817W,5
Injection File Name Level 3 : 2E0817W,6
Injection File Name Level 4 : 2E0817W,7
Injection File Name Level 5 : 2E0817W,8

Calibration Date : 08/17/1998
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	1097	15.26	0.99998	1221	0.000
RDX	1540	12.10	0.99998	1680	0.000
TNB	3694	5.95	0.99996	3831	0.000
DNB	5804	5.10	0.99997	6010	0.000
TETRYL	1399	13.93	0.99404	1290	0.000
NB	4592	9.43	0.99973	4996	0.000
3,4-DNT	2384	5.38	0.99948	2430	0.000
[illegible]	5121	4.71	0.99966	5339	0.000
[illegible]NT	2648	3.49	0.99996	2727	0.000
2ADNT	4188	5.39	0.99994	4394	0.000
26DNT	2415	5.96	0.99987	2469	0.000
24DNT	5673	7.40	0.99989	6071	0.000
2NT	2521	11.86	0.99995	2717	0.000
4NT	2382	14.33	0.99998	2588	0.000
3NT	3293	13.95	0.99997	3291	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 08/17/1998
Continuing Calibration #: 1
Continuing Cal Date : 08/18/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-11
Injection File Name : 2E0817WA,8
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	197946	1245	1097	13.50	1221	1.96
RDX	227572	1751	1540	13.69	1680	4.21
TNB	357081	3985	3694	7.87	3831	4.04
DNB	290162	6096	5804	5.03	6010	1.42
TETRYL	186574	1651	1399	18.00	1290	28.03
NB	398302	4686	4592	2.05	4996	6.21
3,4-DNT	378408	2365	2384	0.80	2430	2.67
TNT	437736	5472	5121	6.84	5339	2.49
4ADNT	341579	2733	2648	3.19	2727	0.22
2ADNT	307238	4389	4188	4.81	4394	0.12
26DNT	293552	2553	2415	5.71	2469	3.37
24DNT	424972	6071	5673	7.01	6071	0.00
2NT	382633	2639	2521	4.69	2717	2.87
NT	251836	2518	2382	5.72	2588	2.69
[illegible]	301749	3176	3293	3.55	3291	3.49

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 08/17/1998
Continuing Calibration #: 2
Continuing Cal Date : 08/18/1998
Continuing Cal Level : 3
Instrument ID : IN12
Column ID : CARB-11
Injection File Name : 2E0817WA,14
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	197635	1243	1097	13.32	1221	1.80
RDX	227486	1750	1540	13.64	1680	4.17
TNB	354302	3954	3694	7.03	3831	3.23
DNB	286574	6020	5804	3.73	6010	0.17
TETRYL	161602	1430	1399	2.20	1290	10.89
NB	394941	4646	4592	1.19	4996	7.00
3,4-DNT	371660	2323	2384	2.57	2430	4.40
TNT	449887	5624	5121	9.80	5339	5.33
4ADNT	338083	2705	2648	2.13	2727	0.81
2ADNT	304122	4345	4188	3.75	4394	1.13
26DNT	292169	2541	2415	5.21	2469	2.88
24DNT	422256	6032	5673	6.33	6071	0.64
2NT	378619	2611	2521	3.59	2717	3.89
4NT	250018	2500	2382	4.96	2588	3.39
[illegible]T	298192	3139	3293	4.68	3291	4.63

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	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

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CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN12
Column ID : CARB-11
Calibration Date : 08/17/1998
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	5.37	5.36	5.34	5.36	5.33
RDX	8.64	8.66	8.67	8.70	8.69
TNB	12.14	12.23	12.24	12.27	12.26
DNB	15.24	15.32	15.34	15.40	15.40
TETRYL	16.81	16.93	16.96	17.02	17.02
NB	17.71	17.80	17.83	17.89	17.90
3,4-DNT	19.78	19.89	19.97	20.05	20.06
TNT	20.29	20.33	20.44	20.50	20.49
4ADNT	21.36	21.48	21.59	21.70	21.73
2ADNT	22.35	22.57	22.72	22.83	22.88
26DNT	24.19	24.43	24.50	24.60	24.63
24DNT	25.04	25.15	25.25	25.34	25.37
2NT	30.09	30.27	30.45	30.59	30.62
4NT	32.16	32.46	32.56	32.70	32.74
3NT	34.99	35.14	35.30	35.45	35.49

COMPONENT NAME	RT Cont CA1	RT Cont CA2
HMX	5.38	5.41
RDX	8.79	8.85
TNB	12.37	12.44
DNB	15.56	15.66
TETRYL	17.24	17.38
NB	18.09	18.19
3,4-DNT	20.35	20.50
TNT	20.70	20.81
4ADNT	22.06	22.27
2ADNT	23.22	23.45
26DNT	24.92	25.09
24DNT	25.68	25.87
2NT	30.96	31.15
4NT	33.10	33.32
3NT	35.89	36.09

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	5.36	0.024	0.072	5.29 - 5.44
RDX	8.71	0.078	0.233	8.48 - 8.95
TNB	12.28	0.100	0.299	11.98 - 12.58
DNB	15.42	0.148	0.443	14.97 - 15.86
TETRYL	17.05	0.195	0.585	16.47 - 17.64
NB	17.91	0.169	0.506	17.41 - 18.42
3,4-DNT	20.09	0.254	0.761	19.32 - 20.85
TNT	20.51	0.186	0.558	19.95 - 21.07

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4ADNT	21.74	0.322	0.967	20.77 - 22.71
2ADNT	22.86	0.376	1.128	21.73 - 23.99
26DNT	24.62	0.300	0.900	23.72 - 25.52
24DNT	25.39	0.292	0.877	24.51 - 26.26
2NT	30.59	0.372	1.116	29.47 - 31.70
T	32.72	0.391	1.174	31.54 - 33.89
.T	35.48	0.394	1.181	34.30 - 36.66

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: LC4
Column ID :

Inj 1

Injection File Name Level 1 : 081598W,53
Injection File Name Level 2 : 081598W,56
Injection File Name Level 3 : 081598W,57
Injection File Name Level 4 : 081598W,58
Injection File Name Level 5 : 081598W,59

Calibration Date : 08/17/98
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	2.48435	9.05E0	23.2607	6.88E0	48.1955	6.64E0	190.833	6.71E0	408.223	6.27E0

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: LC4
Column ID :

Inj 1

Injection File Name Level 1 : 081598W,53
Injection File Name Level 2 : 081598W,56
Injection File Name Level 3 : 081598W,57
Injection File Name Level 4 : 081598W,58
Injection File Name Level 5 : 081598W,59

Calibration Date : 08/17/98
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	6.91E0	9.77	0.99950	6.36E0	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 08/17/98
Continuing Calibration #: 1
Continuing Cal Date : 08/18/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 081598W,74
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	55.0794	5.81E0	6.91E0	15.91	6.36E0	8.63

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 08/17/98
Continuing Calibration #: 2
Continuing Cal Date : 08/18/98
Continuing Cal Level : 3
Instrument ID : LC4
Column ID :
Injection File Name : 081598W,71
Calculation Mode : Area

Component Name	Response Cont Std	Cont RF	Init RF Mean	%D	Init RF Slope	%D
PETN	47.4598	6.74E0	6.91E0	2.42	6.36E0	6.04

CALIBRATION FACTOR DATA
FORM 9D

EXPLOSIVE CALIBRATION - METHOD SW846-8330

jection volume = 100ul

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 : 08/17/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
PETN	10.66	10.72	10.72	10.71	10.73

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4
PETN	10.78	10.80	10.77	10.74

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
PETN	10.74	0.041	0.122	10.61 - 10.86

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : MET-01

Inj 1

Injection File Name Level 1 : 1CN0911,4
Injection File Name Level 2 : 1CN0911,5
Injection File Name Level 3 : 1CN0911,6
Injection File Name Level 4 : 1CN0911,7
Injection File Name Level 5 : 1CN0911,8

Calibration Date : 09/11/98
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	4568	653	24631	704	65728	751	124472	711	254464	727
TNB	8155	1773	42770	1860	109331	1901	209226	1819	423914	1843
TNT	9920	2157	47817	2079	126347	2197	241234	2098	494024	2148
TETRYL	10605	1178	56649	1259	148768	1322	279285	1241	557081	1238
3,4DNT	6117	4634	30639	4642	83013	5031	161183	4884	327897	4968
26DNT	7105	1421	31627	1265	86099	1378	160179	1281	329340	1317

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : MET-01

Inj 1
Injection File Name Level 1 : 1CN0911,9
Injection File Name Level 2 : 1CN0911,10
Injection File Name Level 3 : 1CN0911,11
Injection File Name Level 4 : 1CN0911,12
Injection File Name Level 5 : 1CN0911,13

Calibration Date : 09/11/98
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
RDX	3010	602	20231	809	51561	825	103682	829	200112	800
DNB	8541	2135	46045	2302	118219	2364	236057	2361	464379	2322
NB	6917	1383	35985	1439	90287	1445	182056	1456	362041	1448
24DNT	10177	2035	53758	2150	134918	2159	267426	2139	528697	2115
4ADNT	8921	970	49129	1068	131190	1141	257891	1121	500263	1088
2ADNT	14984	1498	81541	1631	197528	1580	408208	1633	810539	1621

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : MET-01

	Inj 1
Injection File Name Level 1	1CN0911,4
Injection File Name Level 2	1CN0911,5
Injection File Name Level 3	1CN0911,6
Injection File Name Level 4	1CN0911,7
Injection File Name Level 5	1CN0911,8

Calibration Date : 09/11/98
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	709	5.14	0.99985	725	0.000
TNB	1839	2.59	0.99992	1842	0.000
TNT	2136	2.23	0.99987	2141	0.000
TETRYL	1248	4.14	0.99983	1243	0.000
3,4DNT	4832	3.82	0.99993	4953	0.000
26DNT	1332	4.93	0.99975	1313	0.000

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : MET-01

Inj 1

Injection File Name Level 1 : 1CN0911,9
Injection File Name Level 2 : 1CN0911,10
Injection File Name Level 3 : 1CN0911,11
Injection File Name Level 4 : 1CN0911,12
Injection File Name Level 5 : 1CN0911,13

Calibration Date : 09/11/98
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
RDX	773	12.47	0.99976	807	0.000
DNB	2297	4.10	0.99995	2331	0.000
NB	1434	2.03	0.99999	1449	0.000
24DNT	2120	2.36	0.99997	2122	0.000
4ADNT	1077	6.18	0.99978	1096	0.000
2ADNT	1593	3.57	0.99996	1621	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 09/11/98
Continuing Calibration #: 5
Continuing Cal Date : 09/13/98
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : MET-01
Injection File Name : 1CN0911F,3
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	63770	729	709	2.77	725	0.51
TNB	103663	1803	1839	1.98	1842	2.11
TNT	119701	2082	2136	2.53	2141	2.75
TETRYL	137960	1226	1248	1.72	1243	1.34
3,4DNT	74747	4530	4832	6.25	4953	8.54
26DNT	83732	1340	1332	0.54	1313	2.01

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 09/11/98
Continuing Calibration #: 5
Continuing Cal Date : 09/13/98
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : MET-01
Injection File Name : 1CN0911F,4
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
RDX	49428	791	773	2.28	807	2.04
DNB	116024	2320	2297	1.03	2331	0.46
NB	87852	1406	1434	2.01	1449	3.03
24DNT	130873	2094	2120	1.21	2122	1.31
4ADNT	128144	1114	1077	3.42	1096	1.62
2ADNT	199074	1593	1593	0.00	1621	1.78

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 09/11/98
Continuing Calibration #: 6
Continuing Cal Date : 09/14/98
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : MET-01
Injection File Name : 1CN0911F,13
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	62907	719	709	1.38	725	0.85
TNB	103331	1797	1839	2.29	1842	2.42
TNT	120578	2097	2136	1.81	2141	2.03
TETRYL	142701	1268	1248	1.66	1243	2.05
3,4DNT	76137	4614	4832	4.50	4953	6.84
26DNT	78721	1260	1332	5.48	1313	4.10

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 09/11/98
Continuing Calibration #: 6
Continuing Cal Date : 09/14/98
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : MET-01
Injection File Name : 1CN0911F,14
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
RDX	51746	828	773	7.08	807	2.56
DNB	120438	2409	2297	4.87	2331	3.33
NB	89436	1431	1434	0.24	1449	1.28
24DNT	137344	2198	2120	3.67	2122	3.57
4ADNT	133022	1157	1077	7.36	1096	5.49
2ADNT	206799	1654	1593	3.88	1621	2.03

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
HMX	7.000	35.000	87.500	175.000	350.000
TNB	4.600	23.000	57.500	115.000	230.000
TNT	4.600	23.000	57.500	115.000	230.000
TETRYL	9.000	45.000	112.500	225.000	450.000
3,4DNT	1.320	6.600	16.500	33.000	66.000
26DNT	5.000	25.000	62.500	125.000	250.000

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
RDX	5.000	25.000	62.500	125.000	250.000
DNB	4.000	20.000	50.000	100.000	200.000
NB	5.000	25.000	62.500	125.000	250.000
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

1CN0911
CA1→CA5
Page 1
A STD

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : MET-01
Calibration Date : 09/11/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	4.70	4.67	4.72	4.72	4.72
TNB	7.13	7.08	7.14	7.14	7.14
TNT	10.84	10.70	10.84	10.84	10.87
TETRYL	11.81	11.64	11.84	11.85	11.90
3,4DNT	13.13	12.91	13.15	13.17	13.23
26DNT	13.57	13.40	13.62	13.64	13.70

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
HMX	4.72	4.73	4.73	4.73	4.74
TNB	7.15	7.16	7.16	7.17	7.20
TNT	10.88	10.88	10.89	10.92	10.98
TETRYL	11.89	11.89	11.90	11.93	12.01
3,4DNT	13.21	13.21	13.23	13.28	13.39
26DNT	13.68	13.69	13.71	13.76	13.87

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	4.72	0.021	0.063	4.66 - 4.78
TNB	7.15	0.034	0.103	7.05 - 7.26
TNT	10.89	0.084	0.253	10.63 - 11.14
TETRYL	11.90	0.117	0.352	11.55 - 12.25
3,4DNT	13.23	0.146	0.439	12.79 - 13.67
26DNT	13.70	0.147	0.441	13.26 - 14.15

CALIBRATION FACTOR DAT
FORM 9E

1CN0911
CA6,CA7

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : MET-01
Calibration Date : 09/11/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	4.70	4.67	4.72	4.72	4.72
TNB	7.13	7.08	7.14	7.14	7.14
TNT	10.84	10.70	10.84	10.84	10.87
TETRYL	11.81	11.64	11.84	11.85	11.90
3,4DNT	13.13	12.91	13.15	13.17	13.23
26DNT	13.57	13.40	13.62	13.64	13.70

COMPONENT NAME	RT Cont CA6	RT Cont CA7
HMX	4.75	4.74
TNB	7.21	7.18
TNT	11.01	10.99
TETRYL	12.07	12.06
3,4DNT	13.44	13.43
26DNT	13.93	13.89

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	4.72	0.021	0.063	4.66 - 4.78
TNB	7.15	0.034	0.103	7.05 - 7.26
TNT	10.89	0.084	0.253	10.63 - 11.14
TETRYL	11.90	0.117	0.352	11.55 - 12.25
3,4DNT	13.23	0.146	0.439	12.79 - 13.67
26DNT	13.70	0.147	0.441	13.26 - 14.15

1CN0911
CB1→CB5

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : MET-01
Calibration Date : 09/11/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
RDX	7.48	7.43	7.46	7.43	7.44
DNB	9.17	9.11	9.14	9.11	9.11
NB	10.27	10.20	10.25	10.20	10.21
24DNT	13.41	13.32	13.38	13.33	13.35
4ADNT	14.66	14.53	14.61	14.54	14.58
2ADNT	15.22	15.08	15.16	15.10	15.13

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
RDX	7.43	7.41	7.42	7.42	7.48
DNB	9.11	9.10	9.11	9.13	9.19
NB	10.20	10.20	10.21	10.24	10.33
24DNT	13.32	13.31	13.34	13.38	13.50
4ADNT	14.52	14.51	14.55	14.59	14.75
2ADNT	15.06	15.06	15.09	15.12	15.28

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
RDX	7.45	0.032	0.096	7.35 - 7.55
DNB	9.14	0.040	0.119	9.02 - 9.26
NB	10.25	0.054	0.163	10.08 - 10.41
24DNT	13.39	0.080	0.240	13.15 - 13.63
4ADNT	14.62	0.108	0.323	14.30 - 14.94
2ADNT	15.17	0.108	0.323	14.84 - 15.49

CALIBRATION FACTOR DAT
FORM 9E

1CN0911
CB6→CB7
Page

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : MET-01
Calibration Date : 09/11/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
RDX	7.48	7.43	7.46	7.43	7.44
DNB	9.17	9.11	9.14	9.11	9.11
NB	10.27	10.20	10.25	10.20	10.21
24DNT	13.41	13.32	13.38	13.33	13.35
4ADNT	14.66	14.53	14.61	14.54	14.58
2ADNT	15.22	15.08	15.16	15.10	15.13

COMPONENT NAME	RT Cont CA6	RT Cont CA7
RDX	7.48	7.52
DNB	9.18	9.22
NB	10.31	10.35
24DNT	13.50	13.54
4ADNT	14.77	14.83
2ADNT	15.32	15.38

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
RDX	7.45	0.032	0.096	7.35 - 7.55
DNB	9.14	0.040	0.119	9.02 - 9.26
NB	10.25	0.054	0.163	10.08 - 10.41
24DNT	13.39	0.080	0.240	13.15 - 13.63
4ADNT	14.62	0.108	0.323	14.30 - 14.94
2ADNT	15.17	0.108	0.323	14.84 - 15.49

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : MET-01

Inj 1

Injection File Name Level 1 : 1CN0914,4
Injection File Name Level 2 : 1CN0914,5
Injection File Name Level 3 : 1CN0914,6
Injection File Name Level 4 : 1CN0914,7
Injection File Name Level 5 : 1CN0914,8

Calibration Date : 09/14/98
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	4734	676	23311	666	62444	714	124787	713	256308	732
TNB	7937	1725	38431	1671	104772	1822	210503	1830	426946	1856
TNT	9613	2090	45912	1996	121246	2109	245259	2133	495568	2155
TETRYL	10499	1167	54523	1212	143724	1278	287737	1279	566865	1260
3,4DNT	5950	4508	28709	4350	77476	4696	161616	4897	328221	4973
26DNT	6482	1296	29358	1174	80948	1295	157657	1261	328618	1314

CALIBRATION FACTOR DATA
FORM 9A-1

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : MET-01

Inj 1

Injection File Name Level 1 : 1CN0914,9
Injection File Name Level 2 : 1CN0914,10
Injection File Name Level 3 : 1CN0914,11
Injection File Name Level 4 : 1CN0914,12
Injection File Name Level 5 : 1CN0914,13

Calibration Date : 09/14/98
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
RDX	4325	865	19829	793	51626	826	101136	809	204321	817
DNB	9565	2391	46566	2328	117618	2352	235359	2354	466984	2335
NB	7393	1479	36202	1448	89294	1429	181511	1452	363538	1454
24DNT	10459	2092	52877	2115	131704	2107	266249	2130	525516	2102
4ADNT	9122	992	49565	1078	130220	1132	257205	1118	500849	1089
2ADNT	15528	1553	81882	1638	198518	1588	404368	1617	802187	1604

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : MET-01

Inj 1
Injection File Name Level 1 : 1CN0914,4
Injection File Name Level 2 : 1CN0914,5
Injection File Name Level 3 : 1CN0914,6
Injection File Name Level 4 : 1CN0914,7
Injection File Name Level 5 : 1CN0914,8

Calibration Date : 09/14/98
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	700	3.99	0.99991	727	0.000
TNB	1781	4.44	0.99996	1849	0.000
TNT	2096	2.92	0.99997	2147	0.000
TETRYL	1239	3.93	0.99994	1264	0.000
3,4DNT	4685	5.57	0.99990	4942	0.000
26DNT	1268	4.41	0.99977	1303	0.000

CALIBRATION FACTOR DATA
FORM 9B

EXPLOSIVE CALIBRATION - METHOD SW846-8330
Instrument ID: IN10
Column ID : MET-01

Inj 1

Injection File Name Level 1 : 1CN0914,9
Injection File Name Level 2 : 1CN0914,10
Injection File Name Level 3 : 1CN0914,11
Injection File Name Level 4 : 1CN0914,12
Injection File Name Level 5 : 1CN0914,13

Calibration Date : 09/14/98
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
RDX	822	3.27	0.99997	816	0.000
DNB	2352	1.04	0.99999	2339	0.000
NB	1452	1.23	0.99999	1453	0.000
24DNT	2109	0.68	0.99997	2108	0.000
4ADNT	1082	5.09	0.99985	1096	0.000
2ADNT	1600	2.00	0.99998	1606	0.000

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 09/14/98
Continuing Calibration #: 1
Continuing Cal Date : 09/15/98
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : MET-01
Injection File Name : 1CN0914A,1
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	63338	724	700	3.37	727	0.49
TNB	104673	1820	1781	2.21	1849	1.52
TNT	120512	2096	2096	0.02	2147	2.39
TETRYL	139528	1240	1239	0.11	1264	1.87
3,4DNT	76565	4640	4685	0.95	4942	6.11
26DNT	83002	1328	1268	4.71	1303	1.93

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 09/14/98
Continuing Calibration #: 1
Continuing Cal Date : 09/15/98
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : MET-01
Injection File Name : 1CN0914A,2
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
RDX	51948	831	822	1.10	816	1.86
DNB	117520	2350	2352	0.07	2339	0.48
NB	89275	1428	1452	1.65	1453	1.66
24DNT	133053	2129	2109	0.93	2108	1.00
4ADNT	131233	1141	1082	5.50	1096	4.07
2ADNT	200937	1607	1600	0.46	1606	0.07

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 09/14/98
Continuing Calibration #: 2
Continuing Cal Date : 09/15/98
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : MET-01
Injection File Name : 1CN0914A,5
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
HMX	59707	682	700	2.56	727	6.19
TNB	101583	1767	1781	0.81	1849	4.43
TNT	119143	2072	2096	1.16	2147	3.50
TETRYL	137716	1224	1239	1.19	1264	3.14
3,4DNT	78561	4761	4685	1.63	4942	3.66
26DNT	81772	1308	1268	3.16	1303	0.42

CALIBRATION FACTOR DATA
FORM 9C

Initial Calibration Date: 09/14/98
Continuing Calibration #: 2
Continuing Cal Date : 09/15/98
Continuing Cal Level : 3
Instrument ID : IN10
Column ID : MET-01
Injection File Name : 1CN0914A,6
Calculation Mode : Area

Component Name	Response Cont Std	Cont CF	Init CF Mean	%D	Init CF Slope	%D
RDX	49732	796	822	3.21	816	2.49
DNB	115007	2300	2352	2.21	2339	1.67
NB	89082	1425	1452	1.86	1453	1.87
24DNT	132129	2114	2109	0.23	2108	0.30
4ADNT	129628	1127	1082	4.21	1096	2.80
2ADNT	200893	1607	1600	0.44	1606	0.05

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
HMX	7.000	35.000	87.500	175.000	350.000
TNB	4.600	23.000	57.500	115.000	230.000
TNT	4.600	23.000	57.500	115.000	230.000
TETRYL	9.000	45.000	112.500	225.000	450.000
3,4DNT	1.320	6.600	16.500	33.000	66.000
26DNT	5.000	25.000	62.500	125.000	250.000

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
RDX	5.000	25.000	62.500	125.000	250.000
DNB	4.000	20.000	50.000	100.000	200.000
NB	5.000	25.000	62.500	125.000	250.000
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

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : MET-01
Calibration Date : 09/14/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
HMX	4.70	4.69	4.70	4.72	4.68
TNB	7.11	7.10	7.11	7.13	7.09
TNT	10.77	10.77	10.77	10.79	10.75
TETRYL	11.76	11.75	11.75	11.77	11.72
3,4DNT	13.08	13.05	13.06	13.06	13.02
26DNT	13.57	13.54	13.54	13.55	13.50

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
HMX	4.71	4.71	4.70	4.72	4.72
TNB	7.13	7.13	7.12	7.14	7.14
TNT	10.82	10.82	10.80	10.86	10.86
TETRYL	11.84	11.81	11.79	11.89	11.89
3,4DNT	13.17	13.13	13.11	13.23	13.24
26DNT	13.63	13.61	13.58	13.70	13.71

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
HMX	4.71	0.012	0.037	4.67 - 4.74
TNB	7.12	0.015	0.044	7.08 - 7.16
TNT	10.80	0.036	0.107	10.70 - 10.91
TETRYL	11.80	0.057	0.171	11.63 - 11.97
3,4DNT	13.12	0.072	0.217	12.90 - 13.33
26DNT	13.60	0.066	0.197	13.40 - 13.79

CALIBRATION FACTOR DATA
FORM 9E

EXPLOSIVE CALIBRATION - METHOD SW846-8330

Instrument ID : IN10
Column ID : MET-01
Calibration Date : 09/14/98
Number of Calibration Levels: 5

COMPONENT NAME	RT Level 1	RT Level 2	RT Level 3	RT Level 4	RT Level 5
RDX	7.35	7.34	7.35	7.35	7.34
DNB	9.00	9.01	9.01	9.02	9.01
NB	10.10	10.09	10.09	10.09	10.09
24DNT	13.14	13.13	13.14	13.15	13.16
4ADNT	14.29	14.26	14.27	14.30	14.34
2ADNT	14.85	14.81	14.82	14.84	14.89

COMPONENT NAME	RT Cont CA1	RT Cont CA2	RT Cont CA3	RT Cont CA4	RT Cont CA5
RDX	7.42	7.43	7.43	7.44	7.42
DNB	9.10	9.11	9.11	9.11	9.10
NB	10.19	10.20	10.20	10.22	10.20
24DNT	13.30	13.30	13.30	13.34	13.34
4ADNT	14.51	14.49	14.50	14.59	14.59
2ADNT	15.06	15.04	15.06	15.15	15.15

COMPONENT NAME	AVE RT	STD_DEV	3X SD	AVE+-3X SD
RDX	7.39	0.041	0.124	7.26 - 7.51
DNB	9.06	0.049	0.146	8.91 - 9.21
NB	10.15	0.056	0.169	9.98 - 10.32
24DNT	13.23	0.089	0.266	12.96 - 13.50
4ADNT	14.41	0.127	0.382	14.03 - 14.80
2ADNT	14.97	0.131	0.393	14.57 - 15.36

	SV	T • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

[X] RUSH ☐ REEXTRACT ☐ TCLP ☐ OXIN

SAMPLE EXTRACTION L

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 980815SA

EXTRACT DATE 1998-08-15 10:41

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Page: 1 of 2

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	g = ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
BL0815SA			S/L				2.0							10.0	N				
BB0815SA			S/L				2.0							10.0	N				
LC0815SA			S/L				2.0							10.0	N	120			
LD0815SA			S/L				2.0							10.0	N	120			
35217.01 GC201	MKF-OH	08/13/1998 11:12 ABG-ICS-013	S/L		17.04	1.7	2.0							10.0	N				
35217.03 GC201	MKF-OH	08/13/1998 11:12 ABG-ICS-015	S/L		16.61	1.7	2.0							10.0	N				
35217.04 GC201	MKF-OH	08/13/1998 11:12 ABG-ICS-016	S/L		15.74	1.7	2.0							10.0	N				
35217.06 GC201	MKF-OH	08/13/1998 11:12 ABG-ICS-018	S/L		17.72	1.6	2.0							10.0	N				
35218.01 GC201	MKF-OH	08/13/1998 11:24 BIOW01307031	S/L		29.18	1.4	2.0							10.0	N				
35218.02MS GC201	MKF-OH	08/13/1998 11:24 BIOW01307031	S/L		29.18	1.4	2.0							10.0	N	120			
35218.03MSD GC201	MKF-OH	08/13/1998 11:24 BIOW01307031	S/L		29.18	1.4	2.0							10.0	N	120			
35218.04 GC201	MKF-OH	08/13/1998 11:24 BIOW01307032	S/L		24.36	1.5	2.0							10.0	N				
35218.05 GC201	MKF-OH	08/13/1998 11:24 BIOW01307032FD	S/L		27.53	1.4	2.0							10.0	N				
35218.06 GC201	MKF-OH	08/13/1998 11:24 BIOW01307033	S/L		25.30	1.5	2.0							10.0	N				
35218.07 GC201	MKF-OH	08/13/1998 11:24 BIOW01307051	S/L		36.43	1.3	2.0							10.0	N				

INITIALS		
WEIGHING: MK	EXTRACTION: MK	FLORISIL:
CLEANUP:	KD:	
BLOWDOWN:	TV:	
SURROG. SPIKER:	VERIFIER:	
MATRIX SPIKER: MH	VERIFIER: MK	
SUBMITTED BY:	REVIEWED BY:	8/15/98

ID NUMBERS
FLORISIL CARTRIDGE #:
GPC COLUMN #:
SURROGATES ID CONC #:
MATRIX SPIKE SOLID/CONC #(s): 3-119
SOP - METHOD # : SWL-OP-

COMMENTS

[X] RUSH ☐ REEXTRACT ☐ TCLP ☐ DIOXIN

SAMPLE EXTRACTION L

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

	SV	T • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

BATCH: 980815SA

EXTRACT DATE 1998-08-15 10:41

001581
Page: 2 of 2

SAMPLE ID (EPISODE #)	CLIENT / CASE	DATE RECEIVED / CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	g • ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
35218.08 GC201	MKF-OH	08/13/1998 11:24 BIOM01307052	S/L		33.05	1.3	2.0							10.0	N				
35218.09 GC201	MKF-OH	08/13/1998 11:24 BIOM01307053	S/L		27.22	1.5	2.0							10.0	N				
35218.10 GC201	MKF-OH	08/13/1998 11:24 BIOM01307071	S/L		30.35	1.4	2.0							10.0	N				
35218.11 GC201	MKF-OH	08/13/1998 11:24 BIOM01307072	S/L		22.76	1.5	2.0							10.0	N				
35218.12 GC201	MKF-OH	08/13/1998 11:24 BIOM01307073	S/L		21.55	1.6	2.0							10.0	N				

INITIALS

WEIGHING:	EXTRACTION: MK	FLORISIL:
CLEANUP: CJ	KD:	
BLOWDOWN: CJ	TV:	
SURROG. SPIKER:	VERIFIER:	
MATRIX SPIKER: MK	VERIFIER: MK	
SUBMITTED BY:	REVIEWED BY: 8/15/98	

ID NUMBERS

FLORISIL CARTRIDGE #:

GPC COLUMN #:

SURROGATES ID CONC #:

MATRIX SPIKE SOLID/CONC #(s): 3-119

SOP - METHOD # : SWL-OP-

COMMENTS

	SV	PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

☒ RUSH ☐ REEXTRACT ☐ TCLP ☐ DIOXIN

SAMPLE EXTRACTION LOG

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 980815SB

EXTRACT DATE 1998-08-15 10:54

001582
Page: 1 of 2

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	g ● ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
BL0815SB			S/L				2.0							10.0	N		1000		
BB0815SB			S/L				2.0							10.0	N		1000		
LC0815SB			S/L				2.0							10.0	N	500	1000		
LD0815SB			S/L				2.0							10.0	N	500	1000		
35217.01 GC200	MKF-OH	08/13/1998 11:12 ABG-ICS-013	S/L		17.04	1.7	2.0							10.0	N		1000		
35217.03 GC200	MKF-OH	08/13/1998 11:12 ABG-ICS-015	S/L		16.61	1.7	2.0							10.0	N		1000		
35217.04 GC200	MKF-OH	08/13/1998 11:12 ABG-ICS-016	S/L		15.74	1.7	2.0							10.0	N		1000		
35217.06 GC200	MKF-OH	08/13/1998 11:12 ABG-ICS-018	S/L		17.72	1.6	2.0							10.0	N		1000		
35218.01 GC200	MKF-OH	08/13/1998 11:24 BIOM01307031	S/L		29.18	1.4	2.0							10.0	N		1000		
35218.02MS GC200	MKF-OH	08/13/1998 11:24 BIOM01307031	S/L		29.18	1.4	2.0							10.0	N	500	1000		
35218.03MSD GC200	MKF-OH	08/13/1998 11:24 BIOM01307031	S/L		29.18	1.4	2.0							10.0	N	500	1000		
35218.04 GC200	MKF-OH	08/13/1998 11:24 BIOM01307032	S/L		24.36	1.5	2.0							10.0	N		1000		
35218.05 GC200	MKF-OH	08/13/1998 11:24 BIOM01307032FD	S/L		27.53	1.4	2.0							10.0	N		1000		
35218.06 GC200	MKF-OH	08/13/1998 11:24 BIOM01307033	S/L		25.30	1.5	2.0							10.0	N		1000		
35218.07 GC200	MKF-OH	08/13/1998 11:24 BIOM01307051	S/L		36.43	1.3	2.0							10.0	N		1000		

INITIALS

WEIGHING: MK	EXTRACTION: MK	FLORISIL:
CLEANUP: CJ	KD:	
BLOWDOWN: CJ	TV:	
SURROG. SPIKER: MM	VERIFIER: MK	
MATRIX SPIKER: MM	VERIFIER: MK	
SUBMITTED BY:	REVIEWED BY: MK 8/18/98	

ID NUMBERS

FLORISIL CARTRIDGE #:

GPC COLUMN #:

SURROGATES ID CONC #: 3-125

MATRIX SPIKE SOLID/CONC #(s): 3-131

SOP - METHOD # : SWL-OP-_____ Rev._____

COMMENTS

	SV	T • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

[X] RUSH ☐ REEXTRACT ☐ TCLP ☐ DXIN

SAMPLE EXTRACTION L

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 98081558

EXTRACT DATE 1998-08-15 10:54

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Page: 2 of 2

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	g • ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
35218.08 GC200	MKF-OH	08/13/1998 11:24 BIOM01307052	S/L		33.05	1.3	2.0							10.0	N		1000		
35218.09 GC200	MKF-OH	08/13/1998 11:24 BIOM01307053	S/L		27.22	1.5	2.0							10.0	N		1000		
35218.10 GC200	MKF-OH	08/13/1998 11:24 BIOM01307071	S/L		30.35	1.4	2.0							10.0	N		1000		
35218.11 GC200	MKF-OH	08/13/1998 11:24 BIOM01307072	S/L		22.76	1.5	2.0							10.0	N		1000		
35218.12 GC200	MKF-OH	08/13/1998 11:24 BIOM01307073	S/L		21.55	1.6	2.0							10.0	N		1000		

INITIALS		
WEIGHING:	EXTRACTION: MK	FLORISIL:
CLEANUP: CR	KD:	
BLOWDOWN: CR	TV:	
SURROG. SPIKER: MK	VERIFIER: MK	
MATRIX SPIKER: MK	VERIFIER: MK	
SUBMITTED BY:	REVIEWED BY: 8/18/98	

ID NUMBERS	
FLORISIL CARTRIDGE #:	
GPC COLUMN #:	
SURROGATES ID CONC #:	3-125
MATRIX SPIKE SOLID/CONC #(s):	3-131
SOP - METHOD # : SWL-OP-	R

COMMENTS

	SV	T • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			XXXXX
SHAKER			
SONC. (3550)			
SOXHLET			

☒ RUSH ☐ REEXTRACT ☐ TCLP ☐ DXIN

SAMPLE EXTRACTION LO

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 980815WA

EXTRACT DATE 1998-08-15 10:13

001579
Page: 1 of 1

SAMPLE ID (EPISODE #)	CLIENT / CASE	DATE RECEIVED / CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	g ● ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
BL0815WA			W/L					5.0						5.0	N		500		
BB0815WA			W/L					5.0						5.0	N		500		
LC0815WA			W/L					5.0						5.0	N	250	500		
LD0815WA			W/L					5.0						5.0	N	250	500		
35198.01 GC200	MKF-OH	08/12/1998 11:41 RPW029	W/L					5.0						5.0	N		500		
35198.02MS GC200	MKF-OH	08/12/1998 11:41 RPW029	W/L					5.0						5.0	N	250	500		
35198.03MSD GC200	MKF-OH	08/12/1998 11:41 RPW029	W/L					5.0						5.0	N	250	500		
35198.04 GC200	MKF-OH	08/12/1998 11:41 RPW030	W/L					5.0						5.0	N		500		
35218.13 GC200	MKF-OH	08/13/1998 11:24 BIOR8081198	W/L					5.0						5.0	N		500		
35268.02 GC200	XXXXXXXX XXXXXXXX	XXXXXXXXXXXXXXXX XXXXXXXXXXXXXXXXXXXX	W/L	7.14				5.0						5.0	N		500		
35270.19 GC200	MKF-OH	08/15/1998 09:51 BIOR8081498	W/L					5.0						5.0	N		500		

INITIALS		
WEIGHING: MK	EXTRACTION: MK	FLORISIL:
CLEANUP: 3	KD:	
BLOWDOWN: CO	TV:	
SURROG. SPIKER: MM	VERIFIER: MK	
MATRIX SPIKER: MM	VERIFIER: MK	
SUBMITTED BY:	REVIEWED BY:	

4-25

ID NUMBERS
FLORISIL CARTRIDGE #:
GPC COLUMN #:
SUBROGATES ID CONC #: 3-84
MATRIX SPIKE SOLID/CONC #(s): 2-284
SOP - METHOD # : SWL-OP-_____ Rev._____

COMMENTS

	SV	f • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			XXXXX
SHAKER			
SONC. (3550)			
SOXHLET			

[X] RUSH ☐ REEXTRACT ☐ TCLP ☐ DIOXIN

SAMPLE EXTRACTION LOG

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 980815WB

EXTRACT DATE: 1998-08-15 10:19

001580
Page: 1 of 1

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION	
					%	g	g • ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL			
BL0815WB			W/L					5.0						5.0	N					
BB0815WB			W/L					5.0						5.0	N					
LC0815WB			W/L					5.0						5.0	N	120				
LD0815WB			W/L					5.0						5.0	N	120				
35198.01 GC201	MKF-OH	08/12/1998 11:41 RPW029	W/L					5.0						5.0	N					
35198.02MS GC201	MKF-OH	08/12/1998 11:41 RPW029	W/L					5.0						5.0	N	120				
35198.03MSD GC201	MKF-OH	08/12/1998 11:41 RPW029	W/L					5.0						5.0	N	120				
35198.04 GC201	MKF-OH	08/12/1998 11:41 RPW030	W/L					5.0						5.0	N					
35218.13 GC201	MKF-OH	08/13/1998 11:24 BIOR8081198	W/L					5.0						5.0	N					
35270.19 GC201	MKF-OH	08/15/1998 09:51 BIOR8081498	W/L					5.0						5.0	N					

INITIALS		
WEIGHING: MK	EXTRACTION: MK	FLORISIL:
CLEANUP: 360	KD:	
BLOWDOWN:	TV:	
SURROG. SPIKER:	VERIFIER:	
MATRIX SPIKER: MK	VERIFIER: MK	
SUBMITTED BY:	REVIEWED BY:	8/21/98

ID NUMBERS
FLORISIL CARTRIDGE #:
GPC COLUMN #:
SURROGATES ID CONC #:
MATRIX SPIKE SOLID/CONC #(s): 3-119
SOP - METHOD # : SWL-OP-_____R

COMMENTS

TOLTEST INC.

1915 N. 12th St., P.O. Box 2186, Toledo, OH 43603-2186; Voice (419) 241-; Fax (419) 321-6259
Ship To Address: ATTN: RECEIVING LAB, 1810 N. 12th St., Toledo, OH 43624-1304; Voice (419) 241-7175, Fax (419) 241-1808
Sent From: ☐ Corporate ☐ Plymouth ☐ Monroe ☐ Pittsburgh ☐ Other _____

BIU - 189

Chain of Custody Record

25729

Page 1 of 2

Project No.: 37324	Client:		
P.O. No.:	Project/Location: NSWC Crane BioFacility		
Project Mgr.:		Sampler's Name: Peter J. Chevalier	
Phone No.		Sampler's Signature: [signature]	

Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	8330							Preserved Yes/No	LAB USE ONLY Lab #
1	BIU S061 08 031	5/19/99	1205	G	compost	Column 3 sample location 1	1	✓			MS/MSD					240
2	BIU S061 08 032		1206			2										
3	BIU S061 08 033		1204			3										
4	BIU S061 08 051		1208			5 1										
5	BIU S061 08 052		1209			2										
6	BIU S061 08 053		1207			3										
7	BIU S061 08 071		1211			7 1										
8	BIU S061 08 072		1213			2										
9	BIU S061 08 073		1210			3										
10	BIU S061 08 091		1215			9 1										

Item No.	Relinquished By:	Date / Time	Received By:	Date / Time
	[signature]	5/19/99 1530		
			S. Hodson	5/20/99 930

LAB USE ONLY

Were samples delivered ☐ in person ☑ by courier
Were samples preserved ☐ in field ☐ in lab ☐ N/A
Temp of samples 3 °C
Did samples arrive intact and sealed? ☑ yes ☐ no ☐ N/A
Were proper containers used? ☑ yes ☐ no
Was container labeled properly for contents? ☑ yes ☐ no
Were samples packaged properly for type of material? ☑ yes ☐ no
Was shipping label completed properly per regulations? (49 CFR 170, etc.) ☐ yes ☐ no

Comments: _____

TAT

Distribution: Orig. plus one accompanies shipment (white and yellow); copy to coordinator field (pink)

Rev. 7/97

TOLTEST, INC.

1915 N. 12th St., P.O. Box 2186, Toledo, OH 43603-2186; Voice (419) 241-7175, Fax (419) 321-6259
Ship To Address: ATTN: RECEIVING LAB, 1810 N. 12th St., Toledo, OH 43624-1304; Voice (419) 241-7175, Fax (419) 241-1808
Sent From: ☐ Corporate ☐ Plymouth ☐ Monroe ☐ Pittsburgh ☐ Other _____

B/U - 189

Chain of Custody Record

25728

Page 2 of 2

Project No.: 37324
Client:
P.O. No.:
Project/Location: NSWC Crane Bio-facility
Project Mgr.:
Sampler's Name: Peter J Chevalier
Phone No.:
Sampler's Signature:

Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	8330	Parameters	Preserved Yes/No	LAB USE ONLY Lab #
1	B/U S 061 08 09 1 FD	5/14/99	1215	G	compost	column 9 sample location 1	1	✓			
2	B/U S 061 08 09 2		1216			2					
3	B/U S 061 08 09 3		1214			3					
4	B/U S 061 08 11 1		1218			11 1					
5	B/U S 061 08 11 2		1214			2					
6	B/U S 061 08 11 3		1217			3					
7											
8											
9											
10											

Item No.	Relinquished By:	Date / Time	Received By:	Date / Time
	[signature]	5/14/99 1530		

LAB USE ONLY

Were samples delivered ☐ in person ☑ by courier
Were samples preserved ☐ in field ☐ in lab ☐ N/A
Temp of samples 3 °C
Did samples arrive intact and sealed? ☑ yes ☐ no ☐ N/A
Were proper containers used? ☑ yes ☐ no
Was container labeled properly for contents? ☑ yes ☐ no
Were samples packaged properly for type of material? ☑ yes ☐ no
Was shipping label completed properly per regulations? (49 CFR 170, etc.) ☐ yes ☐ no
Comments: _____

TAT

Distribution: Original plus one accompanies shipment (white and yellow); copy to coordinator field (pink)

Rev. 7/97

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2.WB1) / SWL-GA-115 REV 5.0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): SARAH HODSON

RECEIVED BY (SIGNATURE): S. Hodson

LOGGED IN BY (SIGNATURE): S. Hodson

REC'D DATE 05/20/99

TIME REC'D 09:30

LOG-IN DATE 1999-05-20 10:42

PROJECT: NSWC CRANE

EPISODE: 38614

SAMPLE DELIVERY GROUP: 38614

Remarks

1. CUSTODY SEAL(S): Present/Absent
   Intact/ Broken
2. CUSTODY SEALS NOS.:
   NA
3. CHAIN-OF CUSTODY. Present/Absent
   Sealed In Plastic? Yes/ No
   Taped To Lid? Yes/ No
   Properly Filled Out (Ink, Signed, ETC.)? Yes/ No
4. AIRBILL AirBill/ Sticker Present/Absent
5. AIRBILL NO:
   811674014460
6. COOLER CONDITIONS
   Enough Ice? Yes/ No
   Type of Ice? WET
   Type of Packing? BUB
7. SAMPLE TAGS Present/Absent
8. SAMPLE CONDITION: Intact/ Broken*/ Leaking
   Bottles Sealed In Separate Plastic Bags? Yes/ No
   Correct Containers Used For Tests Indicated? Yes/ No
   Correct Preservative? Yes/ No
   Sufficient Sample? Yes/ No
   Labels Complete (I.D., Date, Time, Signature, Preservative? Yes/ No
   VOA Samples Without Bubbles? Yes/ No~
9. Does Information on Custody Records.Labels,Tags Agree? Yes/ No*
10. RAD SCREEN WITH GIEGER COUNTER? Yes/ No
11. P.O. Called? Yes/ No

Client Sample #	Sample Fraction @	Assigned LAB#	Cooler I.D.	pH Check	ACID/ BASE LOT#	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
BIOS06108031	gc	38614.01	5/20/99-1	N		3.0 C
BIOS06108031		38614.02		N		
BIOS06108031		38614.03		N		
BIOS06108032		38614.04		N		
BIOS06108033		38614.05		N		
BIOS06108051		38614.06		N		
BIOS06108052		38614.07		N		
BIOS06108053		38614.08		N		
BIOS06108071		38614.09		N		
BIOS06108072		38614.10		N		
BIOS06108073		38614.11		N		
BIOS06108091		38614.12		N		
BIOS06108091FD		38614.13		N		
BIOS06108092		38614.14		N		
BIOS06108093		38614.15		N		
BIOS06108111		38614.16		N		
BIOS06108112		38614.17		N		
BIOS06108113		38614.18		N		

* Contact PO and attach record of resolution

@ Sample Fractions: B=SV GC/MS, V= VOA GC/MS or GC, P=Pesticide,H=Herbicide, D=Dioxin, A=Air, I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE
June 7, 1999

CONTRACT : TOLTEST

PROJECT : NSWC CRANE

SDG NO : 38614

EPISODE(S): 38614

SAMPLE(S) : BIOS06108031, BIOS06108032, BIOS06108033, BIOS06108051, BIOS06108052, BIOS06108053, BIOS06108071, BIOS06108072, BIOS06108073, BIOS06108091, BIOS06108091FD, BIOS06108092, BIOS06108093, BIOS06108111, BIOS06108112, BIOS06108113

EXPLOSIVE FRACTION

This SDG consisted of 16 soil samples for the explosive analysis. The samples, blanks and spikes were extracted and analyzed according to EPA protocol, SW-846, method 8330, REV. 0, 1994.

For soil samples, the percent moisture is determined by drying them at 105° C at the time of receipt. Additional portion of the samples is air-dried prior to analysis. The results are reported on the basis of the air-dried samples. For high-level water samples, direct injection method is used. For low-level water samples, salting out method is used. All of the extracts are diluted by a factor of two prior to analysis according to method 8330. The extracts are diluted in order to be the same consistency as the Mobile Phase.

"P" flags were used when the appropriate compound with sufficient response exceeded 40% deviation, possibly due to interference in the quantitation or confirmation columns.

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

CASE SUMMARY:

Blanks: No problems

Surrogate(s): No problems

Matrix Spikes: Some of the analytes were out of the QC limits in MS and MSD. Possibly due to high concentration of the detected analytes in the sample that MS and MSD were designated or samples' matrices these analytes were out of the QC limits. The analytes that were out of the QC limits in the MS and MSD, they were within the QC limits in the LD0521SA.

Laboratory Control Spikes: 26DNT was slightly out of the QC limits in the LC0521SA. The analyte was within the QC limits in the LD0521SA. 26DNT was not detected in the associated samples.

The retention times window is established based on the initial continuing calibration standards. Sometimes this window is very narrow which slight effect of the sample' matrices contribute broadening of the peak shapes and falling of analytes out of the retention times window.

Due to peak broadening some of the analytes were slightly out of the retention times window in the some of the samples of the above SDG.

RDX was out of the retention times window by .01 minute in the quantitational analysis of the sample BIOS06108032. The analyte was within the retention times window in the confirmational analysis.

Due to samples' matrices some of the analytes slightly exceeded QC limits in the MS and MSD.

Enviroquant software was utilized to process the above samples. The Response Factor in the standard is calculated by dividing the area of each analyte by the concentration of the respective analyte.

Multiplier = (final volume / extracted amount) * dilution.

The following is an example of the calculations for RDX in the quantitation and confirmation of the sample BIOS06108031:

[Sample's response (area) / mean calibration factor] * Multiplier

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

= the concentration

(255541296/ 408736) * 10 = 6252 ug/Kg

(67428967/ 141253) * 10 = 4774 ug/Kg

The explosives referred to in the data package by the abbreviations found in method 8330 are as follows: HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine), RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine), TNB (1,3,5-Trinitrobenzene), DNB (1,3-Dinitrobenzene), Tetryl (Methyl-2,4,6-trinitrophenylnitramine), NB (Nitrobenzene), TNT (2,4,6- Trinitrotoluene), 24DNT (2,4-Dinitrotoluene), 26DNT (2,6-Dinitrotoluene), 2NT (o-Nitrotoluene), 3NT m-Nitrotoluene), 4NT (p-Nitrotoluene) , PETN (Pentaerythritol tetranitrate), 2ADNT (2-Amino-4,6-dinitrotoluene), 4ADNT (4-Amino-2,6-dinitrotoluene).

We use the following flags where appropriate. "J" - indicates a uantitated result, which is below the quantitation limit, but above ne detection limit and has been confirmed by the second column. "E"- indicates an out of range value, i.e., a peak that is off-scale or out of the linear calibration range of the detector. The value reported is not to be used. The sample must be diluted and re-run. "D" - indicates a value derived from a secondary dilution. "U" - indicates the compound that is undetected above the quantitation limit. "X" - indicates a comment that is explained in the case narrative.

Shahriar Shahreza
LC Supervisor

2F
SOIL EXPLOSIVES SURROGATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

LC Column(1): CARBOSORB

	CLIENT SAMPLE NO.	S1 1 %REC #	TOT OUT
01	BL0521SA	110	0
02	BIOS06108032	108	0
03	BIOS06108033	92	0
04	BIOS06108051	94	0
05	BIOS06108052	102	0
06	BIOS06108053	131	0
07	BIOS06108071	73	0
08	BIOS06108072	83	0
09	BIOS06108073	82	0
10	BIOS06108091	81	0
11	LC0521SA	91	0
12	LD0521SA	93	0
13	BIOS06108031	73	0
14	BIOS06108031MS	77	0
15	BIOS06108031MSD	68	0
16	BIOS06108091FD	90	0
17	BIOS06108092	86	0
18	BIOS06108093	76	0
19	BIOS06108111	84	0
20	BIOS06108112	82	0
21	BIOS06108113	73	0
22	BIOS06108031DL	90	0
23	BIOS06108071DL	77	0
24			
25			
26			
27			
28			
29			
30			

S1 = 3,4-DNT

QC LIMITS
(60-140)

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

FORM II

3H

SOIL EXPLOSIVES LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38614

LCS Sample NO.: LC0521SA

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
HMX	9050	8250	91	57-137
RDX	9050	8330	92	77-113
TNB	9050	7890	87	64-125
DNB	9050	8320	92	82-118
TETRYL	9050	9100	100	23-124
NB	9050	8450	93	69-143
TNT	9050	7180	79	75-118
4ADNT	9050	9060	100	60-140
2ADNT	9050	8130	90	60-140
26DNT	9050	7000	77 *	78-117
24DNT	9050	8560	94	74-126
2NT	9050	7590	84	78-123
4NT	9050	8960	99	79-125
3NT	9050	8610	95	78-121

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 1 out of 14 outside limits

Comments: _____

3H

SOIL EXPLOSIVES LABORATORY CONTROL SPIKE RECOVERY

ab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38614

LCS Sample NO.: LD0521SA

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
HMX	9050	8480	94	57-137
RDX	9050	8580	95	77-113
TNB	9050	7950	88	64-125
DNB	9050	8470	94	82-118
TETRYL	9050	8640	96	23-124
NB	9050	8640	95	69-143
TNT	9050	7390	82	75-118
4ADNT	9050	9220	102	60-140
2ADNT	9050	8290	92	60-140
26DNT	9050	7200	80	78-117
24DNT	9050	8780	97	74-126
2NT	9050	7700	85	78-123
4NT	9050	8840	98	79-125
3NT	9050	8620	95	78-121

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 0 out of 14 outside limits

Comments: _____

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix Spike - Client Sample NO.: BIOS06108031

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
HMX	9500	0	8350	88	54-128
RDX	9500	6250	13000	71	66-109
TNB	9500	0	7870	83	57-130
DNB	9500	0	9190	97	74-122
TETRYL	9500	0	6530	69	32-119
NB	9500	0	8630	91	70-135
TNT	9500	28200	9930	0*	44-124
4ADNT	9500	485	8660	86	60-140
2ADNT	9500	662	8820	86	60-140
26DNT	9500	0	8470	89	58-125
24DNT	9500	0	8390	88	59-120
2NT	9500	0	7430	78*	79-124
4NT	9500	0	7870	83	74-128
3NT	9500	0	7950	84	79-121

FORM III

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix Spike - Client Sample NO.: BIOS06108031

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	9500	8390	88	0	30	54-128
RDX	9500	12100	61 *	7	30	66-109
TNB	9500	8150	86	3	30	57-130
DNB	9500	9250	97	1	45	74-122
TETRYL	9500	6930	73	6	30	32-119
NB	9500	8630	91	0	35	70-135
TNT	9500	14600	0 *	38 *	30	44-124
4ADNT	9500	8790	87	2	40	60-140
2ADNT	9500	9370	92	6	40	60-140
26DNT	9500	8390	88	1	35	58-125
24DNT	9500	8740	92	4	35	59-120
2NT	9500	7620	80	2	35	79-124
4NT	9500	8010	84	2	35	74-128
3NT	9500	8410	88	6	35	79-121

Column to be used to flag recovery values

Values outside of QC limits

RPD: 1 out of 14 outside limits
Spike Recovery: 4 out of 28 outside limits

Comments: _____

FORM III

4C

EXPLOSIVES METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

BL0521SA

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Lab Sample ID : BL0521SA Lab File ID : 1_052208

Matrix: (soil/water) SOIL

Date Extracted : 05/21/99 Extraction Method : SONC

Date Analyzed (1): 05/23/99 Date Analyzed (2): 05/23/99

Time Analyzed (1): 0149 Time Analyzed (2): 0334

Instrument ID (1): LC1 Instrument ID (2): LC5

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

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	BIOS06108032	38614.04	05/23/99	05/23/99
02	BIOS06108033	38614.05	05/23/99	05/23/99
03	BIOS06108051	38614.06	05/23/99	05/23/99
04	BIOS06108052	38614.07	05/23/99	05/23/99
05	BIOS06108053	38614.08	05/23/99	05/23/99
06	BIOS06108071	38614.09	05/23/99	05/24/99
07	BIOS06108072	38614.10	05/23/99	05/23/99
08	BIOS06108073	38614.11	05/23/99	
09	BIOS06108091	38614.12	05/23/99	05/23/99
10	LC0521SA	LC0521SA	05/27/99	
11	LD0521SA	LD0521SA	05/27/99	
12	BIOS06108031	38614.01	05/25/99	05/23/99
13	BIOS06108031MS	38614.02MS	05/25/99	
14	BIOS06108031MSD	38614.03MSD	05/25/99	
15	BIOS06108091FD	38614.13	05/25/99	05/23/99
16	BIOS06108092	38614.14	05/25/99	05/23/99
17	BIOS06108093	38614.15	05/25/99	05/23/99
18	BIOS06108111	38614.16	05/25/99	05/23/99
19	BIOS06108112	38614.17	05/25/99	05/23/99
20	BIOS06108113	38614.18	05/25/99	05/23/99
21	BIOS06108031DL	38614.01DL	05/27/99	05/23/99
22	BIOS06108071DL	38614.09DL	05/27/99	05/24/99
23				
24				
25				
26				

Comments:

FORM IV

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108031

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.01

Sample Amt: 2.0 G % Moisture: 11.1 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/25/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	6250	
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	28200	E
1946-51-0	4ADNT	485	P
35572-78-2	2ADNT	662	
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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052408.D Vial: 8
Acq On : 25 May 1999 02:51 Operator: SM
Sample : 38614.01 Inst : LC3
Misc : BIOS06108031 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 11:00 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	18.46W	86778537	1467.3	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	8.97W	255541296	6252.0	m	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	19.13W	2808709744	28174.3	mE	A
9) 4ADNT	19.96	32005540	484.9	m	A
10) 2ADNT	21.32W	59885675	662.0	m	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

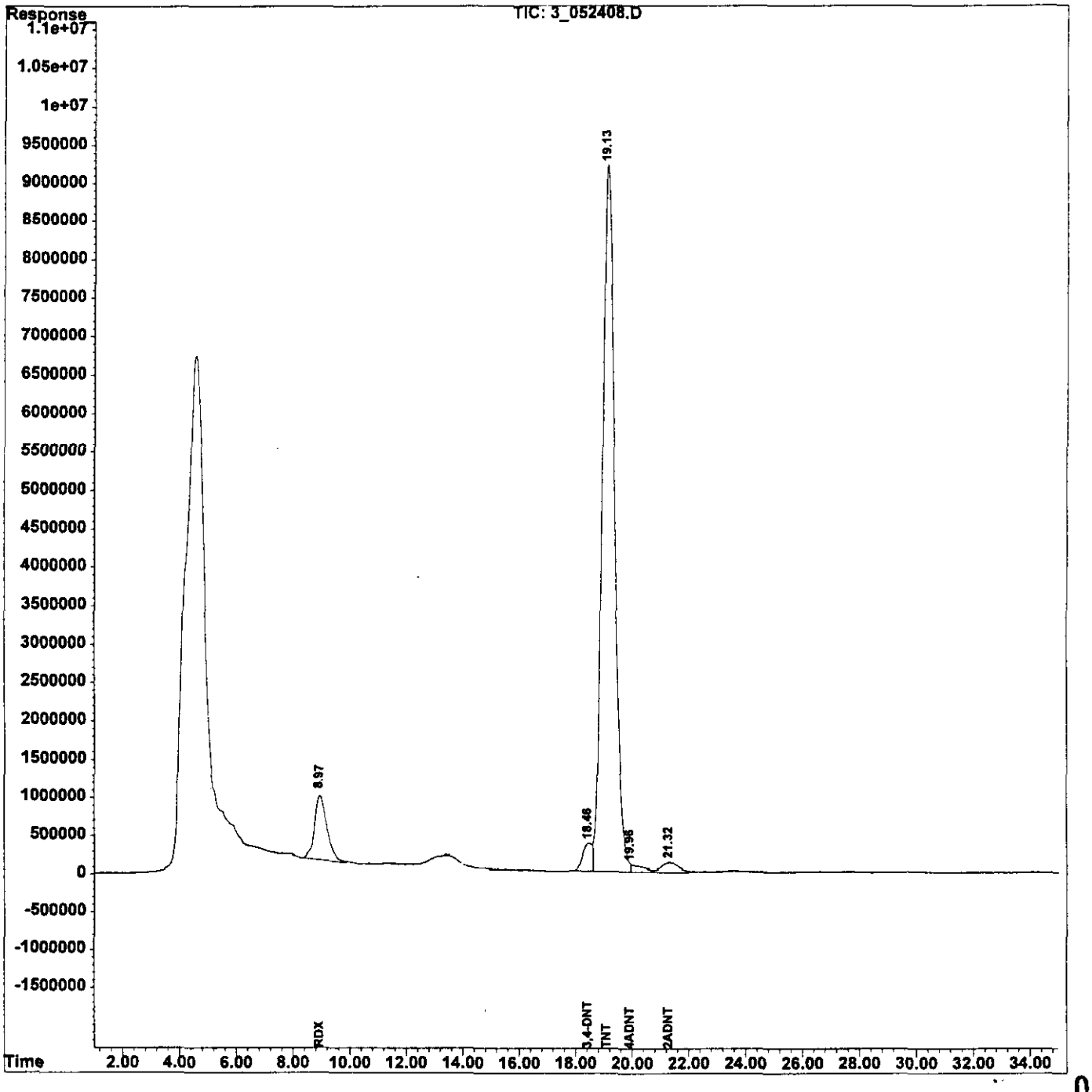
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052408.D Vial: 8
Acq On : 25 May 1999 02:51 Operator: SM
Sample : 38614.01 Inst : LC3
Misc : BIOS06108031 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 11:00 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052215.D Vial: 15
Acq On : 23 May 1999 04:40 Operator: SM
Sample : 38614.01 Inst : LC5
Misc : BIOS06108031 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 9:11 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.82	30262235	1594.1		A
Target Compounds:					
1) A HMX	4.67W	7777248	644.3	mJ	A
2) B RDX	7.17	67428967	4773.6		A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.40	824166620	28367.4	E	A
9) B 4ADNT	14.34	2870500	185.1	mJ	A
10) B 2ADNT	14.61	13881019	427.8	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

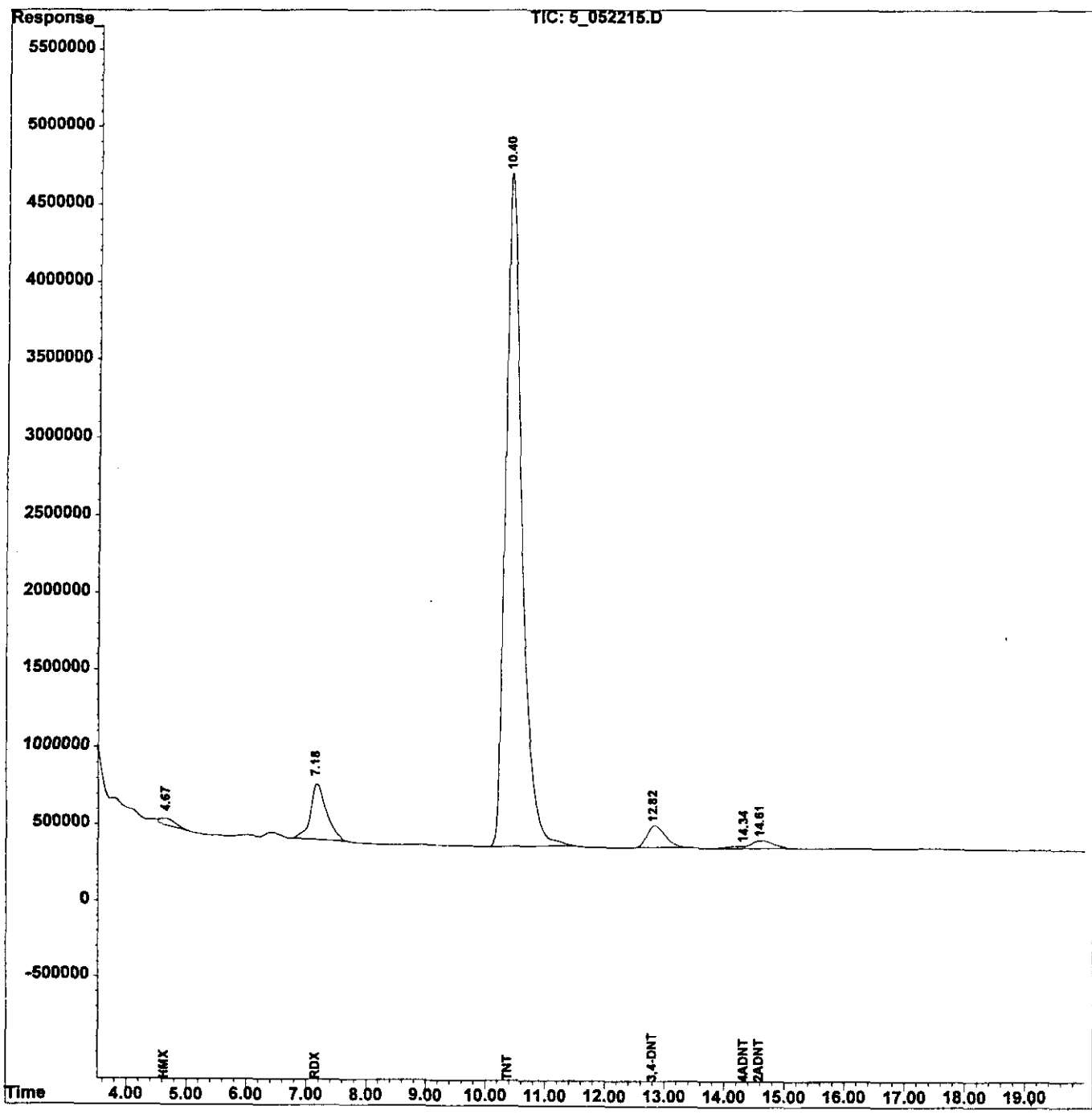
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052215.D Vial: 15
Acq On : 23 May 1999 04:40 Operator: SM
Sample : 38614.01 Inst : LC5
Misc : BIOS06108031 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 9:11 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108031DL

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.01DL

Sample Amt: 2.0 G % Moisture: 11.1 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/27/99

GPC Cleanup: (Y/N) N Dilution Factor: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	8800	U
121-82-4	RDX	1960	DPJ
99-35-4	TNB	1000	U
99-65-0	DNB	1000	U
479-45-8	TETRYL	2600	U
98-95-3	NB	1040	U
118-96-7	TNT	28600	D
1946-51-0	4ADNT	1000	U
35572-78-2	2ADNT	642	DJ
606-20-2	26DNT	1040	U
121-14-2	24DNT	1000	U
88-72-2	2NT	1000	U
99-99-0	4NT	1000	U
99-08-1	3NT	1000	U
Surrogate amount spiked		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0526\3_052621.D Vial: 21
Acq On : 27 May 1999 07:59 Operator: SM
Sample : 38614.01DL Inst : LC3
Misc : BIOS06108031DL Multiplr: 40.0000
IntFile : EVENTS.E
Quant Time: May 27 16:19 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0526\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Thu May 27 14:13:40 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	18.05	26496054	1792.0	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	8.85	20039623	1961.1	m	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	18.76	711572987	28551.3	m	A
9) 4ADNT	0.00	0	N.D.		A
10) 2ADNT	20.66	14506675	641.5	m	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

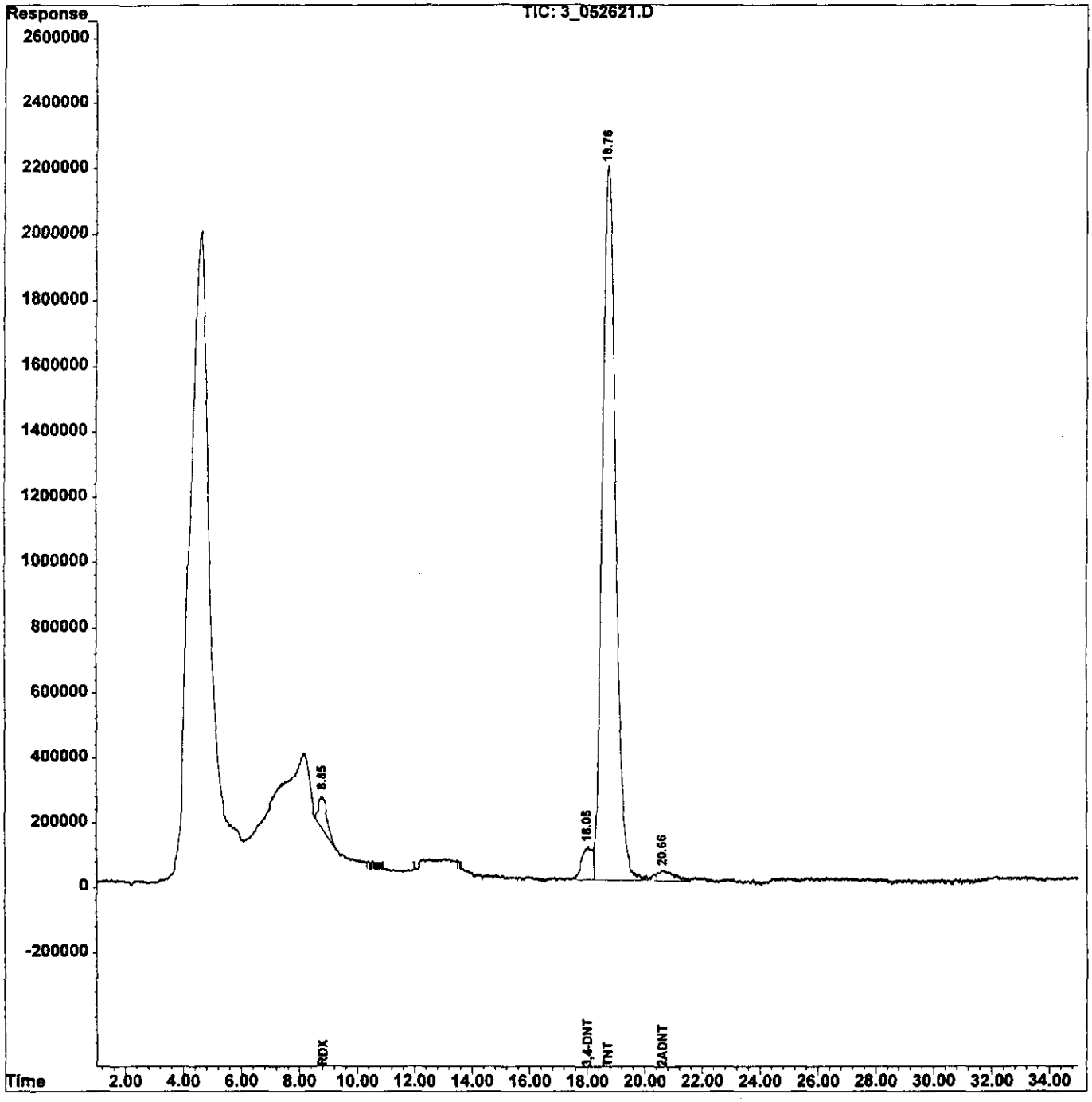
06/07/99

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0526\3_052621.D Vial: 21
Acq On : 27 May 1999 07:59 Operator: SM
Sample : 38614.01DL Inst : LC3
Misc : BIOS06108031DL Multiplr: 40.0000
IntFile : EVENTS.E
Quant Time: May 27 16:19 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0526\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Thu May 27 14:13:40 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



017

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108032

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.04

Sample Amt: 2.2 G % Moisture: 22.6 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/23/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2000	U
121-82-4	RDX	1980	
99-35-4	TNB	227	U
99-65-0	DNB	227	U
479-45-8	TETRYL	591	U
98-95-3	NB	236	U
118-96-7	TNT	227	U
1946-51-0	4ADNT	1030	P
35572-78-2	2ADNT	227	U
606-20-2	26DNT	236	U
121-14-2	24DNT	227	U
88-72-2	2NT	227	U
99-99-0	4NT	227	U
99-08-1	3NT	227	U
Surrogate amount spiked		1818.18	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052215.D Vial: 15
Acq On : 23 May 1999 07:04 Operator: SM
Sample : 38614.04 Inst : LC1
Misc : BIOS06108032 Multiplr: 9.0900
IntFile : EVENTS.E
Quant Time: May 24 12:37 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	14.56	27055484	1964.7	m	A
Target Compounds:					
1) HMX	4.73	6583993	807.7	m	A
2) RDX	7.11W	18950039	1979.2	m *	A
3) TNB	9.73W	3277833	137.1	mJ	A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	0.00	0	N.D.		A
9) 4ADNT	15.74	14837783	1027.7	m *	A
10) 2ADNT	16.56	1315840	58.4	mJ	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

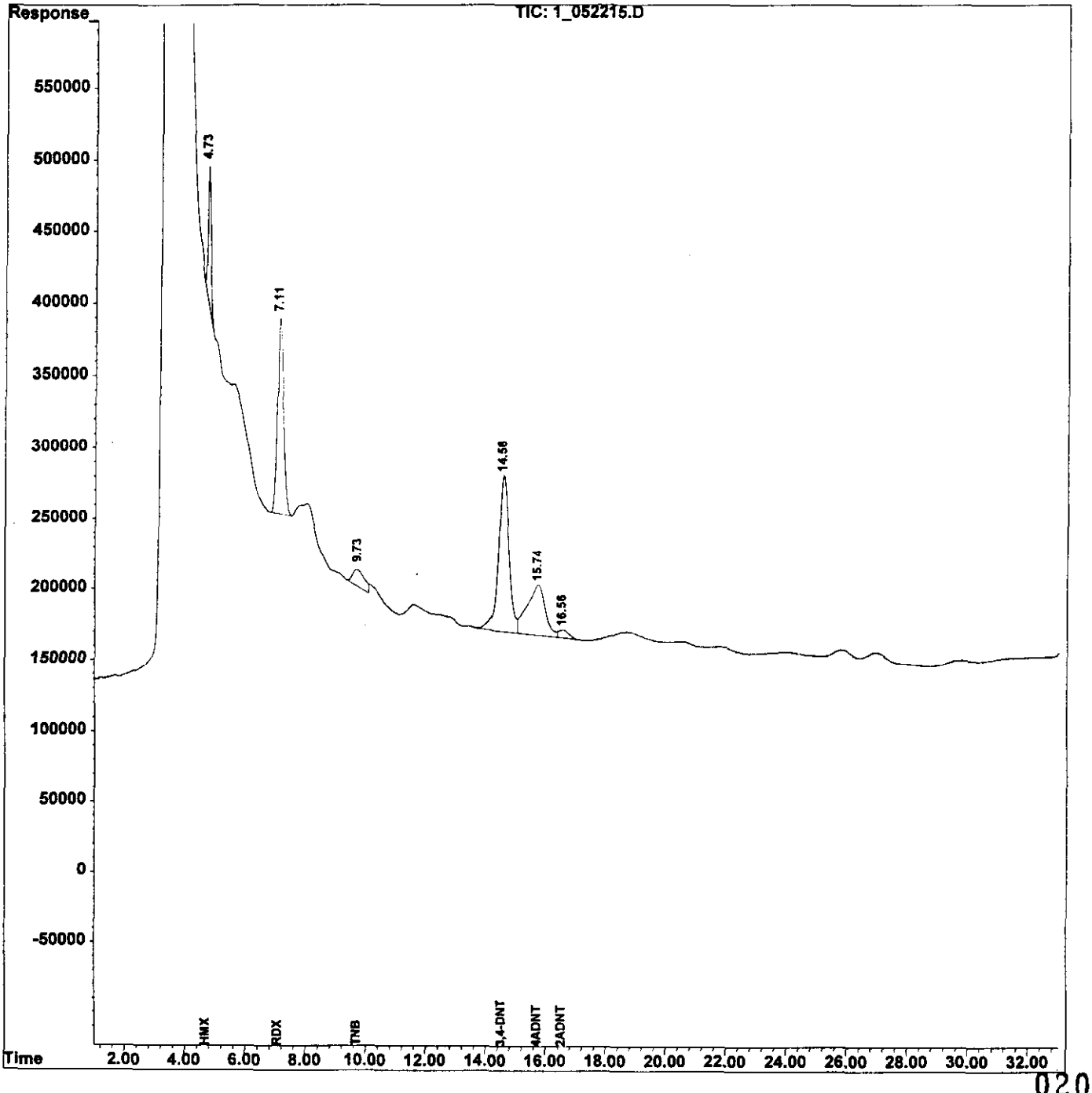
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052215.D Vial: 15
Acq On : 23 May 1999 07:04 Operator: SM
Sample : 38614.04 Inst : LC1
Misc : BIOS06108032 Multiplr: 9.0900
IntFile : EVENTS.E
Quant Time: May 24 12:37 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052216.D Vial: 16
Acq On : 23 May 1999 05:13 Operator: SM
Sample : 38614.04 Inst : LC5
Misc : BIOS06108032 Multiplr: 9.5200
IntFile : EVENTS.E
Quant Time: May 25 9:14 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.81	34852520	1747.8	m	A
Target Compounds:					
1) A HMX	4.62	7285825	574.6	mJ	A
2) B RDX	7.18	25369221	1709.8		A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	11.17	9034473	404.3	mJ	A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.40	2914175	95.5	mJ	A
9) B 4ADNT	14.15	9315903	572.0	mJ	A
10) B 2ADNT	14.54	2057641	60.4	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

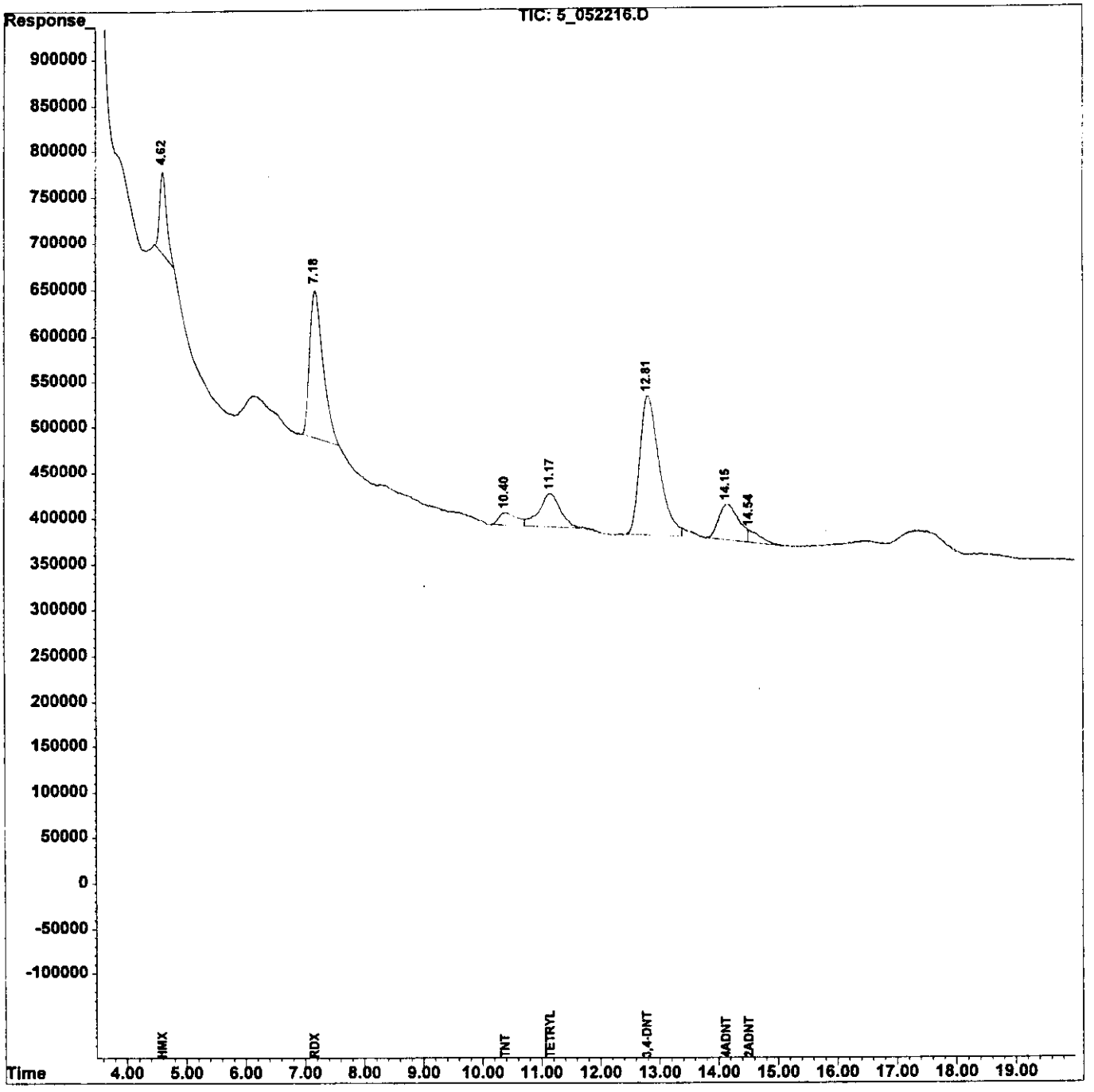
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052216.D Vial: 16
Acq On : 23 May 1999 05:13 Operator: SM
Sample : 38614.04 Inst : LC5
Misc : BIOS06108032 Multiplr: 9.5200
IntFile : EVENTS.E
Quant Time: May 25 9:14 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108033

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.05

Sample Amt: 2.2 G % Moisture: 25.49 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/23/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2000	U
121-82-4	RDX	3760	
99-35-4	TNB	227	U
99-65-0	DNB	227	U
479-45-8	TETRYL	591	U
98-95-3	NB	236	U
118-96-7	TNT	549	
1946-51-0	4ADNT	265	
35572-78-2	2ADNT	227	U
606-20-2	26DNT	236	U
121-14-2	24DNT	227	U
88-72-2	2NT	227	U
99-99-0	4NT	227	U
99-08-1	3NT	227	U
Surrogate amount spiked		1818.18	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052217.D Vial: 17
Acq On : 23 May 1999 08:34 Operator: SM
Sample : 38614.05 Inst : LC1
Misc : BIOS06108033 Multiplr: 9.0900
IntFile : EVENTS.E
Quant Time: May 24 12:54 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	14.53	22968315	1667.9	m	A
Target Compounds:					
1) HMX	4.73	1797132	220.5	mJ	A
2) RDX	7.09	35963742	3756.2	*	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	15.18	13622720	549.2	m *	A
9) 4ADNT	15.58	3830872	265.3	m *	A
10) 2ADNT	16.49	639812	28.4	mJ	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	21.92W	1293545	91.2	mJ	A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

AW 052455

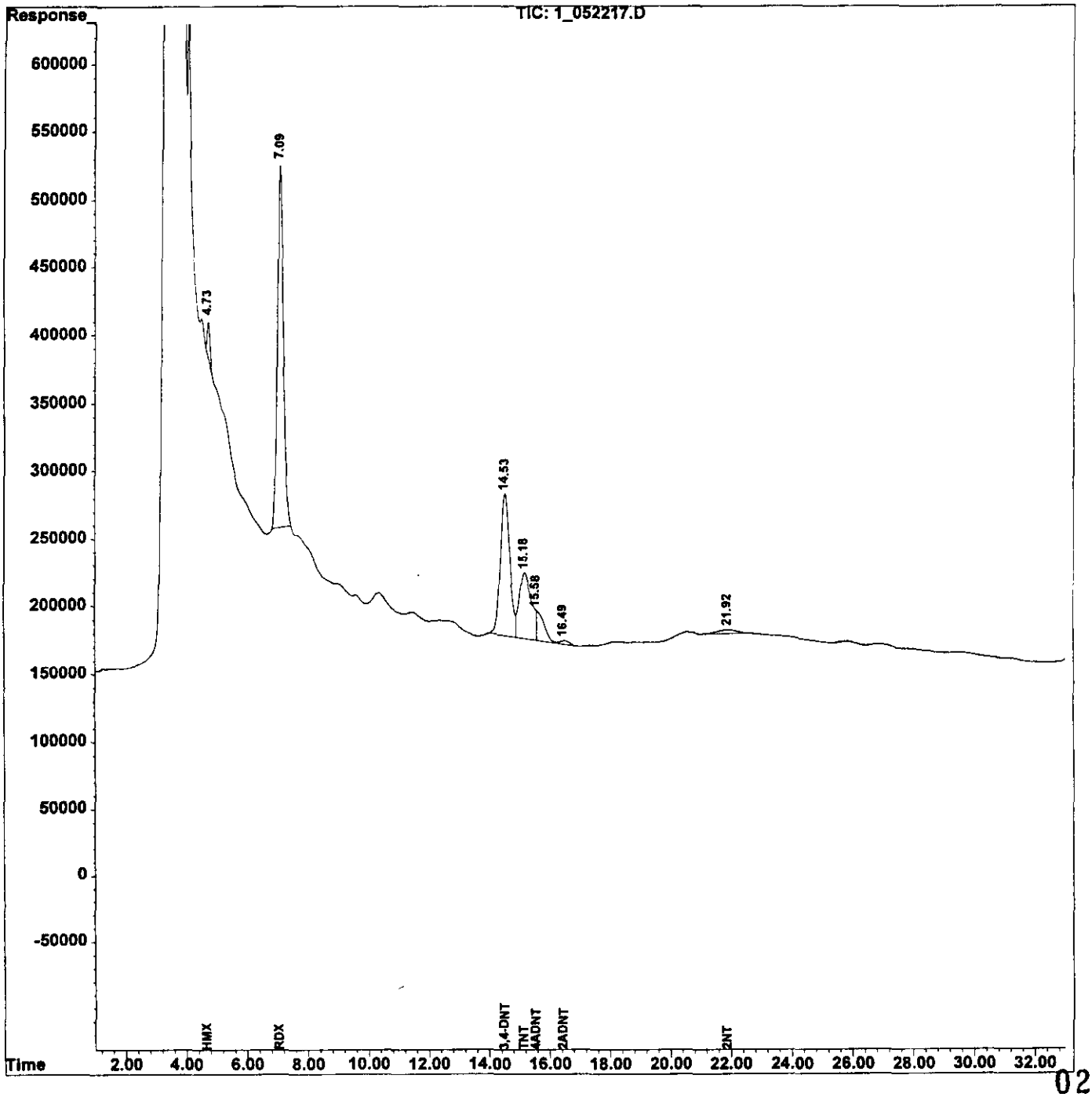
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052217.D Vial: 17
Acq On : 23 May 1999 08:34 Operator: SM
Sample : 38614.05 Inst : LC1
Misc : BIOS06108033 Multiplr: 9.0900
IntFile : EVENTS.E
Quant Time: May 24 12:54 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



025

Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052217.D Vial: 17
Acq On : 23 May 1999 05:45 Operator: SM
Sample : 38614.05 Inst : LC5
Misc : BIOS06108033 Multiplr: 9.0900
IntFile : EVENTS.E
Quant Time: May 25 9:16 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

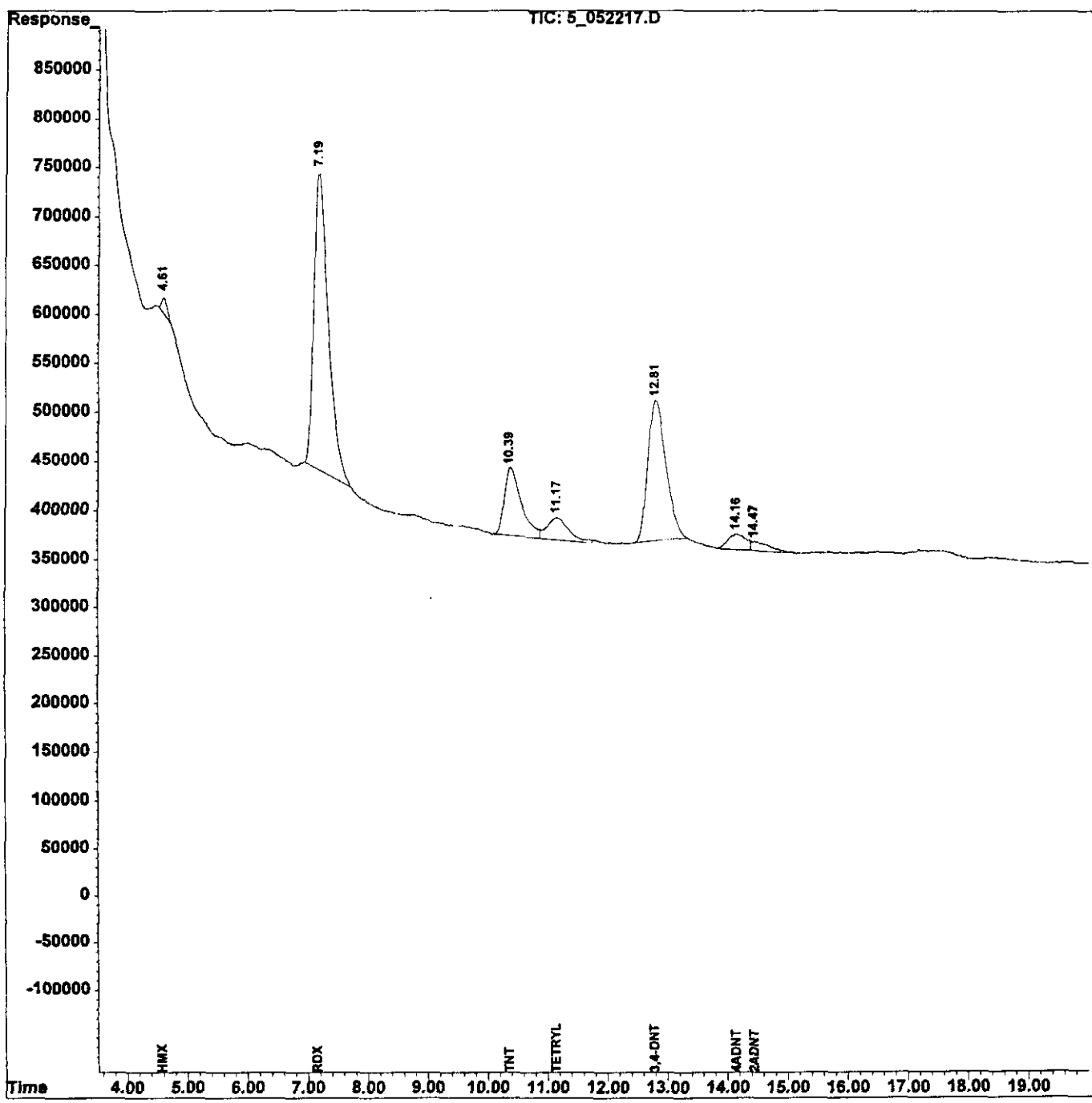
Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.81	29785020	1426.2		A
Target Compounds:					
1) A HMX	4.61	1005555	75.7	mJ	A
2) B RDX	7.18	50438612	3245.9		A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	11.17	5742283	245.4	mJ	A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.39	13559009	424.2	mJ	A
9) B 4ADNT	14.16	3370527	197.6	mJ	A
10) B 2ADNT	14.47	2082543	58.3	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052217.D Vial: 17
Acq On : 23 May 1999 05:45 Operator: SM
Sample : 38614.05 Inst : LC5
Misc : BIOS06108033 Multiplr: 9.0900
IntFile : EVENTS.E
Quant Time: May 25 9:16 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



027

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108051

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.06

Sample Amt: 2.0 G % Moisture: 22 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/23/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	4540	
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	1820	
1946-51-0	4ADNT	250	U
35572-78-2	2ADNT	328	
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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052218.D Vial: 18
Acq On : 23 May 1999 09:19 Operator: SM
Sample : 38614.06 Inst : LC1
Misc : BIOS06108051 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 24 12:59 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	14.59	23650371	1889.3	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.	d	A
2) RDX	7.08	39517654	4540.6	m *	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	15.21	40962773	1816.9	m	A
9) 4ADNT	15.70	2487681	189.5	m	A
10) 2ADNT	16.57W	6713683	327.8	m *	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

05/28/99

05/28/99

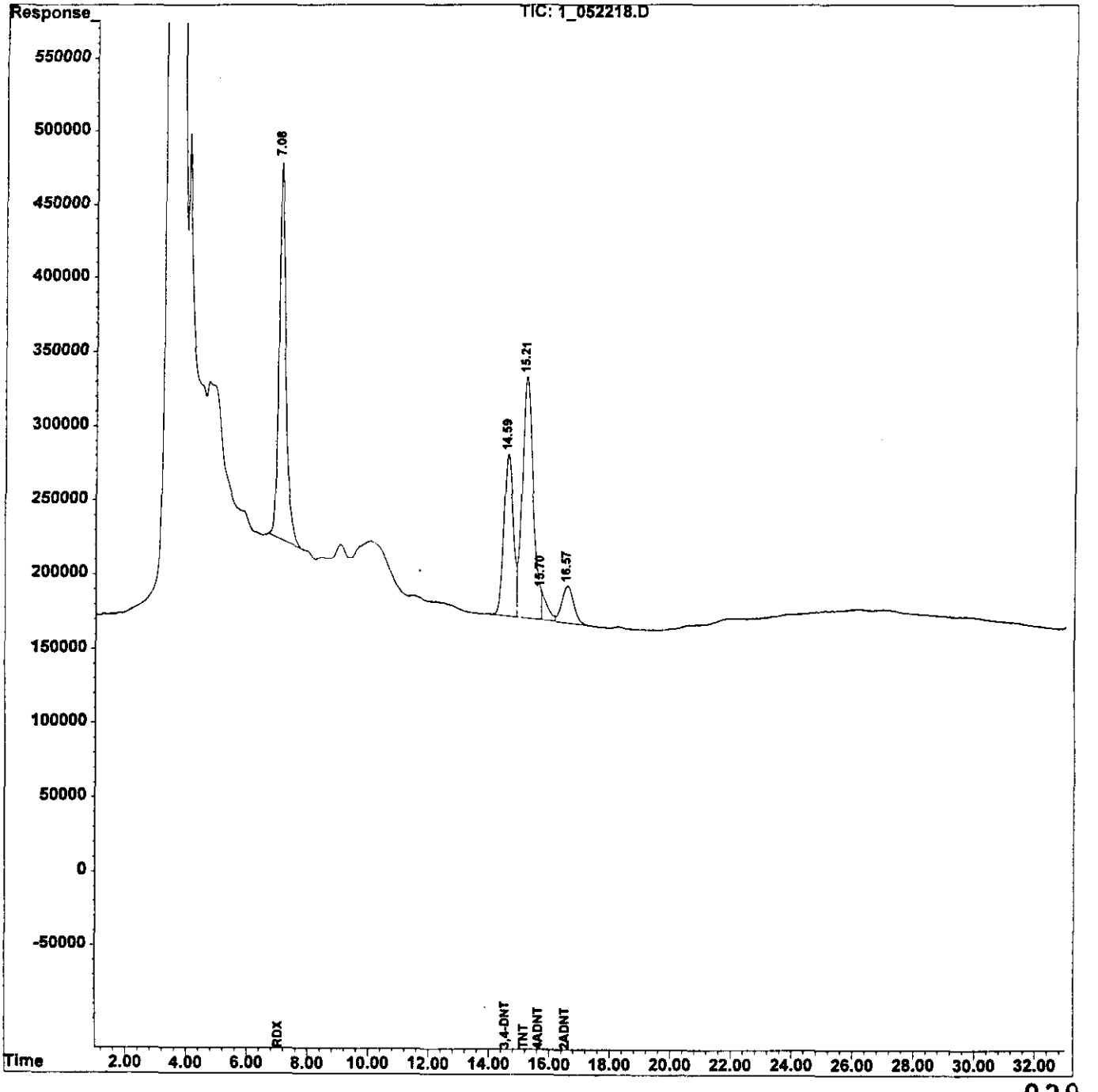
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
1_052218.D 200SE22.M Mon May 24 12:59:27 1999

Chromatographic Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052218.D Vial: 18
Acq On : 23 May 1999 09:19 Operator: SM
Sample : 38614.06 Inst : LC1
Misc : BIOS06108051 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 24 12:59 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052218.D Vial: 18
Acq On : 23 May 1999 06:18 Operator: SM
Sample : 38614.06 Inst : LC5
Misc : BIOS06108051 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 9:18 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.83	31358869	1651.9		A
Target Compounds:					
1) A HMX	0.00	0	N.D.		A
2) B RDX	7.18	48474990	3431.8		A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	11.19	5922664	278.4	mJ	A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.40	50036444	1722.2	m	A
9) B 4ADNT	14.21	1996709	128.8	mJ	A
10) B 2ADNT	14.61	10512582	324.0	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

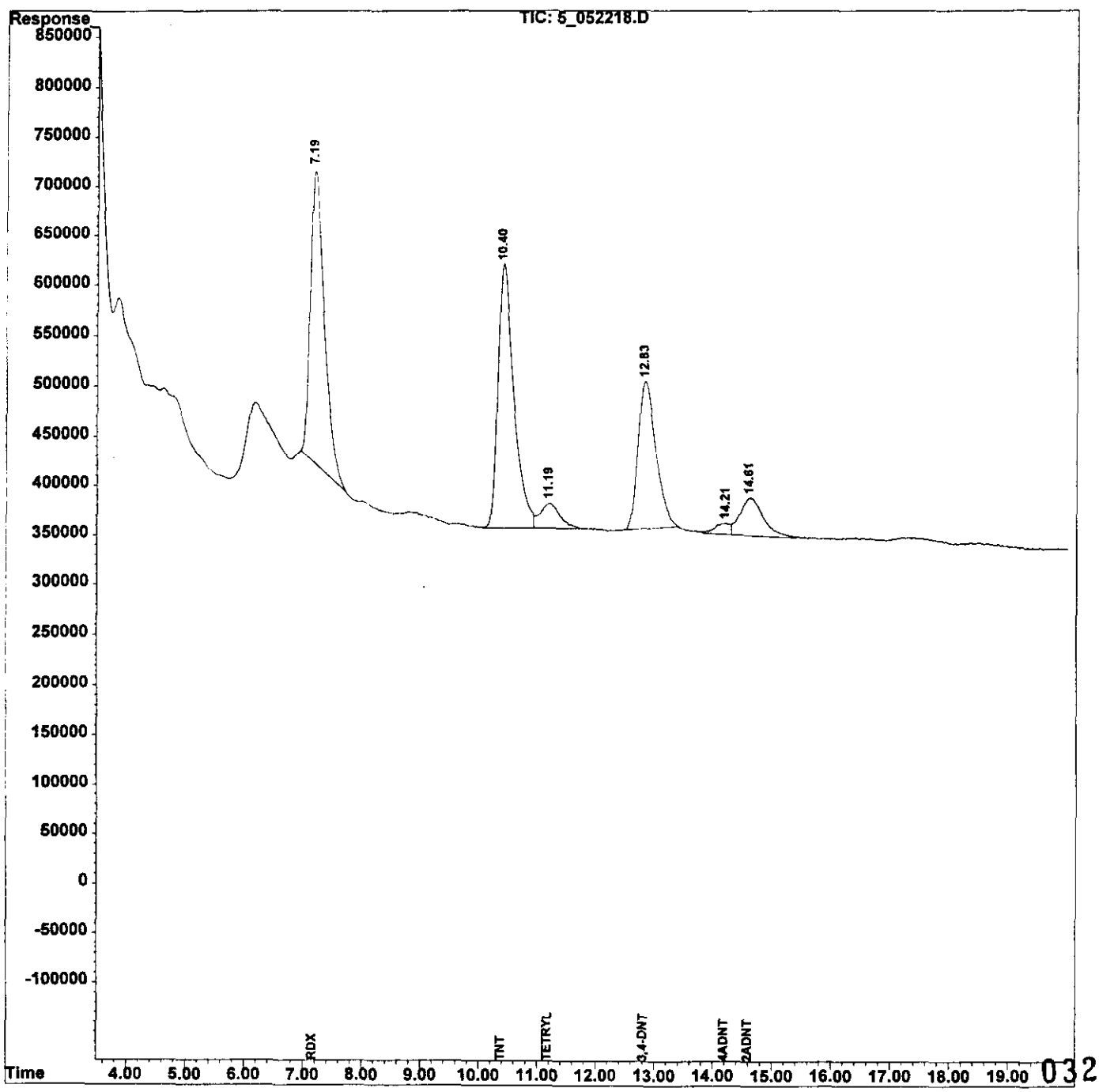
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
5_052218.D 200SE22C.M Tue May 25 09:40:14 1999

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052218.D Vial: 18
Acq On : 23 May 1999 06:18 Operator: SM
Sample : 38614.06 Inst : LC5
Misc : BIOS06108051 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 9:18 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



032

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108052

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.07

Sample Amt: 2.0 G % Moisture: 20.2 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/23/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	8640	
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	3080	
1946-51-0	4ADNT	1080	
35572-78-2	2ADNT	306	
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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052219.D Vial: 19
Acq On : 23 May 1999 10:04 Operator: SM
Sample : 38614.07 Inst : LC1
Misc : BIOS06108052 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 24 13:07 1999 Quant Results File: 200SE22.RES

05/28/99

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

	Compound	R.T.	Response	ug/Kg		Curve
	Surrogates/System Monitoring Compounds:					
7) S	3,4-DNT	14.54	25612529	2046.1	m	A
	Target Compounds:					
1)	HMX	4.72	5090962	687.1	m	A
2)	RDX	7.08	75173957	8637.5	*	A
3)	TNB	0.00	0	N.D.		A
4)	DNB	0.00	0	N.D.		A
5)	TETRYL	0.00	0	N.D.		A
6)	NB	0.00	0	N.D.		A
8)	TNT	15.16	69379290	3077.3	m *	A
9)	4ADNT	15.57	14243599	1085.3	m *	A
10)	2ADNT	16.49	6274339	306.3	m *	A
11)	26DNT	0.00	0	N.D.		A
12)	24DNT	0.00	0	N.D.		A
13)	2NT	0.00	0	N.D.		A
14)	4NT	0.00	0	N.D.		A
15)	3NT	0.00	0	N.D.		A

0524 cfs

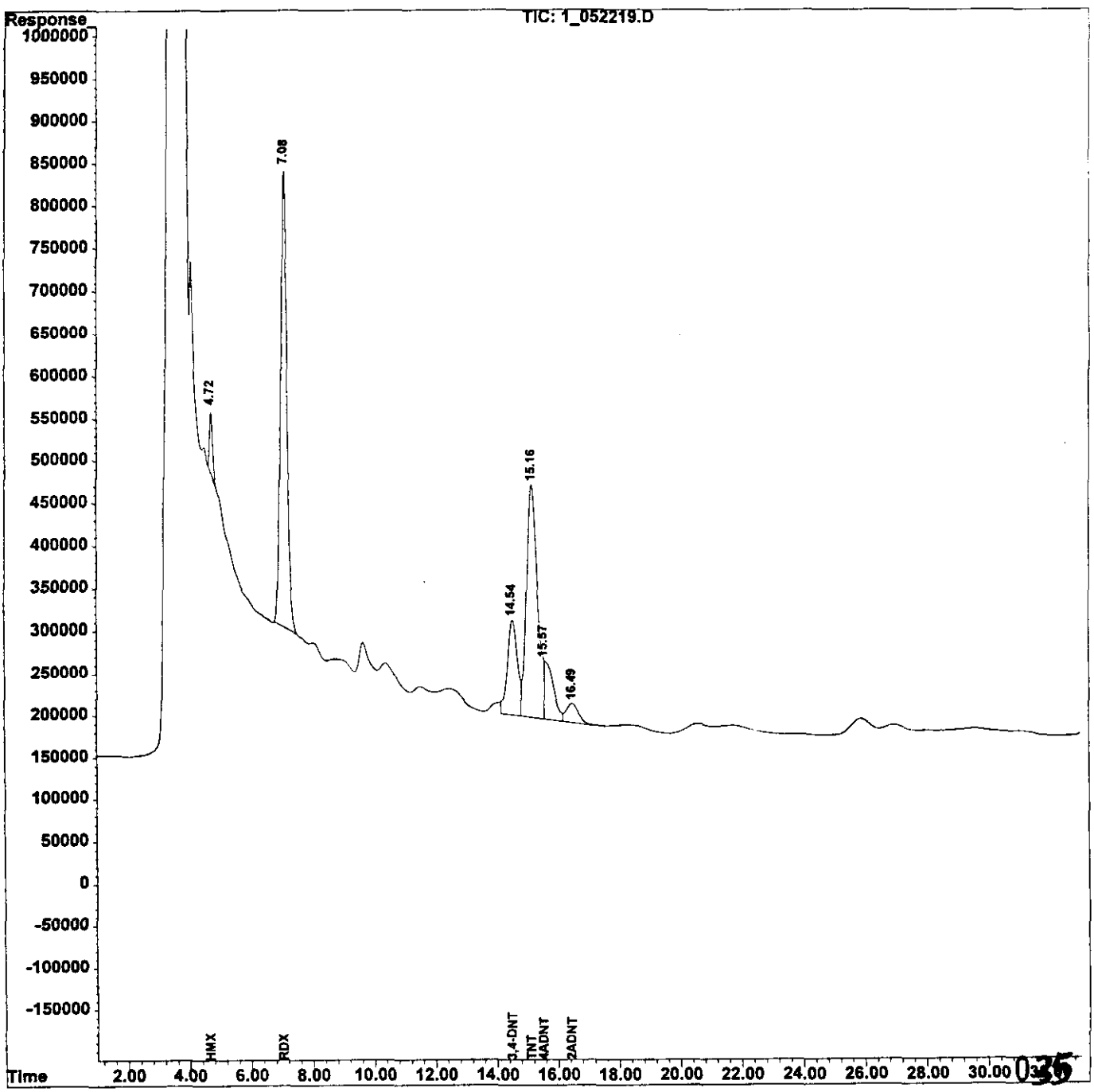
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052219.D Vial: 19
Acq On : 23 May 1999 10:04 Operator: SM
Sample : 38614.07 Inst : LC1
Misc : BIOS06108052 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 24 13:07 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052219.D Vial: 19
Acq On : 23 May 1999 06:51 Operator: SM
Sample : 38614.07 Inst : LC5
Misc : BIOS06108052 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 9:19 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.84	30760249	1620.4		A
Target Compounds:					
1) A HMX	4.62	8647684	716.4	mJ	A
2) B RDX	7.16	113567550	8040.0		A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	11.17	9952489	467.8	mJ	A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.39	86857041	2989.6	m	A
9) B 4ADNT	14.19	12571096	810.8	mJ	A
10) B 2ADNT	14.57	8510662	262.3	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

AW 052599

036

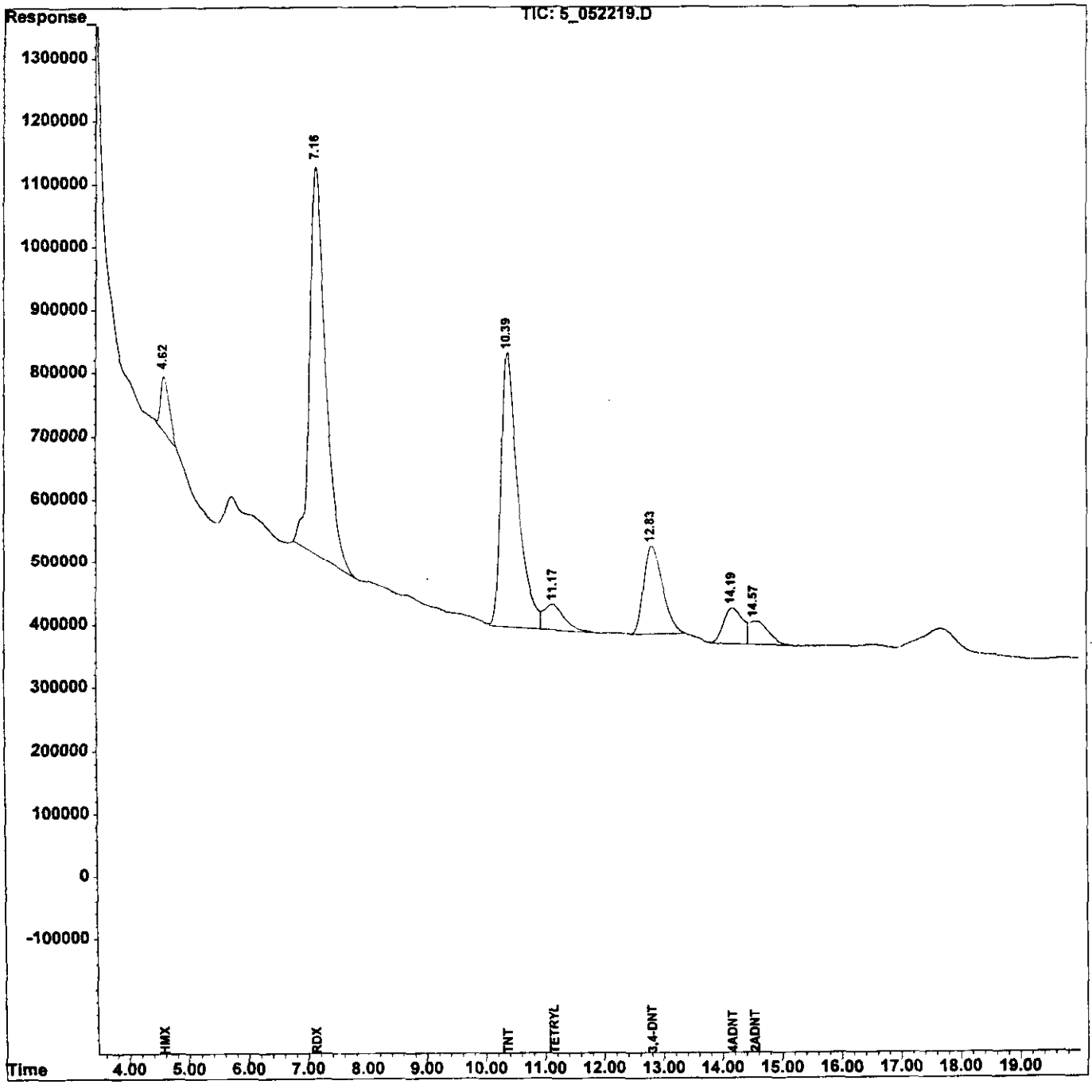
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052219.D Vial: 19
Acq On : 23 May 1999 06:51 Operator: SM
Sample : 38614.07 Inst : LC5
Misc : BIOS06108052 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 9:19 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108053

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.08

Sample Amt: 2.0 G % Moisture: 19.7 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/23/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: 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	999	P
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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052220.D Vial: 20
Acq On : 23 May 1999 10:49 Operator: SM
Sample : 38614.08 Inst : LC1
Misc : BIOS06108053 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 24 13:15 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : ~ F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	14.57	32885506	2627.1	m	A
Target Compounds:					
1) HMX	4.73	2187501	295.2	mJ	A
2) RDX	7.10	5084641	584.2	m	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	0.00	0	N.D.		A
9) 4ADNT	15.60	13110946	999.0	m x P	A
10) 2ADNT	0.00	0	N.D.		A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

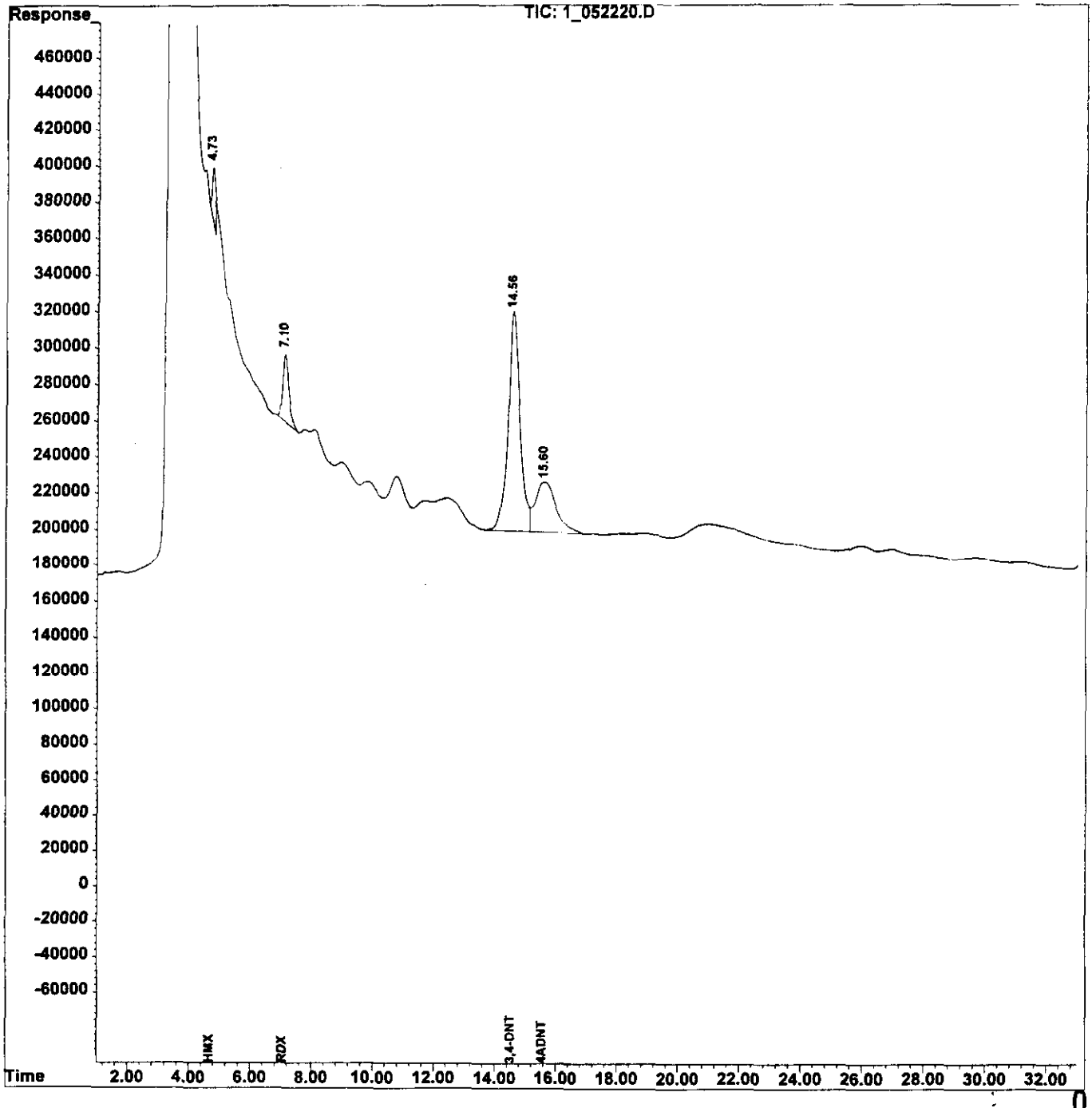
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052220.D Vial: 20
Acq On : 23 May 1999 10:49 Operator: SM
Sample : 38614.08 Inst : LC1
Misc : BIOS06108053 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 24 13:15 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052220.D Vial: 20
Acq On : 23 May 1999 07:23 Operator: SM
Sample : 38614.08 Inst : LC5
Misc : BIOS06108053 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 9:21 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.82	31671670	1668.4	m	A
Target Compounds:					
1) A HMX	0.00	0	N.D.		A
2) B RDX	7.16	13082835	926.2	m	A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	11.17	9832457	462.2	mJ	A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.74W	1677911	57.8	mJ	A
9) B 4ADNT	14.20	2998503	193.4	mJ	A
10) B 2ADNT	14.51	629283	19.4	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

041

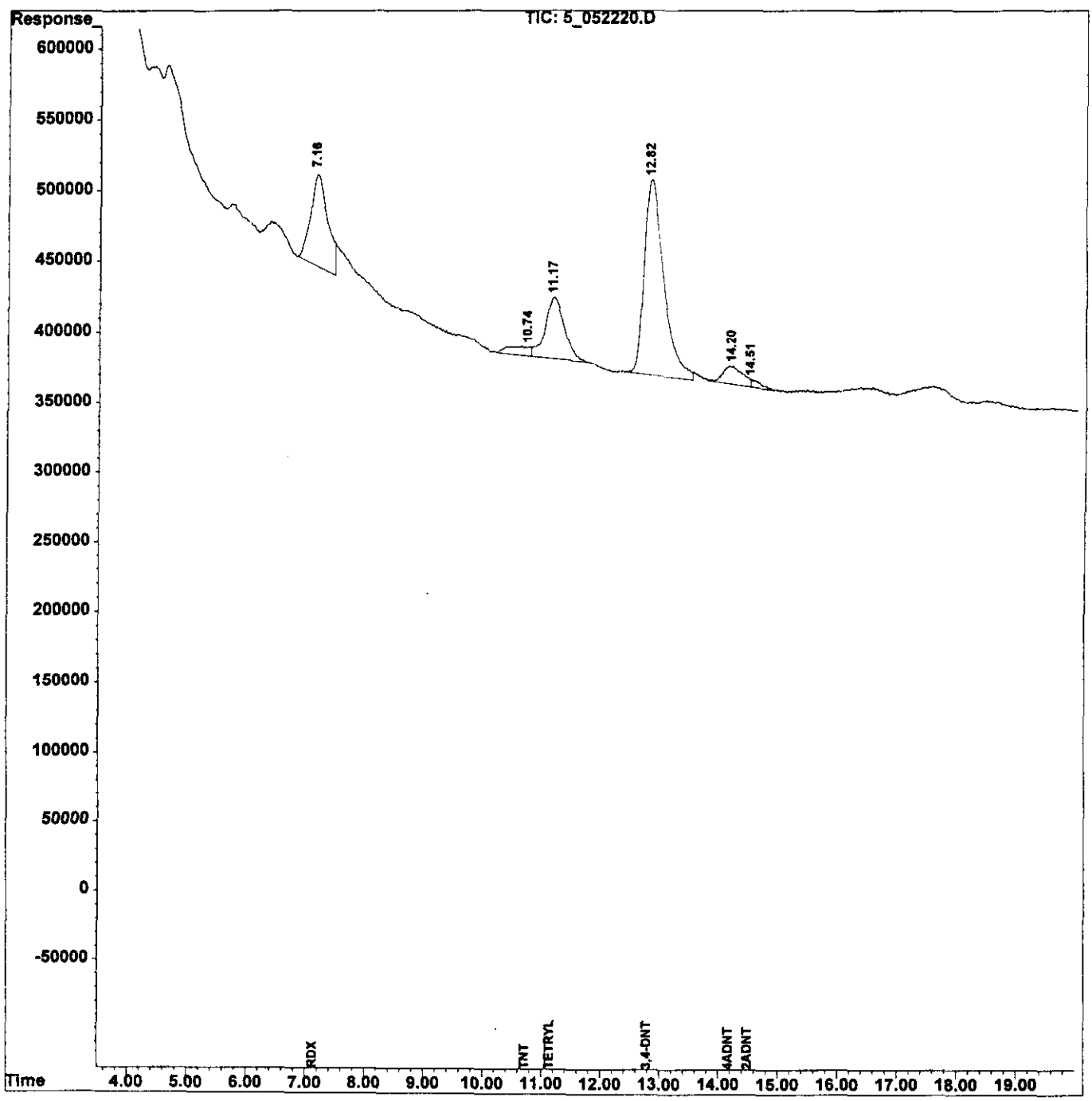
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052220.D Vial: 20
Acq On : 23 May 1999 07:23 Operator: SM
Sample : 38614.08 Inst : LC5
Misc : BIOS06108053 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 9:21 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : ~ F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108071

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.09

Sample Amt: 2.2 G % Moisture: 26.4 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/23/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2000	U
121-82-4	RDX	5410	
99-35-4	TNB	227	U
99-65-0	DNB	227	U
479-45-8	TETRYL	591	U
98-95-3	NB	236	U
118-96-7	TNT	30700	E
1946-51-0	4ADNT	227	U
35572-78-2	2ADNT	227	U
606-20-2	26DNT	236	U
121-14-2	24DNT	227	U
88-72-2	2NT	227	U
99-99-0	4NT	227	U
99-08-1	3NT	227	U
Surrogate amount spiked		1818.18	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052221.D Vial: 21
Acq On : 23 May 1999 11:34 Operator: SM
Sample : 38614.09 Inst : LC1
Misc : BIOS06108071 Multiplr: 9.0900
IntFile : EVENTS.E
Quant Time: May 24 13:17 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	14.51	18316173	1330.1	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	7.07	51756453	5405.7	*	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	15.14	761177275	30689.4	mE *	A
9) 4ADNT	0.00	0	N.D.		A
10) 2ADNT	16.47	1735064	77.0	mJ	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.	d	A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

AW 032545

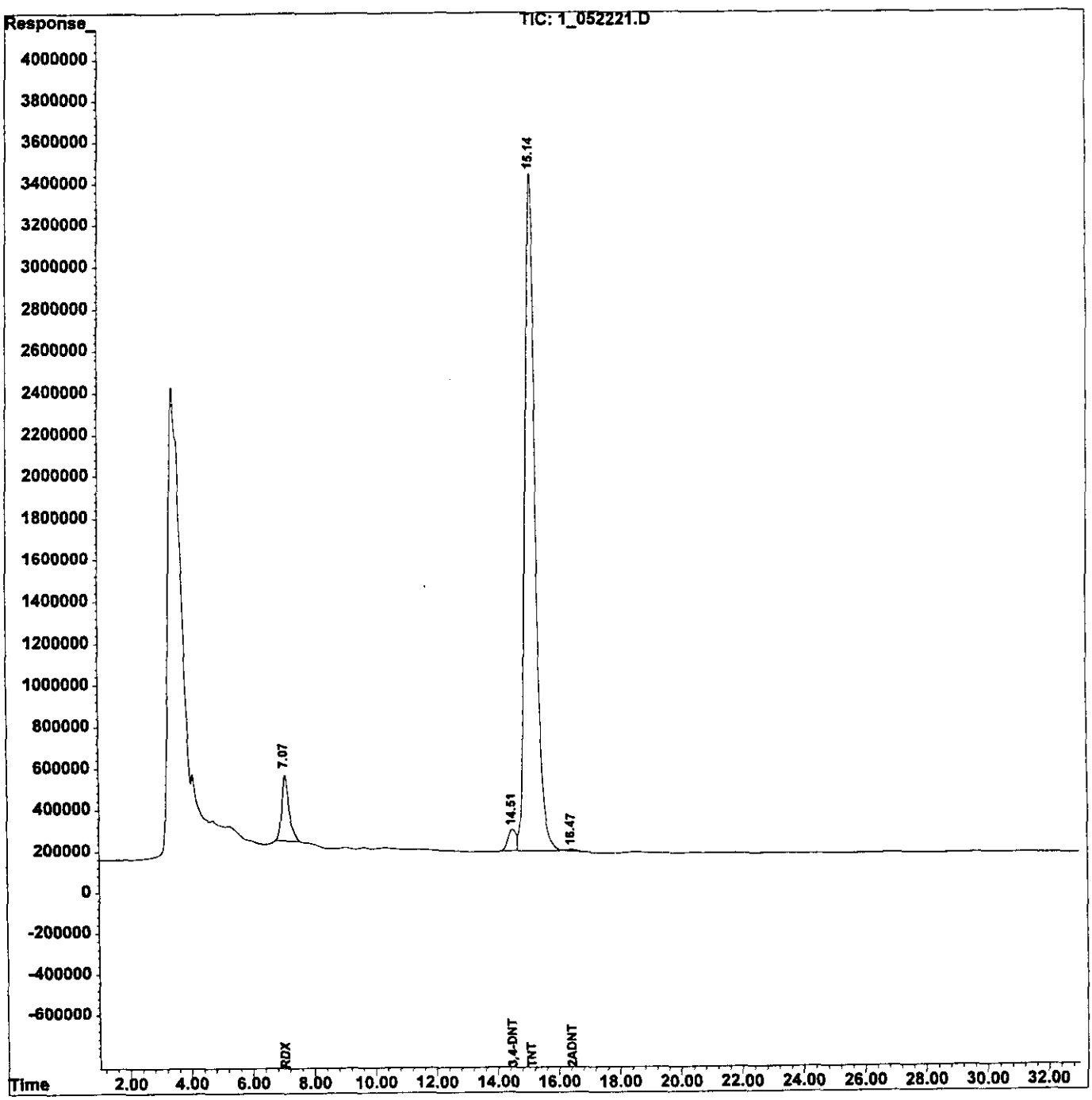
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052221.D Vial: 21
Acq On : 23 May 1999 11:34 Operator: SM
Sample : 38614.09 Inst : LC1
Misc : BIOS06108071 Multiplr: 9.0900
IntFile : EVENTS.E
Quant Time: May 24 13:17 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



045

Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0524\5_052401.D Vial: 1
Acq On : 24 May 1999 16:55 Operator: SM
Sample : 38614.09 Inst : LC5
Misc : BIOS06108071 Multiplr: 9.0909
IntFile : EVENTS.E
Quant Time: May 25 10:35 1999 Quant Results File: 200se22c.RES

Method : f:\hpchem\lc5\data\5_0524\200se22c.m
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Tue May 25 10:29:37 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.85	28410093	1360.5		A
Target Compounds:					
1) A HMX	0.00	0	N.D.		A
2) B RDX	7.21	75026480	4828.6	m	A
3) A TNB	7.00	7412665	221.1	mJ	A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.42	1012123663	31669.8	E	A
9) B 4ADNT	14.19	2317029	135.9	mJ	A
10) B 2ADNT	14.70	4619939	129.4	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

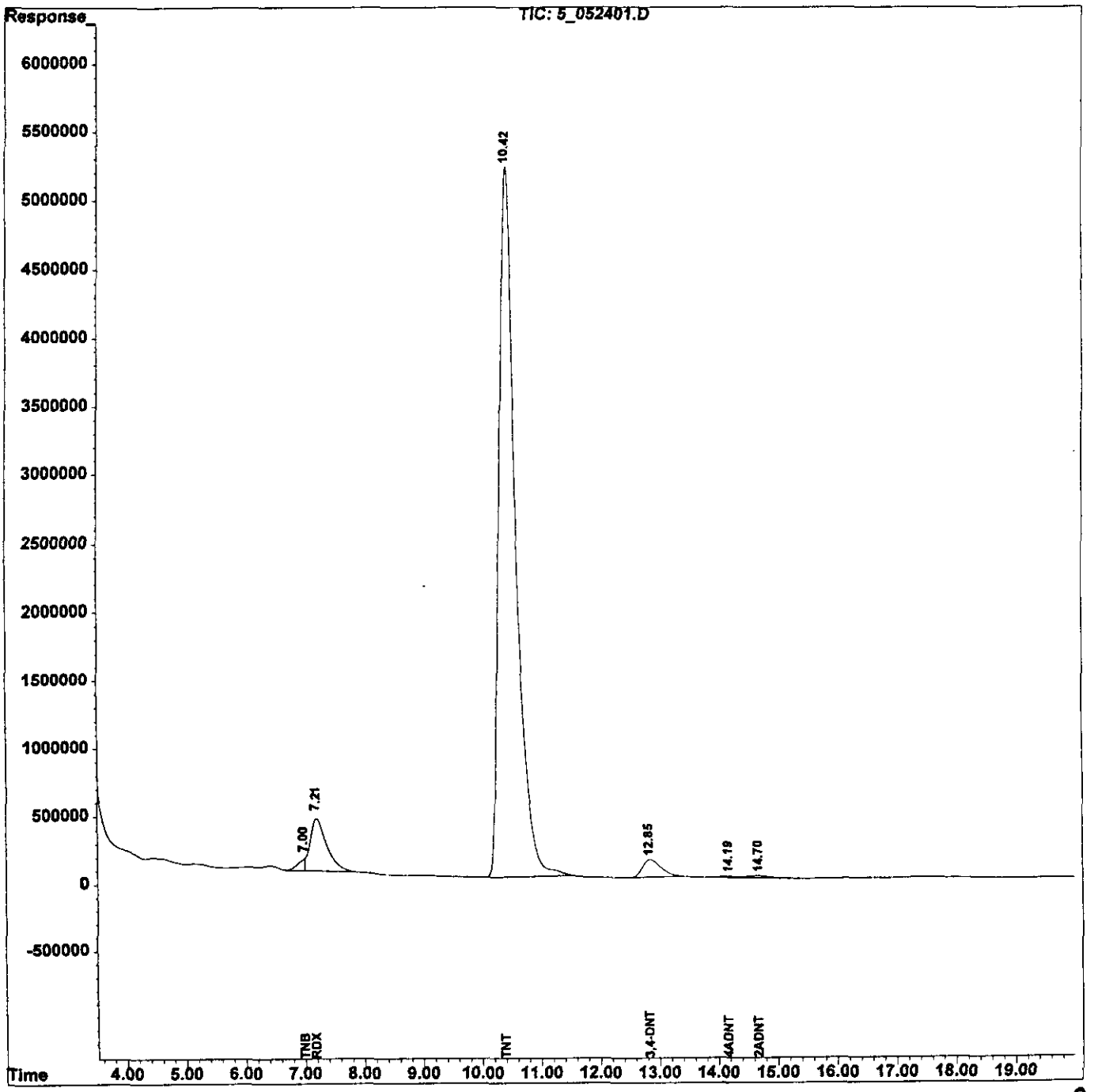
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
5_052401.D 200se22c.m Tue May 25 10:35:59 1999

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0524\5_052401.D Vial: 1
Acq On : 24 May 1999 16:55 Operator: SM
Sample : 38614.09 Inst : LC5
Misc : BIOS06108071 Multiplr: 9.0909
IntFile : EVENTS.E
Quant Time: May 25 10:35 1999 Quant Results File: 200se22c.RES

Method : f:\hpchem\lc5\data\5_0524\200se22c.m
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Tue May 25 10:29:37 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108071DL

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.09DL

Sample Amt: 2.2 G % Moisture: 26.4 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/27/99

GPC Cleanup: (Y/N) N Dilution Factor: 8.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	8000	U
121-82-4	RDX	4100	D
99-35-4	TNB	909	U
99-65-0	DNB	909	U
479-45-8	TETRYL	2360	U
98-95-3	NB	945	U
118-96-7	TNT	31100	D
1946-51-0	4ADNT	909	U
35572-78-2	2ADNT	909	U
606-20-2	26DNT	945	U
121-14-2	24DNT	909	U
88-72-2	2NT	909	U
99-99-0	4NT	909	U
99-08-1	3NT	909	U
Surrogate amount spiked		1818.18	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0526\3_052622.D Vial: 22
Acq On : 27 May 1999 08:43 Operator: SM
Sample : 38614.09DL Inst : LC3
Misc : BIOS06108071DL Multiplr: 36.3636
IntFile : EVENTS.E
Quant Time: May 27 16:27 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0526\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Thu May 27 14:13:40 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	17.99	22773394	1400.2	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	8.77W	46042011	4096.2	m	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	18.74	852993235	31114.2	m	A
9) 4ADNT	0.00	0	N.D.		A
10) 2ADNT	0.00	0	N.D.		A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

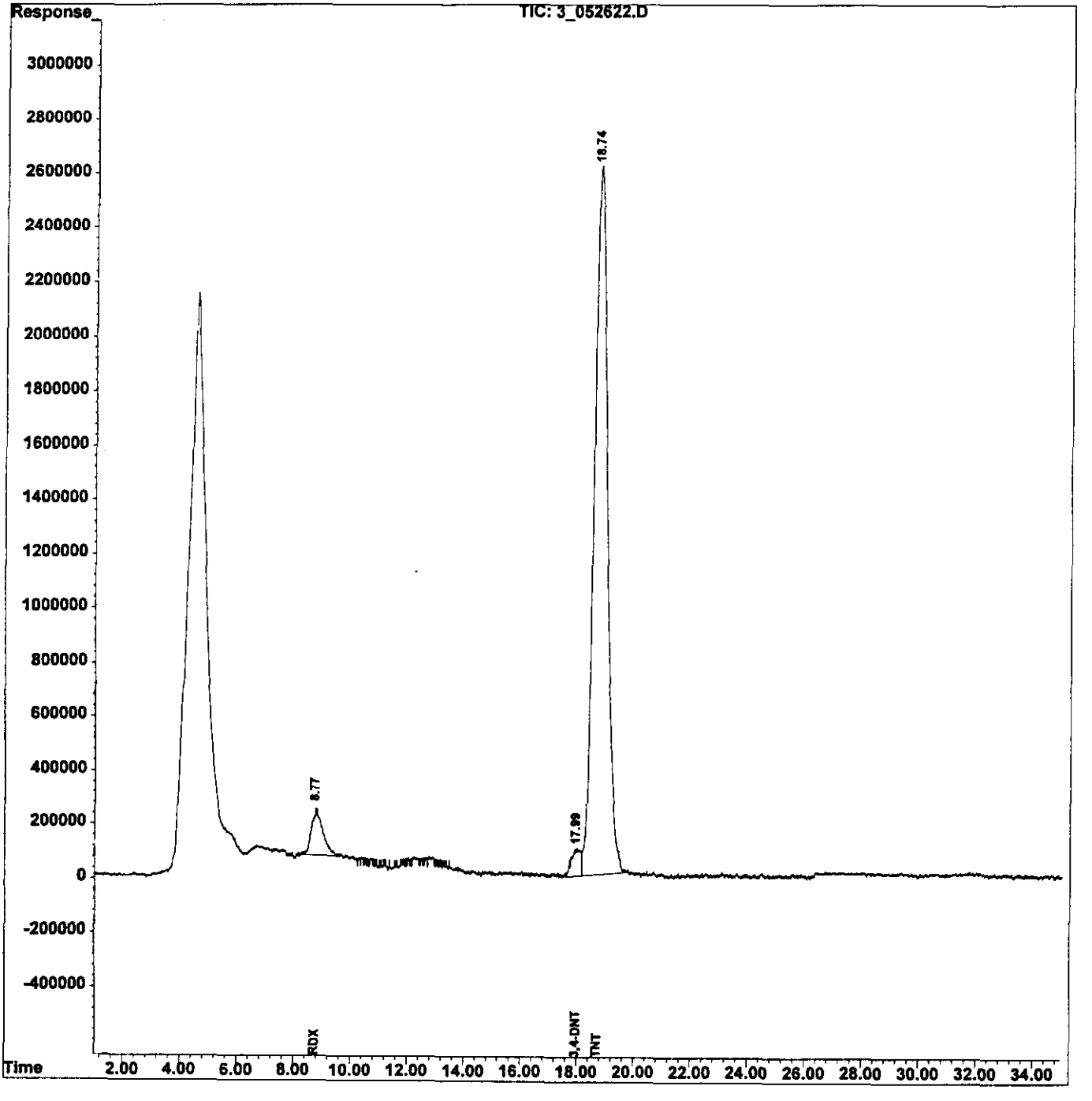
1 collection
06/04/99

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0526\3_052622.D Vial: 22
Acq On : 27 May 1999 08:43 Operator: SM
Sample : 38614.09DL Inst : LC3
Misc : BIOS06108071DL Multiplr: 36.3636
IntFile : EVENTS.E
Quant Time: May 27 16:27 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0526\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Thu May 27 14:13:40 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108072

.ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.10

Sample Amt: 2.1 G % Moisture: 26.9 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/23/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2450	
121-82-4	RDX	12500	
99-35-4	TNB	238	U
99-65-0	DNB	238	U
479-45-8	TETRYL	619	U
98-95-3	NB	248	U
118-96-7	TNT	238	U
1946-51-0	4ADNT	364	
35572-78-2	2ADNT	238	U
606-20-2	26DNT	248	U
121-14-2	24DNT	238	U
88-72-2	2NT	238	U
99-99-0	4NT	238	U
99-08-1	3NT	238	U
Surrogate amount spiked		1904.76	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052222.D Vial: 22
Acq On : 23 May 1999 12:48 Operator: SM
Sample : 38614.10 Inst : LC1
Misc : BIOS06108072 Multiplr: 9.5200
IntFile : EVENTS.E
Quant Time: May 24 13:21 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	14.56	20801261	1582.0	m	A
Target Compounds:					
1) HMX	4.73	19093932	2453.3	*	A
2) RDX	7.10W	114597538	12535.2	m *	A
3) TNB	9.76W	13456359	589.7	m	A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	15.22W	457492	19.3	mJ	A
9) 4ADNT	15.76	5017939	364.0	m *	A
10) 2ADNT	0.00	0	N.D.		A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

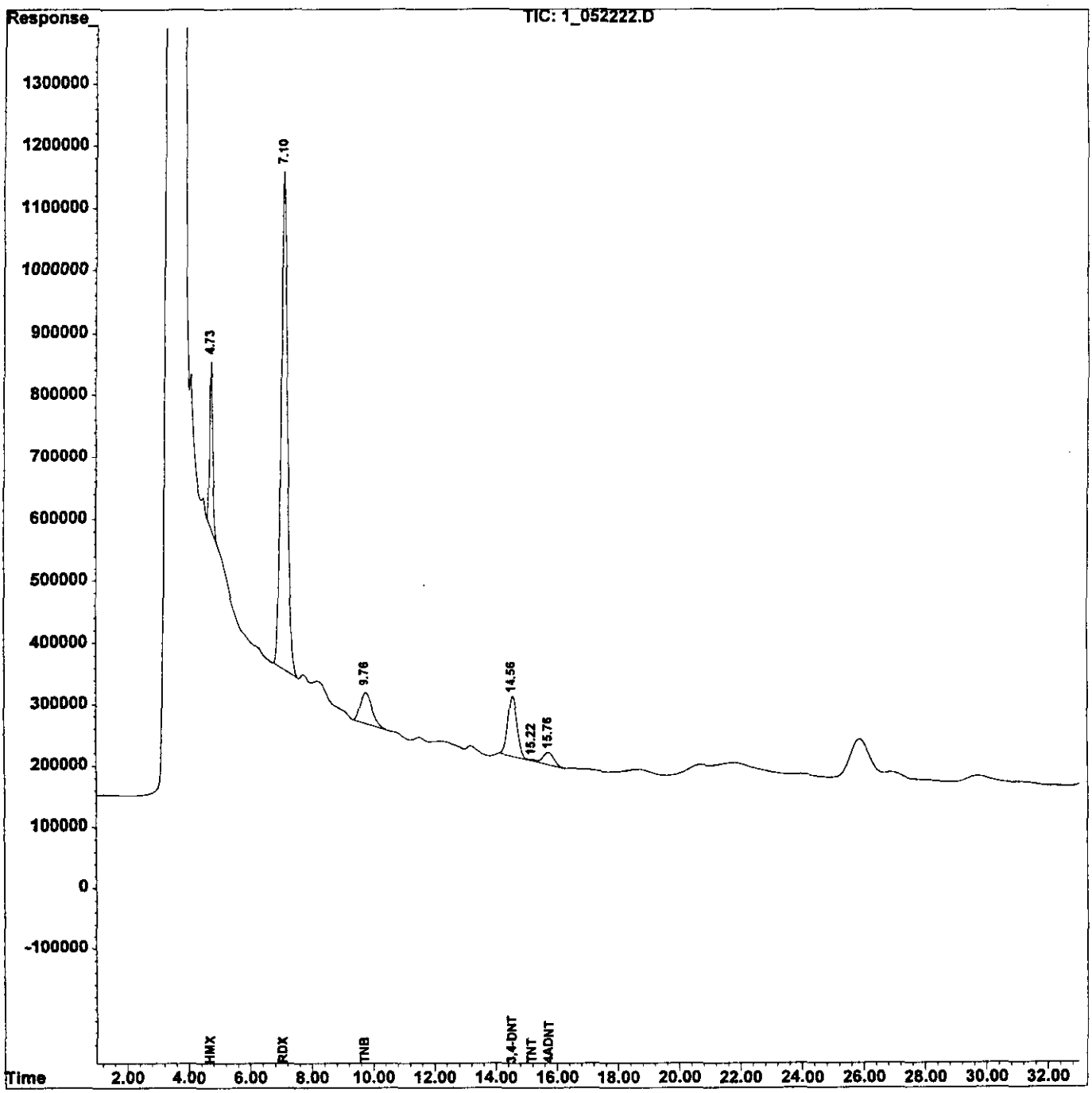
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052222.D Vial: 22
Acq On : 23 May 1999 12:48 Operator: SM
Sample : 38614.10 Inst : LC1
Misc : BIOS06108072 Multiplr: 9.5200
IntFile : EVENTS.E
Quant Time: May 24 13:21 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052224.D Vial: 24
Acq On : 23 May 1999 12:14 Operator: SM
Sample : 38614.10 Inst : LC5
Misc : BIOS06108072 Multiplr: 9.5200
IntFile : EVENTS.E
Quant Time: May 25 9:23 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.80	28948513	1451.7		A
Target Compounds:					
1) A HMX	4.61	33390238	2633.5	m	A
2) B RDX	7.17	159808419	10770.6		A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	10.99	2605239	116.6	mJ	A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.39	2830021	92.7	mJ	A
9) B 4ADNT	14.14	8100745	497.4	mJ	A
10) B 2ADNT	14.48	3052928	89.6	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

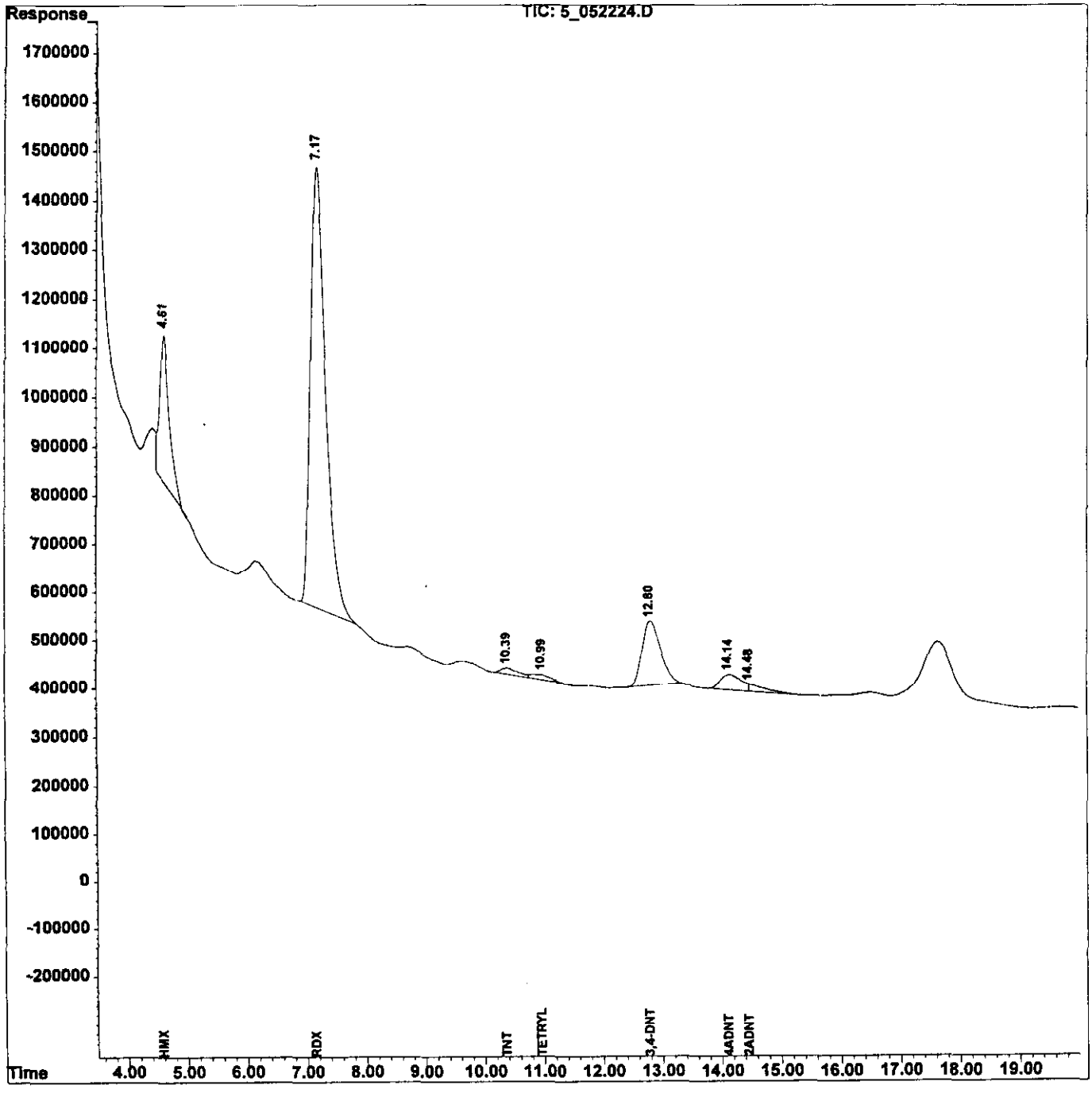
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052224.D Vial: 24
Acq On : 23 May 1999 12:14 Operator: SM
Sample : 38614.10 Inst : LC5
Misc : BIOS06108072 Multiplr: 9.5200
IntFile : EVENTS.E
Quant Time: May 25 9:23 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108073

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.11

Sample Amt: 2.0 G % Moisture: 26.9 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/23/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: 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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052223.D Vial: 23
Acq On : 23 May 1999 13:33 Operator: SM
Sample : 38614.11 Inst : LC1
Misc : BIOS06108073 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 24 13:24 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	14.55	20407517	1630.3	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	7.06	1597313	183.5	m	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	0.00	0	N.D.		A
9) 4ADNT	15.48W	2893541	220.5	m	A
10) 2ADNT	0.00	0	N.D.		A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	21.84	1823914	141.5	mJ	A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

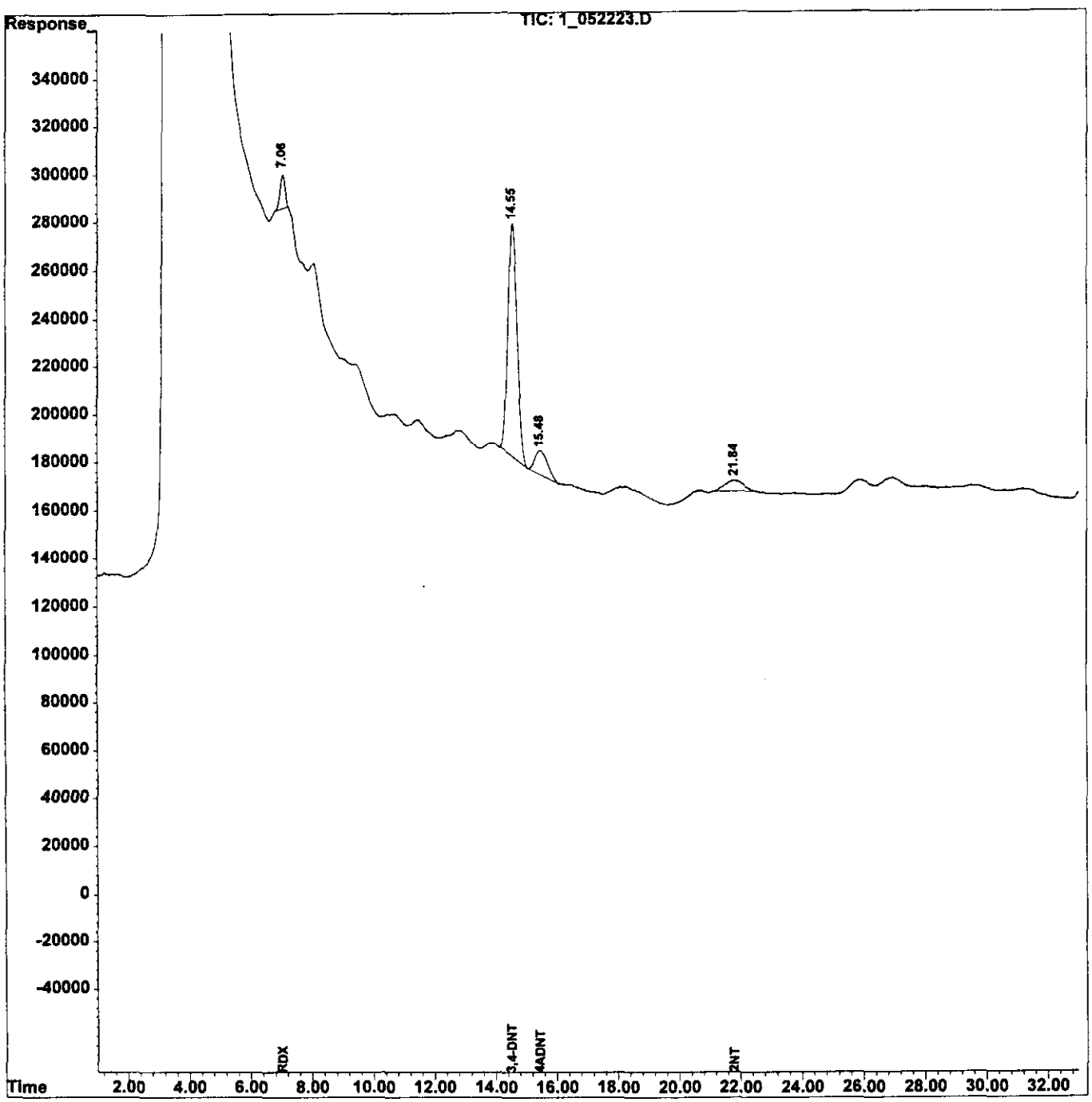
Chromatographic Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052223.D
Acq On : 23 May 1999 13:33
Sample : 38614.11
Misc : BIOS06108073
IntFile : EVENTS.E
Quant Time: May 24 13:24 1999 Quant Results File: 200SE22.RES

Vial: 23
Operator: SM
Inst : LC1
Multiplr: 10.0000

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108091

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.12

Sample Amt: 2.1 G % Moisture: 27.3 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/23/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2100	U
121-82-4	RDX	1860	
99-35-4	TNB	238	U
99-65-0	DNB	238	U
479-45-8	TETRYL	619	U
98-95-3	NB	248	U
118-96-7	TNT	238	U
1946-51-0	4ADNT	238	U
35572-78-2	2ADNT	238	U
606-20-2	26DNT	248	U
121-14-2	24DNT	238	U
88-72-2	2NT	238	U
99-99-0	4NT	238	U
99-08-1	3NT	238	U
Surrogate amount spiked		1904.76	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052224.D Vial: 24
Acq On : 23 May 1999 14:18 Operator: SM
Sample : 38614.12 Inst : LC1
Misc : BIOS06108091 Multiplr: 9.5200
IntFile : EVENTS.E
Quant Time: May 24 13:27 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	14.53	20399324	1551.4	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	7.08	16961259	1855.3	m x	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	0.00	0	N.D.		A
9) 4ADNT	15.50W	4962633	360.0	m	A : confirmation
10) 2ADNT	16.50	1705587	79.3	mJ	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

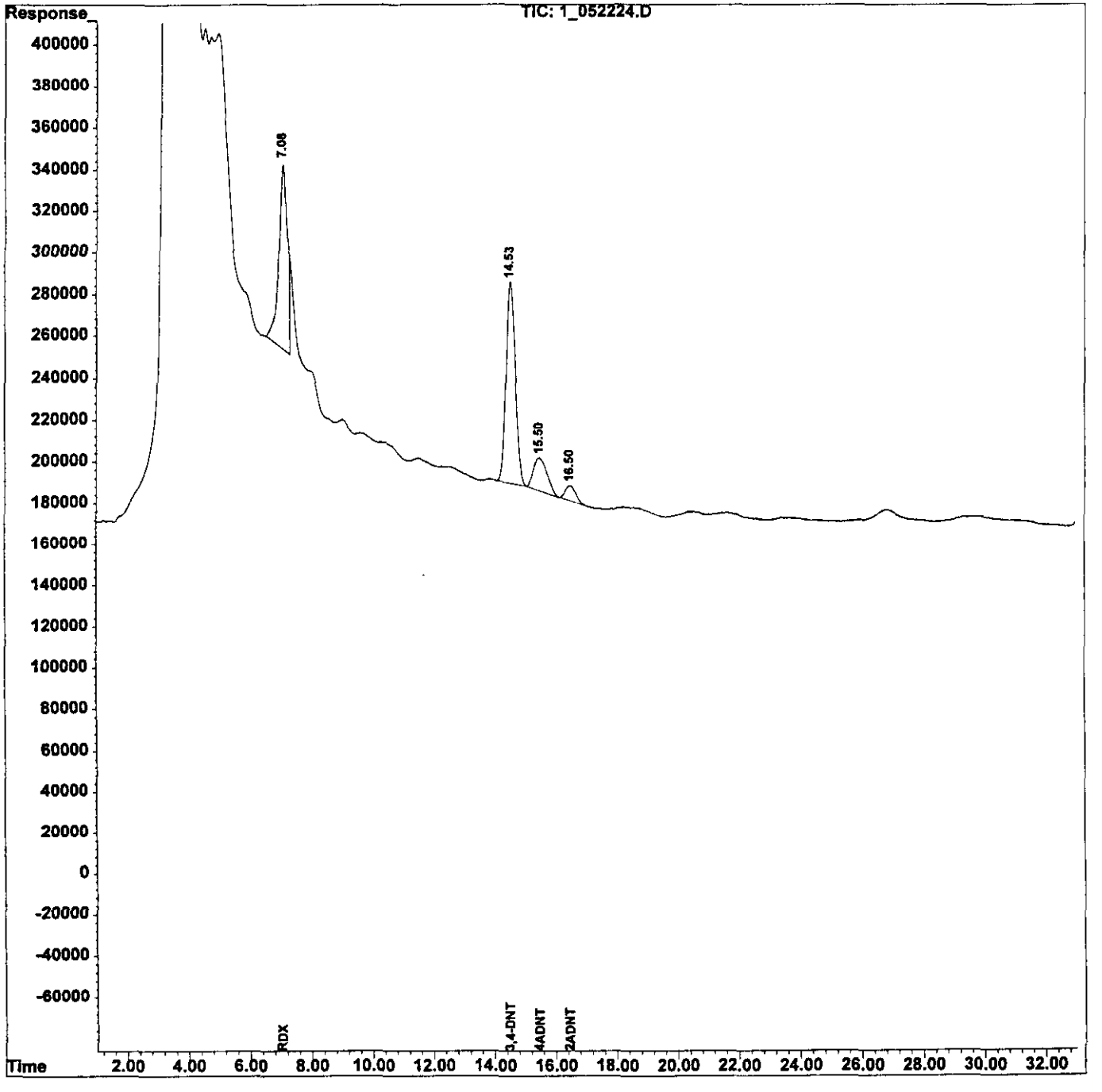
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC1\DATA\1_0522\1_052224.D Vial: 24
Acq On : 23 May 1999 14:18 Operator: SM
Sample : 38614.12 Inst : LC1
Misc : BIOS06108091 Multiplr: 9.5200
IntFile : EVENTS.E
Quant Time: May 24 13:27 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC1\DATA\1_0522\200SE22.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0522\
Last Update : Mon May 24 10:29:05 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052226.D Vial: 26
Acq On : 23 May 1999 13:20 Operator: SM
Sample : 38614.12 Inst : LC5
Misc : BIOS06108091 Multiplr: 9.5200
IntFile : EVENTS.E
Quant Time: May 25 9:26 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.82	32974497	1653.6	m	A
Target Compounds:					
1) A HMX	4.49W	7272257	573.6	mJ	A
2) B RDX	7.15	25367037	1709.7	m	A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	11.17	8471727	379.1	mJ	A
6) B NB	0.00	0	N.D.		A
8) A TNT	0.00	0	N.D.	d	A
') B 4ADNT	14.14	1915071	117.6	mJ	A
) B 2ADNT	14.54	4148245	121.7	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

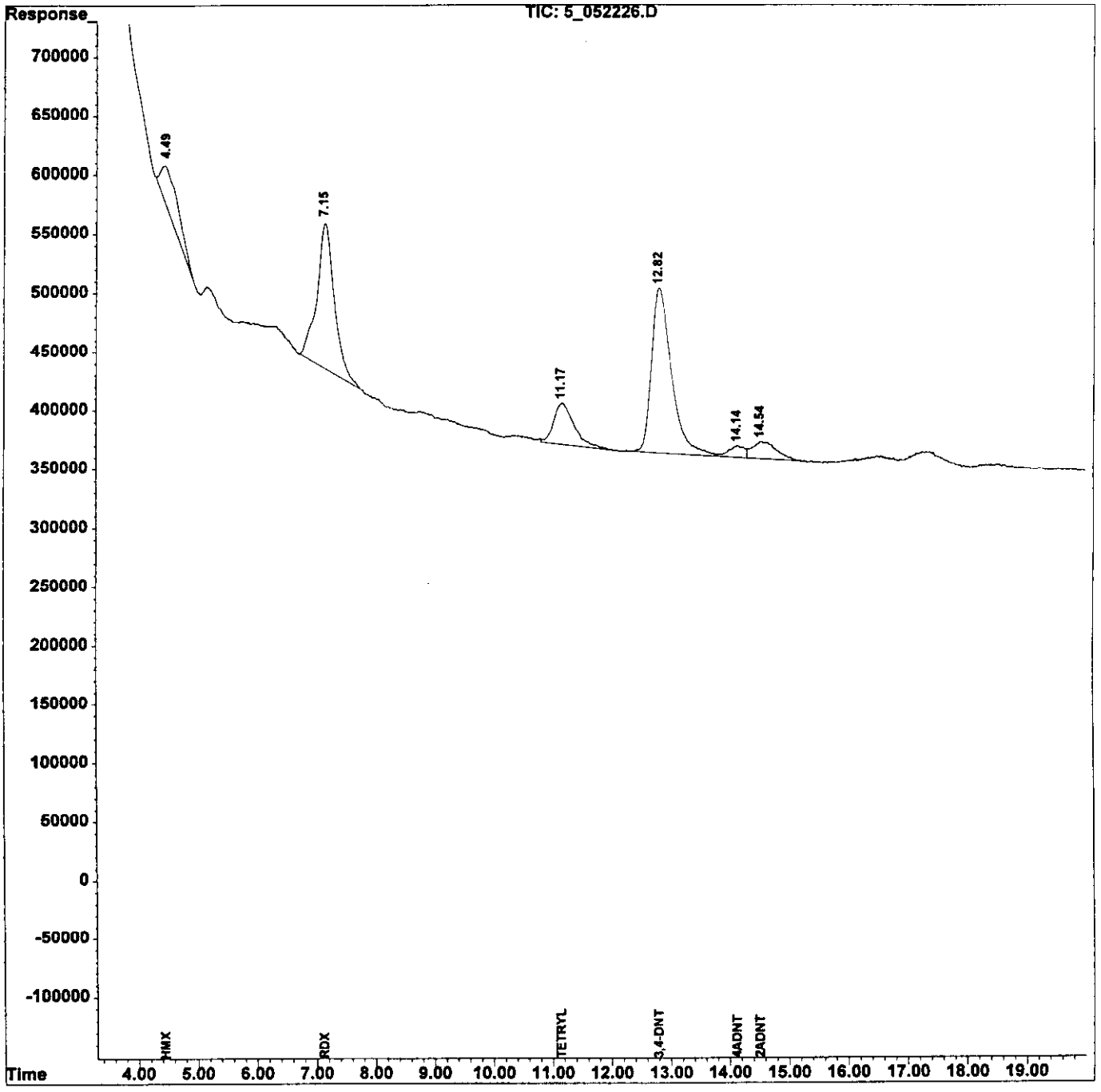
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
5_052226.D 200SE22C.M Tue May 25 09:42:51 1999

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052226.D Vial: 26
Acq On : 23 May 1999 13:20 Operator: SM
Sample : 38614.12 Inst : LC5
Misc : BIOS06108091 Multiplr: 9.5200
IntFile : EVENTS.E
Quant Time: May 25 9:26 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : ~ F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108091FD

ıb Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.13

Sample Amt: 2.1 G % Moisture: 23.1 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/25/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2100	U
121-82-4	RDX	1870	
99-35-4	TNB	238	U
99-65-0	DNB	238	U
479-45-8	TETRYL	619	U
98-95-3	NB	248	U
118-96-7	TNT	1030	
1946-51-0	4ADNT	238	U
35572-78-2	2ADNT	238	U
606-20-2	26DNT	248	U
121-14-2	24DNT	238	U
88-72-2	2NT	238	U
99-99-0	4NT	238	U
99-08-1	3NT	238	U
Surrogate amount spiked		1904.76	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052413.D Vial: 13
Acq On : 25 May 1999 06:34 Operator: SM
Sample : 38614.13 Inst : LC3
Misc : BIOS06108091FD Multiplr: 9.5238
IntFile : EVENTS.E
Quant Time: May 25 11:06 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	18.38	106223442	1710.5	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	8.94W	80193959	1868.6	m	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	19.12W	107397786	1026.0	m	A
9) 4ADNT	20.05	9518989	137.3	m	A
10) 2ADNT	21.14	9360346	98.5	mJ	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

1 [illegible] 06/04/99

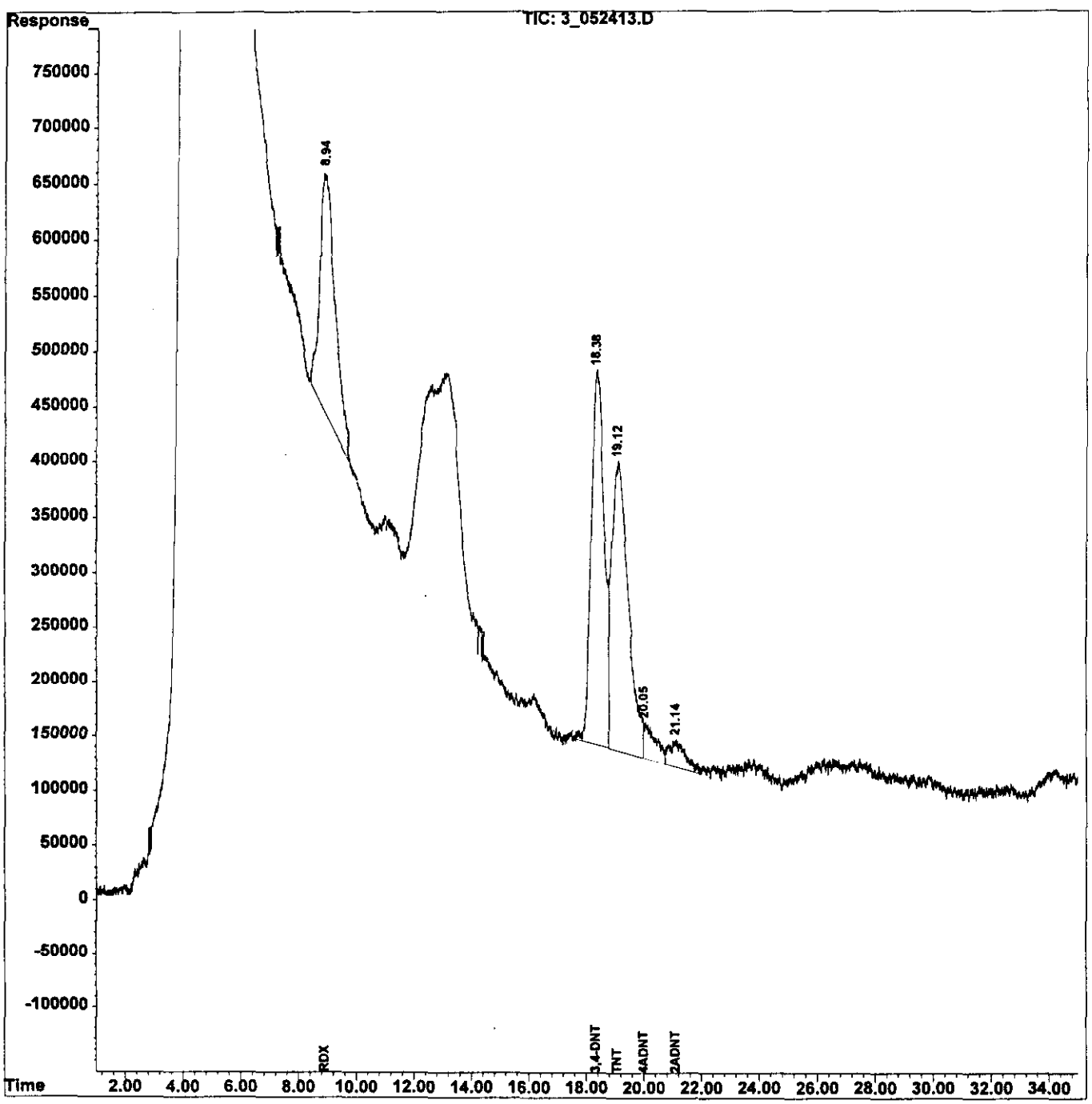
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
3_052413.D 200SE22.M Tue May 25 11:13:57 1999

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052413.D Vial: 13
Acq On : 25 May 1999 06:34 Operator: SM
Sample : 38614.13 Inst : LC3
Misc : BIOS06108091FD Multiplr: 9.5238
IntFile : EVENTS.E
Quant Time: May 25 11:06 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052227.D Vial: 27
Acq On : 23 May 1999 13:52 Operator: SM
Sample : 38614.13 Inst : LC5
Misc : BIOS06108091FD Multiplr: 9.5200
IntFile : EVENTS.E
Quant Time: May 25 9:28 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.78	35440647	1777.3	m	A
Target Compounds:					
1) A HMX	0.00	0	N.D.		A
2) B RDX	7.14	19743003	1330.6	m	A
3) A TNB	6.94	3526024	110.1	mJ	A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	11.13	11759745	526.2	mJ	A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.38	21615559	708.3	m	A
9) B 4ADNT	14.02	1210138	74.3	mJ	A
10) B 2ADNT	14.54	2998018	88.0	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

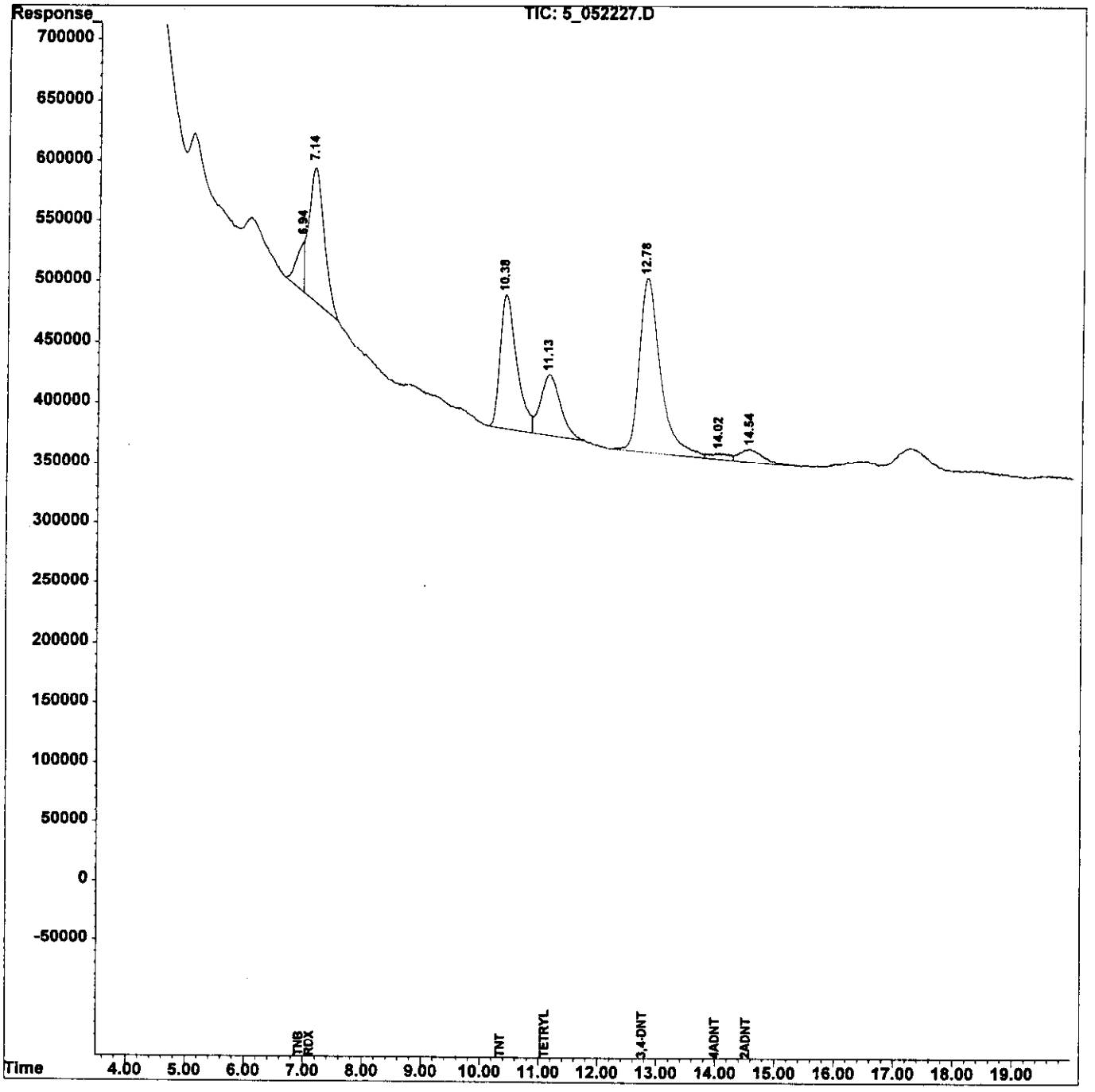
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052227.D Vial: 27
Acq On : 23 May 1999 13:52 Operator: SM
Sample : 38614.13 Inst : LC5
Misc : BIOS06108091FD Multiplr: 9.5200
IntFile : EVENTS.E
Quant Time: May 25 9:28 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108092

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.14

Sample Amt: 2.0 G % Moisture: 33 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/25/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2200	U
121-82-4	RDX	2810	
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	643	P
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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052414.D Vial: 14
Acq On : 25 May 1999 07:19 Operator: SM
Sample : 38614.14 Inst : LC3
Misc : BIOS06108092 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 11:07 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	18.29	102368053	1730.9		A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	8.92	114965027	2812.7	S	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	0.00	0	N.D.		A
[illegible]) 4ADNT	20.02	42467480	643.3	m	A
[illegible]) 2ADNT	0.00	0	N.D.		A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

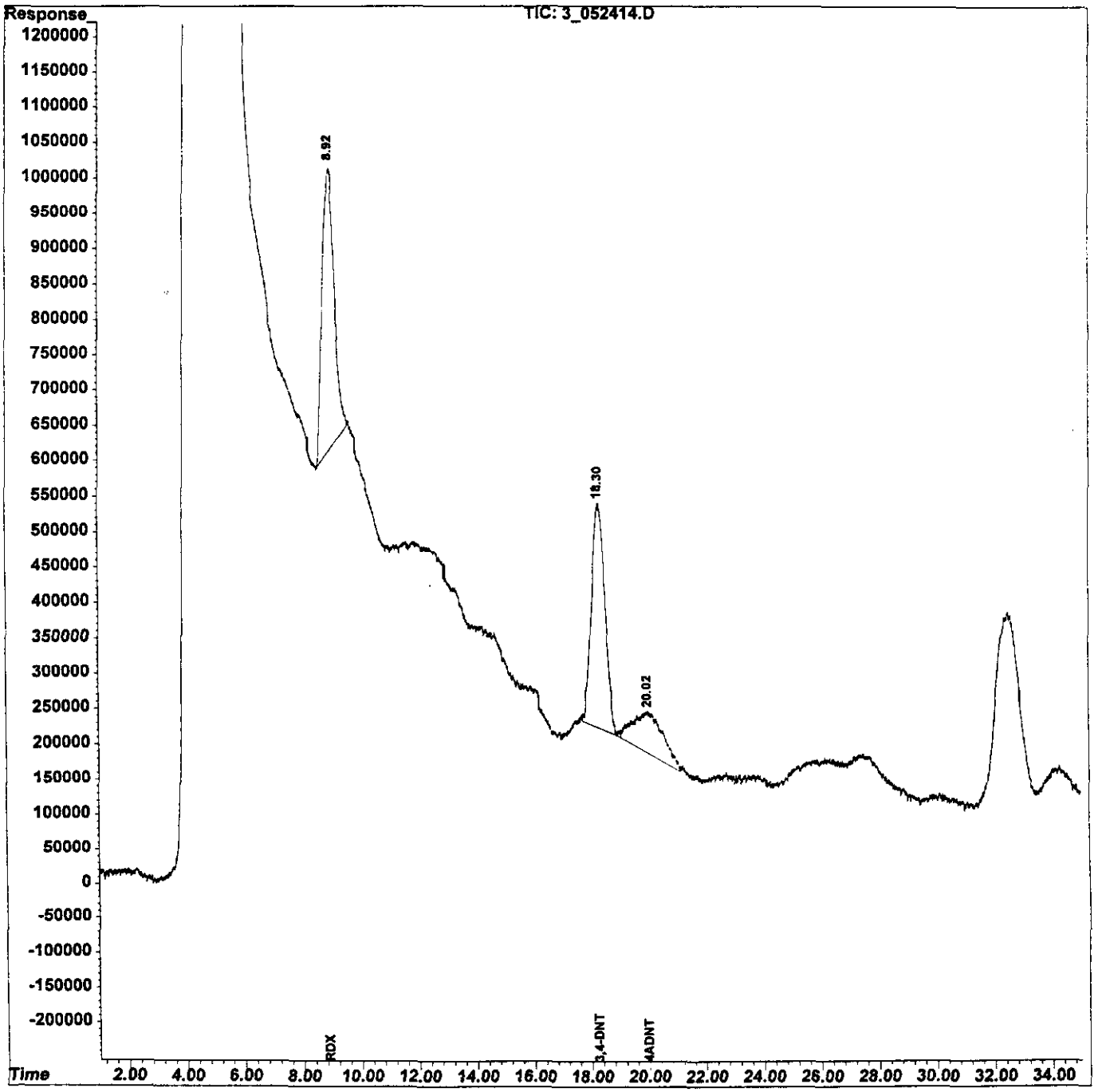
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052414.D Vial: 14
Acq On : 25 May 1999 07:19 Operator: SM
Sample : 38614.14 Inst : LC3
Misc : BIOS06108092 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 11:07 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052228.D Vial: 28
Acq On : 23 May 1999 14:25 Operator: SM
Sample : 38614.14 Inst : LC5
Misc : BIOS06108092 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 9:29 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.77	39647762	2088.6	m	A
Target Compounds:					
1) A HMX	0.00	0	N.D.		A
2) B RDX	7.15	38157623	2701.4		A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	11.04	5587639	262.6	mJ	A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.75W	1833925	63.1	mJ	A
9) B 4ADNT	14.06	5427151	350.0	mJ	A
10) B 2ADNT	14.38	3444107	106.1	mJ	A
11) A 26DNT	13.23	7692707	349.1	mJ	A
12) B 24DNT	0.00	0	N.D.	d	A

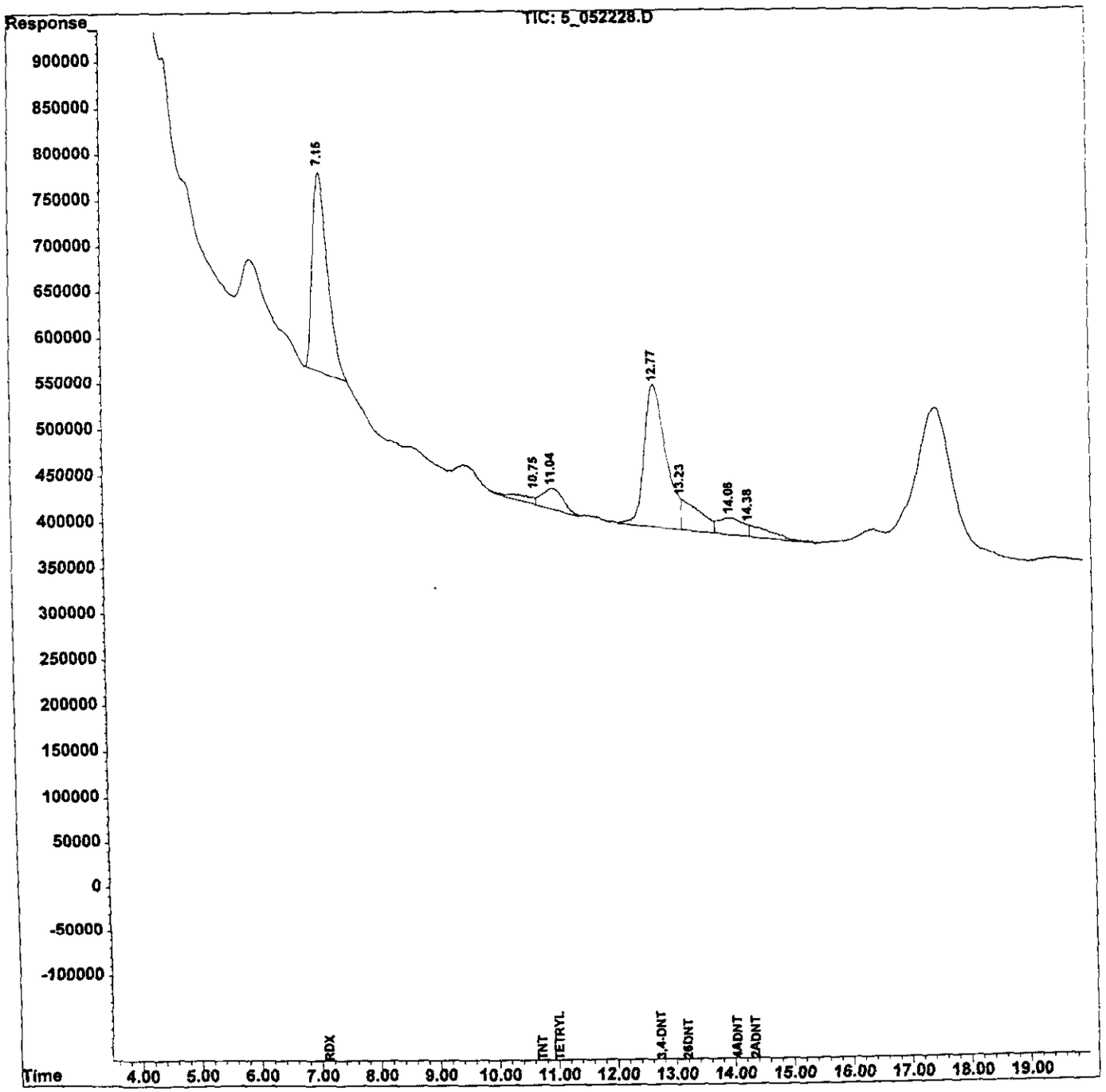
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
5_052228.D 200SE22C.M Tue May 25 09:43:54 1999

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052228.D Vial: 28
Acq On : 23 May 1999 14:25 Operator: SM
Sample : 38614.14 Inst : LC5
Misc : BIOS06108092 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 25 9:29 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108093

ıb Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.15

Sample Amt: 2.1 G % Moisture: 24.6 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/25/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2100	U
121-82-4	RDX	952	U
99-35-4	TNB	238	U
99-65-0	DNB	238	U
479-45-8	TETRYL	619	U
98-95-3	NB	248	U
118-96-7	TNT	238	U
1946-51-0	4ADNT	238	U
35572-78-2	2ADNT	238	U
606-20-2	26DNT	248	U
121-14-2	24DNT	238	U
88-72-2	2NT	238	U
99-99-0	4NT	238	U
99-08-1	3NT	238	U
Surrogate amount spiked		1904.76	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052415.D Vial: 15
Acq On : 25 May 1999 08:04 Operator: SM
Sample : 38614.15 Inst : LC3
Misc : BIOS06108093 Multiplr: 9.5238
IntFile : EVENTS.E
Quant Time: May 25 11:08 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	18.44W	90419509	1456.0	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	0.00	0	N.D.		A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	0.00	0	N.D.		A
9) 4ADNT	0.00	0	N.D.		A
10) 2ADNT	0.00	0	N.D.		A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

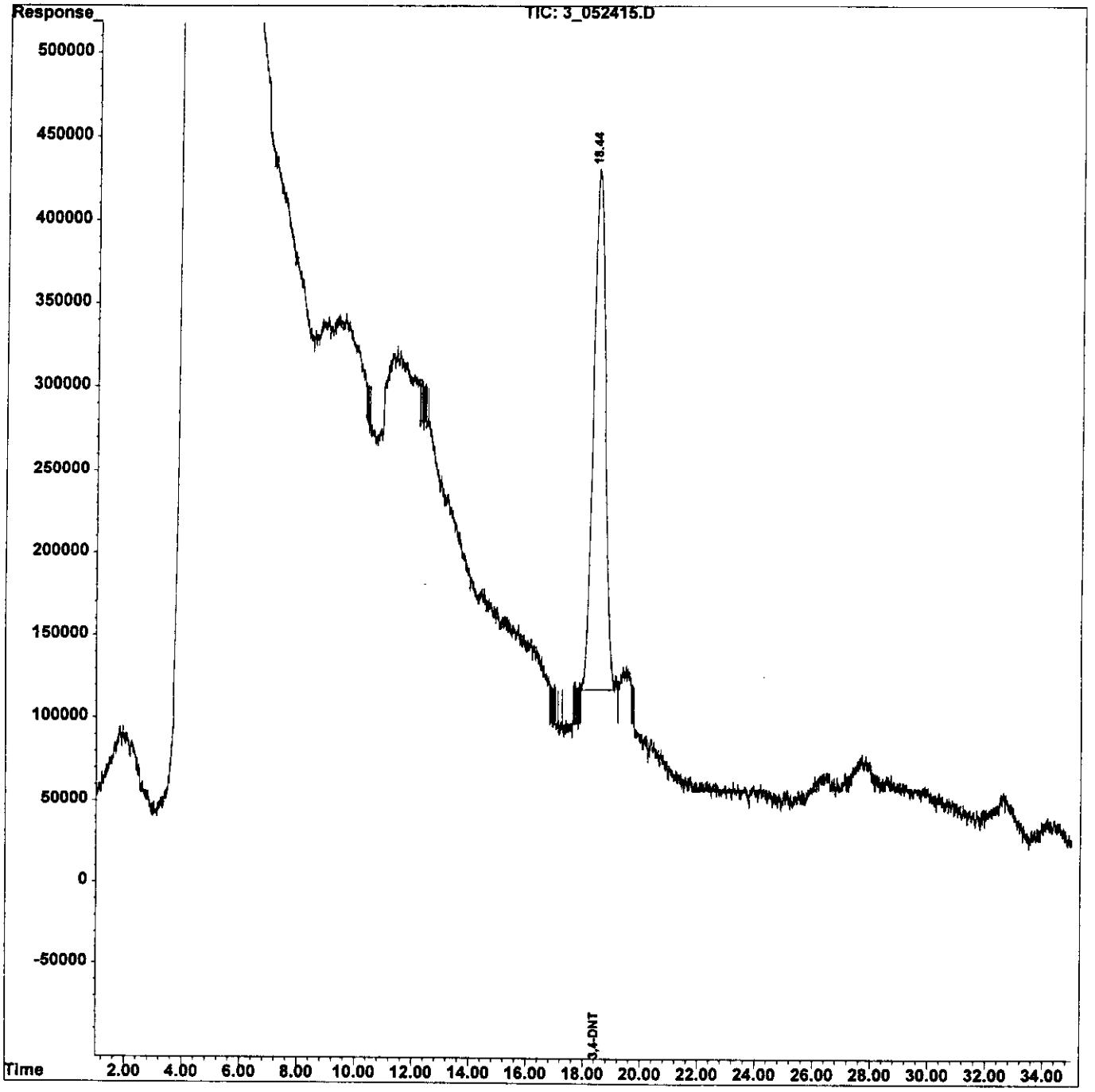
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052415.D Vial: 15
Acq On : 25 May 1999 08:04 Operator: SM
Sample : 38614.15 Inst : LC3
Misc : BIOS06108093 Multiplr: 9.5238
IntFile : EVENTS.E
Quant Time: May 25 11:08 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108111

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.16

Sample Amt: 2.1 G % Moisture: 25.1 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/25/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2100	U
121-82-4	RDX	952	U
99-35-4	TNB	238	U
99-65-0	DNB	238	U
479-45-8	TETRYL	619	U
98-95-3	NB	248	U
118-96-7	TNT	238	U
1946-51-0	4ADNT	238	U
35572-78-2	2ADNT	238	U
606-20-2	26DNT	248	U
121-14-2	24DNT	238	U
88-72-2	2NT	238	U
99-99-0	4NT	238	U
99-08-1	3NT	238	U
Surrogate amount spiked		1904.76	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052416.D Vial: 16
Acq On : 25 May 1999 08:48 Operator: SM
Sample : 38614.16 Inst : LC3
Misc : BIOS06108111 Multiplr: 9.5238
IntFile : EVENTS.E
Quant Time: May 25 11:09 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

	Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:						
7) S	3,4-DNT	18.45W	99930180	1609.2	m	A
Target Compounds:						
1)	HMX	0.00	0	N.D.		A
2)	RDX	0.00	0	N.D.		A
3)	TNB	0.00	0	N.D.		A
4)	DNB	0.00	0	N.D.		A
5)	TETRYL	0.00	0	N.D.		A
6)	NB	0.00	0	N.D.		A
8)	TNT	0.00	0	N.D.		A
)	4ADNT	0.00	0	N.D.		A
10)	2ADNT	0.00	0	N.D.		A
11)	26DNT	0.00	0	N.D.		A
12)	24DNT	0.00	0	N.D.		A
13)	2NT	0.00	0	N.D.		A
14)	4NT	0.00	0	N.D.		A
15)	3NT	0.00	0	N.D.		A

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

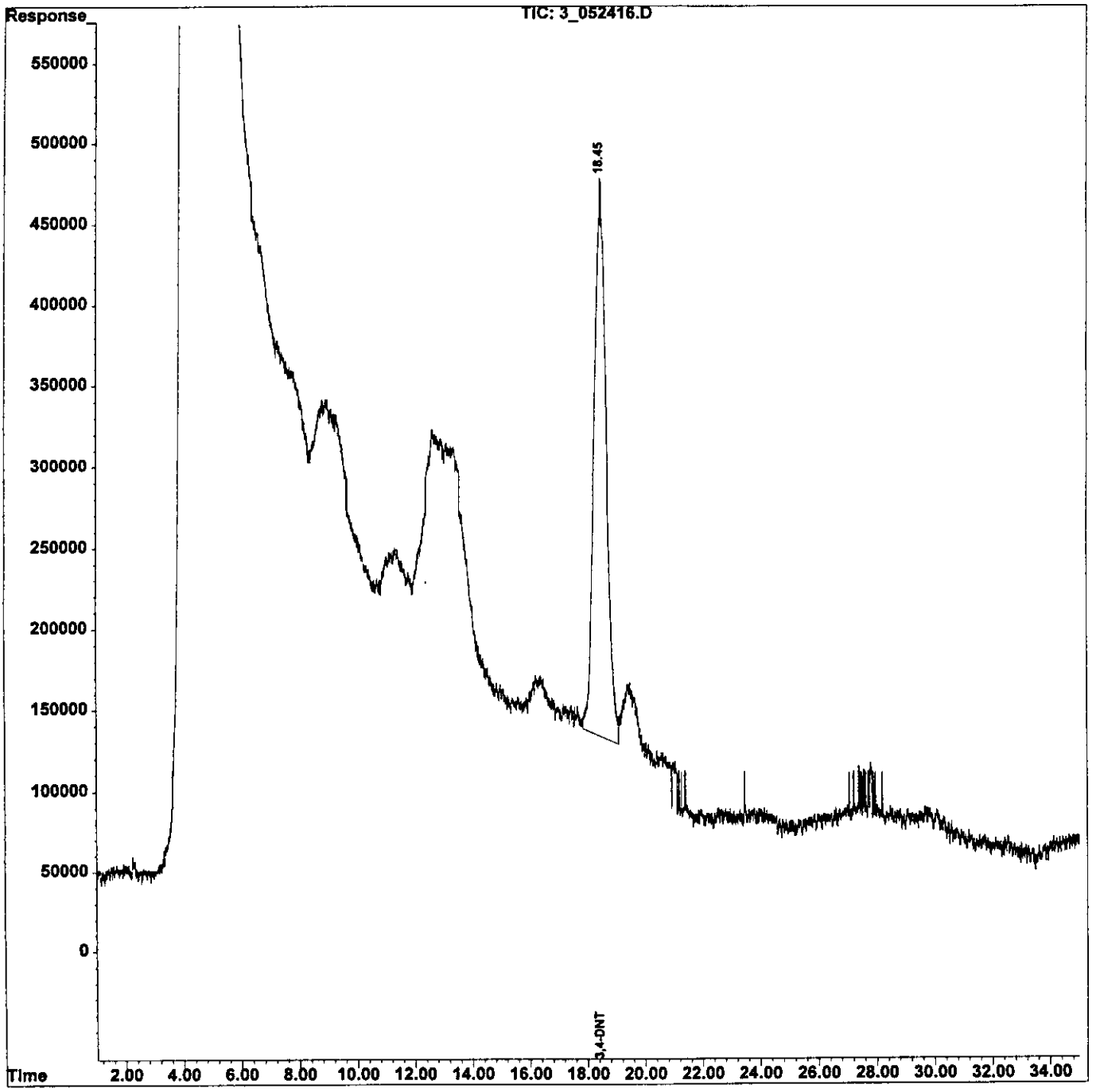
078

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052416.D Vial: 16
Acq On : 25 May 1999 08:48 Operator: SM
Sample : 38614.16 Inst : LC3
Misc : BIOS06108111 Multiplr: 9.5238
IntFile : EVENTS.E
Quant Time: May 25 11:09 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108112

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.17

Sample Amt: 2.2 G % Moisture: 16 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/25/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2050	U
121-82-4	RDX	930	U
99-35-4	TNB	232	U
99-65-0	DNB	232	U
479-45-8	TETRYL	605	U
98-95-3	NB	242	U
118-96-7	TNT	232	U
1946-51-0	4ADNT	232	U
35572-78-2	2ADNT	232	U
606-20-2	26DNT	242	U
121-14-2	24DNT	232	U
88-72-2	2NT	232	U
99-99-0	4NT	232	U
99-08-1	3NT	232	U
Surrogate amount spiked		1860.47	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052417.D Vial: 17
Acq On : 25 May 1999 09:33 Operator: SM
Sample : 38614.17 Inst : LC3
Misc : BIOS06108112 Multiplr: 9.5238
IntFile : EVENTS.E
Quant Time: May 25 11:11 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve	
Surrogates/System Monitoring Compounds:						
7) S 3,4-DNT	18.48W	96513700	1554.2	m	A	
Target Compounds:						
1) HMX	5.92	9416597	284.6	mJ	A	
2) RDX	8.97W	18221186	424.6	m	A	03 mult
3) TNB	0.00	0	N.D.		A	
4) DNB	0.00	0	N.D.		A	
5) TETRYL	0.00	0	N.D.		A	
6) NB	0.00	0	N.D.		A	
8) TNT	0.00	0	N.D.		A	
9) 4ADNT	20.37W	77276283	1114.9	m	A	.02 mi
10) 2ADNT	0.00	0	N.D.		A	
11) 26DNT	0.00	0	N.D.		A	
12) 24DNT	0.00	0	N.D.		A	
13) 2NT	0.00	0	N.D.		A	
14) 4NT	0.00	0	N.D.		A	
15) 3NT	0.00	0	N.D.		A	

05/25/99

05/25/99

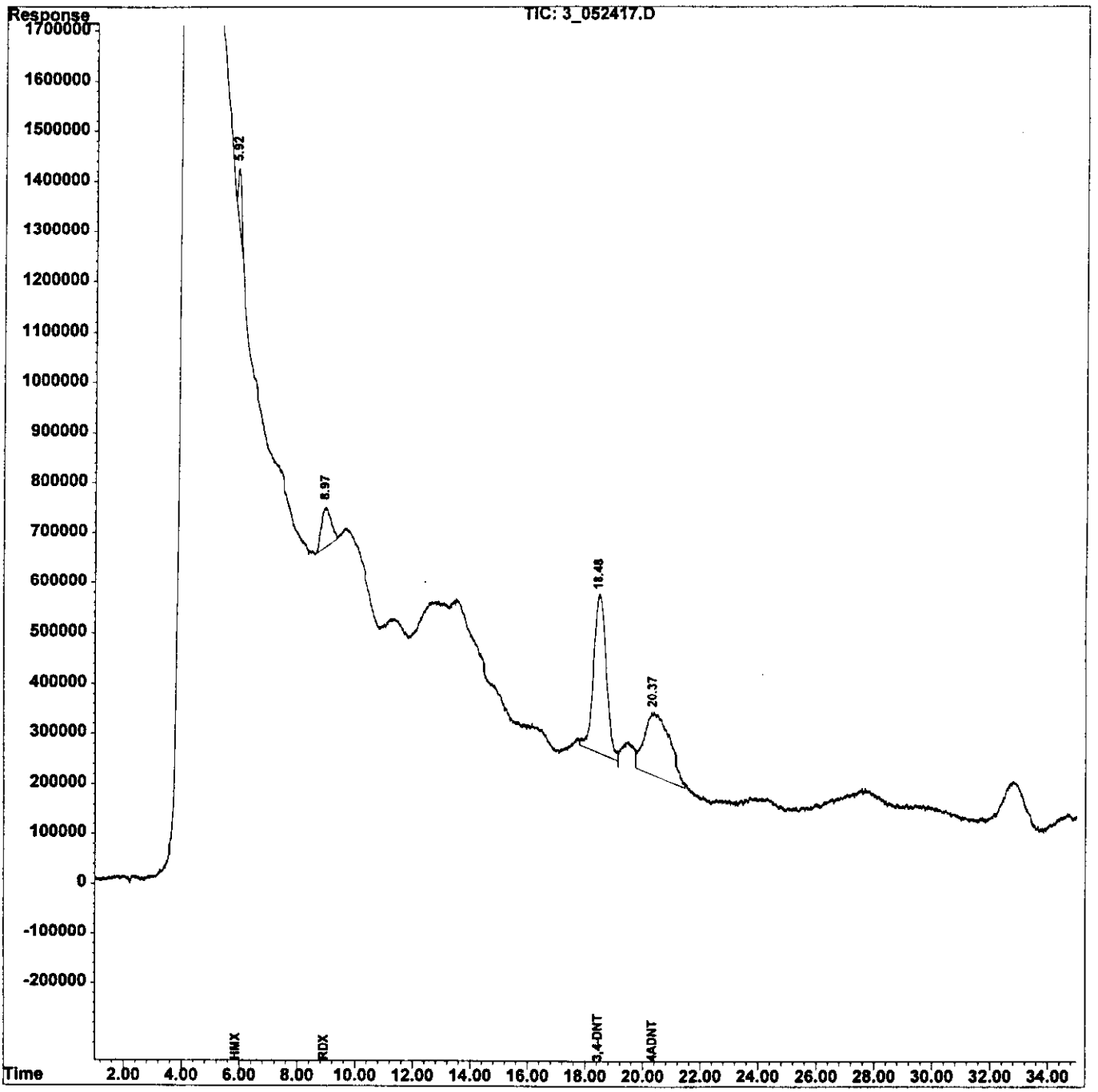
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
3_052417.D 200SE22.M Tue May 25 11:16:07 1999

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052417.D Vial: 17
Acq On : 25 May 1999 09:33 Operator: SM
Sample : 38614.17 Inst : LC3
Misc : BIOS06108112 Multiplr: 9.5238
IntFile : EVENTS.E
Quant Time: May 25 11:11 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052231.D Vial: 31
Acq On : 23 May 1999 16:03 Operator: SM
Sample : 38614.17 Inst : LC5
Misc : BIOS06108112 Multiplr: 9.0900
IntFile : EVENTS.E
Quant Time: May 25 9:35 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.81	31700779	1518.0	m	A
Target Compounds:					
1) A HMX	4.62	3298235	248.4	mJ	A
2) B RDX	7.17	7786757	501.1	m	A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	11.15	4356917	186.2	mJ	A
6) B NB	0.00	0	N.D.		A
8) A TNT	0.00	0	N.D.		A
9) B 4ADNT	14.12	6820366	399.8	mJ	A
10) B 2ADNT	14.40	3937482	110.3	mJ	A
11) A 26DNT	13.42	1122066	46.3	mJ	A
12) B 24DNT	0.00	0	N.D.	d	A

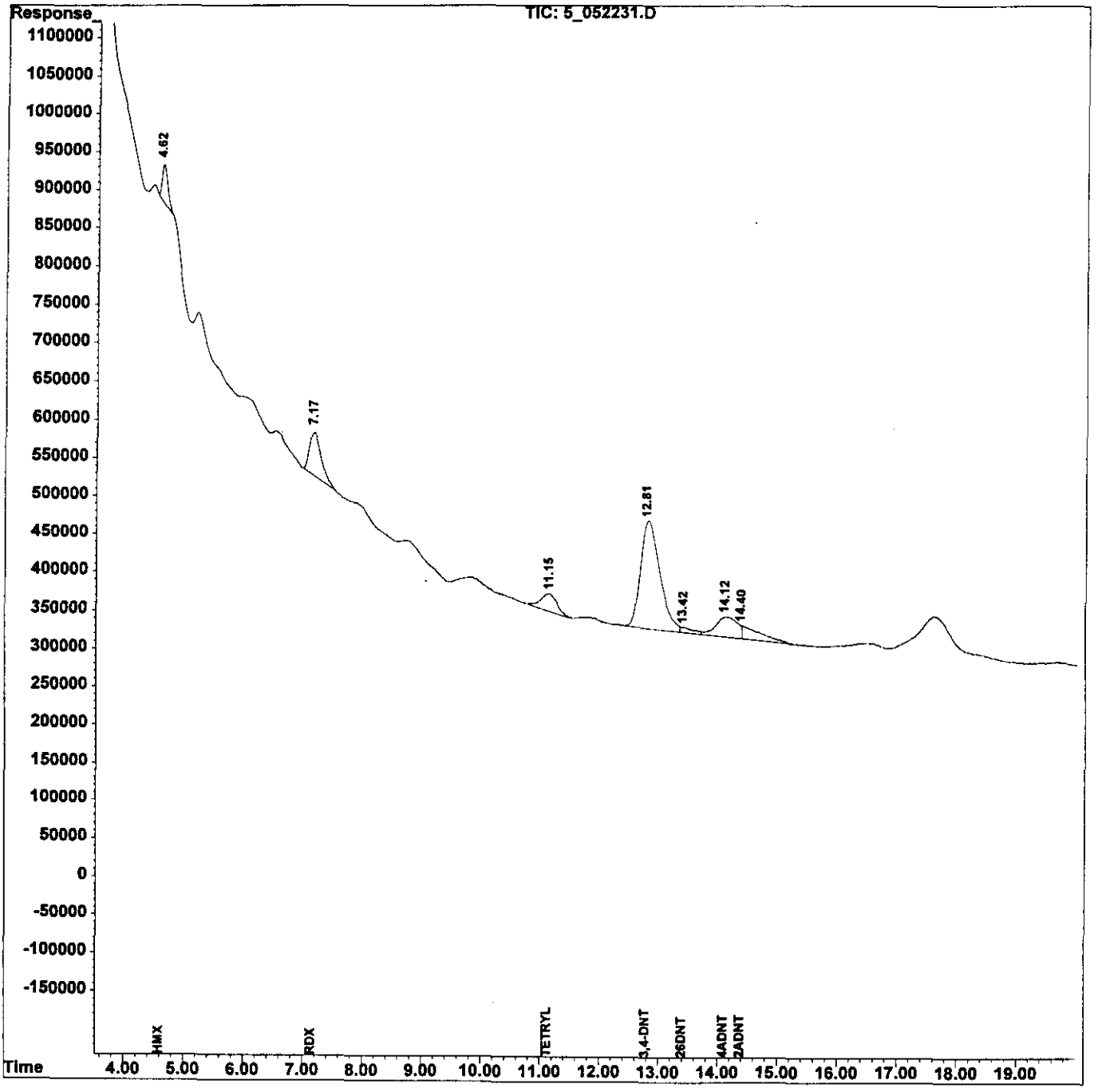
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0522\5_052231.D Vial: 31
Acq On : 23 May 1999 16:03 Operator: SM
Sample : 38614.17 Inst : LC5
Misc : BIOS06108112 Multiplr: 9.0900
IntFile : EVENTS.E
Quant Time: May 25 9:35 1999 Quant Results File: 200SE22C.RES

Method : F:\HPCHEM\LC5\DATA\5_0522\200SE22C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0522\
Last Update : Sat May 22 15:35:19 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06108113

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

Matrix: (soil/water) SOIL Lab Sample ID: 38614.18

Sample Amt: 2.2 G % Moisture: 23.7 Date Received: 05/20/99

Extraction Volume: 10 ML Date Extracted: 05/21/99

Extraction Method: SONC Date Analyzed: 05/25/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	2040	U
121-82-4	RDX	926	U
99-35-4	TNB	231	U
99-65-0	DNB	231	U
479-45-8	TETRYL	602	U
98-95-3	NB	241	U
118-96-7	TNT	231	U
1946-51-0	4ADNT	231	U
35572-78-2	2ADNT	231	U
606-20-2	26DNT	241	U
121-14-2	24DNT	231	U
88-72-2	2NT	231	U
99-99-0	4NT	231	U
99-08-1	3NT	231	U
Surrogate amount spiked		1851.85	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052418.D Vial: 18
Acq On : 25 May 1999 10:17 Operator: SM
Sample : 38614.18 Inst : LC3
Misc : BIOS06108113 Multiplr: 9.0909
IntFile : EVENTS.E
Quant Time: May 25 11:44 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	18.50W	86623047	1331.5	m	A
Target Compounds:					
1) HMX	0.00	0	N.D.		A
2) RDX	0.00	0	N.D.		A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	0.00	0	N.D.		A
9) 4ADNT	0.00	0	N.D.		A
10) 2ADNT	0.00	0	N.D.		A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

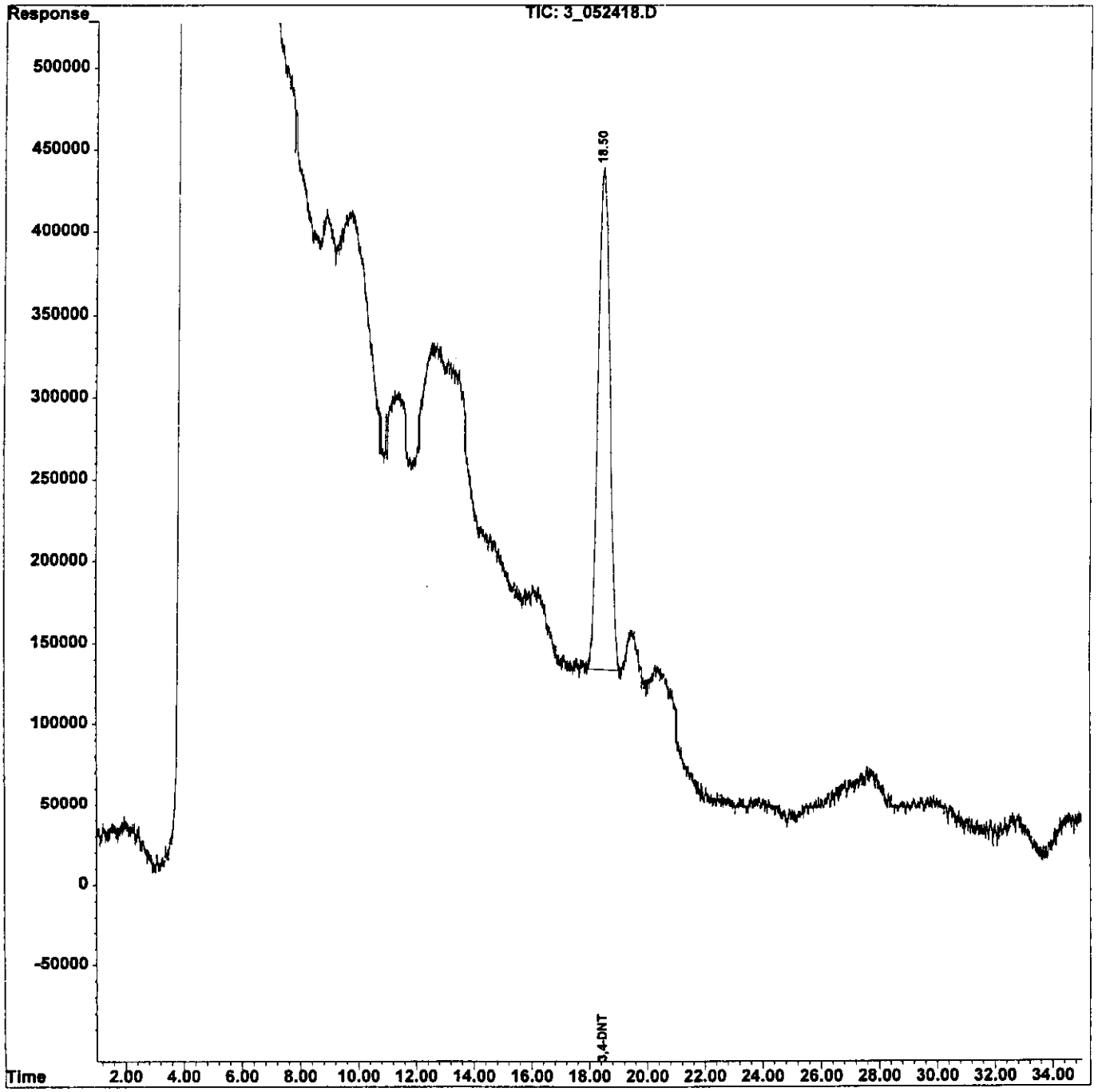
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0524\3_052418.D Vial: 18
Acq On : 25 May 1999 10:17 Operator: SM
Sample : 38614.18 Inst : LC3
Misc : BIOS06108113 Multiplr: 9.0909
IntFile : EVENTS.E
Quant Time: May 25 11:44 1999 Quant Results File: 200SE22.RES

Method : F:\HPCHEM\LC3\DATA\3_0524\200SE22.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0522\
Last Update : Tue May 25 10:52:20 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

LC Column: CARBOSORB Init. Calib. Date(s): 05/22/99 05/23/99

Instrument ID: LC1

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 14.48

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	05/22/99	2034	0.00	*
02	EXPL1	L1 5-123	05/22/99	2204	14.50	
03	EXPL2	L2 5-57	05/22/99	2249	14.44	
04	EXPL3	L3 5-157	05/22/99	2334	14.45	
05	EXPL4	L4 5-55	05/23/99	0019	14.52	
06	EXPL5	L5 5-141	05/23/99	0104	14.49	
07	BL0521SA	BL0521SA	05/23/99	0149	14.51	
08	BIOS06108032	38614.04	05/23/99	0704	14.56	
09	BIOS06108033	38614.05	05/23/99	0834	14.53	
10	BIOS06108051	38614.06	05/23/99	0919	14.59	*
11	BIOS06108052	38614.07	05/23/99	1004	14.54	
12	BIOS06108053	38614.08	05/23/99	1049	14.56	
13	BIOS06108071	38614.09	05/23/99	1134	14.51	
14	BIOS06108072	38614.10	05/23/99	1248	14.56	
15	BIOS06108073	38614.11	05/23/99	1333	14.55	
16	BIOS06108091	38614.12	05/23/99	1418	14.53	
17	EXPL3	L3 5-157	05/23/99	1503	14.48	
18	EXPL3	L3 5-157	05/26/99	2306	14.48	
19	LC0521SA	LC0521SA	05/27/99	0121	14.52	
20	LD0521SA	LD0521SA	05/27/99	0207	14.54	
21	EXPL3	L3 5-157	05/27/99	0937	14.46	
22						
23						
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32						

S1 = 3,4-DNT

QC LIMITS
(+/- 0.08 MINUTES)

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

8D
EXPLOSIVES ANALYTICAL SEQUENCE

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

LC Column: METASIL Init. Calib. Date(s): 05/22/99 05/23/99

Instrument ID: LC5

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 12.82

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	05/22/99	2102	0.00	*
02	EXPL1A	L1A 4-174	05/22/99	2207	12.86	
03	EXPL2A	L2A 4-173	05/22/99	2240	12.81	
04	EXPL3A	L3A 5-155	05/22/99	2313	12.83	
05	EXPL4A	L4A 5-153	05/22/99	2346	12.84	
06	EXPL5A	L5A 5-153	05/23/99	0018	12.79	
07	EXPL1B	L1B 4-180	05/23/99	0051	0.00	*
08	EXPL2B	L2B 4-179	05/23/99	0124	0.00	*
09	EXPL3B	L3B 5-140	05/23/99	0156	0.00	*
10	EXPL4B	L4B 5-154	05/23/99	0229	0.00	*
11	EXPL5B	L5B 5-122	05/23/99	0302	0.00	*
12	BL0521SA	BL0521SA	05/23/99	0334	12.85	
13	BIOS06108031	38614.01	05/23/99	0440	12.82	
14	BIOS06108032	38614.04	05/23/99	0513	12.81	
15	BIOS06108033	38614.05	05/23/99	0545	12.81	
16	BIOS06108051	38614.06	05/23/99	0618	12.83	
17	BIOS06108052	38614.07	05/23/99	0651	12.84	
18	BIOS06108053	38614.08	05/23/99	0723	12.82	
19	EXPL3A	L3A 5-155	05/23/99	1109	12.80	
20	EXPL3B	L3B 5-140	05/23/99	1141	0.00	*
21	BIOS06108072	38614.10	05/23/99	1214	12.80	
22	BIOS06108091	38614.12	05/23/99	1320	12.82	
23	BIOS06108091FD	38614.13	05/23/99	1352	12.78	
24	BIOS06108092	38614.14	05/23/99	1425	12.76	
25	BIOS06108093	38614.15	05/23/99	1458	12.78	
26	BIOS06108111	38614.16	05/23/99	1530	12.78	
27	BIOS06108112	38614.17	05/23/99	1603	12.80	
28	BIOS06108113	38614.18	05/23/99	1636	12.80	
29	EXPL3A	L3A 5-155	05/23/99	1709	12.77	
30	EXPL3B	L3B 5-140	05/23/99	1741	0.00	*
31	EXPL3A	L3A 5-155	05/24/99	1324	12.86	
32	EXPL3B	L3B 5-140	05/24/99	1356	0.00	*

S1 = 3,4-DNT

QC LIMITS
(+/- 0.10 MINUTES)

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

8D
EXPLOSIVES ANALYTICAL SEQUENCE

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

LC Column: METASIL Init. Calib. Date(s): 05/22/99 05/23/99

Instrument ID: LC5

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 12.82

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #
01	BIOS06108071	38614.09	05/24/99	1655	12.85
02	EXPL3A	L3A 5-155	05/24/99	2148	12.84
03	EXPL3B	L3B 5-140	05/24/99	2220	0.00 *
04					
05					
06					
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S1 = 3,4-DNT

QC LIMITS
(+/- 0.10 MINUTES)

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

8D
EXPLOSIVES ANALYTICAL SEQUENCE

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614

LC Column: CARBOSORB Init. Calib. Date(s): 05/23/99 05/23/99

Instrument ID: LC3

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 18.21

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #
01	INSTRUMENT BLANK	INSTRUMENT B	05/22/99	2235	0.00 *
02	EXPL1	L1 5-123	05/23/99	0042	18.15
03	EXPL2	L2 5-57	05/23/99	0127	18.24
04	EXPL3	L3 5-157	05/23/99	0211	18.20
05	EXPL4	L4 5-153	05/23/99	0256	18.21
06	EXPL5	L5 5-121	05/23/99	0340	18.16
07	EXPL3	L3 5-157	05/24/99	2224	18.31
08	BIOS06108031	38614.01	05/25/99	0251	18.46
09	BIOS06108031MS	38614.02MS	05/25/99	0336	18.42
10	BIOS06108031MSD	38614.03MSD	05/25/99	0421	18.49
11	EXPL3	L3 5-157	05/25/99	0550	18.32
12	BIOS06108091FD	38614.13	05/25/99	0634	18.38
13	BIOS06108092	38614.14	05/25/99	0719	18.30
14	BIOS06108093	38614.15	05/25/99	0804	18.44
15	BIOS06108111	38614.16	05/25/99	0848	18.45
16	BIOS06108112	38614.17	05/25/99	0933	18.48
17	BIOS06108113	38614.18	05/25/99	1017	18.50
18	EXPL3	L3 5-157	05/25/99	1231	18.51
19	EXPL3	L3 5-157	05/27/99	0202	18.02
20	BIOS06108031DL	38614.01DL	05/27/99	0759	18.05
21	BIOS06108071DL	38614.09DL	05/27/99	0843	17.99
22	EXPL3	L3 5-157	05/27/99	1057	17.99
23					
24					
25					
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31					
32					

S1 = 3,4-DNT

QC LIMITS
(+/- 0.45 MINUTES)

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC1

LC Column: CARBOSORB Date(s) Analyzed: 05/22/99 05/23/99

Method: 200SE22

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	64440081	80983781	74751852
RDX	62370958	96019258	88210721
TNB	205280500	233732267	214436690
DNB	257452000	303468460	283602154
TETRYL	129658909	156409027	133293312
NB	173748650	193197940	188447736
TNT	228734000	243716100	229109021
4ADNT	108682500	143214957	130949913
2ADNT	179126143	220140600	216752715
26DNT	123110333	148132967	135653816
24DNT	257139571	280049614	272186697
2NT	110164900	136143250	128190930
4NT	77997100	103463180	91117602
3NT	102738250	140807550	120631875
3,4-DNT	114408767	136003893	128048914

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	75869038	74421265	74093203	8.11
RDX	94766869	93793684	87032298	16.21
TNB	217496374	215292781	217247723	4.75
DNB	286466587	285790382	283355917	5.83
TETRYL	136257695	135838305	138291450	7.57
NB	181229475	186630294	184650819	4.03
TNT	209677302	216044093	225456103	5.85
4ADNT	139937275	133429316	131242792	10.31
2ADNT	202436634	205726373	204836493	7.89
26DNT	130276168	132232743	133881205	6.87
24DNT	274066238	274133797	271515184	3.15
2NT	135136358	134693226	128865733	8.47
4NT	98903670	98444440	93985198	10.61
3NT	124879048	124238427	122659030	11.07
3,4-DNT	122855280	124572444	125177859	6.28
MEAN RSD				7.80

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC1 Method: 200SE22

LC Column: CARBOSORB Init. Calib Date(s): 05/22/99 05/23/99

Client Sample No.: EXPL3 Date Analyzed : 05/23/99

Lab Sample ID : L3 5-157 Time Analyzed : 1503

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.72	4.69	4.75	75363260	74093203	-1.7
RDX	7.07	7.02	7.12	90173360	87032298	-3.6
TNB	9.60	9.56	9.64	218888076	217247723	-0.8
DNB	11.73	11.70	11.78	287551056	283355917	-1.5
TETRYL	12.39	12.34	12.52	127359912	138291450	7.9
NB	13.43	13.38	13.48	177467513	184650819	3.9
TNT	15.11	15.04	15.18	215913721	225456103	4.2
4ADNT	15.62	15.54	15.74	130680620	131242792	0.4
2ADNT	16.41	16.33	16.55	202102096	204836493	1.3
26DNT	17.69	17.59	17.79	132949404	133881205	0.7
24DNT	18.27	18.17	18.39	273106161	271515184	-0.6
2NT	21.69	21.55	21.85	131716515	128865733	-2.2
4NT	23.17	23.01	23.35	94582142	93985198	-0.6
3NT	24.98	24.84	25.14	124008657	122659030	-1.1
3,4-DNT	14.48	14.40	14.56	123524194	125177859	1.3

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

ab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC1 Method: 200SE22

LC Column: CARBOSORB Init. Calib Date(s): 05/22/99 05/23/99

Client Sample No.: EXPL3 Date Analyzed : 05/26/99

Lab Sample ID : L3 5-157 Time Analyzed : 2306

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.73	4.69	4.75	78385290	74093203	-5.8
RDX	7.10	7.02	7.12	94711765	87032298	-8.8
TNB	9.61	9.56	9.64	224797911	217247723	-3.5
DNB	11.74	11.70	11.78	299303582	283355917	-5.6
TETRYL	12.48	12.34	12.52	139169602	138291450	-0.6
NB	13.42	13.38	13.48	194819341	184650819	-5.5
TNT	15.12	15.04	15.18	225983366	225456103	-0.2
4ADNT	15.66	15.54	15.74	147914314	131242792	-12.7
2ADNT	16.49	16.33	16.55	218449477	204836493	-6.6
26DNT	17.70	17.59	17.79	126174848	133881205	5.8
24DNT	18.27	18.17	18.39	302692403	271515184	-11.5
2NT	21.68	21.55	21.85	136443724	128865733	-5.9
4NT	23.16	23.01	23.35	98451201	93985198	-4.8
3NT	24.97	24.84	25.14	124235440	122659030	-1.3
3,4-DNT	14.48	14.40	14.56	129333144	125177859	-3.3

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

ab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC1 Method: 200SE22

LC Column: CARBOSORB Init. Calib Date(s): 05/22/99 05/23/99

Client Sample No.: EXPL3 Date Analyzed : 05/27/99

Lab Sample ID : L3 5-157 Time Analyzed : 0937

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.72	4.69	4.75	80091225	74093203	-8.1
RDX	7.08	7.02	7.12	95669529	87032298	-9.9
TNB	9.60	9.56	9.64	230835634	217247723	-6.3
DNB	11.72	11.69	11.77	303908105	283355917	-7.3
TETRYL	12.42	12.33	12.51	139310940	138291450	-0.7
NB	13.42	13.38	13.48	197003661	184650819	-6.7
TNT	15.10	15.04	15.18	227777527	225456103	-1.0
4ADNT	15.60	15.53	15.75	146784455	131242792	-11.8
2ADNT	16.42	16.34	16.54	217525801	204836493	-6.2
26DNT	17.68	17.61	17.77	133063320	133881205	0.6
24DNT	18.26	18.19	18.37	300087078	271515184	-10.5
2NT	21.69	21.57	21.83	136508430	128865733	-5.9
4NT	23.17	23.04	23.34	96995975	93985198	-3.2
3NT	24.98	24.88	25.12	127408551	122659030	-3.9
3,4-DNT	14.46	14.40	14.56	131942009	125177859	-5.4

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38614

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

FORM IX

9E
EXPLOSIVES RETENTION TIME DATA TABLE

ab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38614

Lab Code: SWOK Instrument ID: LC1

LC Column: CARBOSORB Date(s) ICAL Analyzed: 05/22/99 05/23/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	4.71	4.71	4.71	4.72	4.71
RDX	7.08	7.05	7.06	7.08	7.07
TNB	9.61	9.59	9.59	9.63	9.60
DNB	11.74	11.72	11.72	11.76	11.74
TETRYL	12.43	12.40	12.40	12.46	12.42
NB	13.43	13.41	13.41	13.46	13.44
TNT	15.10	15.09	15.08	15.15	15.12
4ADNT	15.68	15.62	15.60	15.69	15.66
2ADNT	16.45	16.42	16.40	16.48	16.45
26DNT	17.69	17.65	17.66	17.74	17.71
24DNT	18.32	18.25	18.24	18.32	18.30
2NT	21.77	21.65	21.66	21.75	21.73
4NT	23.28	23.16	23.14	23.24	23.22
3NT	25.04	24.99	24.95	25.06	25.04
3,4-DNT	14.50	14.44	14.45	14.52	14.49

COMPOUND	RT CCAL 1	RT CCAL 2	RT CCAL 3
HMX	4.72	4.73	4.72
RDX	7.06	7.10	7.08
TNB	9.60	9.61	9.60
DNB	11.73	11.74	11.72
TETRYL	12.39	12.48	12.42
NB	13.43	13.42	13.42
TNT	15.11	15.12	15.10
4ADNT	15.62	15.66	15.60
2ADNT	16.40	16.49	16.42
26DNT	17.69	17.70	17.68
24DNT	18.27	18.27	18.26
2NT	21.69	21.68	21.69
4NT	23.17	23.16	23.17
3NT	24.98	24.97	24.98
3,4-DNT	14.48	14.48	14.46

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	4.72	0.008	0.025	4.69 - 4.74
RDX	7.07	0.016	0.048	7.02 - 7.12
TNB	9.60	0.014	0.041	9.56 - 9.64
DNB	11.73	0.015	0.044	11.69 - 11.77

FORM IX

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38614

Lab Code: SWOK Instrument ID: LC1

LC Column: CARBOSORB Date(s) ICAL Analyzed: 05/22/99 05/23/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	12.42	0.032	0.095	12.32 - 12.51
NB	13.43	0.017	0.051	13.38 - 13.48
TNT	15.11	0.022	0.065	15.04 - 15.18
4ADNT	15.64	0.036	0.107	15.53 - 15.75
2ADNT	16.44	0.034	0.103	16.34 - 16.54
26DNT	17.69	0.028	0.085	17.60 - 17.77
24DNT	18.28	0.031	0.093	18.19 - 18.37
2NT	21.70	0.043	0.129	21.57 - 21.83
4NT	23.19	0.049	0.146	23.04 - 23.34
3NT	25.00	0.040	0.119	24.88 - 25.12
3,4-DNT	14.48	0.027	0.080	14.40 - 14.56

FORM IX

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC3

LC Column: CARBOSORB Date(s) Analyzed: 05/23/99 05/23/99

Method: 200SE22

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	270026960	352265381	325057249
RDX	376500542	401942367	422053517
TNB	1205930944	1104841577	985635454
DNB	1382678100	1386825600	1340989577
TETRYL	670634909	630109123	574286159
NB	946376700	916296950	929737784
TNT	1093974438	1049867055	963899098
4ADNT	676396714	617362127	699140013
2ADNT	829019857	880058744	963407951
26DNT	587534958	651664141	617584022
24DNT	1103700786	1387524241	1335368096
2NT	698438150	695550271	638728156
4NT	626324250	515568323	481970560
3NT	805247150	663396387	586769581
3,4-DNT	645242700	603950267	581838864

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	317790130	310237665	315075477	9.45
RDX	427927436	415256074	408735987	5.00
TNB	960957664	948487143	1041170556	10.66
DNB	1330237689	1304469335	1349040060	2.61
TETRYL	589039901	565353993	605884817	7.24
NB	907896826	913874459	922836544	1.67
TNT	952102173	924680733	996904699	7.19
4ADNT	665487438	642116566	660100572	4.77
2ADNT	934644256	915761848	904578531	5.74
26DNT	605423290	580898204	608620923	4.62
24DNT	1268963580	1266704899	1272452320	8.40
2NT	638911395	639452141	662216023	4.80
4NT	482240347	472050518	515630800	12.42
3NT	603715995	594015644	650628951	14.08
3,4-DNT	566841856	559229086	591420555	5.85
MEAN RSD				6.97

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

ab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC3 Method: 200SE22

LC Column: CARBOSORB Init. Calib Date(s): 05/23/99 05/23/99

Client Sample No.: EXPL3 Date Analyzed : 05/24/99

Lab Sample ID : L3 5-157 Time Analyzed : 2224

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.91	5.85	5.95	326041662	315075477	-3.5
RDX	8.90	8.75	9.01	442611969	408735987	-8.3
TNB	11.99	11.76	12.14	986191988	1041170556	5.3
DNB	14.68	14.35	14.93	1370401844	1349040060	-1.6
TETRYL	15.90	15.48	16.18	534485881	605884817	11.8
NB	16.72	16.32	16.98	933519289	922836544	-1.2
TNT	19.00	18.56	19.28	967537973	996904699	2.9
4ADNT	20.01	19.35	20.47	683528567	660100572	-3.5
2ADNT	21.08	20.38	21.58	968402597	904578531	-7.1
26DNT	22.34	21.70	22.74	604436530	608620923	0.7
24DNT	23.06	22.41	23.49	1329638860	1272452320	-4.5
2NT	27.24	26.38	27.76	645646368	662216023	2.5
4NT	29.14	28.22	29.66	484839527	515630800	6.0
3NT	31.41	30.48	31.98	604848058	650628951	7.0
3,4-DNT	18.31	17.76	18.66	580701910	591420555	1.8

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC3 Method: 200SE22

LC Column: CARBOSORB Init. Calib Date(s): 05/23/99 05/23/99

Client Sample No.: EXPL3 Date Analyzed : 05/25/99

Lab Sample ID : L3 5-157 Time Analyzed : 0550

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.91	5.85	5.95	318938440	315075477	-1.2
RDX	8.90	8.75	9.01	433858979	408735987	-6.1
TNB	12.00	11.76	12.14	980407780	1041170556	5.8
DNB	14.68	14.35	14.93	1354492778	1349040060	-0.4
TETRYL	15.92	15.48	16.18	542681914	605884817	10.4
NB	16.73	16.32	16.98	923499361	922836544	-0.1
TNT	18.99	18.56	19.28	963678291	996904699	3.3
4ADNT	20.04	19.35	20.47	677369746	660100572	-2.6
2ADNT	21.08	20.38	21.58	959575249	904578531	-6.1
26DNT	22.34	21.70	22.74	589221118	608620923	3.2
24DNT	23.06	22.41	23.49	1340503585	1272452320	-5.3
2NT	27.25	26.38	27.76	630634782	662216023	4.8
4NT	29.18	28.22	29.66	459376465	515630800	10.9
3NT	31.45	30.48	31.98	588433372	650628951	9.6
3,4-DNT	18.32	17.76	18.66	575158066	591420555	2.7

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

ab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC3 Method: 200SE22

LC Column: CARBOSORB Init. Calib Date(s): 05/23/99 05/23/99

Client Sample No.: EXPL3 Date Analyzed : 05/25/99

Lab Sample ID : L3 5-157 Time Analyzed : 1231

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.93	5.85	5.95	321304862	315075477	-2.0
RDX	8.96	8.75	9.01	434609037	408735987	-6.3
TNB	12.07	11.76	12.14	976806490	1041170556	6.2
DNB	14.80	14.35	14.93	1349796155	1349040060	-0.1
TETRYL	16.05	15.48	16.18	557583695	605884817	8.0
NB	16.85	16.32	16.98	924449213	922836544	-0.2
TNT	19.16	18.56	19.28	956713014	996904699	4.0
4ADNT	20.27	19.35	20.47	664223408	660100572	-0.6
2ADNT	21.35	20.38	21.58	960636494	904578531	-6.2
26DNT	22.55	21.70	22.74	608928034	608620923	-0.1
24DNT	23.29	22.41	23.49	1306267589	1272452320	-2.7
2NT	27.53	26.38	27.76	640853271	662216023	3.2
4NT	29.38	28.22	29.66	479955180	515630800	6.9
3NT	31.71	30.48	31.98	600400900	650628951	7.7
3,4-DNT	18.51	17.76	18.66	569949540	591420555	3.6

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC3 Method: 200SE22

LC Column: CARBOSORB Init. Calib Date(s): 05/23/99 05/23/99

Client Sample No.: EXPL3 Date Analyzed : 05/27/99

Lab Sample ID : L3 5-157 Time Analyzed : 0202

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.89	5.85	5.95	323715295	315075477	-2.7
RDX	8.83	8.75	9.01	427611922	408735987	-4.6
TNB	11.87	11.76	12.14	995342029	1041170556	4.4
DNB	14.48	14.35	14.93	1382199816	1349040060	-2.5
TETRYL	15.68	15.48	16.18	584288618	605884817	3.6
NB	16.49	16.32	16.98	946291725	922836544	-2.5
TNT	18.78	18.56	19.28	974629519	996904699	2.2
4ADNT	19.69	19.35	20.47	690675084	660100572	-4.6
2ADNT	20.71	20.38	21.58	989761170	904578531	-9.4
26DNT	21.98	21.70	22.74	596631600	608620923	2.0
24DNT	22.71	22.41	23.49	1389683475	1272452320	-9.2
2NT	26.80	26.38	27.76	650549559	662216023	1.8
4NT	28.63	28.22	29.66	454853910	515630800	11.8
3NT	30.89	30.48	31.98	620932499	650628951	4.6
3,4-DNT	18.02	17.76	18.66	594841882	591420555	-0.6

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

ab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC3 Method: 200SE2

LC Column: CARBOSORB Init. Calib Date(s): 05/23/99 05/23/99

Client Sample No.: EXPL3 Date Analyzed : 05/27/99

Lab Sample ID : L3 5-157 Time Analyzed : 1057

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.89	5.85	5.95	337610002	315075477	-7.2
RDX	8.81	8.75	9.01	437386620	408735987	-7.0
TNB	11.85	11.76	12.14	1002833920	1041170556	3.7
DNB	14.48	14.35	14.93	1350989970	1349040060	-0.1
TETRYL	15.64	15.48	16.18	546235459	605884817	9.8
NB	16.48	16.32	16.98	895721040	922836544	2.9
TNT	18.72	18.56	19.28	932552923	996904699	6.5
4ADNT	19.60	19.35	20.47	634099648	660100572	3.9
2ADNT	20.63	20.38	21.58	860307522	904578531	4.9
26DNT	21.95	21.70	22.74	544581497	608620923	10.5
24DNT	22.66	22.41	23.49	1327461352	1272452320	-4.3
2NT	26.74	26.38	27.76	631264472	662216023	4.7
4NT	28.59	28.22	29.66	467933654	515630800	9.3
3NT	30.86	30.48	31.98	585407477	650628951	10.0
3,4-DNT	17.99	17.76	18.66	581935714	591420555	1.6

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38614

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

FORM IX

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38614

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 05/23/99 05/23/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	5.88	5.90	5.89	5.89	5.88
RDX	8.88	8.91	8.88	8.89	8.86
TNB	11.92	11.97	11.94	11.96	11.93
DNB	14.69	14.68	14.62	14.64	14.60
TETRYL	15.84	15.86	15.82	15.83	15.79
NB	16.67	16.67	16.63	16.65	16.61
TNT	18.93	18.92	18.90	18.92	18.88
4ADNT	19.81	19.98	19.88	19.95	19.90
2ADNT	20.92	21.05	20.97	21.01	20.96
26DNT	22.24	22.24	22.16	22.22	22.17
24DNT	22.90	23.00	22.91	22.97	22.92
2NT	26.95	27.06	27.06	27.06	27.01
4NT	28.85	28.97	28.90	28.93	28.88
3NT	31.15	31.25	31.18	31.20	31.17
3,4-DNT	18.15	18.24	18.20	18.21	18.16

COMPOUND	RT CCAL 1	RT CCAL 2	RT CCAL 3	RT CCAL 4	RT CCAL 5
HMX	5.91	5.91	5.93	5.89	5.88
RDX	8.90	8.90	8.96	8.83	8.81
TNB	11.99	12.00	12.07	11.87	11.85
DNB	14.68	14.68	14.80	14.48	14.48
TETRYL	15.90	15.92	16.05	15.68	15.64
NB	16.72	16.73	16.85	16.49	16.48
TNT	19.00	18.99	19.16	18.78	18.72
4ADNT	20.01	20.04	20.27	19.69	19.60
2ADNT	21.08	21.08	21.35	20.71	20.63
26DNT	22.34	22.34	22.55	21.98	21.95
24DNT	23.06	23.06	23.29	22.71	22.66
2NT	27.24	27.25	27.53	26.80	26.74
4NT	29.14	29.18	29.38	28.63	28.59
3NT	31.41	31.45	31.70	30.89	30.86
3,4-DNT	18.31	18.32	18.51	18.02	17.99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	5.90	0.017	0.051	5.85 - 5.95
RDX	8.88	0.042	0.126	8.75 - 9.01
TNB	11.95	0.064	0.192	11.76 - 12.14
DNB	14.64	0.098	0.293	14.35 - 14.93

FORM IX

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38614

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 05/23/99 05/23/99

COMPOUND	AVG RT	STD DEV	3X STD	RT WINDOW
TETRYL	15.83	0.117	0.350	15.48 - 16.18
NB	16.65	0.110	0.330	16.32 - 16.98
TNT	18.92	0.120	0.361	18.56 - 19.28
4ADNT	19.91	0.188	0.564	19.34 - 20.47
2ADNT	20.98	0.201	0.602	20.38 - 21.58
26DNT	22.22	0.175	0.524	21.70 - 22.74
24DNT	22.95	0.179	0.538	22.41 - 23.49
2NT	27.07	0.229	0.688	26.38 - 27.76
4NT	28.94	0.241	0.724	28.22 - 29.66
3NT	31.23	0.251	0.754	30.48 - 31.98
3,4-DNT	18.21	0.150	0.451	17.76 - 18.66

FORM IX

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC5

LC Column: METASIL Date(s) Analyzed: 05/22/99 05/23/99

Method: 200SE22C

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	124489114	108124778	119581631
RDX	147886620	144417975	145645529
TNB	319614522	277603662	308404739
DNB	446055925	436795829	421677904
TETRYL	228071678	205570698	214167595
NB	261555080	244501746	240716735
TNT	298371500	266374719	300634370
4ADNT	166361500	171114648	160845990
2ADNT	337781870	337072553	329006036
26DNT	229608660	204015556	225175879
24DNT	408630120	382043347	371629269
3,4-DNT	188368606	177921948	196120080

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	115420951	135901957	120703686	8.62
RDX	131617439	136697027	141252918	4.84
TNB	299989000	318599852	304842355	5.65
DNB	379474999	395801055	415961142	6.70
TETRYL	205870233	210031502	212742341	4.35
NB	219393308	228126762	238858726	6.77
TNT	287318631	299965707	290532986	5.01
4ADNT	137961366	138975792	155051859	10.04
2ADNT	300239325	318223036	324464564	4.83
26DNT	215744317	227204621	220349807	4.78
24DNT	331591757	346222878	368023474	8.22
3,4-DNT	188211625	198545611	189833574	4.26
MEAN RSD				6.17

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC5 Method: 200SE22

LC Column: METASIL Init. Calib Date(s): 05/22/99 05/23/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 05/23/99 : 05/23/99

Lab Sample IDs : L3A 5-155 : L3B 5-140 Time Analyzed : 1109 : 1141

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.62	4.59	4.65	118559928	120703686	1.8
RDX	7.17	7.13	7.25	145489909	141252918	-3.0
TNB	6.94	6.91	6.97	303588665	304842355	0.4
DNB	8.92	8.86	9.02	423682712	415961142	-1.9
TETRYL	11.08	11.02	11.26	204672248	212742341	3.8
NB	10.15	10.09	10.25	249266473	238858726	-4.4
TNT	10.39	10.35	10.45	287575458	290532986	1.0
4ADNT	14.13	14.03	14.37	159111537	155051859	-2.6
2ADNT	14.55	14.44	14.82	332179906	324464564	-2.4
26DNT	13.30	13.23	13.43	218648009	220349807	0.8
24DNT	12.91	12.82	13.08	371456539	368023474	-0.9
3,4-DNT	12.80	12.72	12.92	189204981	189833574	0.3

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

ıb Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC5 Method: 200SE22C

LC Column: METASIL Init. Calib Date(s): 05/22/99 05/23/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 05/23/99 : 05/23/99

Lab Sample IDs : L3A 5-155 : L3B 5-140 Time Analyzed : 1709 : 1741

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.62	4.59	4.65	121020501	120703686	-0.3
RDX	7.22	7.13	7.25	139691545	141252918	1.1
TNB	6.94	6.91	6.97	314642423	304842355	-3.2
DNB	8.97	8.86	9.02	407344119	415961142	2.1
TETRYL	11.10	11.02	11.26	213174194	212742341	-0.2
NB	10.21	10.09	10.25	234740665	238858726	1.7
TNT	10.38	10.35	10.45	298617257	290532986	-2.8
4ADNT	14.28	14.03	14.37	150893219	155051859	2.7
2ADNT	14.71	14.44	14.82	321583653	324464564	0.9
26DNT	13.28	13.23	13.43	226944174	220349807	-3.0
24DNT	13.00	12.82	13.08	357084076	368023474	3.0
3,4-DNT	12.77	12.72	12.92	197855507	189833574	-4.2

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC5 Method: 200SE22C

LC Column: METASIL Init. Calib Date(s): 05/22/99 05/23/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 05/24/99 : 05/24/99

Lab Sample IDs : L3A 5-155 : L3B 5-140 Time Analyzed : 1324 : 1356

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.64	4.59	4.65	118491426	120703686	1.8
RDX	7.22	7.13	7.25	153657949	141252918	-8.8
TNB	6.96	6.91	6.97	303222653	304842355	0.5
DNB	8.96	8.86	9.02	446068427	415961142	-7.2
TETRYL	11.19	11.02	11.26	208312691	212742341	2.1
NB	10.18	10.09	10.25	258441569	238858726	-8.2
TNT	10.43	10.35	10.45	296347416	290532986	-2.0
4ADNT	14.23	14.03	14.37	174235357	155051859	-12.4
2ADNT	14.68	14.44	14.82	344331945	324464564	-6.1
26DNT	13.37	13.23	13.43	221617636	220349807	-0.6
24DNT	12.98	12.82	13.08	392961229	368023474	-6.8
3,4-DNT	12.86	12.72	12.92	192030700	189833574	-1.2

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38614 Inst. ID: LC5 Method: 200se22c

LC Column: METASIL Init. Calib Date(s): 05/22/99 05/23/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 05/24/99 : 05/24/99

Lab Sample IDs : L3A 5-155 : L3B 5-140 Time Analyzed : 2148 : 2220

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.64	4.59	4.65	119749090	120703686	0.8
RDX	7.21	7.13	7.25	142778668	141252918	-1.1
TNB	6.96	6.91	6.97	309627006	304842355	-1.6
DNB	8.94	8.86	9.02	414045072	415961142	0.5
TETRYL	11.18	11.02	11.26	211147145	212742341	0.7
NB	10.16	10.09	10.25	236313768	238858726	1.1
TNT	10.42	10.35	10.45	299692495	290532986	-3.2
4ADNT	14.18	14.03	14.37	157120325	155051859	-1.3
2ADNT	14.62	14.44	14.82	324463240	324464564	0.0
26DNT	13.35	13.23	13.43	224785988	220349807	-2.0
24DNT	12.94	12.82	13.08	363688551	368023474	1.2
3,4-DNT	12.84	12.72	12.92	195022285	189833574	-2.7

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

FORM VII

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38614

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.5
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

ab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38614

Lab Code: SWOK Instrument ID: LC5

LC Column: METASIL Date(s) ICAL Analyzed: 05/22/99 05/23/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	4.63	4.62	4.63	4.62	4.61
RDX	7.20	7.22	7.19	7.19	7.17
TNB	6.95	6.94	6.95	6.94	6.93
DNB	8.96	8.97	8.94	8.93	8.90
TETRYL	11.17	11.14	11.15	11.15	11.10
NB	10.18	10.21	10.17	10.16	10.14
TNT	10.40	10.40	10.41	10.42	10.38
4ADNT	14.21	14.26	14.20	14.18	14.13
2ADNT	14.65	14.70	14.63	14.61	14.55
26DNT	13.36	13.32	13.34	13.35	13.30
24DNT	12.96	13.00	12.95	12.93	12.89
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	12.86	12.81	12.83	12.84	12.79

COMPOUND	RT CCAL 1	RT CCAL 2	RT CCAL 3	RT CCAL 4	RT CCAL 5
HMX	4.62	0.00	4.62	0.00	4.64
RDX	0.00	7.17	0.00	7.22	0.00
TNB	6.94	0.00	6.94	0.00	6.96
DNB	0.00	8.92	0.00	8.97	0.00
TETRYL	11.08	0.00	11.10	0.00	11.19
NB	0.00	10.15	0.00	10.21	0.00
TNT	10.39	0.00	10.38	0.00	10.43
4ADNT	0.00	14.13	0.00	14.28	0.00
2ADNT	0.00	14.55	0.00	14.71	0.00
26DNT	13.30	0.00	13.28	0.00	13.37
24DNT	0.00	12.91	0.00	13.00	0.00
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	12.80	0.00	12.77	0.00	12.86

COMPOUND	RT CCAL 6	RT CCAL 7	RT CCAL 8
HMX	0.00	4.64	0.00
RDX	7.22	0.00	7.21
TNB	0.00	6.96	0.00
DNB	8.96	0.00	8.94

FORM IX

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38614

Lab Code: SWOK Instrument ID: LC5

LC Column: METASIL Date(s) ICAL Analyzed: 05/22/99 05/23/99

COMPOUND	RT CCAL 6	RT CCAL 7	RT CCAL 8
TETRYL	0.00	11.18	0.00
NB	10.18	0.00	10.16
TNT	0.00	10.42	0.00
4ADNT	14.22	0.00	14.18
2ADNT	14.68	0.00	14.62
26DNT	0.00	13.34	0.00
24DNT	12.98	0.00	12.94
2NT	0.00	0.00	0.00
4NT	0.00	0.00	0.00
3NT	0.00	0.00	0.00
3,4-DNT	0.00	12.84	0.00

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	4.62	0.010	0.030	4.59 - 4.65
RDX	7.19	0.021	0.064	7.13 - 7.25
TNB	6.94	0.010	0.030	6.91 - 6.97
DNB	8.94	0.027	0.080	8.86 - 9.02
TETRYL	11.14	0.039	0.116	11.02 - 11.26
NB	10.17	0.028	0.084	10.09 - 10.25
TNT	10.40	0.018	0.054	10.34 - 10.45
4ADNT	14.20	0.058	0.174	14.02 - 14.37
2ADNT	14.63	0.064	0.193	14.44 - 14.82
26DNT	13.33	0.033	0.098	13.23 - 13.43
24DNT	12.95	0.042	0.127	12.82 - 13.08
2NT	0.00	0.000	0.000	0.00 - 0.00
4NT	0.00	0.000	0.000	0.00 - 0.00
3NT	0.00	0.000	0.000	0.00 - 0.00
3,4-DNT	12.82	0.033	0.099	12.72 - 12.92

FORM IX

[redacted] SV [redacted] • PCB OTHER

RUSH REEXTRACT TCLP OXIN

SAMPLE EXTRACTION LO

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

CONT EX. (3520B)
SEP-F (3510B)
SHAKER
SONC. (3550)
SOXHLET

XXXXX

BATCH: 990521SA

EXTRACT DATE: 99-05-21 13:30

000792

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE %	DRY WEIGHT g	AMOUNT EXTRACTED g • ml	EXTRACTED VOLUME ml	GPC VOLUME ml	GPC ELUTE VOL ml	FLORISIL VOL CONC ml	FLORISIL FIN VOL CONC ml	VOL SV - P ml	FIN PROCESS VOLUME ml	SCREEN Y/N Y/N	µL	MS SV - P µL	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
38614.12INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108091	S/L		27.29	1.5	2.13							10.0	N		1000			
38614.13INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108091FD	S/L		23.14	1.6	2.10							10.0	N		1000			
38614.14INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108092	S/L		33.01	1.4	2.04							10.0	N		1000			
38614.15INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108093	S/L		24.56	1.6	2.09							10.0	N		1000			
38614.16INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108111	S/L		25.09	1.6	2.10							10.0	N		1000			
38614.17INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108112	S/L		16.04	1.8	2.15							10.0	N		1000			
38614.18INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108113	S/L		23.72	1.6	2.16							10.0	N		1000			

INITIALS

WEIGHING: GS	EXTRACTION: GS	FLORISIL:
CLEANUP:	KD:	
BLOWDOWN:	TV:	
SURROG. SPIKER: SM	VERIFIER: GS	
MATRIX SPIKER: SM	VERIFIER: GS	
SUBMITTED BY:	REVIEWED BY:	

ID NUMBERS

FLORISIL CARTRIDGE #:

GPC COLUMN #:

SURROGATES ID CONC #: 5-143

MATRIX SPIKE SOLID/CONC #(s): 5-158

SOP - METHOD # : SWL-OP- 416 Rev. 4-0

COMMENTS

[redacted] M [redacted] RUSH REEXTRACT TCLP DXIN

SV • PCB OTHER

SAMPLE EXTRACTION L(

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

CONT EX. (3520B)
SEP-F (3510B)
SHAKER
SONC. (3550)
SOXHLET

BATCH: 990521SA

EXTRACT DATE 99-05-21 13:30

XXXXX

000792

SAMPLE ID (EPISODE #)	CLIENT / CASE	DATE RECEIVED / CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE %	DRY WEIGHT g	AMOUNT EXTRACTED g • ml	EXTRACTED VOLUME ml	GPC VOLUME ml	GPC ELUTE VOL ml	FLORISIL VOL CONC ml	FLORISIL FIN VOL CONC ml	VOL SV - P ml	FIN PROCESS VOLUME ml	SCREEN Y/N	MS SV - P µL	SURR SV - P µL	BASE pH CONFIRMATION	ACID pH CONFIRMATION
BL0521SA			S/L				2.11							10.0	N		1000		
BB0521SA			S/L				2.06							10.0	N		1000		
LC0521SA			S/L				2.08							10.0	N	500	1000		
LD0521SA			S/L				2.07							10.0	N	500	1000		
38614.01INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108031	S/L		11.09	1.8	2.02							10.0	N		1000		
38614.02MS GC200	TOLTEST	05/20/1999 10:42 BIOS06108031	S/L		11.09	1.8	2.00							10.0	N	500	1000		
38614.03MSD GC200	TOLTEST	05/20/1999 10:42 BIOS06108031	S/L		11.09	1.8	2.00							10.0	N	500	1000		
38614.04INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108032	S/L		22.59	1.7	2.20							10.0	N		1000		
38614.05INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108033	S/L		25.49	1.6	2.15							10.0	N		1000		
38614.06INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108051	S/L		21.99	1.6	2.02							10.0	N		1000		
38614.07INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108052	S/L		20.19	1.6	2.00							10.0	N		1000		
38614.08INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108053	S/L		19.68	1.6	2.05							10.0	N		1000		
38614.09INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108071	S/L		26.42	1.6	2.20							10.0	N		1000		
38614.10INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108072	S/L		26.86	1.6	2.12							10.0	N		1000		
38614.11INT GC200	TOLTEST	05/20/1999 10:42 BIOS06108073	S/L		26.94	1.5	2.02							10.0	N		1000		

INITIALS

WEIGHING:	GS	EXTRACTION: GS	FLORISIL:
CLEANUP:		KD:	
BLOWDOWN:		TV:	
SURROG. SPIKER:	SM	VERIFIER: GS	
MATRIX SPIKER:	SM	VERIFIER: GS	
SUBMITTED BY:		REVIEWED BY:	

ID NUMBERS

FLORISIL CARTRIDGE #:
GPC COLUMN #:
SURROGATES ID CONC #: 5-143
MATRIX SPIKE SOLID/CONC #(s): 5-158

SOP - METHOD # : SWL-OP- 416 Rev. 4.0

COMMENTS

TOLTEST, INC. 1915 N. 12th St., P.O. Box 2186, Toledo, OH 43603-2186; Voice (419) 241-7175, Fax (419) 321-6259
Ship To Address: ATTN: RECEIVING LAB, 1810 N. 12th St., Toledo, OH 43624-1304; Voice (419) 241-7175, Fax (419) 241-1808
Sent From: ☐ Corporate ☐ Plymouth ☐ Monroe ☐ Pittsburgh ☐ Other _____

B10 -231

Chain of Custody Record

25834

Project No.: 37324	Client:		
P.O. No.:	Project/Location: NSWC Crane Biofacility		
Project Mgr.:		Sampler's Name	
Phone No.		Sampler's Signature	

Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	8330	Parameters							Preserved Yes/No	LAB USE ONLY Lab #
1	B10 M082 00 051	7/8/99	1300	G	Compost	Column 3 sample location 1	1	1									
2	B10 M082 00 052		1301			2											
3	B10 M082 00 053		1302			3				MS/MSD							
4	M082 00 057		1303			5 1											
5	M082 00 057		1304			2											
6	M082 00 052FD		1304			2											
7	M082 00 053		1305			3											
8	M082 00 071		1306			7 1											
9	M082 00 072		1307			2											
10	M082 00 073		1308			3											

Item No.	Relinquished By:	Date	Time	Received By:	Date	Time
	[signature]	7/8/99	1500	[signature]	7-9-99	10:15

LAB USE ONLY

Were samples delivered ☐ in person ☐ by courier
Were samples preserved ☐ in field ☐ in lab ☐ N/A
Temp of samples 4 °C
Did samples arrive intact and sealed? ☐ yes ☐ no ☐ N/A
Were proper containers used? ☐ yes ☐ no
Was container labeled properly for contents? ☐ yes ☐ no
Were samples packaged properly for type of material? ☐ yes ☐ no
Was shipping label completed properly per regulations? (49 CFR 170, etc.) ☐ yes ☐ no
Comments: _____

TAT

Distribution: Original plus one accompanies shipment (white and yellow); copy to coordinator field files (pink)

Rev. 7/97

TOLTEST, INC.

1915 N. 12th St., P.O. Box 2186, Toledo, OH 43603-2186; Voice (419) 241-7175, Fax (419) 321-6259
Ship To Address: ATTN: RECEIVING LAB, 1810 N. 12th St., Toledo, OH 43624-1304; Voice (419) 241-7175, Fax (419) 241-1808
Sent From: ☐ Corporate ☐ Plymouth ☐ Monroe ☐ Pittsburgh ☐ Other _____

B10-231

Chain of Custody Record

25836

Project No.: 37324
Client:
P.O. No.:
Project/Location: NSWC Crane Bioreactor
Project Mgr.:
Sampler's Name: Joe Medina
Phone No.:
Sampler's Signature: Joe Medina

Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	Parameters: 8330	Preserved Yes/No	LAB USE ONLY Lab #
1	B10 M082 00 091	7/8/99	1309	G	compost	column 9 sample location 1	1	✓		
2	B10 M082 00 092		1310			7				
3	B10 M082 00 093		1311			3				
4	B10 M082 00 111		1312			11 1				
5	B10 M082 00 112		1313			2				
6	B10 M082 00 113		1314			3				
7	B10 M082 00 113FD		1314			3				
8										
9										
10										

Item No.	Relinquished By:	Date	Time	Received By:	Date	Time
	[signature]	7/8/99	1500	[signature]	7-9-99	09:15 ~~1015~~
	Relinquished By:	Date	Time	Received By:	Date	Time
	Relinquished By:	Date	Time	Received By:	Date	Time
	Relinquished By:	Date	Time	Received By:	Date	Time

LAB USE ONLY

Were samples delivered ☐ in person ☐ by courier
Were samples preserved ☐ in field ☐ in lab ☐ N/A
Temp of samples 4 °C
Did samples arrive intact and sealed? ☐ yes ☐ no ☐ N/A
Were proper containers used? ☐ yes ☐ no
Was container labeled properly for contents? ☐ yes ☐ no
Were samples packaged properly for type of material? ☐ yes ☐ no
Was shipping label completed properly per regulations? (49 CFR 170, etc.) ☐ yes ☐ no
Comments: _____

TAT

Distribution: Original plus one accompanies shipment (white and yellow); copy to coordinator field files (pink)

Rev. 7/97

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2.WB1) / SWL-GA-115 REV 5.0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA

PAGE ___ OF ___

RECEIVED BY (PRINT NAME): DON WILLIS

RECEIVED BY (SIGNATURE): ___

LOGGED IN BY (SIGNATURE): ___

REC'D DATE 07/09/99

TIME REC'D 09:15

LOG-IN DATE 1999-07-09 09:39

PROJECT: NSWC CRANE

EPISODE: 39322

SAMPLE DELIVERY GROUP:39322

Remarks

1. CUSTODY SEAL(S): Present/Absent
   Intact/ Broken
2. CUSTODY SEALS NOS.:
3. CHAIN-OF CUSTODY. Present/Absent
   Sealed In Plastic? Yes/ No
   Taped To Lid? Yes/ No
   Properly Filled Out (Ink, Signed, ETC.)? Yes/ No
4. AIRBILL AirBil/ Sticker Present/Absent
5. AIRBILL NO: 8116 7401 3887
6. COOLER CONDITIONS
   Enough Ice? Yes/ No
   Type of Ice? Wet
   Type of Packing? Bub
7. SAMPLE TAGS Present/Absent
8. SAMPLE CONDITION: Intact/ Broken*/ Leaking
   Bottles Sealed In Separate Plastic Bags? Yes/ No
   Correct Containers Used For Tests Indicated? Yes/ No
   Correct Preservative? Yes/ No
   Sufficient Sample? Yes/ No
   Labels Complete (I.D., Date, Time, Signature, Preservative? Yes/ No
   VOA Samples Without Bubbles? Yes/ No~
9. Does Information on Custody Records,Labels,Tags Agree? Yes/ No*
10. RAD SCREEN WITH GIEGER COUNTER? Yes/ No
11. P.O. Called? Yes/ No

Client Sample #	Sample Fraction @	Assigned LAB#	Cooler I.D.	pH Check	ACID/ BASE LOT#	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
BIOM08200031		39322.01	7/9/99	N		4 DEG C
BIOM08200032		39322.02		N		
BIOM08200033		39322.03		N		
BIOM08200033		39322.04		N		
BIOM08200033		39322.05		N		
BIOM08200051		39322.06		N		
BIOM08200052		39322.07		N		
BIOM08200052FD		39322.08		N		
BIOM08200053		39322.09		N		
BIOM08200071		39322.10		N		
BIOM08200072		39322.11		N		
BIOM08200073		39322.12		N		
BIOM08200091		39322.13		N		
BIOM08200092		39322.14		N		
BIOM08200093		39322.15		N		
BIOM08200111		39322.16		N		
BIOM08200112		39322.17		N		
BIOM08200113		39322.18		N		
BIOM08200113FD		39322.19		N		

* Contact PO and attach record of resolution

@ Sample Fractions: B=SV GC/MS, V= VOA GC/MS or GC, P=Pesticide,H=Herbicide, D=Dioxin, A=Air, I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE
August 27, 1999

CONTRACT : TOLTEST

PROJECT : NSWC CRANE

SDG NO : 39322

EPISODE(S): 39322

EXPLOSIVE FRACTION

This SDG consisted of 17 soil samples with applicable MS and MSD for the explosive analysis. The samples, blanks and spikes were extracted and analyzed according to EPA protocol, SW-846, method 8330, REV. 0, 1994.

For soil samples, the percent moisture is determined by drying them at 105° C at the time of receipt. Additional portion of the samples is air-dried prior to analysis. The results are reported on the basis of the air-dried samples. For high-level water samples, direct injection method is used. For low-level water samples, salting out method is used. All of the extracts are diluted by a factor of two prior to analysis according to method 8330. The extracts are diluted in order to be the same consistency as the Mobile Phase.

"P" flags were used when the appropriate compound with sufficient response exceeded 40% deviation, possibly due to interference in the quantitation or confirmation columns.

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

CASE SUMMARY:

Blank(s): No problems.

Surrogate(s): No problems.

Matrix Spikes: HMX, RDX, Tetryl, 4ADNT and 2NT were out of the laboratory QC limits in the samples BIOM08200033MS and BIOM08200033MSD. RDX and Tetryl exceeded the RPD limits between these samples.

Laboratory Control Spikes: No problems.

HMX, RDX and TNB exceeded 15%D in the CCAL 1-081715.D. Since this was the ending CCAL, the associated samples were submitted.

4ADNT exceeded 15%D in the CCAL 2-081718.D. With the exception of MS and MSD, this analyte was not reported in any of the associated samples.

Most of the samples in this SDG were diluted further than the regular 2X dilution because of the high concentration of RDX. These dilutions were utilized as original samples for the data package.

Enviroquant software was utilized to process the above samples. The Response Factor in the standard is calculated by dividing the area of each analyte by the concentration of the respective analyte.

Multiplier = (final volume / extracted amount) * dilution.

The following is an example of the calculations for RDX in the quantitation and confirmation column of the undiluted sample BIOM08200052:

[Sample's response (area) / mean calibration factor] * Multiplier = the concentration

(156944023/279800) * 83.33 = 46741 ug/Kg

(66593672/111400) * 83.33 = 49814 ug/Kg

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

The explosives referred to in the data package by the abbreviations found in method 8330 are as follows: HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine), RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine), TNB (1,3,5-Trinitrobenzene), DNB (1,3-Dinitrobenzene), Tetryl (Methyl-2,4,6-trinitrophenylnitramine), NB (Nitrobenzene), TNT (2,4,6- Trinitrotoluene), 24DNT (2,4-Dinitrotoluene), 26DNT (2,6-Dinitrotoluene), 2NT (o-Nitrotoluene), 3NT m-Nitrotoluene), 4NT (p-Nitrotoluene) , PETN (Pentaerythritol tetranitrate), 2ADNT (2-Amino-4,6-dinitrotoluene), 4ADNT (4-Amino-2,6-dinitrotoluene).

The laboratory utilizes the following flags where appropriate: "J" - indicates a quantitated result, which is below the quantitation limit, but above the detection limit and has been confirmed by the second column. "E"- indicates an out of range value, i.e., a peak that is off-scale or out of the linear calibration range of the detector. The value reported is not to be used. The sample must be diluted and re-run. "D" - indicates a value derived from a secondary dilution. "U" - indicates the compound that is undetected above the quantitation limit. "X" - indicates a comment that is explained in the case narrative.

Phuong Vo
LC Analyst

2F
SOIL EXPLOSIVES SURROGATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

LC Column(1): CARBOSORB

	CLIENT SAMPLE NO.	S1 1 %REC #	TOT OUT
01	BL0709SF	88	0
02	LC0709SF	113	0
03	LD0709SF	104	0
04	BIOMO8200072	92	0
05	BIOMO8200073	95	0
06	BIOMO8200091	84	0
07	BIOMO8200092	86	0
08	BIOMO8200093	70	0
09	BIOMO8200111	70	0
10	BIOMO8200112	70	0
11	BIOMO8200051	71	0
12	BIOMO8200113FD	80	0
13	BIOMO8200052	82	0
14	BIOMO8200052FD	78	0
15	BIOMO8200053	83	0
16	BIOMO8200071	72	0
17	BIOMO8200113	92	0
18	BIOMO8200033MS	61	0
19	BIOMO8200033MSD	66	0
20	BIOMO8200031	114	0
21	BIOMO8200032	96	0
22	BIOMO8200033	86	0
23			
24			
25			
26			
27			
28			
29			
30			

S1 = 3,4-DNT

QC LIMITS
(60-140)

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

FORM II

3H

SOIL EXPLOSIVES LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

LCS Sample NO.: LC0709SF

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
HMX	9500	9400	99	57-137
RDX	9500	9730	102	77-113
TNB	9500	9100	96	64-125
DNB	9500	9220	97	82-118
TETRYL	9500	10200	107	23-124
NB	9500	9510	100	69-143
TNT	9500	9620	101	75-118
4ADNT	9500	9630	101	60-140
2ADNT	9500	9010	95	60-140
26DNT	9500	8530	90	78-117
24DNT	9500	9400	99	74-126
2NT	9500	7820	82	78-123
4NT	9500	9350	98	79-125
3NT	9500	9380	99	78-121

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 0 out of 14 outside limits

Comments:

3H

SOIL EXPLOSIVES LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

LCS Sample NO.: LD0709SF

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
HMX	9500	8680	91	57-137
RDX	9500	8910	94	77-113
TNB	9500	8320	88	64-125
DNB	9500	8560	90	82-118
TETRYL	9500	8920	94	23-124
NB	9500	8800	92	69-143
TNT	9500	8960	94	75-118
4ADNT	9500	8930	94	60-140
2ADNT	9500	8330	88	60-140
26DNT	9500	8380	88	78-117
24DNT	9500	8460	89	74-126
2NT	9500	7660	81	78-123
4NT	9500	8010	84	79-125
3NT	9500	8550	90	78-121

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 0 out of 14 outside limits

Comments:

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

Matrix Spike - Client Sample NO.: BIOMO8200033

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
HMX	9050	0	11000	122	54-128
RDX	9050	21800	26400	51*	66-109
TNB	9050	0	6350	70	57-130
DNB	9050	0	7580	84	74-122
TETRYL	9050	0	0	0*	32-119
NB	9050	0	8000	88	70-135
TNT	9050	0	5780	64	44-124
4ADNT	9050	0	21300	235*	60-140
2ADNT	9050	0	8510	94	60-140
26DNT	9050	0	8080	89	58-125
24DNT	9050	0	7620	84	59-120
2NT	9050	0	6880	76*	79-124
4NT	9050	0	9100	100	74-128
3NT	9050	0	9210	102	79-121

FORM III

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

Matrix Spike - Client Sample NO.: BIOMO8200033

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC	#	% RPD	#	QC LIMITS RPD	QC LIMITS REC.
HMX	8640	13800	159	*	22		30	54-128
RDX	8640	41800	232	*	45	*	30	66-109
TNB	8640	7310	84		14		30	57-130
DNB	8640	8580	99		12		45	74-122
TETRYL	8640	109	1	*	200	*	30	32-119
NB	8640	7730	90		3		35	70-135
TNT	8640	5380	62		7		30	44-124
4ADNT	8640	20800	241	*	2		40	60-140
2ADNT	8640	8180	95		4		40	60-140
26DNT	8640	7640	88		6		35	58-125
24DNT	8640	7520	87		1		35	59-120
2NT	8640	6580	76	*	4		35	79-124
4NT	8640	8570	99		6		35	74-128
3NT	8640	8930	103		3		35	79-121

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 2 out of 14 outside limits
Spike Recovery: 9 out of 28 outside limits

Comments:

FORM III

4C

EXPLOSIVES METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

BL0709SF

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

Lab Sample ID : BL0709SF Lab File ID : 3_081249

Matrix: (soil/water) SOIL

Date Extracted : 07/09/99 Extraction Method : SONC

Date Analyzed (1): 08/14/99 Date Analyzed (2): 07/31/99

Time Analyzed (1): 1126 Time Analyzed (2): 0242

Instrument ID (1): LC3 Instrument ID (2): LC2

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

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	LC0709SF	LC0709SF	08/14/99	
02	LD0709SF	LD0709SF	08/14/99	
03	BIOMO8200072	39322.11	08/17/99	07/31/99
04	BIOMO8200073	39322.12	08/17/99	07/31/99
05	BIOMO8200091	39322.13	08/17/99	07/31/99
06	BIOMO8200092	39322.14	08/17/99	08/16/99
07	BIOMO8200093	39322.15	08/17/99	08/16/99
08	BIOMO8200111	39322.16	08/17/99	08/16/99
09	BIOMO8200112	39322.17	08/17/99	08/16/99
10	BIOMO8200051	39322.06	08/17/99	08/16/99
11	BIOMO8200113FD	39322.19	08/17/99	08/16/99
12	BIOMO8200052	39322.07	08/17/99	08/16/99
13	BIOMO8200052FD	39322.08	08/17/99	08/16/99
14	BIOMO8200053	39322.09	08/17/99	08/16/99
15	BIOMO8200071	39322.10	08/18/99	07/31/99
16	BIOMO8200113	39322.18	08/18/99	08/16/99
17	BIOMO8200033MS	39322.04MS	08/18/99	
18	BIOMO8200033MSD	39322.05MSD	08/18/99	
19	BIOMO8200031	39322.01	08/17/99	08/16/99
20	BIOMO8200032	39322.02	08/17/99	08/16/99
21	BIOMO8200033	39322.03	08/17/99	08/16/99
22				
23				
24				
25				
26				

Comments:

FORM IV

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOMO8200073

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

Matrix: (soil/water) SOIL Lab Sample ID: 39322.12

Sample Amt: 2.0 G % Moisture: 34.3 Date Received: 07/09/99

Extraction Volume: 10 ML Date Extracted: 07/09/99

Extraction Method: SONC Date Analyzed: 08/17/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	3600	
121-82-4	RDX	12200	
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	1120	P
1946-51-0	4ADNT	425	
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		2000.00	

7/11/99 KC
2560E

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0817\3_081712.D Vial: 12
Acq On : 17 Aug 1999 18:22 Operator: TLM
Sample : 39322.12 Inst : LC3
Misc : BIOMO8200073 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Aug 18 9:32 1999 Quant Results File: 200SH17.RES

Method : F:\HPCHEM\LC3\DATA\3_0817\200SH17.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0817\
Last Update : Wed Aug 18 09:17:21 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

	Compound	R.T.	Response	ug/Kg		Curve
	Surrogates/System Monitoring Compounds:					
7) S	3,4-DNT	18.34	62477254	1897.6	m	A
	Target Compounds:					
1)	HMX	5.96	92230441	3596.6 *	m	A
2)	RDX	8.98	366944805	12169.6 *	m	A
3)	TNB	0.00	0	N.D.		A
4)	DNB	0.00	0	N.D.		A
5)	TETRYL	0.00	0	N.D.		A
6)	NB	0.00	0	N.D.		A
8)	TNT	19.07	55548852	1124.8 * P	m	A
9)	4ADNT	20.43	20217071	425.0 *	m	A
10)	2ADNT	21.66	6733818	132.9	m	A
11)	26DNT	0.00	0	N.D.		A
12)	24DNT	24.01	407159442	6250.1	m	A
13)	2NT	26.95	773861981	28438.5	mE	A
14)	4NT	29.85	461515936	~~25658~~.1 * P	mE	A
15)	3NT	0.00	0	N.D.		A

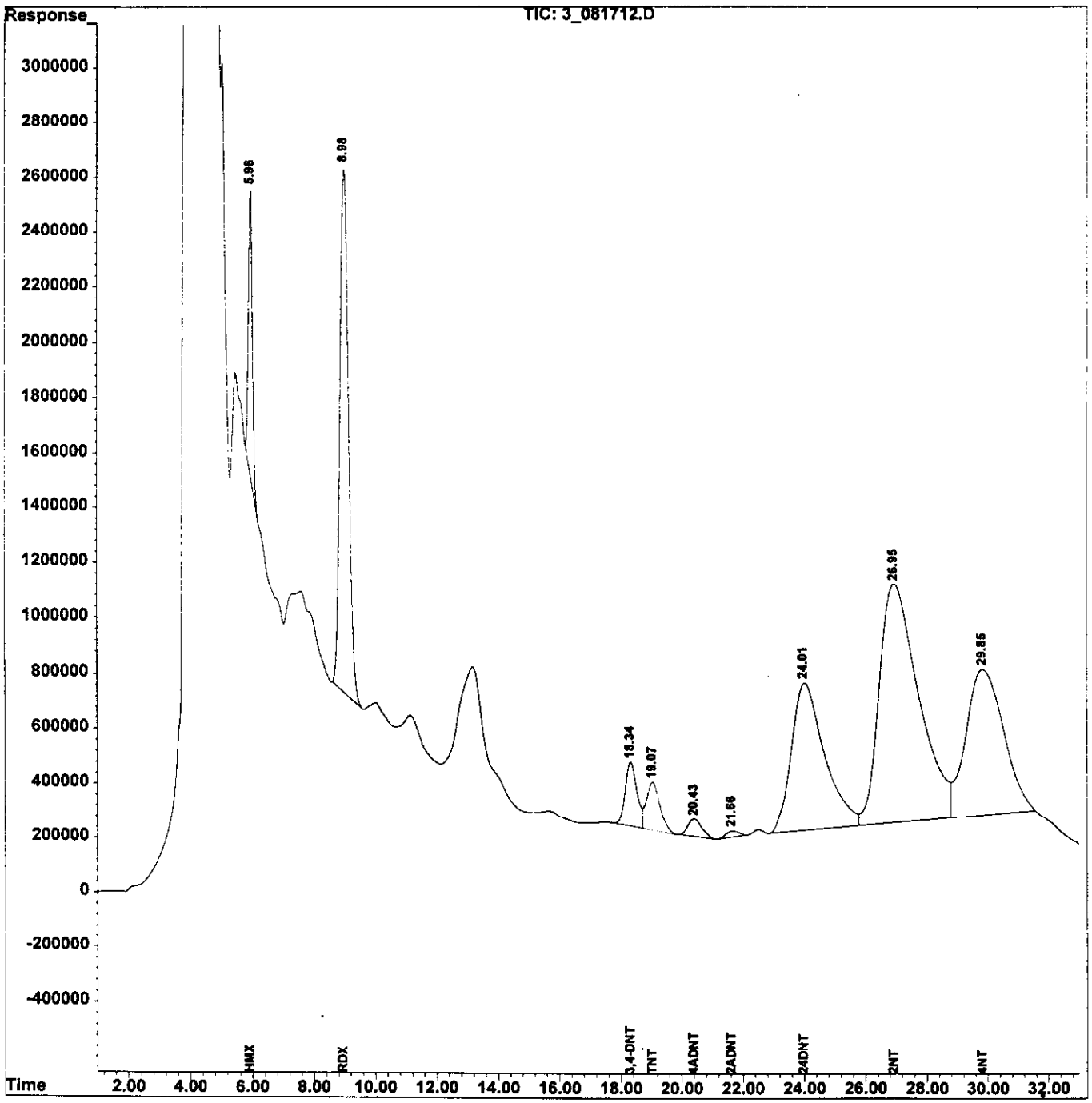
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0817\3_081712.D Vial: 12
Acq On : 17 Aug 1999 18:22 Operator: TLM
Sample : 39322.12 Inst : LC3
Misc : BIOMO8200073 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Aug 18 9:32 1999 Quant Results File: 200SH17.RES

Method : F:\HPCHEM\LC3\DATA\3_0817\200SH17.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0817\
Last Update : Wed Aug 18 09:17:21 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



63

Quantitation Report

Data File : F:\HPCHEM\LC2\DATA\2_0730\2_073045.D Vial: 45
Acq On : 31 Jul 1999 08:21 Operator: KG
Sample : 39322.12 Inst : LC2
Misc : BIOMO8200073 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Aug 2 15:12 1999 Quant Results File: 200SG29C.RES

Method : F:\HPCHEM\LC2\DATA\2_0730\200SG29C.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0729\
Last Update : Sun Aug 01 11:14:08 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	15.94	48700469	2156.7	m	A
Target Compounds:					
1) A HMX	5.21	19339005	2160.2	m	A
2) B RDX	8.21	143253793	13860.5	m	A
3) A TNB	0.00	0	N.D.	d	A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	13.85	3088143	135.2	m	A
6) B NB	0.00	0	N.D.		A
8) A TNT	12.89	17061370	579.1	m	A
9) B 4ADNT	17.20	3614161	337.9	m	A
10) B 2ADNT	17.46	1384228	40.0	m	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

KG 8-10-99

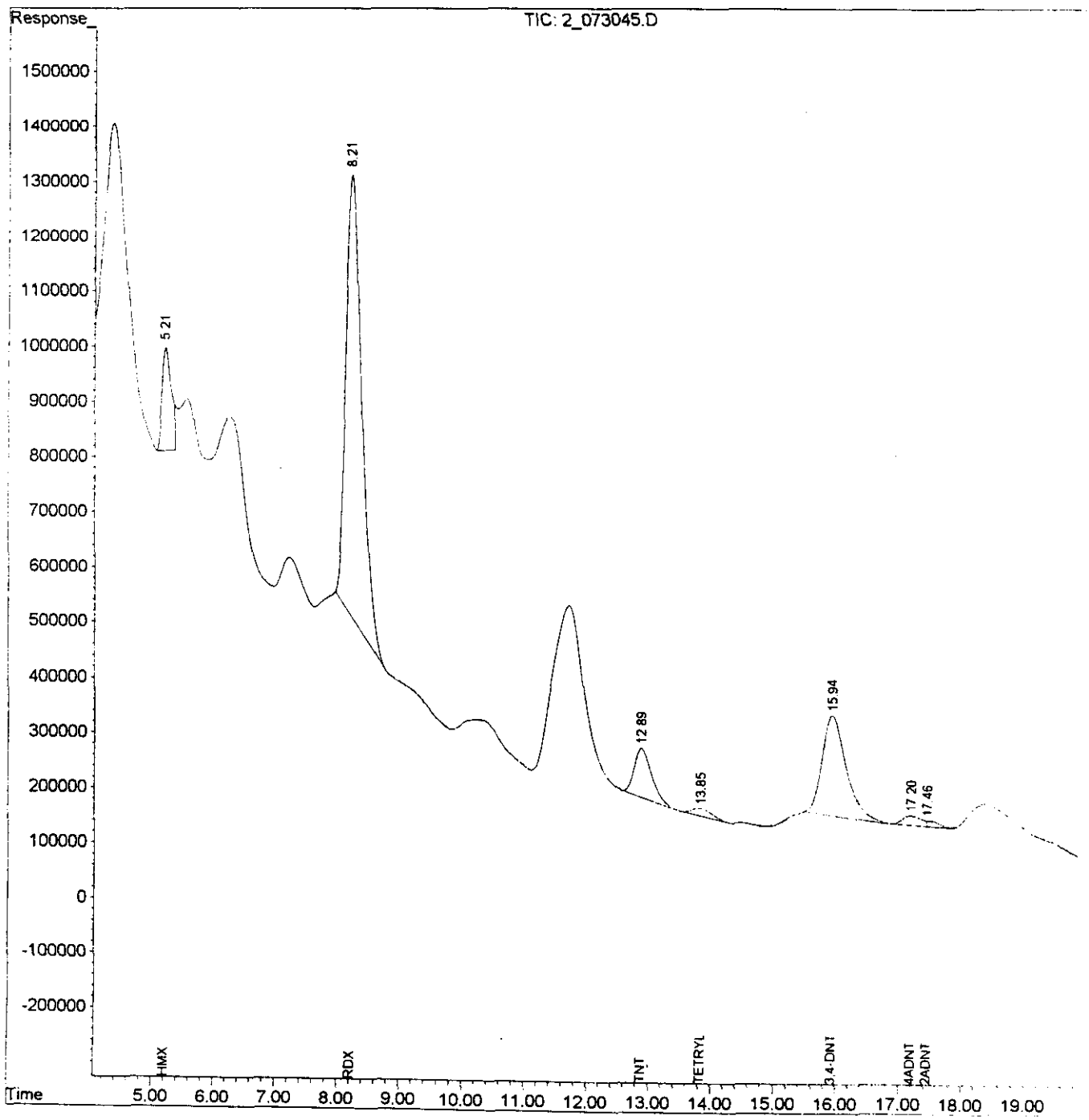
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC2\DATA\2_0730\2_073045.D Vial: 45
Acq On : 31 Jul 1999 08:21 Operator: KG
Sample : 39322.12 Inst : LC2
Misc : BIOMO8200073 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Aug 2 15:12 1999 Quant Results File: 200SG29C.RES

Method : F:\HPCHEM\LC2\DATA\2_0730\200SG29C.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0729\
Last Update : Sun Aug 01 11:14:08 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



Quantitation Report

Data File : F:\HPCHEM\LC4\DATA\4_0816\4_081620.D Vial: 20
Acq On : 17-Aug-1999, 02:03:02 Operator: JF
Sample : 39322.12 Inst : LC4
Misc : BIOM08200073 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Aug 17 11:00 1999 Quant Results File: 200SH16N.RES

Method : F:\HPCHEM\LC4\DATA\4_0816\200SH16N.M
Title-Path : GC200 CALIBRATION - F:\HPCHEM\LC4\DATA\4_0816\
Last Update : Tue Aug 17 10:43:15 1999
Response via : Initial Calibration

Volume Inj. : 100uL
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Target Compounds:					
1) 2NT	0.00	0	N.D.		A
2) 4NT	23.31	42014013	13201.7	m	A
3) 3NT	0.00	0	N.D.		A

8/17/99

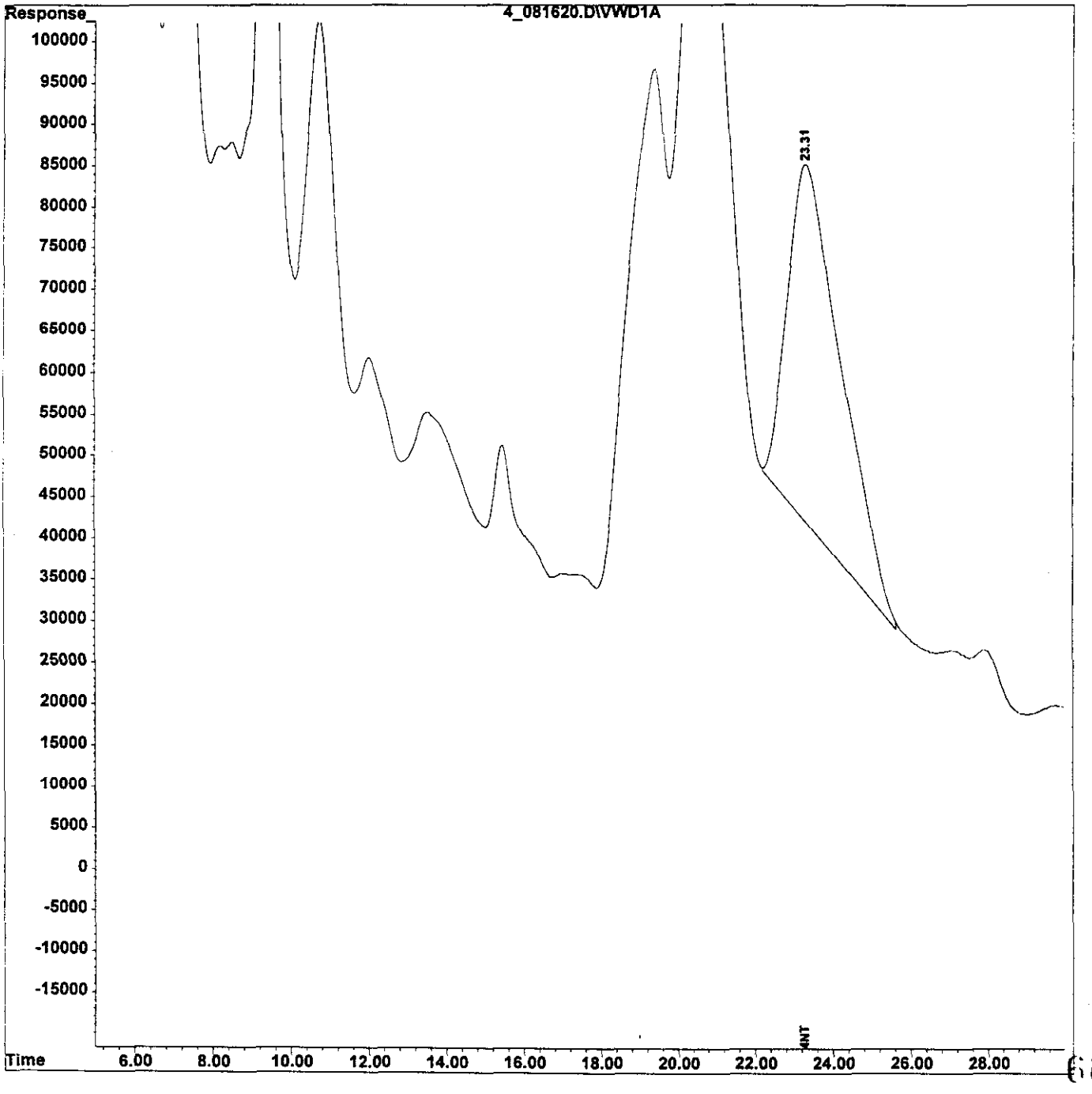
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
4_081620.D 200SH16N.M Tue Aug 17 11:12:44 1999

Chromatographic Report

Data File : F:\HPCHEM\LC4\DATA\4_0816\4_081620.D Vial: 20
Acq On : 17-Aug-1999, 02:03:02 Operator: JF
Sample : 39322.12 Inst : LC4
Misc : BIOM08200073 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Aug 17 11:00 1999 Quant Results File: 200SH16N.RES

Method : F:\HPCHEM\LC4\DATA\4_0816\200SH16N.M
Title-Path : GC200 CALIBRATION - F:\HPCHEM\LC4\DATA\4_0816\
Last Update : Tue Aug 17 10:43:15 1999
Response via : Multiple Level Calibration

Volume Inj. : 100uL
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOMO8200052

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

Matrix: (soil/water) SOIL Lab Sample ID: 39322.07

Sample Amt: 2.4 G % Moisture: 33.6 Date Received: 07/09/99

Extraction Volume: 10 ML Date Extracted: 07/09/99

Extraction Method: SONC Date Analyzed: 08/17/99

GPC Cleanup: (Y/N) N Dilution Factor: 20.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	10600	J
121-82-4	RDX	46700	
99-35-4	TNB	2080	U
99-65-0	DNB	2080	U
479-45-8	TETRYL	5420	U
98-95-3	NB	2170	U
118-96-7	TNT	2080	U
1946-51-0	4ADNT	2080	U
35572-78-2	2ADNT	2080	U
606-20-2	26DNT	2170	U
121-14-2	24DNT	2080	U
88-72-2	2NT	2080	U
99-99-0	4NT	2080	U
99-08-1	3NT	2080	U
Surrogate amount spiked		1666.67	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC2\DATA\2_0817\2_081711.D Vial: 11
Acq On : 17 Aug 1999 21:52 Operator: KG
Sample : 39322.07 Inst : LC2
Misc : BIOMO8200052 Multiplr: 83.3330
IntFile : EVENTS1.E
Quant Time: Aug 18 13:49 1999 Quant Results File: 200SH17.RES

Method : F:\HPCHEM\LC2\DATA\2_0817\200SH17.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0817\
Last Update : Wed Aug 18 13:41:11 1999
Response via : Initial Calibration

AUG 17 1999

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	15.78	8751937	1373.8	m	A
Target Compounds:					
1) HMX	5.17	24847147	10560.5*	m	A
2) RDX	7.79W	156944023	46736.9*	m	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	16.69	4877469	469.9	m	A
9) 4ADNT	16.97	2748585	705.1	m	A
10) 2ADNT	17.87	2155692	218.1	m	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	25.23	1334269	207.0	m	A
15) 3NT	0.00	0	N.D.		A

KG 8-19-99

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

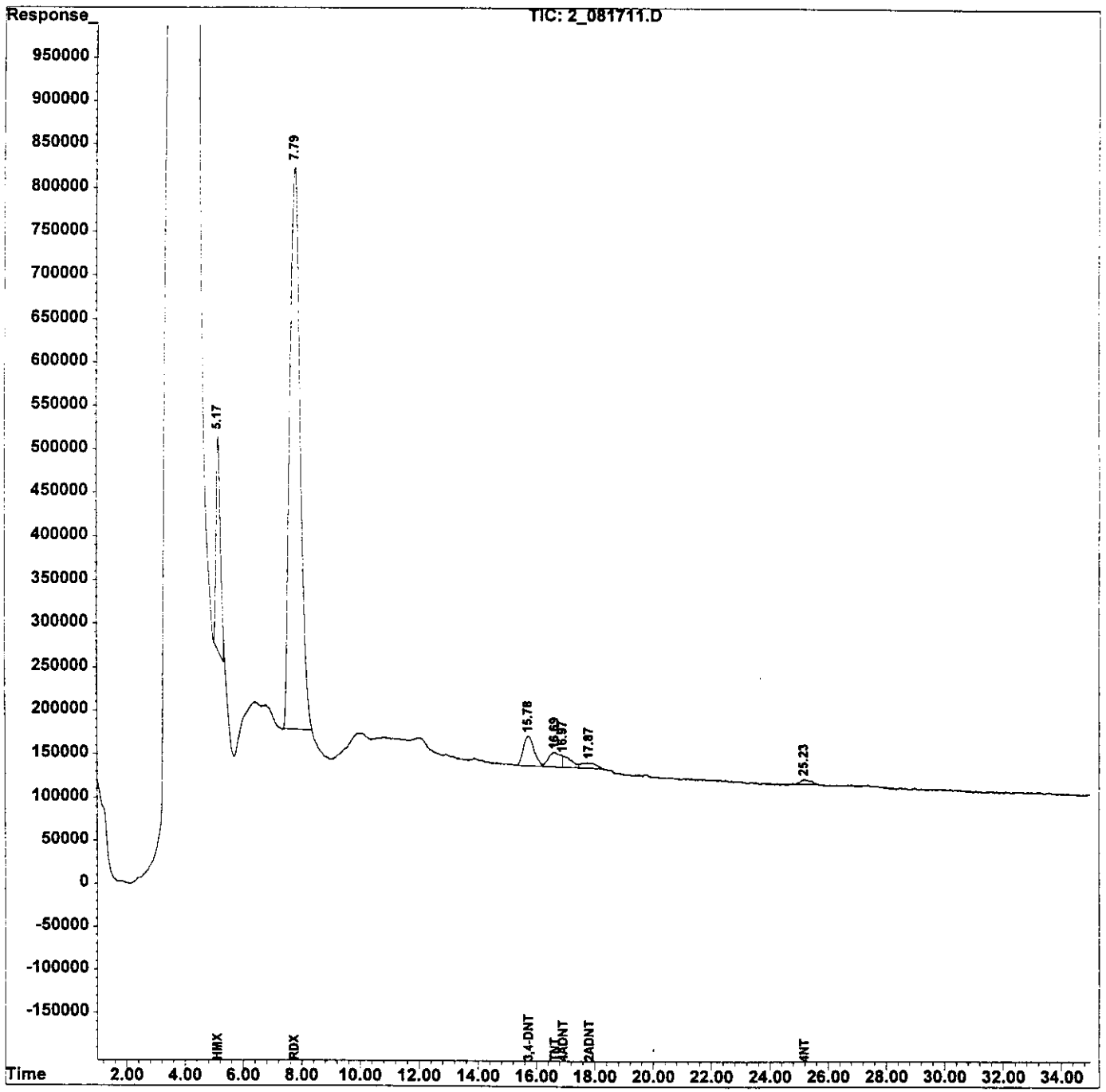
Chromatographic Report

Data File : F:\HPCHEM\LC2\DATA\2_0817\2_081711.D
Acq On : 17 Aug 1999 21:52
Sample : 39322.07
Misc : BIOMO8200052
IntFile : EVENTS1.E
Quant Time: Aug 18 13:49 1999 Quant Results File: 200SH17.RES

Vial: 11
Operator: KG
Inst : LC2
Multiplr: 83.3330

Method : F:\HPCHEM\LC2\DATA\2_0817\200SH17.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0817\
Last Update : Wed Aug 18 13:41:11 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



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Quantitation Report

Data File : F:\HPCHEM\LC2\DATA\2_0815\2_081516.D Vial: 16
Acq On : 16 Aug 1999 18:09 Operator: KG
Sample : 39322.07~~DL~~ Inst : LC2
Misc : BIOM08200052~~DL~~ Multiplr: 83.3330
IntFile : EVENTS.E
Quant Time: Aug 17 8:40 1999 Quant Results File: 200H13AC.RES

Method : F:\HPCHEM\LC2\DATA\2_0815\200H13AC.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0813\
Last Update : Tue Aug 17 08:26:59 1999
Response via : Initial Calibration

AUG 17 1999

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	15.50	3739249	1553.0	m	A
Target Compounds:					
1) A HMX	5.13	14505436	14305.2	m	A
2) B RDX	8.05	66593672	49797.4	m	A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.		A
8) A TNT	12.57	1191830	345.4	m	A
9) B 4ADNT	16.90	976839	655.6	m	A
0) B 2ADNT	0.00	0	N.D.		A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.		A

KG 8-17-99

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

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Chromatographic Report

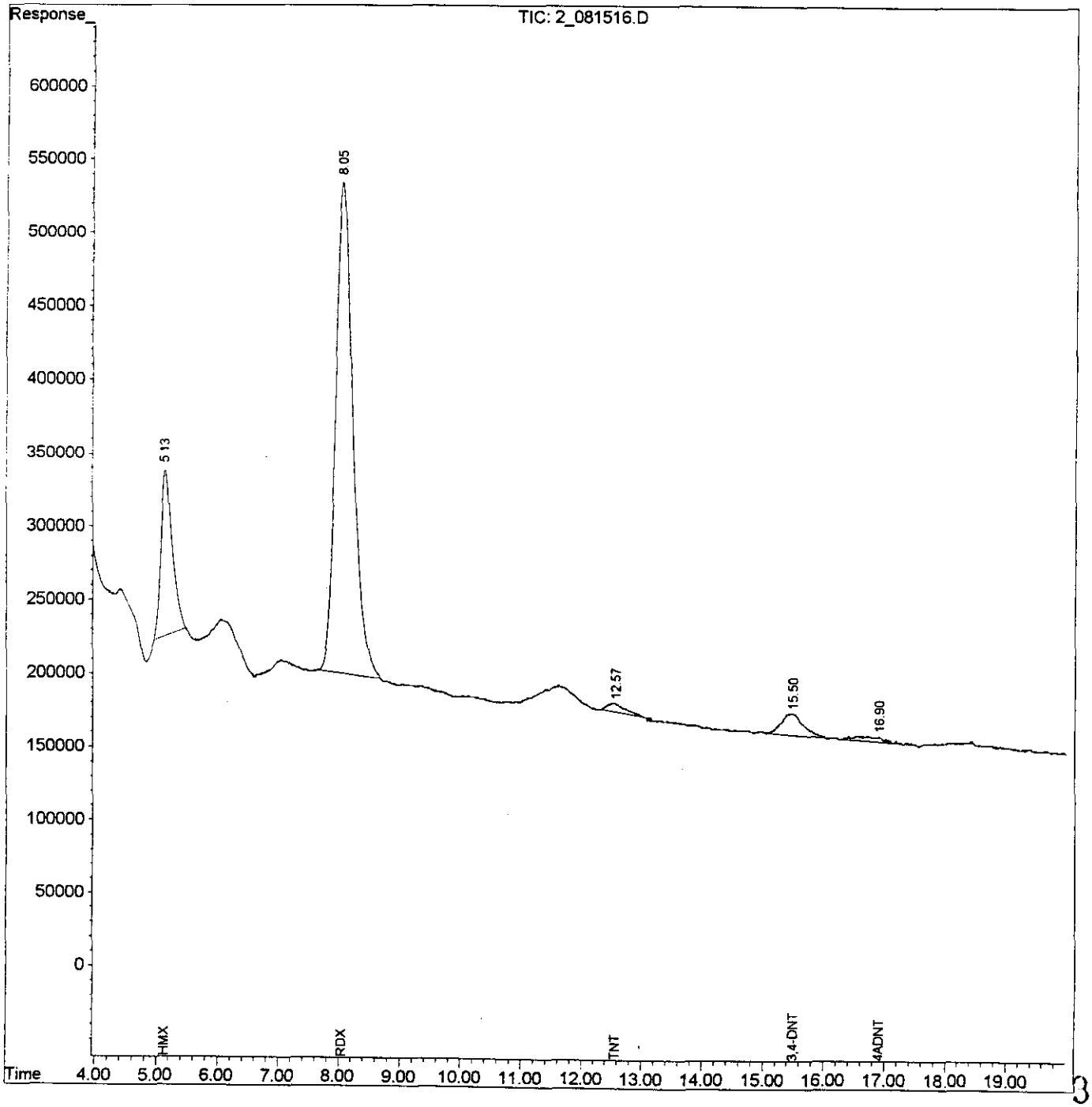
Data File : F:\HPCHEM\LC2\DATA\2_0815\2_081516.D
Acq On : 16 Aug 1999 18:09
Sample : 39322.07~~DL~~
Misc : BIOM08200052~~DL~~
IntFile : EVENTS.E
Quant Time: Aug 17 8:40 1999 Quant Results File: 200H13AC.RES

Vial: 16
Operator: KG
Inst : LC2
Multiplr: 83.3330

Method : F:\HPCHEM\LC2\DATA\2_0815\200H13AC.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0813\
Last Update : Tue Aug 17 08:26:59 1999
Response via : Multiple Level Calibration

AUG 20 1999

Volume Inj. : 100ul
Signal Phase : METASIL



Quantitation Report

Data File : F:\HPCHEM\LC4\DATA\4_0816\4_081613.D Vial: 13
Acq On : 16-Aug-1999, 22:20:21 Operator: JF
Sample : 39322.07 Inst : LC4
Misc : BIOM08200052 Multiplr: 83.3330
IntFile : EVENTS.E
Quant Time: Aug 17 10:55 1999 Quant Results File: 200SH16N.RES

Method : F:\HPCHEM\LC4\DATA\4_0816\200SH16N.M
Title-Path : GC200 CALIBRATION - F:\HPCHEM\LC4\DATA\4_0816\
Last Update : Tue Aug 17 10:43:15 1999
Response via : Initial Calibration

Volume Inj. : 100uL
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Target Compounds:					
1) 2NT	0.00	0	N.D.		A
2) 4NT	0.00	0	N.D.		A
3) 3NT	25.57	758122	1831.8	m	A

8/17/99

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

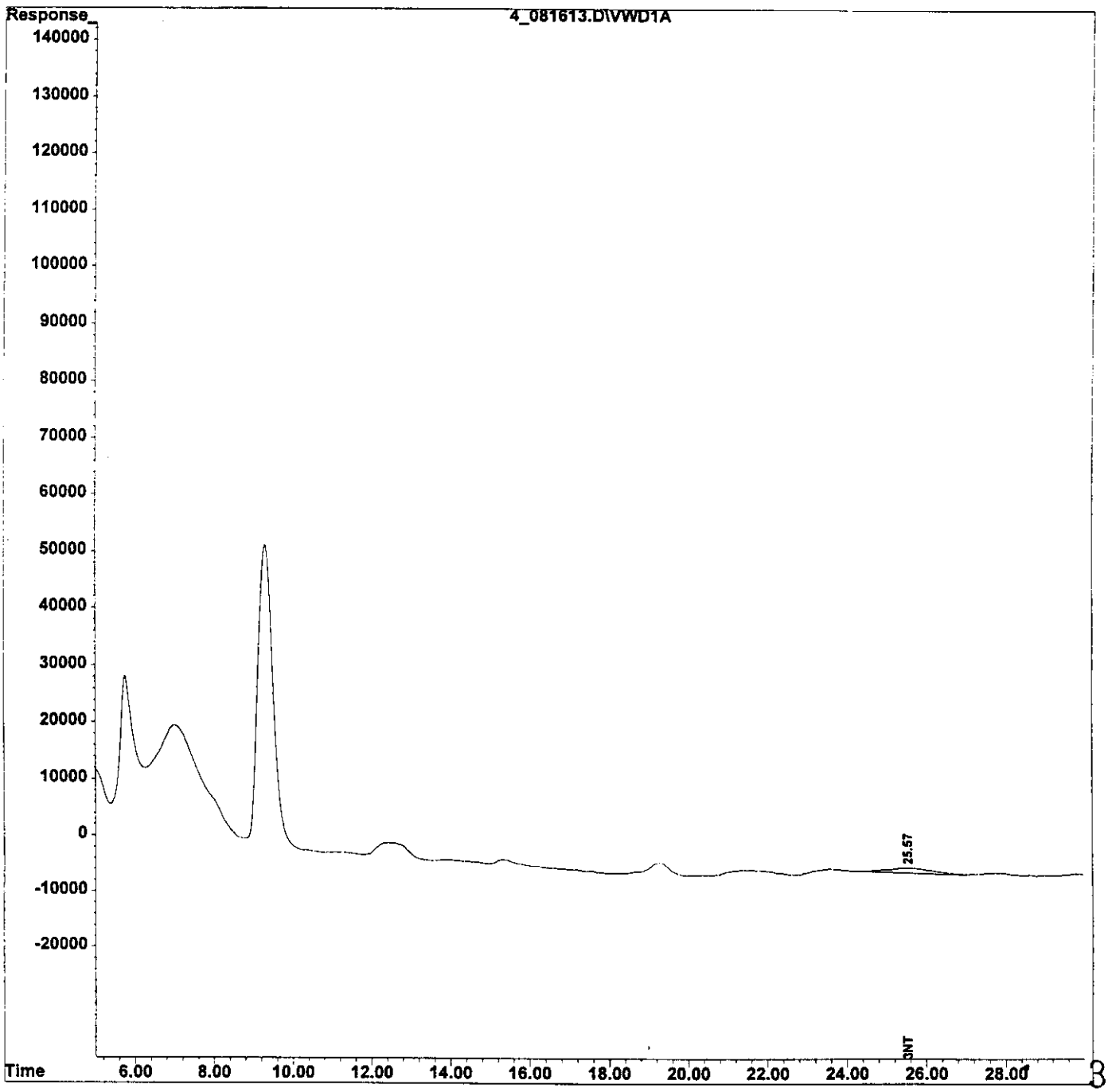
Data File : F:\HPCHEM\LC4\DATA\4_0816\4_081613.D
Acq On : 16-Aug-1999, 22:20:21
Sample : 39322.07
Misc : BIOM08200052
IntFile : EVENTS.E
Quant Time: Aug 17 10:55 1999 Quant Results File: 200SH16N.RES

Vial: 13
Operator: JF
Inst : LC4
Multiplr: 83.3330

Method : F:\HPCHEM\LC4\DATA\4_0816\200SH16N.M
Title-Path : GC200 CALIBRATION - F:\HPCHEM\LC4\DATA\4_0816\
Last Update : Tue Aug 17 10:43:15 1999
Response via : Multiple Level Calibration

AUG 17 1999

Volume Inj. : 100uL
Signal Phase : METASIL



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1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOMO8200052FD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

Matrix: (soil/water) SOIL Lab Sample ID: 39322.08

Sample Amt: 2.2 G % Moisture: 30.4 Date Received: 07/09/99

Extraction Volume: 10 ML Date Extracted: 07/09/99

Extraction Method: SONC Date Analyzed: 08/17/99

GPC Cleanup: (Y/N) N Dilution Factor: 20.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	20000	U
121-82-4	RDX	51100	
99-35-4	TNB	2270	U
99-65-0	DNB	2270	U
479-45-8	TETRYL	5910	U
98-95-3	NB	2360	U
118-96-7	TNT	2270	U
1946-51-0	4ADNT	2270	U
35572-78-2	2ADNT	2270	U
606-20-2	26DNT	2360	U
121-14-2	24DNT	2270	U
88-72-2	2NT	2270	U
99-99-0	4NT	2270	U
99-08-1	3NT	2270	U
Surrogate amount spiked		1818.18	

Quantitation Report

Data File : F:\HPCHEM\LC2\DATA\2_0817\2_081712.D Vial: 12
Acq On : 17 Aug 1999 22:36 Operator: KG
Sample : 39322.08 Inst : LC2
Misc : BIOMO8200052FD Multiplr: 90.9090
IntFile : EVENTS1.E
Quant Time: Aug 18 13:51 1999 Quant Results File: 200SH17.RES

Method : F:\HPCHEM\LC2\DATA\2_0817\200SH17.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0817\
Last Update : Wed Aug 18 13:41:11 1999
Response via : Initial Calibration

AUG 20 1999

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	15.86	8264436	1415.2	m	A
Target Compounds:					
1) HMX	5.18	19107374	8859.3	m	A
2) RDX	7.84	157308760	51104.4		A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	16.75	5376782	565.2	m	A
9) 4ADNT	17.00	3924044	~~1098.1~~	m	A
10) 2ADNT	18.16	3524062	389.0	m	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	19.78	1449639	117.4	m	A
13) 2NT	0.00	0	N.D.		A
14) 4NT	25.56	1954619	330.9	m	A
15) 3NT	0.00	0	N.D.		A

08/18/99

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

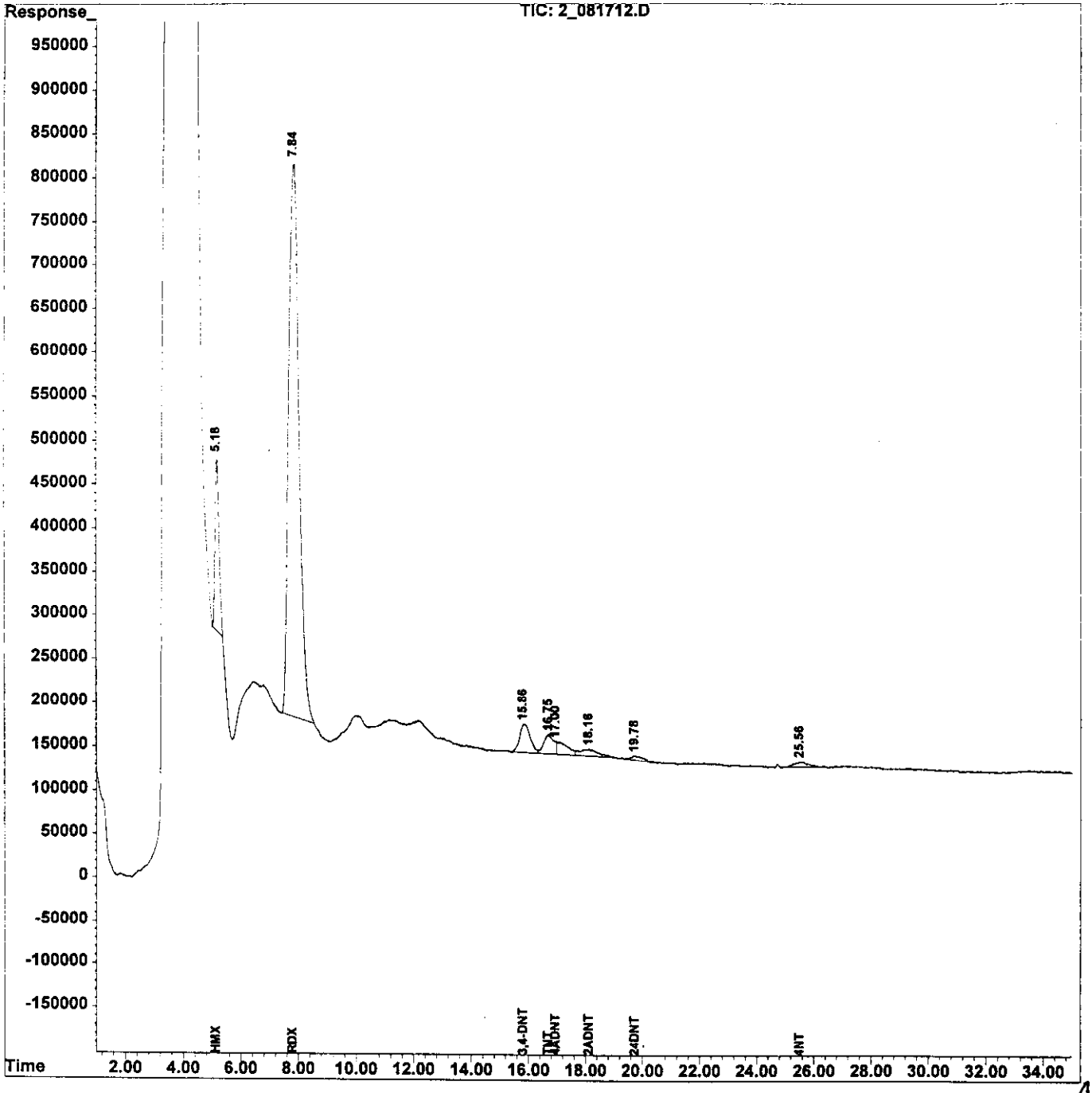
Chromatographic Report

Data File : F:\HPCHEM\LC2\DATA\2_0817\2_081712.D Vial: 12
Acq On : 17 Aug 1999 22:36 Operator: KG
Sample : 39322.08 Inst : LC2
Misc : BIOMO8200052FD Multiplr: 90.9090
IntFile : EVENTS1.E
Quant Time: Aug 18 13:51 1999 Quant Results File: 200SH17.RES

Method : F:\HPCHEM\LC2\DATA\2_0817\200SH17.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0817\
Last Update : Wed Aug 18 13:41:11 1999
Response via : Multiple Level Calibration

AUG 17 1999

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC2\DATA\2_0815\2_081517.D Vial: 17
Acq On : 16 Aug 1999 18:37 Operator: KG
Sample : 39322.08DL Inst : LC2
Misc : BIOM08200052FDDL Multiplr: 90.9090
IntFile : EVENTS.E
Quant Time: Aug 17 8:41 1999 Quant Results File: 200H13AC.RES

Method : F:\HPCHEM\LC2\DATA\2_0815\200H13AC.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0813\
Last Update : Tue Aug 17 08:26:59 1999
Response via : Initial Calibration

AUG 17 1999

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	15.55	3690353	1672.1	m	A
Target Compounds:					
1) A HMX	5.12	14785359	15906.9	m	A
2) B RDX	8.03	62860092	51278.9		A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.		A
8) A TNT	12.57	1790181	565.9	m	A
9) B 4ADNT	16.79	851417	623.4	m	A
10) B 2ADNT	0.00	0	N.D.		A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.		A

VE 8/17-99

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

4

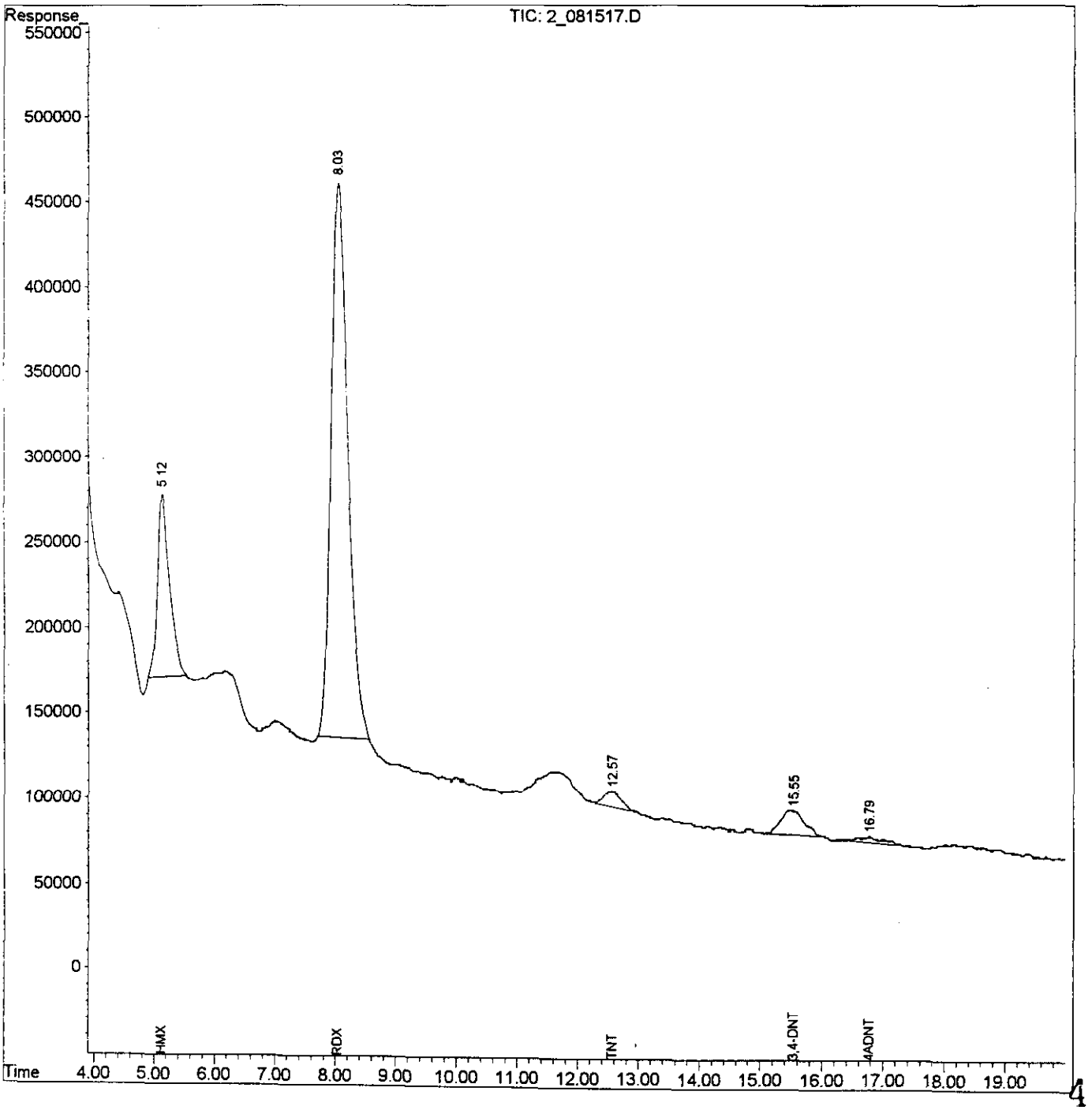
Chromatographic Report

Data File : F:\HPCHEM\LC2\DATA\2_0815\2_081517.D Vial: 17
Acq On : 16 Aug 1999 18:37 Operator: KG
Sample : 39322.08DL Inst : LC2
Misc : BIOM08200052FDDL Multiplr: 90.9090
IntFile : EVENTS.E
Quant Time: Aug 17 8:41 1999 Quant Results File: 200H13AC.RES

Method : F:\HPCHEM\LC2\DATA\2_0815\200H13AC.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0813\
Last Update : Tue Aug 17 08:26:59 1999
Response via : Multiple Level Calibration

AUG 20 1999

Volume Inj. : 100ul
Signal Phase : METASIL



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1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOMO8200113

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

Matrix: (soil/water) SOIL Lab Sample ID: 39322.18

Sample Amt: 2.3 G % Moisture: 31.9 Date Received: 07/09/99

Extraction Volume: 10 ML Date Extracted: 07/09/99

Extraction Method: SONC Date Analyzed: 08/18/99

GPC Cleanup: (Y/N) N Dilution Factor: 20.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	9960	PJ
121-82-4	RDX	40900	
99-35-4	TNB	2170	U
99-65-0	DNB	2170	U
479-45-8	TETRYL	5650	U
98-95-3	NB	2260	U
118-96-7	TNT	2170	U
1946-51-0	4ADNT	2170	U
35572-78-2	2ADNT	2170	U
606-20-2	26DNT	2260	U
121-14-2	24DNT	2170	U
88-72-2	2NT	2170	U
99-99-0	4NT	2170	U
99-08-1	3NT	2170	U
Surrogate amount spiked		1739.13	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC2\DATA\2_0817\2_081715.D Vial: 15
Acq On : 18 Aug 1999 00:50 Operator: KG
Sample : 39322.18 Inst : LC2
Misc : BIOMO8200113 Multiplr: 86.9560
IntFile : EVENTS1.E
Quant Time: Aug 18 13:57 1999 Quant Results File: 200SH17.RES

Method : F:\HPCHEM\LC2\DATA\2_0817\200SH17.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0817\
Last Update : Wed Aug 18 13:41:11 1999
Response via : Initial Calibration

AUG 18 1999

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	15.94	9812289	1607.2	m	A
Target Compounds:					
1) HMX	5.18	22450122	9956.6*	m	A
2) RDX	7.85	131623170	40900.7*		A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	16.72	6110218	614.3-	m	A
9) 4ADNT	17.26	1904777	509.9-	m	A
10) 2ADNT	18.28	1153030	121.7-	m	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	25.74W	2710174	438.8-	m	A
15) 3NT	0.00	0	N.D.		A

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

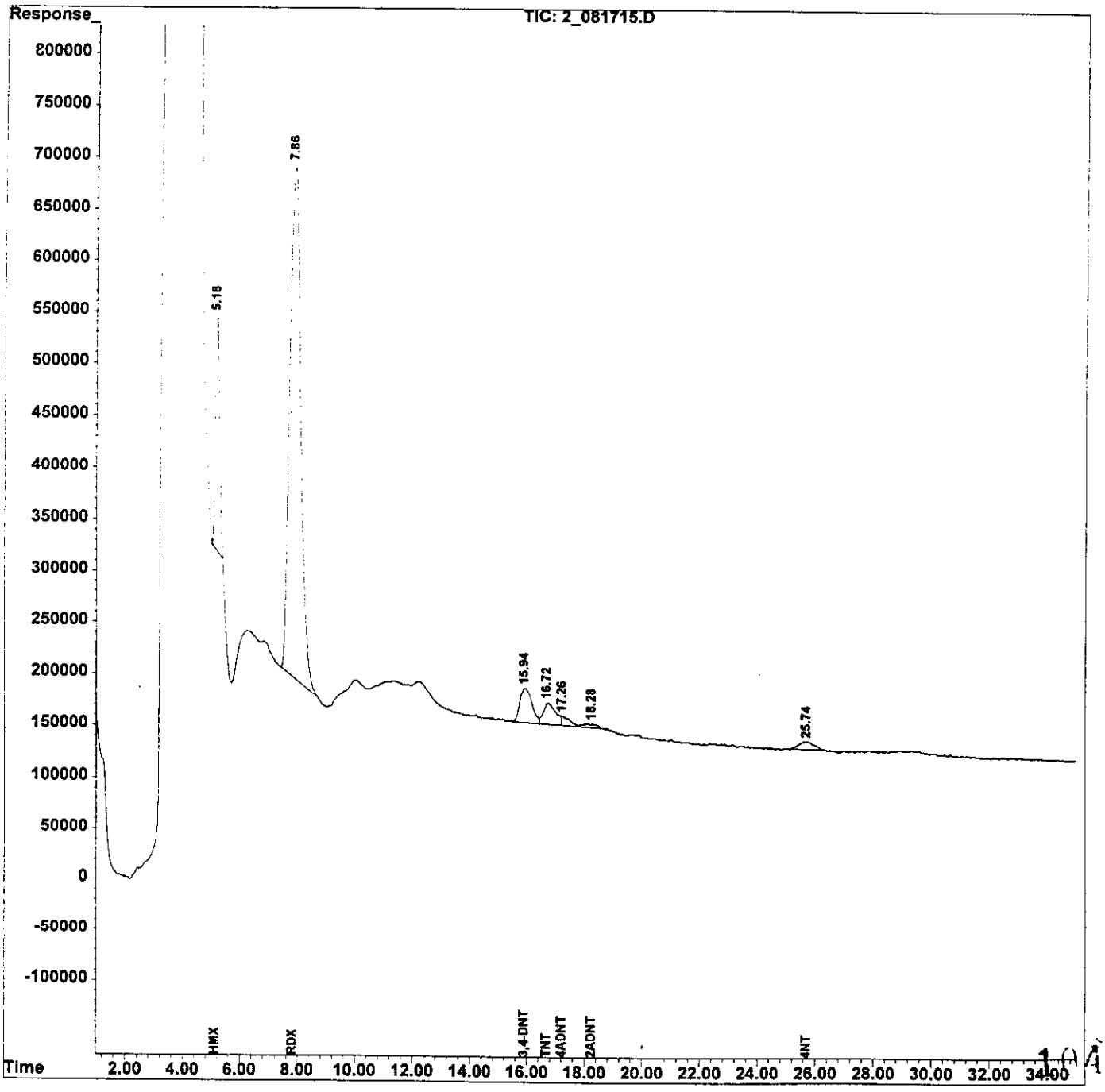
Chromatographic Report

Data File : F:\HPCHEM\LC2\DATA\2_0817\2_081715.D
Acq On : 18 Aug 1999 00:50
Sample : 39322.18
Misc : BIOMO8200113
IntFile : EVENTS1.E
Quant Time: Aug 18 13:57 1999 Quant Results File: 200SH17.RES

Vial: 15
Operator: KG
Inst : LC2
Multiplr: 86.9560

Method : F:\HPCHEM\LC2\DATA\2_0817\200SH17.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0817\
Last Update : Wed Aug 18 13:41:11 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC2\DATA\2_0815\2_081523.D Vial: 23
Acq On : 16 Aug 1999 22:05 Operator: KG
Sample : 39322.18DL Inst : LC2
Misc : BIOM08200113DL Multiplr: 86.9560
IntFile : EVENTS.E
Quant Time: Aug 17 8:59 1999 Quant Results File: 200H13AC.RES

Method : F:\HPCHEM\LC2\DATA\2_0815\200H13AC.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0813\
Last Update : Tue Aug 17 08:26:59 1999
Response via : Initial Calibration

AUG 18 1999

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	15.66	3279212	1421.2	m	A
Target Compounds:					
1) A HMX	5.15	17907929	18428.5	m	A
2) B RDX	8.08	51520302	40200.8	m	A
3) A TNB	0.00	0	N.D.	d	A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.		A
8) A TNT	12.65	1443660	436.5	m	A
9) B 4ADNT	0.00	0	N.D.		A
0) B 2ADNT	0.00	0	N.D.		A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.		A

KG 8-17-99

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
2_081523.D 200H13AC.M Tue Aug 17 09:07:20 1999

Chromatographic Report

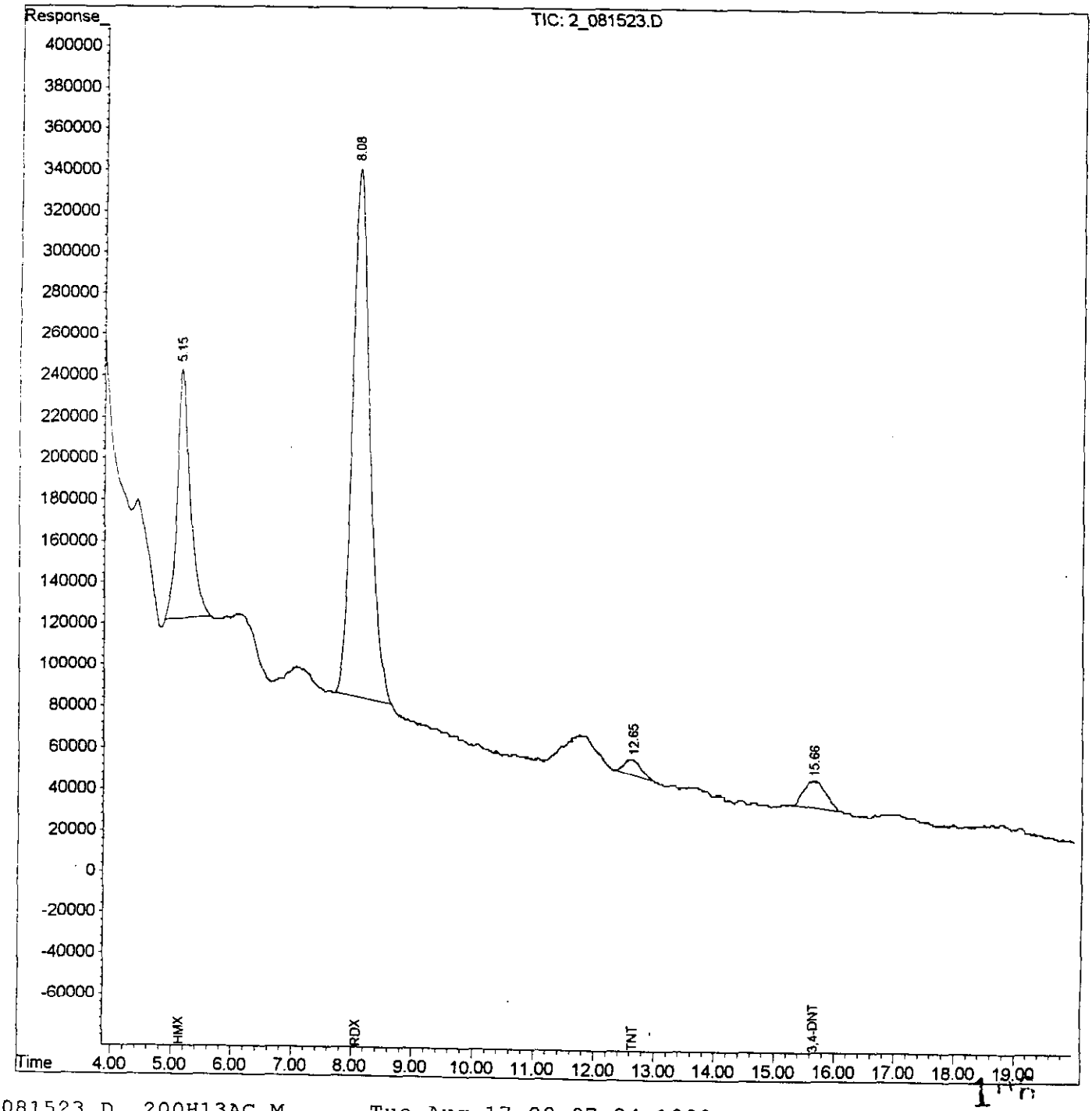
Data File : F:\HPCHEM\LC2\DATA\2_0815\2_081523.D
Acq On : 16 Aug 1999 22:05
Sample : 39322.18~~DL~~
Misc : BIOM08200113~~DL~~
IntFile : EVENTS.E
Quant Time: Aug 17 8:59 1999 Quant Results File: 200H13AC.RES

Vial: 23
Operator: KG
Inst : LC2
Multiplr: 86.9560

Method : F:\HPCHEM\LC2\DATA\2_0815\200H13AC.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0813\
Last Update : Tue Aug 17 08:26:59 1999
Response via : Multiple Level Calibration

AUG 2 6

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOMO8200113FD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

Matrix: (soil/water) SOIL Lab Sample ID: 39322.19

Sample Amt: 2.1 G % Moisture: 33 Date Received: 07/09/99

Extraction Volume: 10 ML Date Extracted: 07/09/99

Extraction Method: SONC Date Analyzed: 08/17/99

GPC Cleanup: (Y/N) N Dilution Factor: 40.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	27500	J
121-82-4	RDX	83400	
99-35-4	TNB	4760	U
99-65-0	DNB	4760	U
479-45-8	TETRYL	12400	U
98-95-3	NB	4950	U
118-96-7	TNT	4760	U
1946-51-0	4ADNT	4760	U
35572-78-2	2ADNT	4760	U
606-20-2	26DNT	4950	U
121-14-2	24DNT	4760	U
88-72-2	2NT	4760	U
99-99-0	4NT	4760	U
99-08-1	3NT	4760	U
Surrogate amount spiked		1904.76	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0817\3_081719.D Vial: 19
Acq On : 17 Aug 1999 23:42 Operator: TLM
Sample : 39322.19 Inst : LC3
Misc : BIOMO8200113FD Multiplr: 190.4760
IntFile : EVENTS.E
Quant Time: Aug 18 10:28 1999 Quant Results File: 200SH17.RES

Method : F:\HPCHEM\LC3\DATA\3_0817\200SH17.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0817\
Last Update : Wed Aug 18 09:17:21 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	19.02	2627518	1520.1	m	A
Target Compounds:					
1) HMX	5.98W	37027744	27503.2 *	m	A
2) RDX	9.12	131958600	83359.5 *	m	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	19.69	1740938	~~671.4~~ -	m	A
9) 4ADNT	0.00	0	N.D.		A
10) 2ADNT	21.47	1297307	~~487.6~~ -	m	A
11) 26DNT	22.85	3015501	1488.1 -	m	A
12) 24DNT	23.33	3460224	1011.7 -	m	A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

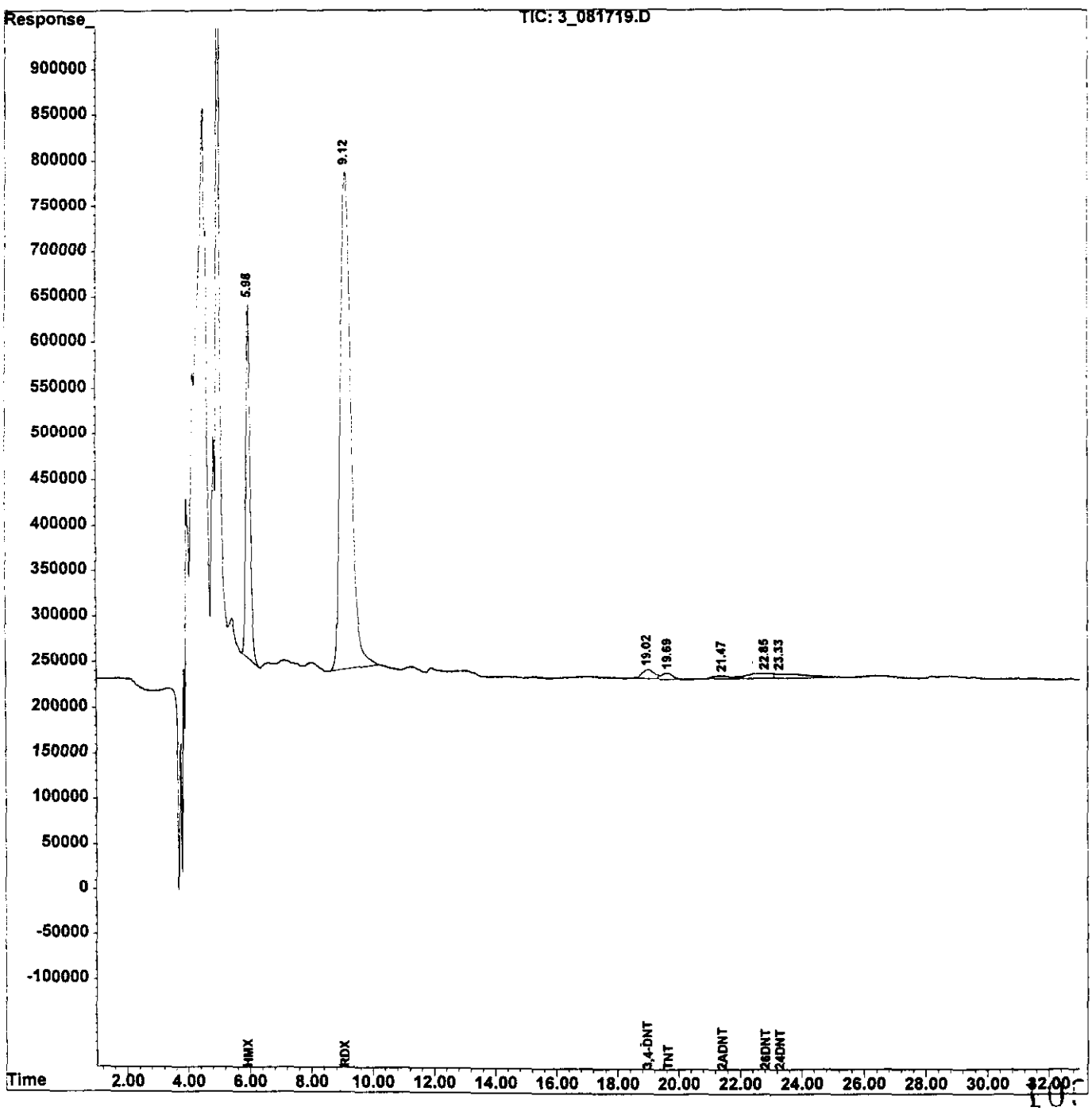
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
3_081719.D 200SH17.M Wed Aug 18 10:32:47 1999

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0817\3_081719.D Vial: 19
Acq On : 17 Aug 1999 23:42 Operator: TLM
Sample : 39322.19 Inst : LC3
Misc : BIOMO8200113FD Multiplr: 190.4760
IntFile : EVENTS.E
Quant Time: Aug 18 10:28 1999 Quant Results File: 200SH17.RES

Method : F:\HPCHEM\LC3\DATA\3_0817\200SH17.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0817\
Last Update : Wed Aug 18 09:17:21 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC2\DATA\2_0815\2_081524.D Vial: 24
Acq On : 16 Aug 1999 22:34 Operator: KG
Sample : 39322.19DL Inst : LC2
Misc : BIOM08200113FDDL Multiplr: 190.4760
IntFile : EVENTS.E
Quant Time: Aug 17 9:02 1999 Quant Results File: 200H13AC.RES

Method : F:\HPCHEM\LC2\DATA\2_0815\200H13AC.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0813\
Last Update : Tue Aug 17 08:26:59 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	15.64	1231253	1168.9	m	A
Target Compounds:					
1) A HMX	5.14	12643372	28500.3	m	A
2) B RDX	8.08	47428256	81065.1	m	A
3) A TNB	0.00	0	N.D.	d	A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.		A
8) A TNT	12.58	894042	592.2	m	A
9) B 4ADNT	0.00	0	N.D.		A
10) B 2ADNT	0.00	0	N.D.		A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

KG 8-17-99

110

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

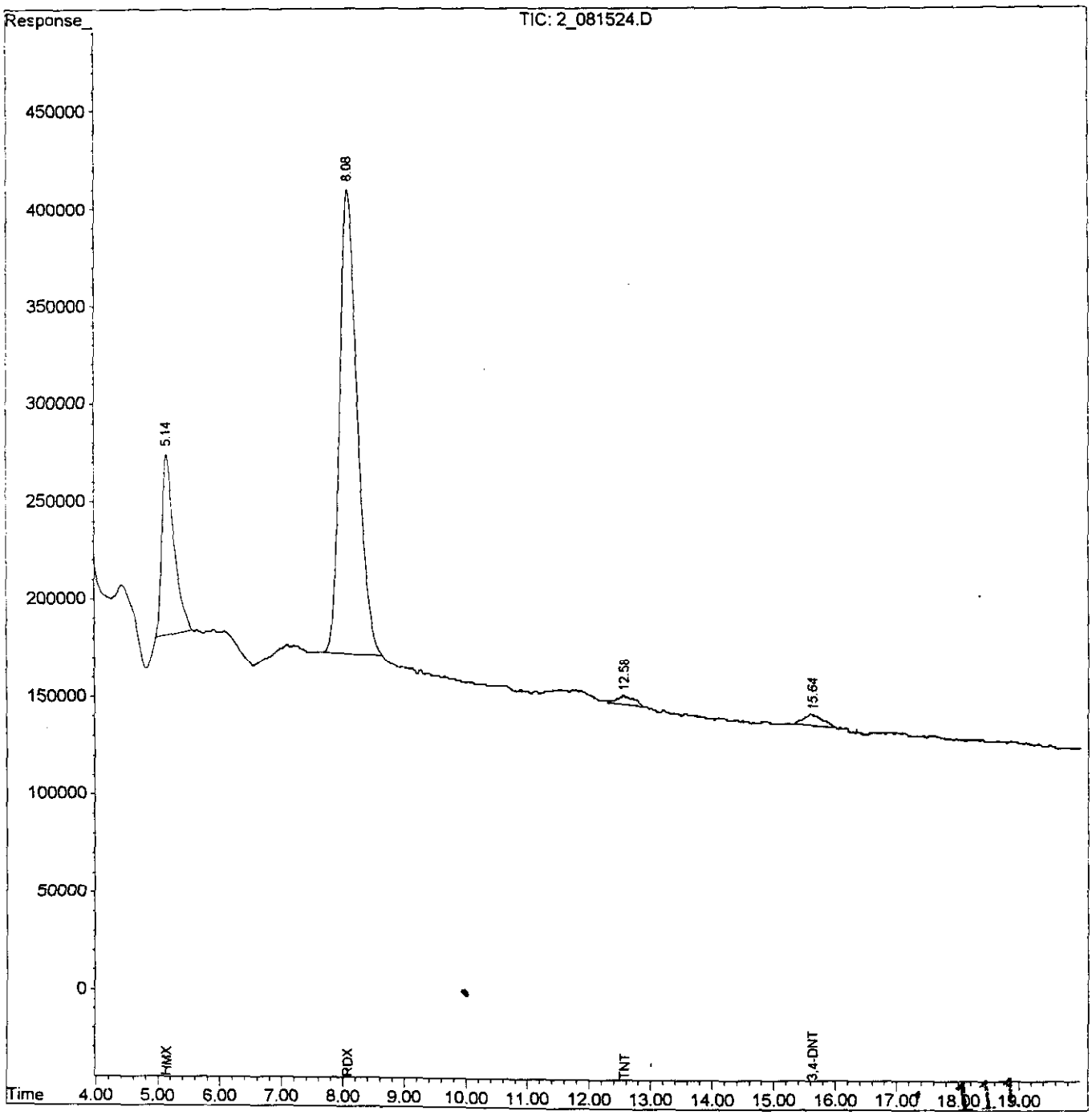
Chromatographic Report

Data File : F:\HPCHEM\LC2\DATA\2_0815\2_081524.D Vial: 24
Acq On : 16 Aug 1999 22:34 Operator: KG
Sample : 39322.19DL Inst : LC2
Misc : BIOM08200113FDDL Multiplr: 190.4760
IntFile : EVENTS.E
Quant Time: Aug 17 9:02 1999 Quant Results File: 200H13AC.RES

Method : F:\HPCHEM\LC2\DATA\2_0815\200H13AC.M
Title-Path : - F:\HPCHEM\LC2\DATA\2_0813\
Last Update : Tue Aug 17 08:26:59 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

2 0 1999



6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC2

LC Column: METASIL Date(s) Analyzed: 08/13/99 08/13/99

Method: 200H13AC

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	77436343	86284815	88066351
RDX	101051580	106172042	116387347
TNB	263644130	267351064	278236297
DNB	373476475	408506920	421872129
TETRYL	207222978	216679107	219223292
NB	309587380	323934152	338194084
TNT	289072826	287499387	290059464
4ADNT	115840554	117853617	137867406
2ADNT	366097020	391915534	375314446
26DNT	195386180	201189344	208574904
24DNT	385206240	400821428	405505342
3,4-DNT	203087682	199508252	202660675

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	87074003	83636120	84499526	5.06
RDX	116015932	117576174	111440615	6.64
TNB	278732771	272278215	272048496	2.44
DNB	414488932	417064429	407081777	4.76
TETRYL	219054721	214631255	215362270	2.29
NB	337786846	336431511	329186795	3.78
TNT	291284915	279920779	287567474	1.56
4ADNT	117286603	131967371	124163110	8.10
2ADNT	393001452	376189257	380503542	3.05
26DNT	211151206	204972095	204254746	3.05
24DNT	401710681	403134930	399275724	2.02
3,4-DNT	201820718	196130871	200641640	1.43
MEAN RSD				3.68

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC2 Method: 200H13AC

LC Column: METASIL Init. Calib Date(s): 08/13/99 08/13/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 08/16/99 : 08/16/99

Lab Sample IDs : L3A 6-158 : L3B 6-163 Time Analyzed : 1047 : 1115

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.16	5.08	5.18	83458222	84499526	1.2
RDX	8.08	7.98	8.20	113099415	111440615	-1.5
TNB	8.16	8.05	8.19	268790178	272048496	1.2
DNB	10.53	10.40	10.68	410207541	407081777	-0.8
TETRYL	13.35	12.97	13.47	210118674	215362270	2.4
NB	12.12	11.95	12.31	333779963	329186795	-1.4
TNT	12.65	12.40	12.74	283763936	287567474	1.3
4ADNT	16.90	16.45	17.31	121528177	124163110	2.1
2ADNT	17.18	16.72	17.60	373727958	380503542	1.8
26DNT	16.38	15.86	16.54	201827262	204254746	1.2
24DNT	15.69	15.39	15.97	392990509	399275724	1.6
3,4-DNT	15.70	15.17	15.87	193942930	200641640	3.3

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC2 Method: 200H13AC

LC Column: METASIL Init. Calib Date(s): 08/13/99 08/13/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 08/16/99 : 08/16/99

Lab Sample IDs : L3A 6-158 : L3B 6-163 Time Analyzed : 1644 : 1713

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.11	5.08	5.18	86647659	84499526	-2.5
RDX	8.03	7.98	8.20	113644168	111440615	-2.0
TNB	8.10	8.05	8.19	269891525	272048496	0.8
DNB	10.47	10.40	10.68	414256419	407081777	-1.8
TETRYL	13.13	12.97	13.47	214323486	215362270	0.5
NB	12.03	11.95	12.31	333856168	329186795	-1.4
TNT	12.51	12.40	12.74	276426542	287567474	3.9
4ADNT	16.61	16.45	17.31	125518806	124163110	-1.1
2ADNT	16.88	16.72	17.60	380354923	380503542	0.0
26DNT	16.10	15.86	16.54	203928656	204254746	0.2
24DNT	15.52	15.39	15.97	396223998	399275724	0.8
3,4-DNT	15.42	15.17	15.87	193821915	200641640	3.4

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC2 Method: 200H13AC

LC Column: METASIL Init. Calib Date(s): 08/13/99 08/13/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 08/16/99 : 08/16/99

Lab Sample IDs : L3A 6-158 : L3B 6-163 Time Analyzed : 2302 : 2330

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.15	5.08	5.18	86284417	84499526	-2.1
RDX	8.13	7.98	8.20	112534007	111440615	-1.0
TNB	8.15	8.05	8.19	270172605	272048496	0.7
DNB	10.59	10.40	10.68	416569297	407081777	-2.3
TETRYL	13.35	12.97	13.47	213114290	215362270	1.0
NB	12.18	11.95	12.31	334027620	329186795	-1.5
TNT	12.65	12.40	12.74	282749429	287567474	1.7
4ADNT	16.96	16.45	17.31	113014598	124163110	9.0
2ADNT	17.27	16.72	17.60	393853381	380503542	-3.5
26DNT	16.38	15.86	16.54	207688432	204254746	-1.7
24DNT	15.76	15.39	15.97	401855968	399275724	-0.6
3,4-DNT	15.71	15.17	15.87	194276742	200641640	3.2

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.308	1.54	3.08	6.16
RDX	0.024	0.120	0.598	1.20	2.39
TNB	0.019	0.095	0.450	0.900	1.80
DNB	0.010	0.050	0.251	0.502	1.00
TETRYL	0.022	0.111	0.554	1.11	2.21
NB	0.020	0.101	0.503	1.01	2.01
TNT	0.016	0.080	0.402	0.804	1.61
4ADNT	0.014	0.070	0.352	0.704	1.41
2ADNT	0.014	0.070	0.351	0.701	1.40
26DNT	0.024	0.119	0.596	1.19	2.38
24DNT	0.014	0.069	0.344	0.687	1.37
2NT	0.020	0.099	0.495	0.990	1.98
4NT	0.020	0.100	0.499	0.997	2.00
3NT	0.020	0.100	0.499	0.998	2.00
3,4-DNT	0.029	0.147	0.736	1.47	2.94

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC2

LC Column: METASIL Date(s) ICAL Analyzed: 08/13/99 08/13/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	5.14	5.12	5.13	5.13	5.12
RDX	8.06	8.09	8.11	8.13	8.12
TNB	8.12	8.10	8.12	8.14	8.09
DNB	10.49	10.56	10.56	10.60	10.58
TETRYL	13.21	13.14	13.23	13.21	13.17
NB	12.07	12.15	12.15	12.20	12.17
TNT	12.56	12.51	12.58	12.56	12.53
4ADNT	16.76	16.92	16.94	17.00	17.00
2ADNT	17.06	17.24	17.20	17.31	17.27
26DNT	16.15	16.11	16.21	16.16	16.13
24DNT	15.59	15.74	15.71	15.79	15.76
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	15.48	15.42	15.52	15.49	15.45

COMPOUND	RT CCAL 1	RT CCAL 2	RT CCAL 3	RT CCAL 4	RT CCAL 5
HMX	5.16	0.00	5.11	0.00	5.15
RDX	0.00	8.08	0.00	8.03	0.00
TNB	8.16	0.00	8.10	0.00	8.14
DNB	0.00	10.53	0.00	10.47	0.00
TETRYL	13.34	0.00	13.13	0.00	13.35
NB	0.00	12.12	0.00	12.03	0.00
TNT	12.65	0.00	12.51	0.00	12.65
4ADNT	0.00	16.90	0.00	16.61	0.00
2ADNT	0.00	17.18	0.00	16.88	0.00
26DNT	16.38	0.00	16.10	0.00	16.38
24DNT	0.00	15.69	0.00	15.52	0.00
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	15.70	0.00	15.42	0.00	15.71

COMPOUND	RT CCAL 6
HMX	0.00
RDX	8.13
TNB	0.00
DNB	10.59

FORM IX

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC2

LC Column: METASIL Date(s) ICAL Analyzed: 08/13/99 08/13/99

COMPOUND	RT CCAL 6
TETRYL	0.00
NB	12.18
TNT	0.00
4ADNT	16.96
2ADNT	17.27
26DNT	0.00
24DNT	15.76
2NT	0.00
4NT	0.00
3NT	0.00
3,4-DNT	0.00

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	5.13	0.017	0.051	5.08 - 5.18
RDX	8.09	0.035	0.106	7.98 - 8.20
TNB	8.12	0.024	0.073	8.05 - 8.19
DNB	10.54	0.047	0.142	10.40 - 10.68
TETRYL	13.22	0.083	0.250	12.97 - 13.47
NB	12.13	0.059	0.177	11.95 - 12.31
TNT	12.57	0.056	0.168	12.40 - 12.74
4ADNT	16.88	0.142	0.427	16.45 - 17.31
2ADNT	17.16	0.148	0.444	16.72 - 17.60
26DNT	16.20	0.115	0.344	15.86 - 16.54
24DNT	15.68	0.097	0.292	15.39 - 15.97
2NT	0.00	0.000	0.000	0.00 - 0.00
4NT	0.00	0.000	0.000	0.00 - 0.00
3NT	0.00	0.000	0.000	0.00 - 0.00
3,4-DNT	15.52	0.117	0.351	15.17 - 15.87

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

LC Column: METASIL Init. Calib. Date(s): 08/13/99 08/13/99

Instrument ID: LC2

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 15.52

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	08/13/99	1714	0.00	*
02	EXPL1A	L1A 6-160	08/13/99	1810	15.48	
03	EXPL2A	L2A 6-159	08/13/99	1838	15.42	
04	EXPL3A	L3A 6-158	08/13/99	1907	15.52	
05	EXPL4A	L4A 6-157	08/13/99	1935	15.49	
06	EXPL5A	L5A 6-156	08/13/99	2003	15.45	
07	EXPL1B	L1B 6-165	08/13/99	2031	0.00	*
08	EXPL2B	L2B 6-164	08/13/99	2100	0.00	*
09	EXPL3B	L3B 6-163	08/13/99	2128	0.00	*
10	EXPL4B	L4B 6-162	08/13/99	2156	0.00	*
11	EXPL5B	L5B 6-161	08/13/99	2225	0.00	*
12	EXPL3A	L3A 6-158	08/16/99	1047	15.70	
13	EXPL3B	L3B 6-163	08/16/99	1115	0.00	*
14	BIOM08200031	39322.01	08/16/99	1519	15.44	
15	BIOM08200032	39322.02	08/16/99	1548	15.46	
16	BIOM08200033	39322.03	08/16/99	1616	15.46	
17	EXPL3A	L3A 6-158	08/16/99	1644	15.42	
18	EXPL3B	L3B 6-163	08/16/99	1713	0.00	*
19	BIOM08200051	39322.06	08/16/99	1741	15.46	
20	BIOM08200052	39322.07	08/16/99	1809	15.50	
21	BIOM08200052FD	39322.08	08/16/99	1837	15.55	
22	BIOM08200053	39322.09	08/16/99	1906	15.55	
23	BIOM08200092	39322.14	08/16/99	2012	15.58	
24	BIOM08200093	39322.15	08/16/99	2041	15.62	
25	BIOM08200111	39322.16	08/16/99	2109	15.64	
26	BIOM08200112	39322.17	08/16/99	2137	15.74	
27	BIOM08200113	39322.18	08/16/99	2205	15.66	
28	BIOM08200113FD	39322.19	08/16/99	2234	15.64	
29	EXPL3A	L3A 6-158	08/16/99	2302	15.71	
30	EXPL3B	L3B 6-163	08/16/99	2330	0.00	*
31						
32						

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC3

LC Column: CARBOSORB Date(s) Analyzed: 08/13/99 08/13/99

Method: 200SH12

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	267473080	272992594	265762200
RDX	232342333	268558704	284282354
TNB	574550421	636538359	656377117
DNB	799886400	788914280	765345735
TETRYL	323910225	311564036	307903336
NB	406222921	375097158	379894884
TNT	550416188	536500388	531245113
4ADNT	469550929	459628943	444664960
2ADNT	550897643	540711157	585565911
26DNT	390936176	396078244	388040274
24DNT	666961087	662321304	651431954
2NT	322112576	285362121	280358653
4NT	241103200	181973550	193363301
3NT	249967350	253197930	240434761
3,4-DNT	347718741	328731524	334756249

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	262878720	261530839	266127487	1.69
RDX	286461303	287824268	271893792	8.62
TNB	656968741	650677102	635022348	5.48
DNB	760226674	760456765	774965971	2.36
TETRYL	299874512	300859915	308822405	3.15
NB	380131614	377640888	383797493	3.31
TNT	521642352	522534211	532467650	2.21
4ADNT	440882276	441549642	451255350	2.83
2ADNT	529203929	531757519	547627232	4.17
26DNT	383613465	382916061	388316844	1.40
24DNT	648821177	654795757	656866256	1.15
2NT	281103567	277667977	289320979	6.41
4NT	182262303	179616902	195663851	13.26
3NT	238738421	235693651	243606423	3.10
3,4-DNT	363767647	333356976	341666227	4.16
MEAN RSD				4.22

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC3 Method: 200SH12

LC Column: CARBOSORB Init. Calib Date(s): 08/13/99 08/13/99

Client Sample No.: EXPL3 Date Analyzed : 08/14/99

Lab Sample ID : L3 6-153 Time Analyzed : 0827

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.64	5.59	5.69	265056366	266127487	0.4
RDX	8.21	8.09	8.35	278155464	271893792	-2.3
TNB	10.99	10.84	11.18	642663412	635022348	-1.2
DNB	13.31	13.07	13.59	763997397	774965971	1.4
TETRYL	14.13	13.79	14.47	300812762	308822405	2.6
NB	15.08	14.71	15.35	383118160	383797493	0.2
TNT	17.04	16.66	17.36	510796466	532467650	4.1
4ADNT	17.73	17.06	18.28	439933653	451255350	2.5
2ADNT	18.72	18.04	19.30	519753908	547627232	5.1
26DNT	19.74	19.19	20.23	379473585	388316844	2.3
24DNT	20.46	19.87	20.97	645388228	656866256	1.7
2NT	23.86	23.21	24.45	270041498	289320979	6.7
4NT	25.47	24.75	26.13	172753941	195663851	11.7
3NT	27.43	26.71	28.13	243880552	243606423	-0.1
3,4-DNT	16.09	15.65	16.45	334315381	341666227	2.2

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC3 Method: 200SH12

LC Column: CARBOSORB Init. Calib Date(s): 08/13/99 08/13/99

Client Sample No.: EXPL3 Date Analyzed : 08/14/99

Lab Sample ID : L3 6-153 Time Analyzed : 1957

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.68	5.59	5.69	268748964	266127487	-1.0
RDX	8.32	8.09	8.35	303529286	271893792	-11.6
TNB	11.13	10.84	11.18	650881476	635022348	-2.5
DNB	13.51	13.07	13.59	759978127	774965971	1.9
TETRYL	14.38	13.79	14.47	267737700	308822405	13.3
NB	15.25	14.71	15.35	374583107	383797493	2.4
TNT	17.24	16.66	17.36	505525450	532467650	5.1
4ADNT	18.11	17.06	18.28	439957565	451255350	2.5
2ADNT	19.12	18.04	19.30	535771550	547627232	2.2
26DNT	20.06	19.19	20.23	386560320	388316844	0.5
24DNT	20.80	19.87	20.97	631470000	656866256	3.9
2NT	24.26	23.21	24.45	275754598	289320979	4.7
4NT	25.93	24.75	26.13	184891259	195663851	5.5
3NT	27.91	26.71	28.13	239627707	243606423	1.6
3,4-DNT	16.33	15.65	16.45	326787277	341666227	4.4

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.308	1.54	3.08	6.16
RDX	0.024	0.120	0.598	1.20	2.39
TNB	0.019	0.095	0.450	0.900	1.80
DNB	0.010	0.050	0.251	0.502	1.00
TETRYL	0.022	0.111	0.554	1.11	2.21
NB	0.020	0.101	0.503	1.01	2.01
TNT	0.016	0.080	0.402	0.804	1.61
4ADNT	0.014	0.070	0.352	0.704	1.41
2ADNT	0.014	0.070	0.351	0.701	1.40
26DNT	0.024	0.119	0.596	1.19	2.38
24DNT	0.014	0.069	0.344	0.687	1.37
2NT	0.020	0.099	0.495	0.990	1.98
4NT	0.020	0.100	0.499	0.997	2.00
3NT	0.020	0.100	0.499	0.998	2.00
3,4-DNT	0.029	0.147	0.736	1.47	2.94

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

ab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 08/13/99 08/13/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	5.64	5.64	5.64	5.64	5.64
RDX	8.21	8.20	8.20	8.22	8.19
TNB	10.96	10.97	11.05	11.00	10.97
DNB	13.26	13.27	13.35	13.31	13.28
TETRYL	14.04	14.06	14.14	14.10	14.08
NB	14.93	14.97	15.04	15.00	14.97
TNT	16.91	16.91	17.01	17.02	16.93
4ADNT	17.49	17.54	17.64	17.65	17.57
2ADNT	18.52	18.53	18.63	18.64	18.56
26DNT	19.55	19.57	19.76	19.69	19.60
24DNT	20.26	20.29	20.46	20.40	20.31
2NT	23.66	23.67	23.86	23.79	23.72
4NT	25.29	25.27	25.45	25.38	25.30
3NT	27.24	27.24	27.48	27.34	27.28
3,4-DNT	15.94	15.95	16.03	16.05	15.97

COMPOUND	RT CCAL 1	RT CCAL 2
HMX	5.64	5.68
RDX	8.21	8.32
TNB	10.99	11.12
DNB	13.31	13.51
TETRYL	14.13	14.38
NB	15.08	15.25
TNT	17.04	17.24
4ADNT	17.72	18.10
2ADNT	18.72	19.12
26DNT	19.74	20.06
24DNT	20.46	20.80
2NT	23.86	24.26
4NT	25.47	25.93
3NT	27.43	27.91
3,4-DNT	16.09	16.33

COMPOUND	AVG RT	STD DEV	3X STD	RT WINDOW
HMX	5.64	0.016	0.049	5.59 - 5.69
RDX	8.22	0.045	0.134	8.09 - 8.35
TNB	11.01	0.058	0.173	10.84 - 11.18
DNB	13.33	0.086	0.259	13.07 - 13.59

FORM IX

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 08/13/99 08/13/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	14.13	0.115	0.344	13.78 - 14.47
NB	15.03	0.107	0.322	14.71 - 15.35
TNT	17.01	0.116	0.347	16.66 - 17.36
4ADNT	17.67	0.203	0.610	17.06 - 18.28
2ADNT	18.67	0.209	0.627	18.04 - 19.30
26DNT	19.71	0.175	0.525	19.18 - 20.23
24DNT	20.42	0.184	0.551	19.87 - 20.97
2NT	23.83	0.206	0.618	23.21 - 24.45
4NT	25.44	0.229	0.688	24.75 - 26.13
3NT	27.42	0.236	0.708	26.71 - 28.13
3,4-DNT	16.05	0.135	0.404	15.64 - 16.45

8D
EXPLOSIVES ANALYTICAL SEQUENCE

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

LC Column: CARBOSORB Init. Calib. Date(s): 08/13/99 08/13/99

Instrument ID: LC3

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 16.05

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	08/12/99	2358	0.00	*
02	EXPL1	L1 6-166	08/13/99	0127	15.94	
03	EXPL2	L2 6-134	08/13/99	0212	15.95	
04	EXPL3	L3 6-153	08/13/99	0256	16.03	
05	EXPL4	L4 6-147	08/13/99	0341	16.05	
06	EXPL5	L5 6-131	08/13/99	0426	15.97	
07	EXPL3	L3 6-153	08/14/99	0827	16.09	
08	BL0709SF	BL0709SF	08/14/99	1126	16.07	
09	LC0709SF	LC0709SF	08/14/99	1210	16.01	
10	LD0709SF	LD0709SF	08/14/99	1255	16.06	
11	EXPL3	L3 6-153	08/14/99	1957	16.33	
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Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC2

LC Column: METASIL Date(s) Analyzed: 07/28/99 07/28/99

Method: 200SG29C

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	95821186	86635733	88425800
RDX	85287660	91362460	109100980
TNB	257815391	276085185	283155147
DNB	313345225	326860490	392966766
TETRYL	228497411	227257346	230582456
NB	242854120	256784573	312591143
TNT	304064217	293396902	295376739
4ADNT	112749043	95060991	110550800
2ADNT	282621840	314522860	369272065
26DNT	215249320	208664385	212274474
24DNT	314936320	322481824	382437056
3,4-DNT	208750576	208019712	208023544

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	88929893	87802555	89523034	4.05
RDX	113635892	117384067	103354212	13.73
TNB	282172392	281450417	276135706	3.84
DNB	398259757	409495367	368185521	12.10
TETRYL	229264543	226123237	228344999	0.76
NB	316639172	326873372	291148476	13.19
TNT	291356628	288905776	294620052	1.97
4ADNT	109079703	107377058	106963519	6.49
2ADNT	376079338	387372959	345973812	13.06
26DNT	208941633	209572958	210940554	1.33
24DNT	383409632	392431456	359139258	10.36
3,4-DNT	206174387	205118717	207217387	0.73
MEAN RSD				6.80

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC2 Method: 200SG29C

LC Column: METASIL Init. Calib Date(s): 07/28/99 07/28/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 07/30/99 : 07/30/99

Lab Sample IDs : L3A 6-93 : L3B 6-87 Time Analyzed : 2256 : 2324

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.18	5.11	5.25	87270639	89523034	2.5
RDX	8.16	7.99	8.33	109626808	103354212	-6.1
TNB	8.22	8.15	8.31	278631047	276135706	-0.9
DNB	10.62	10.45	10.81	392050505	368185521	-6.5
TETRYL	13.52	13.21	13.83	223250729	228344999	2.2
NB	12.18	11.95	12.41	315383203	291148476	-8.3
TNT	12.80	12.62	13.00	296146037	294620052	-0.5
4ADNT	17.03	16.48	17.54	118242985	106963519	-10.5
2ADNT	17.32	16.76	17.86	359165174	345973812	-3.8
26DNT	16.47	16.04	16.86	209332823	210940554	0.8
24DNT	15.82	15.52	16.18	379631958	359139258	-5.7
3,4-DNT	15.77	15.35	16.17	206708810	207217387	0.2

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC2 Method: 2008G29C

LC Column: METASIL Init. Calib Date(s): 07/28/99 07/28/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 07/31/99 : 07/31/99

Lab Sample IDs : L3A 6-93 : L3B 6-87 Time Analyzed : 0435 : 0503

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.22	5.11	5.25	86545665	89523034	3.3
RDX	8.27	7.99	8.33	110390844	103354212	-6.8
TNB	8.28	8.15	8.31	283376852	276135706	-2.6
DNB	10.74	10.45	10.81	393033195	368185521	-6.7
TETRYL	13.72	13.21	13.83	226245199	228344999	0.9
NB	12.33	11.95	12.41	315232092	291148476	-8.3
TNT	12.93	12.62	13.00	299374966	294620052	-1.6
4ADNT	17.38	16.48	17.54	118282235	106963519	-10.6
2ADNT	17.68	16.76	17.86	358969657	345973812	-3.8
26DNT	16.71	16.04	16.86	214694316	210940554	-1.8
24DNT	16.06	15.52	16.18	382647339	359139258	-6.5
3,4-DNT	16.02	15.35	16.17	208085214	207217387	-0.4

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC2 Method: 200SG29C

LC Column: METASIL Init. Calib Date(s): 07/28/99 07/28/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 07/31/99 : 07/31/99

Lab Sample IDs : L3A 6-93 : L3B 6-87 Time Analyzed : 1014 : 1043

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.20	5.11	5.25	86562165	89523034	3.3
RDX	8.22	7.99	8.33	111358439	103354212	-7.7
TNB	8.25	8.15	8.31	280207303	276135706	-1.5
DNB	10.69	10.45	10.81	398762559	368185521	-8.3
TETRYL	13.62	13.21	13.83	225271105	228344999	1.3
NB	12.27	11.95	12.41	314841772	291148476	-8.1
TNT	12.87	12.62	13.00	296343094	294620052	-0.6
4ADNT	17.16	16.48	17.54	115556871	106963519	-8.0
2ADNT	17.46	16.76	17.86	367200550	345973812	-6.1
26DNT	16.59	16.04	16.86	211533578	210940554	-0.3
24DNT	15.95	15.52	16.18	384042442	359139258	-6.9
3,4-DNT	15.90	15.35	16.17	206935904	207217387	0.1

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.308	1.54	3.08	6.16
RDX	0.024	0.120	0.598	1.20	2.39
TNB	0.019	0.095	0.450	0.900	1.80
DNB	0.010	0.050	0.251	0.502	1.00
TETRYL	0.022	0.111	0.554	1.11	2.21
NB	0.020	0.101	0.503	1.01	2.01
TNT	0.016	0.080	0.402	0.804	1.61
4ADNT	0.014	0.070	0.352	0.704	1.41
2ADNT	0.014	0.070	0.351	0.701	1.40
26DNT	0.024	0.119	0.596	1.19	2.38
24DNT	0.014	0.069	0.344	0.687	1.37
2NT	0.020	0.099	0.495	0.990	1.98
4NT	0.020	0.100	0.499	0.997	2.00
3NT	0.020	0.100	0.499	0.998	2.00
3,4-DNT	0.029	0.147	0.736	1.47	2.94

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC2

LC Column: METASIL Date(s) ICAL Analyzed: 07/28/99 07/28/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	5.16	5.18	5.18	5.18	5.15
RDX	8.09	8.13	8.17	8.15	8.15
TNB	8.20	8.23	8.24	8.23	8.20
DNB	10.54	10.60	10.64	10.64	10.62
TETRYL	13.45	13.47	13.52	13.45	13.41
NB	12.07	12.15	12.20	12.20	12.17
TNT	12.75	12.78	12.82	12.77	12.74
4ADNT	16.81	16.95	16.98	17.02	16.92
2ADNT	17.08	17.27	17.27	17.33	17.23
26DNT	16.37	16.38	16.44	16.35	16.31
24DNT	15.69	15.82	15.86	15.89	15.82
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	15.69	15.68	15.74	15.65	15.61

COMPOUND	RT CCAL 1	RT CCAL 2	RT CCAL 3	RT CCAL 4	RT CCAL 5
HMX	5.18	0.00	5.22	0.00	5.20
RDX	0.00	8.16	0.00	8.27	0.00
TNB	8.22	0.00	8.28	0.00	8.25
DNB	0.00	10.62	0.00	10.74	0.00
TETRYL	13.52	0.00	13.72	0.00	13.62
NB	0.00	12.18	0.00	12.33	0.00
TNT	12.80	0.00	12.93	0.00	12.87
4ADNT	0.00	17.02	0.00	17.38	0.00
2ADNT	0.00	17.32	0.00	17.68	0.00
26DNT	16.47	0.00	16.71	0.00	16.59
24DNT	0.00	15.82	0.00	16.06	0.00
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	15.77	0.00	16.02	0.00	15.90

COMPOUND	RT CCAL 6
HMX	0.00
RDX	8.22
TNB	0.00
DNB	10.69

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC2

LC Column: METASIL Date(s) ICAL Analyzed: 07/28/99 07/28/99

COMPOUND	RT CCAL 6
TETRYL	0.00
NB	12.26
TNT	0.00
4ADNT	17.16
2ADNT	17.46
26DNT	0.00
24DNT	15.95
2NT	0.00
4NT	0.00
3NT	0.00
3,4-DNT	0.00

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	5.18	0.022	0.065	5.11 - 5.24
RDX	8.16	0.055	0.165	7.99 - 8.32
TNB	8.23	0.026	0.079	8.15 - 8.31
DNB	10.63	0.060	0.180	10.45 - 10.81
TETRYL	13.52	0.103	0.309	13.21 - 13.83
NB	12.18	0.078	0.234	11.95 - 12.41
TNT	12.81	0.065	0.194	12.62 - 13.00
4ADNT	17.01	0.178	0.533	16.48 - 17.54
2ADNT	17.31	0.183	0.548	16.76 - 17.86
26DNT	16.45	0.136	0.407	16.04 - 16.86
24DNT	15.85	0.111	0.333	15.52 - 16.18
2NT	0.00	0.000	0.000	0.00 - 0.00
4NT	0.00	0.000	0.000	0.00 - 0.00
3NT	0.00	0.000	0.000	0.00 - 0.00
3,4-DNT	15.76	0.138	0.414	15.34 - 16.17

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

LC Column: METASIL Init. Calib. Date(s): 07/28/99 07/28/99

Instrument ID: LC2

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 15.76

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	07/28/99	1242	0.00	*
02	EXPL1A	L1A 6-95	07/28/99	1338	15.69	
03	EXPL2A	L2A 6-94	07/28/99	1406	15.68	
04	EXPL3A	L3A 6-93	07/28/99	1435	15.74	
05	EXPL4A	L4A 6-92	07/28/99	1503	15.65	
06	EXPL5A	L5A 6-91	07/28/99	1531	15.61	
07	EXPL1B	L1B 6-85	07/28/99	1600	0.00	*
08	EXPL2B	L2B 6-86	07/28/99	1628	0.00	*
09	EXPL3B	L3B 6-87	07/28/99	1656	0.00	*
10	EXPL4B	L4B 6-88	07/28/99	1724	0.00	*
11	EXPL5B	L5B 6-89	07/28/99	1753	0.00	*
12	EXPL3A	L3A 6-93	07/30/99	2256	15.77	
13	EXPL3B	L3B 6-87	07/30/99	2324	0.00	*
14	BL0709SF	BL0709SF	07/31/99	0242	15.96	
15	EXPL3A	L3A 6-93	07/31/99	0435	16.02	
16	EXPL3B	L3B 6-87	07/31/99	0503	0.00	*
17	BIOMO8200071	39322.10	07/31/99	0725	15.93	
18	BIOMO8200072	39322.11	07/31/99	0753	15.95	
19	BIOMO8200073	39322.12	07/31/99	0821	15.94	
20	BIOMO8200091	39322.13	07/31/99	0850	15.83	
21	EXPL3A	L3A 6-93	07/31/99	1014	15.90	
22	EXPL3B	L3B 6-87	07/31/99	1043	0.00	*
23						
24						
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26						
27						
28						
29						
30						
31						
32						

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC1

LC Column: CARBOSORB Date(s) Analyzed: 08/17/99 08/17/99

Method: 200SH17

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	73752029	70202078	72067609
RDX	67497833	81703167	88301010
TNB	180416789	214274032	206428313
DNB	321937900	286949080	287433506
TETRYL	141201577	133202892	111603623
NB	210997030	206658901	189070193
TNT	196457125	186040413	178925187
4ADNT	160166214	174056000	143835420
2ADNT	215595429	220486114	202725561
26DNT	150988571	136158395	136387136
24DNT	301208188	267863652	267039951
2NT	130075303	123760152	132816554
4NT	111069600	109994440	96429946
3NT	126351950	122617080	122817523
3,4-DNT	149543537	138692041	131291499

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	68677931	68039640	70547858	3.36
RDX	85924936	86289974	81943384	10.28
TNB	197666724	196873393	199131850	6.35
DNB	266580760	267129425	286006134	7.87
TETRYL	103234493	103045372	118457591	14.93
NB	176332499	175895478	191790820	8.60
TNT	171383520	170575057	180676260	5.99
4ADNT	131040146	131402536	148100063	12.67
2ADNT	188744676	189922424	203494841	7.11
26DNT	127229102	128064088	135765458	7.03
24DNT	254042487	256517662	269334388	7.00
2NT	128358418	130253157	129052717	2.60
4NT	92736283	95839688	101213991	8.53
3NT	119286055	121064124	122427346	2.13
3,4-DNT	120598407	120376547	132100406	9.41
MEAN RSD				7.59

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC1 Method: 200SH17

LC Column: CARBOSORB Init. Calib Date(s): 08/17/99 08/17/99

Client Sample No.: EXPL3 Date Analyzed : 08/18/99

Lab Sample ID : L3 6-176 Time Analyzed : 0006

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.89	4.83	4.91	84075787	70547858	-19.2*
RDX	7.54	7.37	7.59	102230406	81943384	-24.8*
TNB	10.32	10.16	10.36	240202231	199131850	-20.6*
DNB	12.70	12.48	12.76	317480515	286006134	-11.0
TETRYL	13.75	13.51	13.81	120788127	118457591	-2.0
NB	14.64	14.41	14.69	200831850	191790820	-4.7
TNT	16.62	16.41	16.67	207678387	180676260	-14.9
4ADNT	17.42	17.00	17.50	161901639	148100063	-9.3
2ADNT	18.23	17.77	18.33	227504355	203494841	-11.8
26DNT	19.63	19.32	19.70	155821469	135765458	-14.8
24DNT	20.21	19.90	20.28	303977382	269334388	-12.9
2NT	24.16	23.88	24.22	146697768	129052717	-13.7
4NT	25.83	25.46	25.94	106224814	101213991	-5.0
3NT	27.85	27.54	27.94	134996164	122427346	-10.3
3,4-DNT	16.11	15.83	16.17	146123511	132100406	-10.6

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.308	1.54	3.08	6.16
RDX	0.024	0.120	0.598	1.20	2.39
TNB	0.019	0.095	0.450	0.900	1.80
DNB	0.010	0.050	0.251	0.502	1.00
TETRYL	0.022	0.111	0.554	1.11	2.21
NB	0.020	0.101	0.503	1.01	2.01
TNT	0.016	0.080	0.402	0.804	1.61
4ADNT	0.014	0.070	0.352	0.704	1.41
2ADNT	0.014	0.070	0.351	0.701	1.40
26DNT	0.024	0.119	0.596	1.19	2.38
24DNT	0.014	0.069	0.344	0.687	1.37
2NT	0.020	0.099	0.495	0.990	1.98
4NT	0.020	0.100	0.499	0.997	2.00
3NT	0.020	0.100	0.499	0.998	2.00
3,4-DNT	0.029	0.147	0.736	1.47	2.94

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC1

LC Column: CARBOSORB Date(s) ICAL Analyzed: 08/17/99 08/17/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	4.88	4.88	4.87	4.86	4.86
RDX	7.49	7.48	7.46	7.44	7.45
TNB	10.28	10.26	10.25	10.22	10.24
DNB	12.64	12.60	12.60	12.57	12.60
TETRYL	13.67	13.66	13.66	13.60	13.64
NB	14.54	14.52	14.55	14.51	14.54
TNT	16.53	16.52	16.54	16.49	16.54
4ADNT	17.21	17.21	17.24	17.19	17.24
2ADNT	18.06	17.98	18.03	17.98	18.03
26DNT	19.47	19.47	19.51	19.46	19.51
24DNT	20.07	20.05	20.08	20.03	20.08
2NT	24.04	24.00	24.05	24.01	24.05
4NT	25.60	25.64	25.73	25.67	25.72
3NT	27.69	27.66	27.77	27.72	27.77
3,4-DNT	15.99	15.97	16.01	15.95	16.00

COMPOUND	RT CCAL 1
HMX	4.89
RDX	7.54
TNB	10.32
DNB	12.70
TETRYL	13.75
NB	14.64
TNT	16.62
4ADNT	17.42
2ADNT	18.23
26DNT	19.63
24DNT	20.21
2NT	24.16
4NT	25.83
3NT	27.85
3,4-DNT	16.11

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	4.87	0.013	0.038	4.83 - 4.91
RDX	7.48	0.036	0.109	7.37 - 7.59
TNB	10.26	0.035	0.105	10.16 - 10.36
DNB	12.62	0.046	0.137	12.48 - 12.76

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC1

LC Column: CARBOSORB Date(s) ICAL Analyzed: 08/17/99 08/17/99

COMPOUND	AVG RT	STD DEV	3X STD	RT WINDOW
TETRYL	13.66	0.049	0.148	13.51 - 13.81
NB	14.55	0.046	0.139	14.41 - 14.69
TNT	16.54	0.043	0.130	16.41 - 16.67
4ADNT	17.25	0.085	0.254	17.00 - 17.50
2ADNT	18.05	0.093	0.279	17.77 - 18.33
26DNT	19.51	0.063	0.190	19.32 - 19.70
24DNT	20.09	0.064	0.191	19.90 - 20.28
2NT	24.05	0.057	0.171	23.88 - 24.22
4NT	25.70	0.081	0.243	25.46 - 25.94
3NT	27.74	0.068	0.204	27.54 - 27.94
3,4-DNT	16.00	0.056	0.168	15.83 - 16.17

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

LC Column: CARBOSORB Init. Calib. Date(s): 08/17/99 08/17/99

Instrument ID: LC1

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 16.00

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #
01	INSTRUMENT BLANK	INSTRUMENT B	08/17/99	1511	0.00 *
02	EXPL1	L1 6-178	08/17/99	1641	15.99
03	EXPL2	L2 6-177	08/17/99	1739	15.97
04	EXPL3	L3 6-176	08/17/99	1824	16.01
05	EXPL4	L4 6-175	08/17/99	2023	15.95
06	EXPL5	L5 6-174	08/17/99	2107	16.00
07	BIOMO8200031	39322.01	08/17/99	2152	16.03
08	BIOMO8200032	39322.02	08/17/99	2237	16.05
09	BIOMO8200033	39322.03	08/17/99	2322	16.00
10	EXPL3	L3 6-176	08/18/99	0006	16.11
11					
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Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC2

LC Column: CARBOSORB Date(s) Analyzed: 08/17/99 08/17/99

Method: 200SH17

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	168893166	190983497	206802854
RDX	224212333	279269933	296966888
TNB	620451947	642985473	696400645
DNB	1034721800	1024505780	1040337582
TETRYL	373198559	376578892	385765962
NB	878327030	863272990	873408775
TNT	937152750	808228963	863815724
4ADNT	323703857	370716429	304255526
2ADNT	878377429	785346986	815511946
26DNT	465055882	451372134	453699686
24DNT	1111091159	1086157551	1140447465
2NT	619857424	606942832	624486847
4NT	534648500	525422336	544946167
3NT	575718850	609959955	635397926
3,4-DNT	538000952	520533497	530468549

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	205641356	208020311	196068237	8.51
RDX	292050511	306674074	279834748	11.66
TNB	686523221	706851369	670642531	5.53
DNB	1027527851	1070240846	1039466772	1.76
TETRYL	378573122	399732076	382769722	2.75
NB	865577721	902592527	876635809	1.79
TNT	855327546	859934476	864891892	5.35
4ADNT	299994467	325640776	324862211	8.63
2ADNT	806260739	832645855	823628591	4.25
26DNT	443843045	464788998	455751949	2.00
24DNT	1124783642	1150825695	1122661102	2.26
2NT	617088174	630705881	619816232	1.43
4NT	533816148	546846087	537135848	1.64
3NT	620762671	643343629	617036606	4.29
3,4-DNT	524670357	540763114	530887294	1.62
MEAN RSD				4.23

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC2 Method: 200SH17

LC Column: CARBOSORB Init. Calib Date(s): 08/17/99 08/17/99

Client Sample No.: EXPL3 Date Analyzed : 08/18/99

Lab Sample ID : L3 6-178 Time Analyzed : 0304

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.19	5.12	5.54	207075811	196068237	-5.6
RDX	7.85	7.78	8.06	301126454	279834748	-7.6
TNB	10.70	10.59	10.77	709424751	670642531	-5.8
DNB	13.03	12.81	13.15	1061989223	1039466772	-2.2
TETRYL	13.91	13.64	14.06	396949175	382769722	-3.7
NB	14.83	14.60	14.94	893207042	876635809	-1.9
TNT	16.77	16.55	16.89	758245495	864891892	12.3
4ADNT	17.14	16.79	17.33	467340551	324862211	-43.9*
2ADNT	18.29	17.53	18.51	833444550	823628591	-1.2
26DNT	19.53	19.03	19.73	466793312	455751949	-2.4
24DNT	20.22	19.63	20.43	1151974154	1122661102	-2.6
2NT	23.84	23.27	24.03	625726134	619816232	-1.0
4NT	25.49	24.75	25.71	535530219	537135848	0.3
3NT	27.50	26.67	27.75	630522640	617036606	-2.2
3,4-DNT	15.95	15.60	16.14	536651531	530887294	-1.1

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.308	1.54	3.08	6.16
RDX	0.024	0.120	0.598	1.20	2.39
TNB	0.019	0.095	0.450	0.900	1.80
DNB	0.010	0.050	0.251	0.502	1.00
TETRYL	0.022	0.111	0.554	1.11	2.21
NB	0.020	0.101	0.503	1.01	2.01
TNT	0.016	0.080	0.402	0.804	1.61
4ADNT	0.014	0.070	0.352	0.704	1.41
2ADNT	0.014	0.070	0.351	0.701	1.40
26DNT	0.024	0.119	0.596	1.19	2.38
24DNT	0.014	0.069	0.344	0.687	1.37
2NT	0.020	0.099	0.495	0.990	1.98
4NT	0.020	0.100	0.499	0.997	2.00
3NT	0.020	0.100	0.499	0.998	2.00
3,4-DNT	0.029	0.147	0.736	1.47	2.94

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC2

LC Column: CARBOSORB Date(s) ICAL Analyzed: 08/17/99 08/17/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	5.36	5.37	5.35	5.35	5.37
RDX	7.98	7.95	7.91	7.90	7.90
TNB	10.70	10.71	10.67	10.64	10.65
DNB	13.02	13.02	12.96	12.91	12.91
TETRYL	13.90	13.91	13.82	13.78	13.76
NB	14.82	14.82	14.74	14.72	14.70
TNT	16.76	16.79	16.70	16.66	16.66
4ADNT	17.16	17.11	17.04	16.97	16.95
2ADNT	18.10	18.07	17.95	17.88	17.85
26DNT	19.46	19.44	19.33	19.26	19.24
24DNT	20.10	20.10	19.98	19.90	19.88
2NT	23.67	23.73	23.61	23.52	23.52
4NT	25.27	25.31	25.18	25.07	25.07
3NT	27.27	27.29	27.15	27.03	27.03
3,4-DNT	15.94	15.95	15.82	15.78	15.76

COMPOUND	RT CCAL 1
HMX	5.19
RDX	7.85
TNB	10.70
DNB	13.03
TETRYL	13.91
NB	14.83
TNT	16.77
4ADNT	17.14
2ADNT	18.29
26DNT	19.53
24DNT	20.22
2NT	23.84
4NT	25.49
3NT	27.50
3,4-DNT	15.95

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	5.33	0.070	0.210	5.12 - 5.54
RDX	7.92	0.045	0.136	7.78 - 8.06
TNB	10.68	0.029	0.088	10.59 - 10.77
DNB	12.98	0.056	0.169	12.81 - 13.15

FORM IX

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC2

LC Column: CARBOSORB Date(s) ICAL Analyzed: 08/17/99 08/17/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	13.85	0.069	0.206	13.64 - 14.06
NB	14.77	0.058	0.174	14.60 - 14.94
TNT	16.72	0.058	0.173	16.55 - 16.89
4ADNT	17.06	0.089	0.267	16.79 - 17.33
2ADNT	18.02	0.164	0.493	17.53 - 18.51
26DNT	19.38	0.117	0.352	19.03 - 19.73
24DNT	20.03	0.133	0.398	19.63 - 20.43
2NT	23.65	0.125	0.375	23.27 - 24.02
4NT	25.23	0.161	0.482	24.75 - 25.71
3NT	27.21	0.180	0.541	26.67 - 27.75
3,4-DNT	15.87	0.090	0.270	15.60 - 16.14

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

LC Column: CARBOSORB Init. Calib. Date(s): 08/17/99 08/17/99

Instrument ID: LC2

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 15.87

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	08/17/99	1400	0.00	*
02	EXPL1	L1 6-178	08/17/99	1516	15.94	
03	EXPL2	L2 6-177	08/17/99	1553	15.95	
04	EXPL3	L3 6-178	08/17/99	1631	15.82	
05	EXPL4	L4 6-175	08/17/99	1709	15.78	
06	EXPL5	L5 6-174	08/17/99	2107	15.76	
07	BIOMO8200052	39322.07	08/17/99	2152	15.78	
08	BIOMO8200052FD	39322.08	08/17/99	2236	15.86	
09	BIOMO8200053	39322.09	08/17/99	2321	15.98	
10	BIOMO8200071	39322.10	08/18/99	0006	16.08	
11	BIOMO8200113	39322.18	08/18/99	0050	15.94	
12	BIOMO8200033MS	39322.04MS	08/18/99	0135	16.05	
13	BIOMO8200033MSD	39322.05MSD	08/18/99	0219	15.99	
14	EXPL3	L3 6-178	08/18/99	0304	15.95	
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Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC4

LC Column: METASIL Date(s) Analyzed: 08/16/99 08/16/99

Method: 200SH16N

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	0	0	0
RDX	0	0	0
TNB	0	0	0
DNB	0	0	0
TETRYL	0	0	0
NB	0	0	0
TNT	0	0	0
4ADNT	0	0	0
2ADNT	0	0	0
26DNT	0	0	0
24DNT	0	0	0
2NT	29633860	26062704	26747099
4NT	27820960	31370012	31386634
3NT	32483280	32646424	33291572
3,4-DNT	0	0	0

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	0	0	0	0.00
RDX	0	0	0	0.00
TNB	0	0	0	0.00
DNB	0	0	0	0.00
TETRYL	0	0	0	0.00
NB	0	0	0	0.00
TNT	0	0	0	0.00
4ADNT	0	0	0	0.00
2ADNT	0	0	0	0.00
26DNT	0	0	0	0.00
24DNT	0	0	0	0.00
2NT	31533559	29899425	28775329	7.98
4NT	33584733	34961540	31824776	8.51
3NT	37175758	36846748	34488756	6.74
3,4-DNT	0	0	34488756	0.00
MEAN RSD				7.74

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC4 Method: 200SH16N

LC Column: METASIL Init. Calib Date(s): 08/16/99 08/16/99

Client Sample No.: EXPL3NT Date Analyzed : 08/17/99

Lab Sample ID : L3 6-181 Time Analyzed : 0059

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
2NT	23.61	21.90	24.26	28109888	28775329	2.3
4NT	24.06	22.21	24.73	33588941	31824776	-5.5
3NT	26.10	24.12	26.84	34883805	34488756	-1.1

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC4 Method: 200SH16N

LC Column: METASIL Init. Calib Date(s): 08/16/99 08/16/99

Client Sample No.: EXPL3NT Date Analyzed : 08/17/99

Lab Sample ID : L3 6-181 Time Analyzed : 0721

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
2NT	23.67	21.90	24.26	28441384	28775329	1.2
4NT	24.09	22.21	24.73	28554048	31824776	10.3
3NT	26.16	24.12	26.84	32684574	34488756	5.2

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.308	1.54	3.08	6.16
RDX	0.024	0.120	0.598	1.20	2.39
TNB	0.019	0.095	0.450	0.900	1.80
DNB	0.010	0.050	0.251	0.502	1.00
TETRYL	0.022	0.111	0.554	1.11	2.21
NB	0.020	0.101	0.503	1.01	2.01
TNT	0.016	0.080	0.402	0.804	1.61
4ADNT	0.014	0.070	0.352	0.704	1.41
2ADNT	0.014	0.070	0.351	0.701	1.40
26DNT	0.024	0.119	0.596	1.19	2.38
24DNT	0.014	0.069	0.344	0.687	1.37
2NT	0.020	0.099	0.495	0.990	1.98
4NT	0.020	0.100	0.499	0.997	2.00
3NT	0.020	0.100	0.499	0.998	2.00
3,4-DNT	0.029	0.147	0.736	1.47	2.94

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC4

LC Column: METASIL Date(s) ICAL Analyzed: 08/16/99 08/16/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.00	0.00	0.00	0.00	0.00
RDX	0.00	0.00	0.00	0.00	0.00
TNB	0.00	0.00	0.00	0.00	0.00
DNB	0.00	0.00	0.00	0.00	0.00
TETRYL	0.00	0.00	0.00	0.00	0.00
NB	0.00	0.00	0.00	0.00	0.00
TNT	0.00	0.00	0.00	0.00	0.00
4ADNT	0.00	0.00	0.00	0.00	0.00
2ADNT	0.00	0.00	0.00	0.00	0.00
26DNT	0.00	0.00	0.00	0.00	0.00
24DNT	0.00	0.00	0.00	0.00	0.00
2NT	22.74	22.80	22.86	22.86	23.02
4NT	23.13	23.16	23.24	23.25	23.36
3NT	25.11	25.14	25.22	25.24	25.39
3,4-DNT	0.00	0.00	0.00	0.00	0.00

COMPOUND	RT CCAL 1	RT CCAL 2
HMX	0.00	0.00
RDX	0.00	0.00
TNB	0.00	0.00
DNB	0.00	0.00
TETRYL	0.00	0.00
NB	0.00	0.00
TNT	0.00	0.00
4ADNT	0.00	0.00
2ADNT	0.00	0.00
26DNT	0.00	0.00
24DNT	0.00	0.00
2NT	23.61	23.67
4NT	24.06	24.09
3NT	26.10	26.16
3,4-DNT	0.00	0.00

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	0.00	0.000	0.000	0.00 - 0.00
RDX	0.00	0.000	0.000	0.00 - 0.00
TNB	0.00	0.000	0.000	0.00 - 0.00
DNB	0.00	0.000	0.000	0.00 - 0.00

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC4

LC Column: METASIL Date(s) ICAL Analyzed: 08/16/99 08/16/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	0.00	0.000	0.000	0.00 - 0.00
NB	0.00	0.000	0.000	0.00 - 0.00
TNT	0.00	0.000	0.000	0.00 - 0.00
4ADNT	0.00	0.000	0.000	0.00 - 0.00
2ADNT	0.00	0.000	0.000	0.00 - 0.00
26DNT	0.00	0.000	0.000	0.00 - 0.00
24DNT	0.00	0.000	0.000	0.00 - 0.00
2NT	23.08	0.392	1.177	21.90 - 24.26
4NT	23.47	0.420	1.260	22.21 - 24.73
3NT	25.48	0.453	1.360	24.12 - 26.84
3,4-DNT	0.00	0.000	0.000	0.00 - 0.00

8D
EXPLOSIVES ANALYTICAL SEQUENCE

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

LC Column: METASIL Init. Calib. Date(s): 08/16/99 08/16/99

Instrument ID: LC4

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 0.00

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #
01	INSTRUMENT BLANK	INSTRUMENT B	08/16/99	1558	0.00
02	EXPL1NT	L1 6-179	08/16/99	1629	0.00
03	EXPL2NT	L2 6-180	08/16/99	1733	0.00
04	EXPL3NT	L3 6-181	08/16/99	1805	0.00
05	EXPL4NT	L4 6-182	08/16/99	1837	0.00
06	EXPL5NT	L5 6-183	08/16/99	1909	0.00
07	BL0709SF	BL0709SF	08/16/99	1941	0.00
08	BIOM08200051	39322.06	08/16/99	2148	0.00
09	BIOM08200052	39322.07	08/16/99	2220	0.00
10	BIOM08200072	39322.11	08/17/99	0027	0.00
11	EXPL3NT	L3 6-181	08/17/99	0059	0.00
12	BIOM08200073	39322.12	08/17/99	0203	0.00
13	BIOM08200091	39322.13	08/17/99	0234	0.00
14	BIOM08200092	39322.14	08/17/99	0306	0.00
15	BIOM08200093	39322.15	08/17/99	0338	0.00
16	BIOM08200111	39322.16	08/17/99	0410	0.00
17	BIOM08200112	39322.17	08/17/99	0442	0.00
18	EXPL3NT	L3 6-181	08/17/99	0721	0.00
19					
20					
21					
22					
23					
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30					
31					
32					

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC3

LC Column: CARBOSORB Date(s) Analyzed: 08/17/99 08/17/99

Method: 200SH17

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	237839265	255394930	264419045
RDX	309835583	319545367	300036651
TNB	593678789	609171042	645175687
DNB	688498200	765773060	750407873
TETRYL	302473739	321758414	312930294
NB	389088812	402357683	379602592
TNT	500393250	500422925	484870251
4ADNT	505560357	474185714	468668392
2ADNT	497756000	514398943	507495934
26DNT	392819664	382401689	385172904
24DNT	612586087	690418971	651674410
2NT	251936313	277874909	275375325
4NT	175921850	186439600	176684715
3NT	275493850	238934500	235329625
3,4-DNT	311699184	343644891	333807929

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	263912462	260628141	256438769	4.29
RDX	290371521	287834905	301524805	4.41
TNB	640391630	640570879	625797606	3.67
DNB	794406596	753655025	750548151	5.17
TETRYL	308497837	307579329	310647923	2.33
NB	380777292	381226286	386610533	2.48
TNT	491098967	492569985	493871076	1.34
4ADNT	465347943	464884032	475729288	3.59
2ADNT	508822326	505209744	506736589	1.19
26DNT	384761101	384761729	385983418	1.03
24DNT	650368274	652149708	651439490	4.23
2NT	277383656	278017166	272117474	4.16
4NT	180416636	180076458	179907852	2.31
3NT	237771940	235260135	244558010	7.10
3,4-DNT	329552952	327472516	329235494	3.53
MEAN RSD				3.39

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39322 Inst. ID: LC3 Method: 200SH17

LC Column: CARBOSORB Init. Calib Date(s): 08/17/99 08/17/99

Client Sample No.: EXPL3 Date Analyzed : 08/18/99

Lab Sample ID : L3 6-176 Time Analyzed : 0026

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.91	5.78	5.96	261373456	256438769	-1.9
RDX	9.03	8.67	9.21	297989009	301524805	1.2
TNB	12.16	11.73	12.25	622377236	625797606	0.5
DNB	15.05	14.34	15.20	739763960	750548151	1.4
TETRYL	16.43	15.43	16.63	298238695	310647923	4.0
NB	17.07	16.30	17.24	370683529	386610533	4.1
TNT	19.48	18.51	19.71	487909704	493871076	1.2
4ADNT	21.19	19.47	21.57	457515290	475729288	3.8
2ADNT	22.41	20.45	22.83	458643236	506736589	9.5
26DNT	23.09	21.67	23.41	418441869	385983418	-8.4
24DNT	23.95	22.39	24.29	647135320	651439490	0.7
2NT	28.13	26.39	28.55	264090251	272117474	2.9
4NT	30.16	28.26	30.64	171063607	179907852	4.9
3NT	32.54	30.47	33.01	223619563	244558010	8.6
3,4-DNT	18.89	17.68	19.16	327171075	329235494	0.6

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.308	1.54	3.08	6.16
RDX	0.024	0.120	0.598	1.20	2.39
TNB	0.019	0.095	0.450	0.900	1.80
DNB	0.010	0.050	0.251	0.502	1.00
TETRYL	0.022	0.111	0.554	1.11	2.21
NB	0.020	0.101	0.503	1.01	2.01
TNT	0.016	0.080	0.402	0.804	1.61
4ADNT	0.014	0.070	0.352	0.704	1.41
2ADNT	0.014	0.070	0.351	0.701	1.40
26DNT	0.024	0.119	0.596	1.19	2.38
24DNT	0.014	0.069	0.344	0.687	1.37
2NT	0.020	0.099	0.495	0.990	1.98
4NT	0.020	0.100	0.499	0.997	2.00
3NT	0.020	0.100	0.499	0.998	2.00
3,4-DNT	0.029	0.147	0.736	1.47	2.94

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 08/17/99 08/17/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	5.86	5.85	5.85	5.85	5.91
RDX	9.08	8.89	8.87	8.89	8.88
TNB	12.00	11.93	11.94	11.95	11.95
DNB	14.75	14.71	14.67	14.75	14.68
TETRYL	16.00	15.94	15.90	15.99	15.92
NB	16.79	16.69	16.65	16.74	16.67
TNT	19.19	19.01	18.95	19.04	18.98
4ADNT	20.61	20.38	20.29	20.35	20.30
2ADNT	21.74	21.48	21.37	21.46	21.40
26DNT	22.62	22.39	22.34	22.42	22.36
24DNT	23.42	23.24	23.11	23.20	23.13
2NT	27.65	27.29	27.27	27.30	27.20
4NT	29.68	29.26	29.21	29.23	29.15
3NT	31.87	31.54	31.50	31.52	31.44
3,4-DNT	18.52	18.31	18.24	18.32	18.26

COMPOUND	RT CCAL 1
HMX	5.91
RDX	9.03
TNB	12.16
DNB	15.05
TETRYL	16.43
NB	17.07
TNT	19.48
4ADNT	21.19
2ADNT	22.41
26DNT	23.09
24DNT	23.95
2NT	28.13
4NT	30.16
3NT	32.54
3,4-DNT	18.88

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	5.87	0.030	0.090	5.78 - 5.96
RDX	8.94	0.091	0.272	8.67 - 9.21
TNB	11.99	0.088	0.263	11.73 - 12.25
DNB	14.77	0.142	0.426	14.34 - 15.20

FORM IX

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39322

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 08/17/99 08/17/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	16.03	0.200	0.599	15.43 - 16.63
NB	16.77	0.156	0.469	16.30 - 17.24
TNT	19.11	0.200	0.601	18.51 - 19.71
4ADNT	20.52	0.348	1.045	19.47 - 21.56
2ADNT	21.64	0.398	1.194	20.45 - 22.83
26DNT	22.54	0.289	0.868	21.67 - 23.41
24DNT	23.34	0.318	0.954	22.39 - 24.29
2NT	27.47	0.358	1.075	26.39 - 28.54
4NT	29.45	0.397	1.192	28.26 - 30.64
3NT	31.74	0.423	1.268	30.47 - 33.01
3,4-DNT	18.42	0.246	0.737	17.68 - 19.16

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39322

LC Column: CARBOSORB Init. Calib. Date(s): 08/17/99 08/17/99

Instrument ID: LC3

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 18.42

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #
01	INSTRUMENT BLANK	INSTRUMENT B	08/17/99	0954	0.00 *
02	EXPL1	L1 6-178	08/17/99	1159	18.52
03	EXPL2	L2 6-177	08/17/99	1439	18.31
04	EXPL3	L3 6-176	08/17/99	1524	18.24
05	EXPL4	L4 6-175	08/17/99	1608	18.32
06	EXPL5	L5 6-174	08/17/99	1653	18.26
07	BIOMO8200072	39322.11	08/17/99	1737	18.42
08	BIOMO8200073	39322.12	08/17/99	1822	18.34
09	BIOMO8200091	39322.13	08/17/99	1906	18.50
10	BIOMO8200092	39322.14	08/17/99	1951	18.42
11	BIOMO8200093	39322.15	08/17/99	2043	18.60
12	BIOMO8200111	39322.16	08/17/99	2128	18.70
13	BIOMO8200112	39322.17	08/17/99	2212	18.83
14	BIOMO8200051	39322.06	08/17/99	2257	18.98
15	BIOMO8200113FD	39322.19	08/17/99	2342	19.02
16	EXPL3	L3 6-176	08/18/99	0026	18.88
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

	SV	ST • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

☐ RUSH ☐ REEXTRACT ☐ TCLP ☐ OXIN

SAMPLE EXTRACTION L(

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 990709SF

EXTRACT DATE 1999-07-09 13:42

000087
Page: 1 of 2

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE %	DRY WEIGHT g	AMOUNT EXTRACTED g • ml	EXTRACTED VOLUME ml	GPC VOLUME ml	GPC ELUTE VOL ml	FLORISIL VOL CONC ml	FLORISIL FIN VOL CONC ml	VOL SV - P ml	FIN PROCESS VOLUME ml	SCREEN Y/N Y/N	MS SV - P µL	SURR SV - P µL	BASE pH CONFIRMATION	ACID pH CONFIRMATION
BL0709SF			S/L				2.00	10.0						10.0	N		1000		
BB0709SF			S/L				2.02	10.0						10.0	N		1000		
LC0709SF			S/L				2.04	10.0						10.0	N	500	1000		
LD0709SF			S/L				2.02	10.0						10.0	N	500	1000		
39322.01 GC200	TOLTEST	07/09/1999 09:39 BIOM08200031	S/L		26.91	1.5	2.04	10.0						10.0	N		1000		
39322.02 GC200	TOLTEST	07/09/1999 09:39 BIOM08200032	S/L		38.01	1.2	2.01	10.0						10.0	N		1000		
39322.03 GC200	TOLTEST	07/09/1999 09:39 BIOM08200033	S/L		31.22	1.6	2.35	10.0						10.0	N		1000		
39322.04MS GC200	TOLTEST	07/09/1999 09:39 BIOM08200033	S/L		↓	↓	2.06	10.0						10.0	N	500	1000		
39322.05MSD GC200	TOLTEST	07/09/1999 09:39 BIOM08200033	S/L		↓	↓	2.20	10.0						10.0	N	500	1000		
39322.06 GC200	TOLTEST	07/09/1999 09:39 BIOM08200051	S/L		36.37	1.4	2.18	10.0						10.0	N		1000		
39322.07 GC200	TOLTEST	07/09/1999 09:39 BIOM08200052	S/L		33.64	1.6	2.41	10.0						10.0	N		1000		
39322.08 GC200	TOLTEST	07/09/1999 09:39 BIOM08200052FD	S/L		30.45	1.5	2.16	10.0						10.0	N		1000		
39322.09 GC200	TOLTEST	07/09/1999 09:39 BIOM08200053	S/L		35.52	1.3	2.03	10.0						10.0	N		1000		
39322.10 GC200	TOLTEST	07/09/1999 09:39 BIOM08200071	S/L		32.76	1.4	2.05	10.0						10.0	N		1000		
39322.11 GC200	TOLTEST	07/09/1999 09:39 BIOM08200072	S/L		36.90	1.5	2.33	10.0						10.0	N		1000		

INITIALS

WEIGHING: GS	EXTRACTION: GS	FLORISIL:
CLEANUP:	KD:	
BLOWDOWN:	TV:	
SURROG. SPIKER: JR	VERIFIER: JM	
MATRIX SPIKER: JR	VERIFIER: JM	
SUBMITTED BY: GS	REVIEWED BY:	

7/12/99

ID NUMBERS

FLORISIL CARTRIDGE #:
GPC COLUMN #:
SURROGATES ID CONC #: 6-68
MATRIX SPIKE SOLID/CONC #(s): 6-75

SOP - METHOD # : SWL-OP- 200 Rev. 4.0

COMMENTS

	SV	PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

☐ RUSH ☐ REEXTRACT ☐ TCLP ☐ DIOXIN

SAMPLE EXTRACTION LOG

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 990709SF

EXTRACT DATE: 1999-07-09 13:42

000087
Page: 2 of 2

SAMPLE ID (EPISODE #)	CLIENT / CASE	DATE RECEIVED / CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	g • ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
39322.12 GC200	TOLTEST	07/09/1999 09:39 BIOM08200073	S/L		34.32	1.3	2.03	10.0						10.0	N		1000		
39322.13 GC200	TOLTEST	07/09/1999 09:39 BIOM08200091	S/L		35.32	1.5	2.31	10.0						10.0	N		1000		
39322.14 GC200	TOLTEST	07/09/1999 09:39 BIOM08200092	S/L		30.84	1.5	2.19	10.0						10.0	N		1000		
39322.15 GC200	TOLTEST	07/09/1999 09:39 BIOM08200093	S/L		34.30	1.6	2.45	10.0						10.0	N		1000		
39322.16 GC200	TOLTEST	07/09/1999 09:39 BIOM08200111	S/L		38.28	1.5	2.37	10.0						10.0	N		1000		
39322.17 GC200	TOLTEST	07/09/1999 09:39 BIOM08200112	S/L		39.29	1.2	2.02	10.0						10.0	N		1000		
39322.18 GC200	TOLTEST	07/09/1999 09:39 BIOM08200113	S/L		31.89	1.5	2.27	10.0						10.0	N		1000		
39322.19 GC200	TOLTEST	07/09/1999 09:39 BIOM08200113FD	S/L		33.02	1.4	2.09	10.0						10.0	N		1000		

INITIALS

WEIGHING:	GS	EXTRACTION:	GS	FLORISIL:	
CLEANUP:		KD:			
BLOWDOWN:		TV:			
SURROG SPIKER:	JR	VERIFIER:	JM		
MATRIX SPIKER:	JR	VERIFIER:	JM		
SUBMITTED BY:	GS	REVIEWED BY:			

ID NUMBERS

FLORISIL CARTRIDGE #:

GPC COLUMN #:

SURROGATES ID CONC #: 6-68

MATRIX SPIKE SOLID/CONC #(s): 6-75

SOP - METHOD # : SWL-OP- 200 Rev. 4.0

COMMENTS

TOLTEST, INC.

1915 N. 12th St., P.O. Box 2186, Toledo, OH 43603-2186; Voice (419) 241-7175, Fax (419) 321-6259 BIO-223
Ship To Address: ATTN: RECEIVING LAB, 1810 N. 12th St., Toledo, OH 43624-1304; Voice (419) 241-7175, Fax (419) 241-1808
Sent From: ☐ Corporate ☐ Plymouth ☐ Monroe ☐ Pittsburgh ☐ Other _____

Chain of Custody Record

25812

Page 1 of 1

Project No.: 37324
Client:
P.O. No.:
Project/Location: NSWC Crane Biofacility
Project Mgr.:
Sampler's Name: Shayne Newsome
Phone No.
Sampler's Signature: Shayne Newsome

Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	Parameters	Preserved Yes/No	LAB USE ONLY Lab #
1	BIO N-078 06 031	7/1/99	1300	G	Compost	column 3 sample location 1	1	✓		
2	BIO N078 06 032		1301			2				
3	BIO N078 06 033		1302			3				
4	BIO N078 06 051		1303			5 1				
5	BIO N078 06 052		1304			2				
6	BIO N078 06 053		1305			3				
7	BIO N078 06 054		1305			3				
8										
9										
10										

Item No.	Relinquished By:	Date / Time	Received By:	Date / Time
	Shayne Newsome	7/1/99 1500	E. Maenbacer	7/2/99 10:25
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time
Item No.	Relinquished By:	Date / Time	Received By:	Date / Time

LAB USE ONLY

Were samples delivered ☐ in person ☐ by courier
Were samples preserved ☐ in field ☐ in lab ☐ N/A
Temp of samples 5 °C
Did samples arrive intact and sealed? ☐ yes ☐ no ☐ N/A
Were proper containers used? ☐ yes ☐ no
Was container labeled properly for contents? ☐ yes ☐ no
Were samples packaged properly for type of material? ☐ yes ☐ no
Was shipping label completed properly per regulations? (49 CFR 170, etc.) ☐ yes ☐ no
Comments: _____

TAT

Distribution: Original plus one accompanies shipment (white and yellow); copy to coordinator field files (pink)

Rev. 7/97

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2.WB1) / SWL-GA-115 REV 5.0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): E.MAIMBOURG

RECEIVED BY (SIGNATURE): E. Maimbourg

LOGGED IN BY (SIGNATURE): E. Maimbourg

REC'D DATE 07/02/99

TIME REC'D 10:25

LOG-IN DATE 1999-07-02 10:52

PROJECT: NSWC CRANE

EPISODE: 39244

SAMPLE DELIVERY GROUP: 39244

Client Sample #	Sample Fraction @	Assigned LAB#	Cooler I.D.	pH Check	ACID/ BASE LOT#	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
BION07806031	GC	39244.01	07/02/99-1	N		5.0 C
BION07806032		39244.02		N		
BION07806033		39244.03		N		
BION07806051		39244.04		N		
BION07806052		39244.05		N		
BION07806053		39244.06		N		
BION07806053FD		39244.07		N		

Remarks

1. CUSTODY SEAL(S): Present/Absent
   Intact/ Broken
2. CUSTODY SEALS NOS.: NA
3. CHAIN-OF CUSTODY. Present/Absent
   Sealed In Plastic? Yes/ No
   Taped To Lid? Yes/ No
   Properly Filled Out (Ink, Signed, ETC.)? Yes/ No
4. AIRBILL AirBill/ Sticker Present/Absent
5. AIRBILL NO: 811674013795
6. COOLER CONDITIONS
   Enough Ice? Yes/ No
   Type of Ice? Wet
   Type of Packing? Bub
7. SAMPLE TAGS Present/Absent
8. SAMPLE CONDITION: Intact/ Broken*/ Leaking
   Bottles Sealed In Separate Plastic Bags? Yes/ No
   Correct Containers Used For Tests Indicated? Yes/ No
   Correct Preservative? Yes/ No
   Sufficient Sample? Yes/ No
   Labels Complete (I.D., Date, Time, Signature, Preservative? Yes/ No
   VOA Samples Without Bubbles? Yes/ No~
9. Does Information on Custody Records, Labels, Tags Agree? Yes/ No*
10. RAD SCREEN WITH GIEGER COUNTER? Yes/ No
11. P.O. Called? Yes/ No

* Contact PO and attach record of resolution

@ Sample Fractions: B=SV GC/MS, V= VOA GC/MS or GC, P=Pesticide, H=Herbicide, D=Dioxin, A=Air, I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE
August 20, 1999

CONTRACT : TOLTEST

PROJECT : NSWC CRANE

SDG NO : 39244

EPISODE(S): 39244

EXPLOSIVE FRACTION

This SDG consisted of 7 soil samples with applicable MS and MSD for the explosives analysis. The samples, blanks and spikes were extracted and analyzed according to EPA protocol, SW-846, method 8330, REV. 0, 1994.

For soil samples, the percent moisture is determined by drying them at 105° C at the time of receipt. Additional portion of the samples is air-dried prior to analysis. The results are reported on the basis of the air-dried samples. For high-level water samples, direct injection method is used. For low-level water samples, salting out method is used. All of the extracts are diluted by a factor of two prior to analysis according to method 8330. The extracts are diluted in order to be the same consistency as the Mobile Phase.

"P" flags were used when the appropriate compound with sufficient response exceeded 40% deviation, possibly due to interference in the quantitation or confirmation columns.

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

CASE SUMMARY:

Blanks: No problems.

Surrogate(s): The surrogate was out of the laboratory QC limits in the samples BION08706052MS and BION08706052MSD.

8/25 JL Calc. wrong Only MSout.

Matrix Spikes: RDX was out of the laboratory QC limits in the samples BION07806031MS and BION07806031MSD.

Laboratory Control Spikes: No problems.

The slope of the line for all of the analytes in the ICAL 200SG07.M was utilized to calculate the concentrations of the associated samples since they exceeded 20%RSD. Tetryl had less than 0.99 correlation coefficient but this analyte was not reported in any of the associated samples.

The correlation coefficients for RDX, Tetryl, 4ADNT and 2ADNT were utilized to calculate the concentrations of the associated samples in the ICAL 200SH07.M since they exceeded 20% RSD.

Enviroquant software was utilized to process the above samples. The Response Factor in the standard is calculated by dividing the area of each analyte by the concentration of the respective analyte.

Multiplier = (final volume / extracted amount) * dilution.

The following is an example of the calculations for TNT in the quantitation and confirmation of the undiluted sample BION07806053FD:

[Sample's response (area) / mean calibration factor] * Multiplier = the concentration

(19766268/ 192800) * 9.5238 = 976 ug/Kg

(23184998/ 237300) * 9.5238 = 931 ug/Kg

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

The explosives referred to in the data package by the abbreviations found in method 8330 are as follows: HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine), RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine), TNB (1,3,5-Trinitrobenzene), DNB (1,3-Dinitrobenzene), Tetryl (Methyl-2,4,6-trinitrophenylnitramine), NB (Nitrobenzene), TNT (2,4,6- Trinitrotoluene), 24DNT (2,4-Dinitrotoluene), 26DNT (2,6-Dinitrotoluene), 2NT (o-Nitrotoluene), 3NT m-Nitrotoluene), 4NT (p-Nitrotoluene) , PETN (Pentaerythritol tetranitrate), 2ADNT (2-Amino-4,6-dinitrotoluene), 4ADNT (4-Amino-2,6-dinitrotoluene).

The laboratory utilizes the following flags where appropriate: "J" - indicates a quantitated result, which is below the quantitation limit, but above the detection limit and has been confirmed by the second column. "E"- indicates an out of range value, i.e., a peak that is off-scale or out
of the linear calibration range of the detector. The value reported is not to be used. The sample must be diluted and re-run. "D" - indicates a value derived from a secondary dilution. "U" - indicates the compound that is undetected above the quantitation limit. "X" - indicates a comment that is explained in the case narrative.

Phuong Vo
Analyst

2F
SOIL EXPLOSIVES SURROGATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244

LC Column(1): CARBOSORB

	CLIENT SAMPLE NO.	S1 1 %REC #	TOT OUT
01	BL0702SD	83	0
02	BION07806032	128	0
03	BION07806033	131	0
04	BION07806051	135	0
05	BION07806052	134	0
06	BION07806053	133	0
07	BION07806031	122	0
08	BION07806031MS	77	0
09	BION07806031MSD	71	0
10	LC0702SD	128	0
11	LD0702SD	120	0
12	BION07806053FD	87	0
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

S1 = 3,4-DNT

QC LIMITS
(60-140)

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

FORM II

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244

Matrix Spike - Client Sample NO.: BION07806031

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
HMX	8640	~~0~~ 2990	8750	140 101	54-128
RDX	8640	~~0~~ 2010	15200	130 ~~176*~~	66-109
TNB	8640	0	7570	88	57-130
DNB	8640	0	8760	101	74-122
TETRYL	8640	0	5810	67	32-119
NB	8640	0	8070	93	70-135
TNT	8640	924	8180	84	44-124
4ADNT	8640	511	8920	97	60-140
2ADNT	8640	0	7440	86	60-140
26DNT	8640	0	7390	86	58-125
24DNT	8640	0	8140	94	59-120
2NT	8640	0	7090	82	79-124
4NT	8640	0	7580	88	74-128
3NT	8640	0	7650	88	79-121

FORM III

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244

Matrix Spike - Client Sample NO.: BION07806031

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	8640	8670	12% ~~100~~	1	30	54-128
RDX	8640	12500	10% ~~145~~ *	20	30	66-109
TNB	8640	7540	87	0	30	57-130
DNB	8640	8710	101	1	45	74-122
TETRYL	8640	5960	69	2	30	32-119
NB	8640	8070	93	0	35	70-135
TNT	8640	8260	85	1	30	44-124
4ADNT	8640	8650	94	3	40	60-140
2ADNT	8640	7450	86	0	40	60-140
26DNT	8640	7520	87	2	35	58-125
24DNT	8640	8150	94	0	35	59-120
2NT	8640	6950	80	2	35	79-124
4NT	8640	7700	89	2	35	74-128
3NT	8640	7790	90	2	35	79-121

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 14 outside limits
Spike Recovery: 2 out of 28 outside limits

Comments:

FORM III

3H

SOIL EXPLOSIVES LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

LCS Sample NO.: LC0702SD

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
HMX	9500	9120	96	57-137
RDX	9500	9240	97	77-113
TNB	9500	8720	92	64-125
DNB	9500	8780	92	82-118
TETRYL	9500	8700	92	23-124
NB	9500	9230	97	69-143
TNT	9500	8790	92	75-118
4ADNT	9500	9910	104	60-140
2ADNT	9500	8880	93	60-140
26DNT	9500	8350	88	78-117
24DNT	9500	9510	100	74-126
2NT	9500	7790	82	78-123
4NT	9500	8260	87	79-125
3NT	9500	8750	92	78-121

Column to be used to flag recovery values

· Values outside of QC limits

Spike Recovery: 0 out of 14 outside limits

Comments: _____

FORM III

3H

SOIL EXPLOSIVES LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

LCS Sample NO.: LD0702SD

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
HMX	9050	8780	97	57-137
RDX	9050	8800	97	77-113
TNB	9050	8460	93	64-125
DNB	9050	8450	93	82-118
TETRYL	9050	8410	93	23-124
NB	9050	8820	97	69-143
TNT	9050	8330	92	75-118
4ADNT	9050	9590	106	60-140
2ADNT	9050	8470	94	60-140
26DNT	9050	7980	88	78-117
24DNT	9050	9070	100	74-126
2NT	9050	7500	83	78-123
4NT	9050	7970	88	79-125
3NT	9050	8510	94	78-121

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 0 out of 14 outside limits

Comments:

FORM III

4C

EXPLOSIVES METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

BL0702SD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244

Lab Sample ID : BL0702SD Lab File ID : 1_070661

Matrix: (soil/water) SOIL

Date Extracted : 07/02/99 Extraction Method : SONC

Date Analyzed (1): 07/08/99 Date Analyzed (2): 07/07/99

Time Analyzed (1): 0906 Time Analyzed (2): 1943

Instrument ID (1): LC1 Instrument ID (2): LC5

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

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	BION07806032	39244.02	07/08/99	07/07/99
02	BION07806033	39244.03	07/08/99	07/07/99
03	BION07806051	39244.04	07/08/99	07/07/99
04	BION07806052	39244.05	07/08/99	07/07/99
05	BION07806053	39244.06	07/08/99	07/07/99
06	BION07806031	39244.01	07/08/99	07/07/99
07	BION07806031MS	39244.08MS	07/08/99	
08	BION07806031MSD	39244.09MSD	07/08/99	
09	LC0702SD	LC0702SD	07/08/99	
10	LD0702SD	LD0702SD	07/08/99	
11	BION07806053FD	39244.07	08/08/99	07/07/99
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

Comments:

FORM IV

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BION07806051

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244

Matrix: (soil/water) SOIL Lab Sample ID: 39244.04

Sample Amt: 2.2 G % Moisture: 23.1 Date Received: 07/02/99

Extraction Volume: 10 ML Date Extracted: 07/02/99

Extraction Method: SONC Date Analyzed: 07/08/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	8030	
121-82-4	RDX	32700	E
99-35-4	TNB	227	U
99-65-0	DNB	227	U
479-45-8	TETRYL	591	U
98-95-3	NB	236	U
118-96-7	TNT	227	U
1946-51-0	4ADNT	1090	
35572-78-2	2ADNT	520	P
606-20-2	26DNT	236	U
121-14-2	24DNT	227	U
88-72-2	2NT	227	U
99-99-0	4NT	227	U
99-08-1	3NT	227	U
Surrogate amount spiked		1818.18	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0707\3_070725.D Vial: 25
Acq On : 08 Jul 1999 10:49 Operator: SM
Sample : 39244.04 Inst : LC3
Misc : BION07806051 Multiplr: 9.0909
IntFile : EVENTS1.E
Quant Time: Jul 8 15:02 1999 Quant Results File: 200SG07.RES

08/11/99

Method : F:\HPCHEM\LC3\DATA\3_0707\200SG07.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0707\
Last Update : Thu Jul 08 10:37:00 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

	Compound	R.T.	Response	ug/Kg		Curve
	Surrogates/System Monitoring Compounds:					
7)	S 3,4-DNT	15.43	45876915	2458.9	m	L
	Target Compounds:					
1)	HMX	5.02	164369166	8026.4	m *	L
2)	RDX	7.57	881059444	32731.5	E *	L
3)	TNB	0.00	0	N.D.		L
4)	DNB	0.00	0	N.D.		L
5)	TETRYL	0.00	0	N.D.		L
6)	NB	0.00	0	N.D.		L
8)	TNT	16.19W	28090336	976.5	m	L
9)	4ADNT	17.14	32981418	1090.1	m *	L
)	2ADNT	18.11	8863459	520.5	m * P	L
)	26DNT	0.00	0	N.D.		L
12)	24DNT	0.00	0	N.D.		L
13)	2NT	0.00	0	N.D.		L
14)	4NT	0.00	0	N.D.		L
15)	3NT	0.00	0	N.D.		L

SM
7-9-99

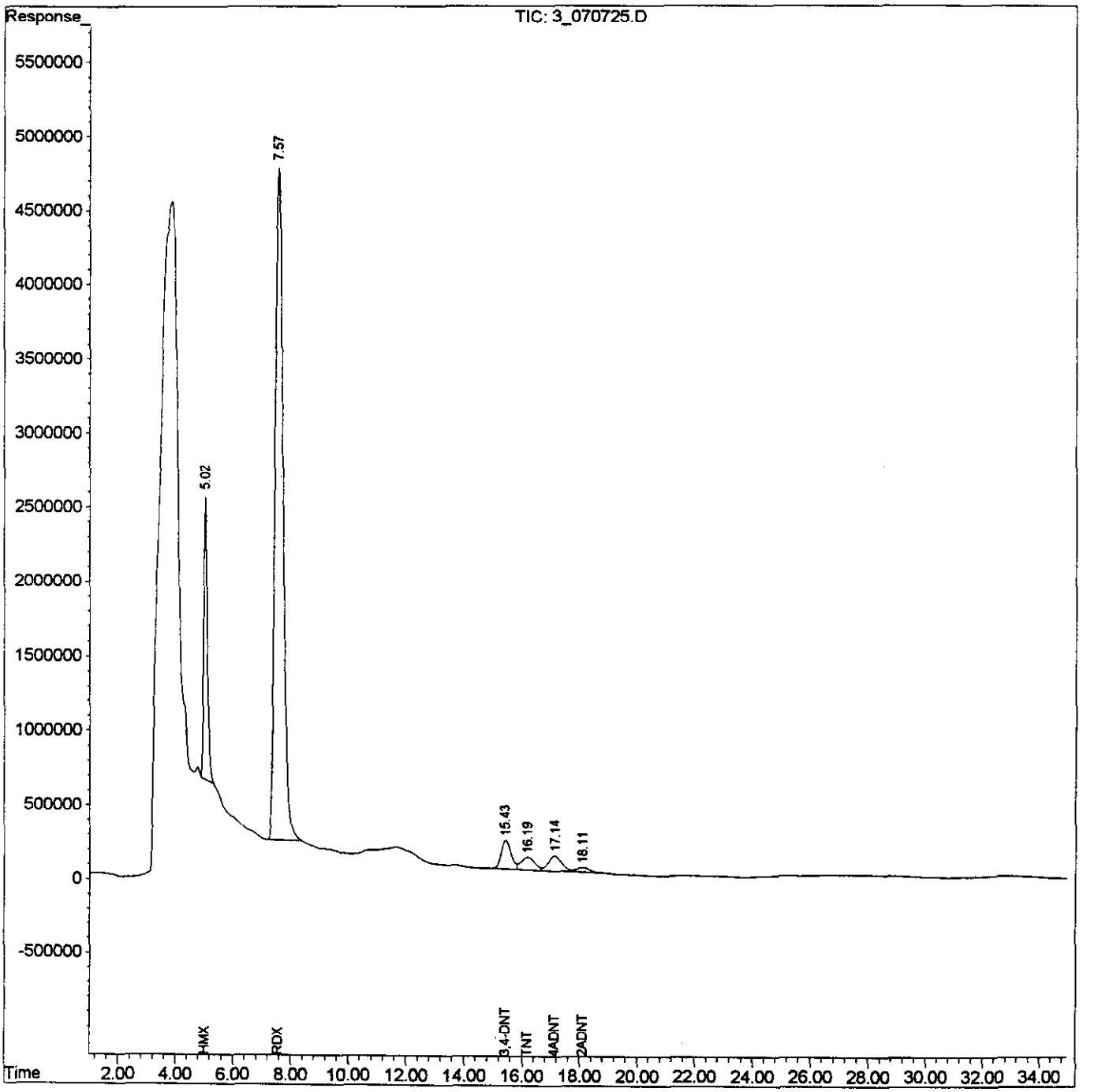
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0707\3_070725.D Vial: 25
Acq On : 08 Jul 1999 10:49 Operator: SM
Sample : 39244.04 Inst : LC3
Misc : BION07806051 Multiplr: 9.0909
IntFile : EVENTS1.E
Quant Time: Jul 8 15:02 1999 Quant Results File: 200SG07.RES

Method : F:\HPCHEM\LC3\DATA\3_0707\200SG07.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0707\
Last Update : Thu Jul 08 10:37:00 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0707\5_070707.D Vial: 7
Acq On : 07 Jul 1999 21:53 Operator: SM
Sample : 39244.04 Inst : LC5
Misc : BION07806051 Multiplr: 9.0909
IntFile : EVENTS.E
Quant Time: Jul 8 13:53 1999 Quant Results File: 200SG02C.RES

Method : F:\HPCHEM\LC5\DATA\5_0707\200SG02C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0702\
Last Update : Thu Jul 08 13:20:41 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.10	31565288	2368.1	m	A
Target Compounds:					
1) A HMX	4.51	78964536	6296.2	m	A
2) B RDX	6.88	453299167	31535.5	mE	A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.		A
8) A TNT	0.00	0	N.D.		A
9) B 4ADNT	13.19	11317837	752.7	m	A
10) B 2ADNT	13.39	7976139	223.7	m	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.		A

Sem 070849

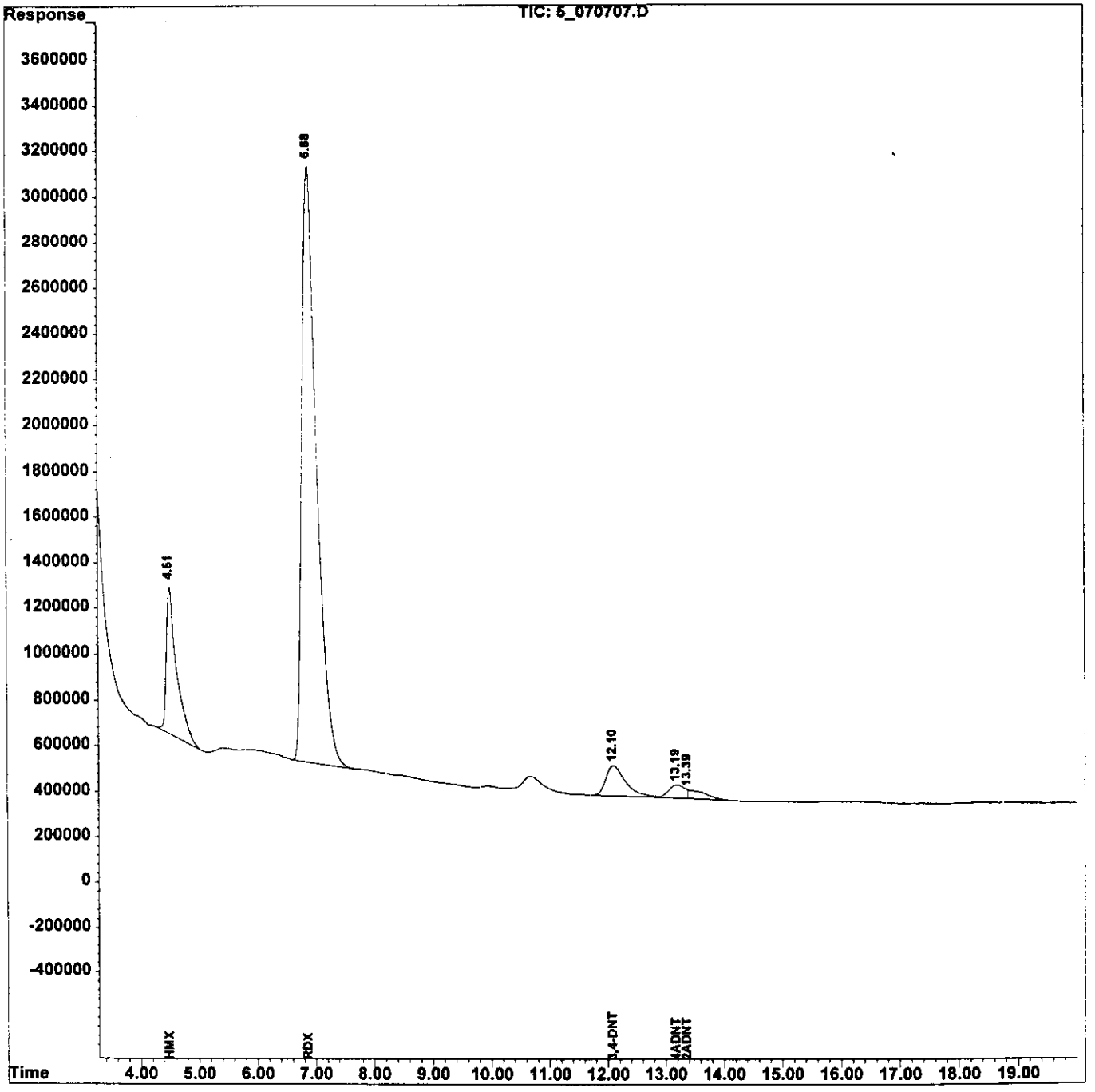
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0707\5_070707.D Vial: 7
Acq On : 07 Jul 1999 21:53 Operator: SM
Sample : 39244.04 Inst : LC5
Misc : BION07806051 Multiplr: 9.0909
IntFile : EVENTS.E
Quant Time: Jul 8 13:53 1999 Quant Results File: 200SG02C.RES

Method : F:\HPCHEM\LC5\DATA\5_0707\200SG02C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0702\
Last Update : Thu Jul 08 13:20:41 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BION07806053

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244

Matrix: (soil/water) SOIL Lab Sample ID: 39244.06

Sample Amt: 2.0 G % Moisture: 26.1 Date Received: 07/02/99

Extraction Volume: 10 ML Date Extracted: 07/02/99

Extraction Method: SONC Date Analyzed: 07/08/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	3900	P
121-82-4	RDX	3400	
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	1320	P
1946-51-0	4ADNT	1000	P
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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0707\3_070727.D Vial: 27
Acq On : 08 Jul 1999 12:18 Operator: SM
Sample : 39244.06 Inst : LC3
Misc : BION07806053 Multiplr: 10.0000
IntFile : EVENTS1.E
Quant Time: Jul 8 15:06 1999 Quant Results File: 200SG07.RES

Method : F:\HPCHEM\LC3\DATA\3_0707\200SG07.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0707\
Last Update : Thu Jul 08 10:37:00 1999
Response via : Initial Calibration

08/11/99

Volume Inj. : 200ul
Signal Phase : CARBOSORB

	Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:						
7) S	3,4-DNT	15.38	44770259	2666.4	m	L
Target Compounds:						
1)	HMX	5.02	47421059	3895.3 *P	m	L
2)	RDX	7.57	68851309	3397.7 *		L
3)	TNB	0.00	0	N.D.		L
4)	DNB	0.00	0	N.D.		L
5)	TETRYL	0.00	0	N.D.		L
6)	NB	0.00	0	N.D.		L
8)	TNT	15.92	39452840	1316.3 *P	m	L
9)	4ADNT	17.08	25242439	1003.9 *P	m	L
10)	2ADNT	0.00	0	N.D.		L
11)	26DNT	0.00	0	N.D.		L
12)	24DNT	0.00	0	N.D.		L
13)	2NT	0.00	0	N.D.		L
14)	4NT	0.00	0	N.D.		L
15)	3NT	~~26.44~~	~~24771217~~	~~1786.0~~	~~m *~~	~~L~~

JM
7-9-99

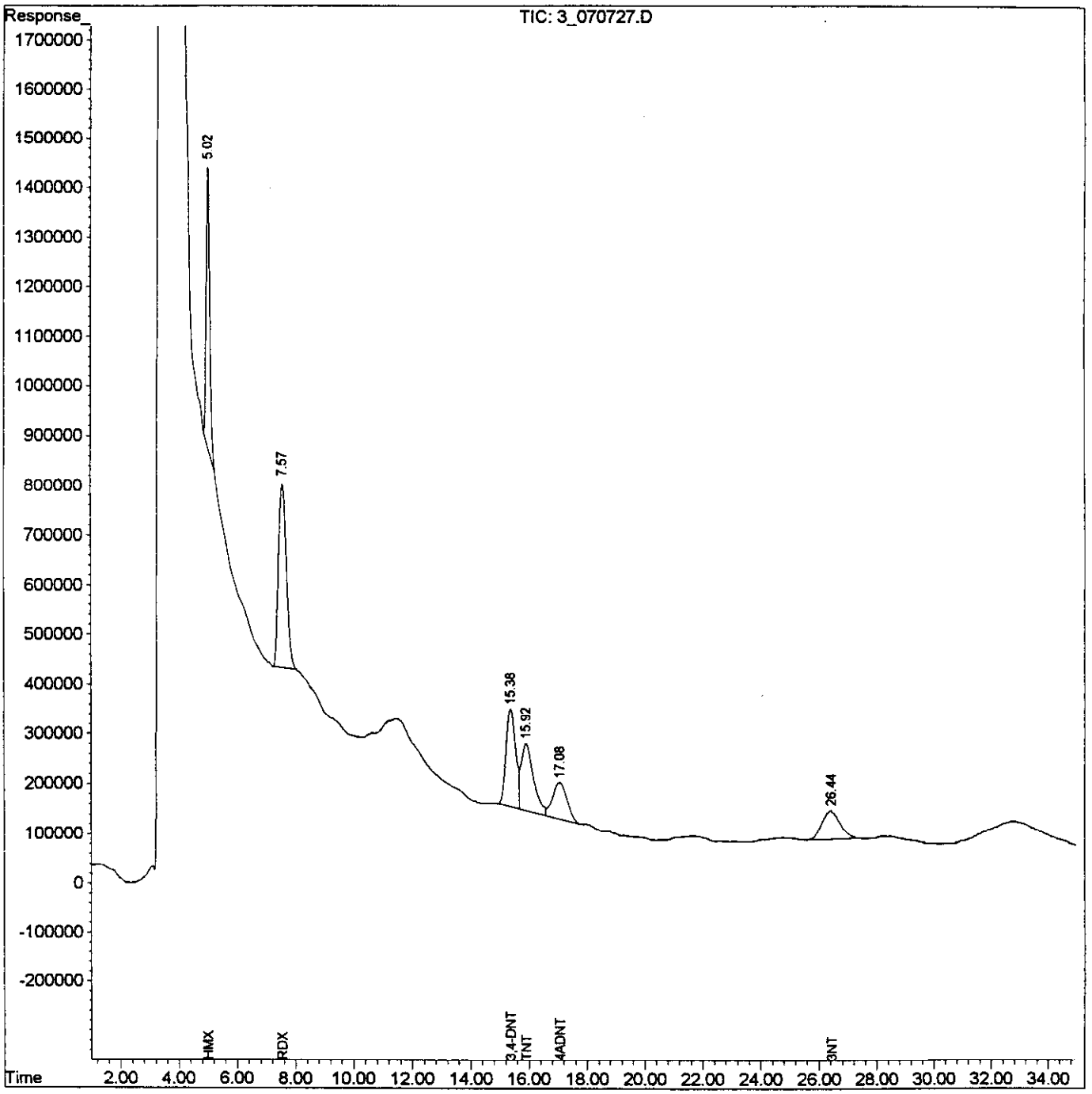
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
3_070727.D 200SG07.M Thu Jul 08 15:09:56 1999

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0707\3_070727.D Vial: 27
Acq On : 08 Jul 1999 12:18 Operator: SM
Sample : 39244.06 Inst : LC3
Misc : BION07806053 Multiplr: 10.0000
IntFile : EVENTS1.E
Quant Time: Jul 8 15:06 1999 Quant Results File: 200SG07.RES

Method : F:\HPCHEM\LC3\DATA\3_0707\200SG07.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0707\
Last Update : Thu Jul 08 10:37:00 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0707\5_070709.D Vial: 9
Acq On : 07 Jul 1999 22:58 Operator: SM
Sample : 39244.06 Inst : LC5
Misc : BION07806053 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jul 8 14:02 1999 Quant Results File: 200SG02C.RES

Method : F:\HPCHEM\LC5\DATA\5_0707\200SG02C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0702\
Last Update : Thu Jul 08 13:20:41 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.23	27964754	2307.8		A
Target Compounds:					
1) A HMX	4.52	20768532	1821.6 *P	m	A
2) B RDX	6.93	36785601	2815.0 *		A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	10.79	3515445	179.8	m	A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.05	14501103	611.2 *P	m	A
9) B 4ADNT	13.33	5131076	375.4	m	A
10) B 2ADNT	0.00	0	N.D.		A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

Jm 7/08/99

3 corrections
07/08/99

Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
5_070709.D 200SG02C.M Thu Jul 08 14:35:39 1999

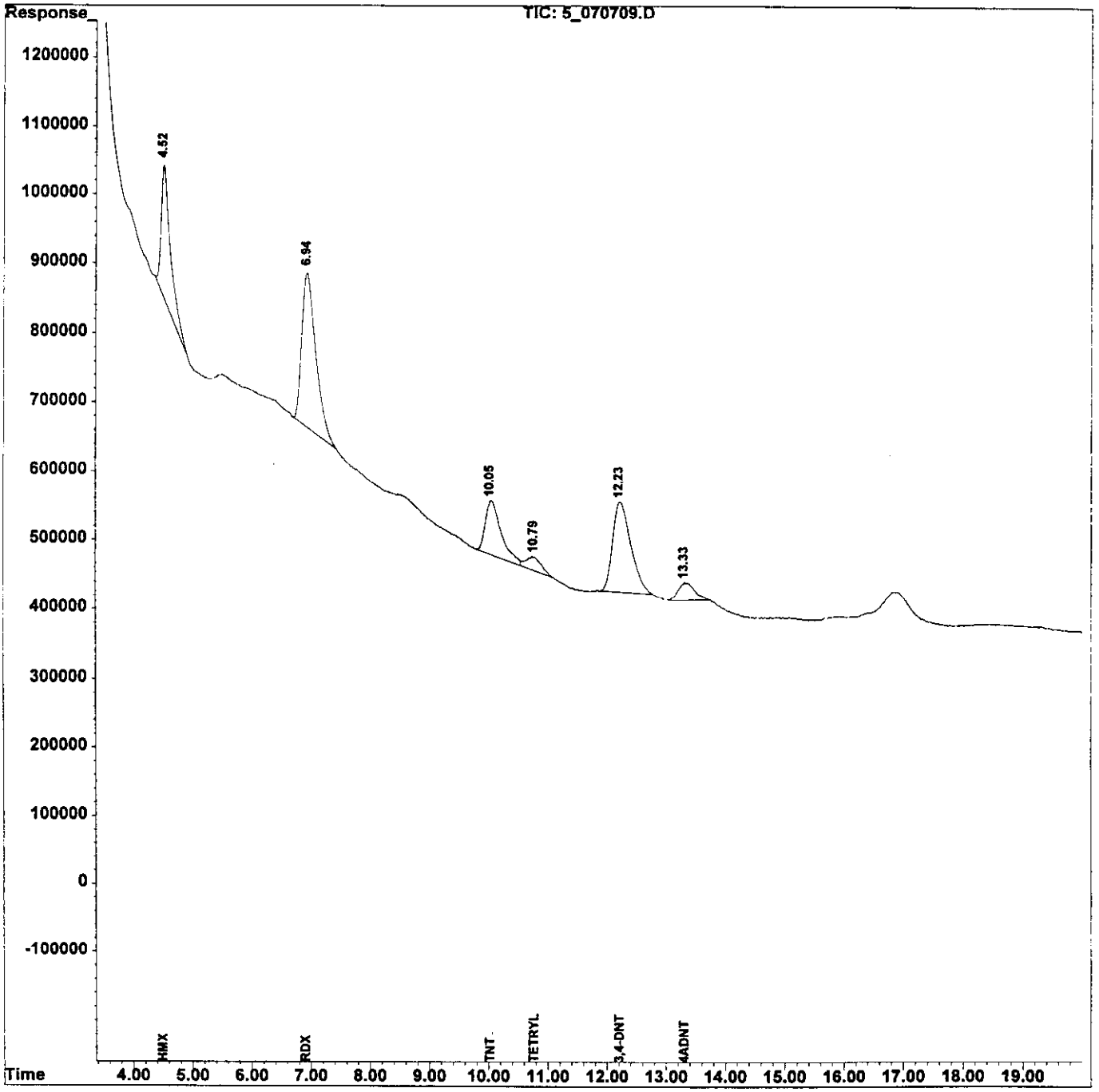
Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0707\5_070709.D
Acq On : 07 Jul 1999 22:58
Sample : 39244.06
Misc : BION07806053
IntFile : EVENTS.E
Quant Time: Jul 8 14:02 1999 Quant Results File: 200SG02C.RES

Vial: 9
Operator: SM
Inst : LC5
Multiplr: 10.0000

Method : F:\HPCHEM\LC5\DATA\5_0707\200SG02C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0702\
Last Update : Thu Jul 08 13:20:41 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



Quantitation Report

Data File : F:\HPCHEM\LC4\DATA\4_0717\4_071734.D Vial: 34
Acq On : 18-Jul-1999, 12:55 Operator: SM/JF
Sample : 39244.06 Inst : LC4
Misc : BION07806053 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jul 19 10:49 1999 Quant Results File: 200sg16n.RES

Method : f:\hpchem\lc4\data\4_0717\200sg16n.m
Title-Path : GC200 CALIBRATION - F:\HPCHEM\LC4\DATA\4_0716\
Last Update : Sat Jul 17 14:47:11 1999
Response via : Initial Calibration

Volume Inj. : 100uL
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg	Curve
Target Compounds:				
1) 2NT	0.00	0	N.D.	A
2) 4NT	0.00	0	N.D.	A
3) 3NT	0.00	0	N.D.	A

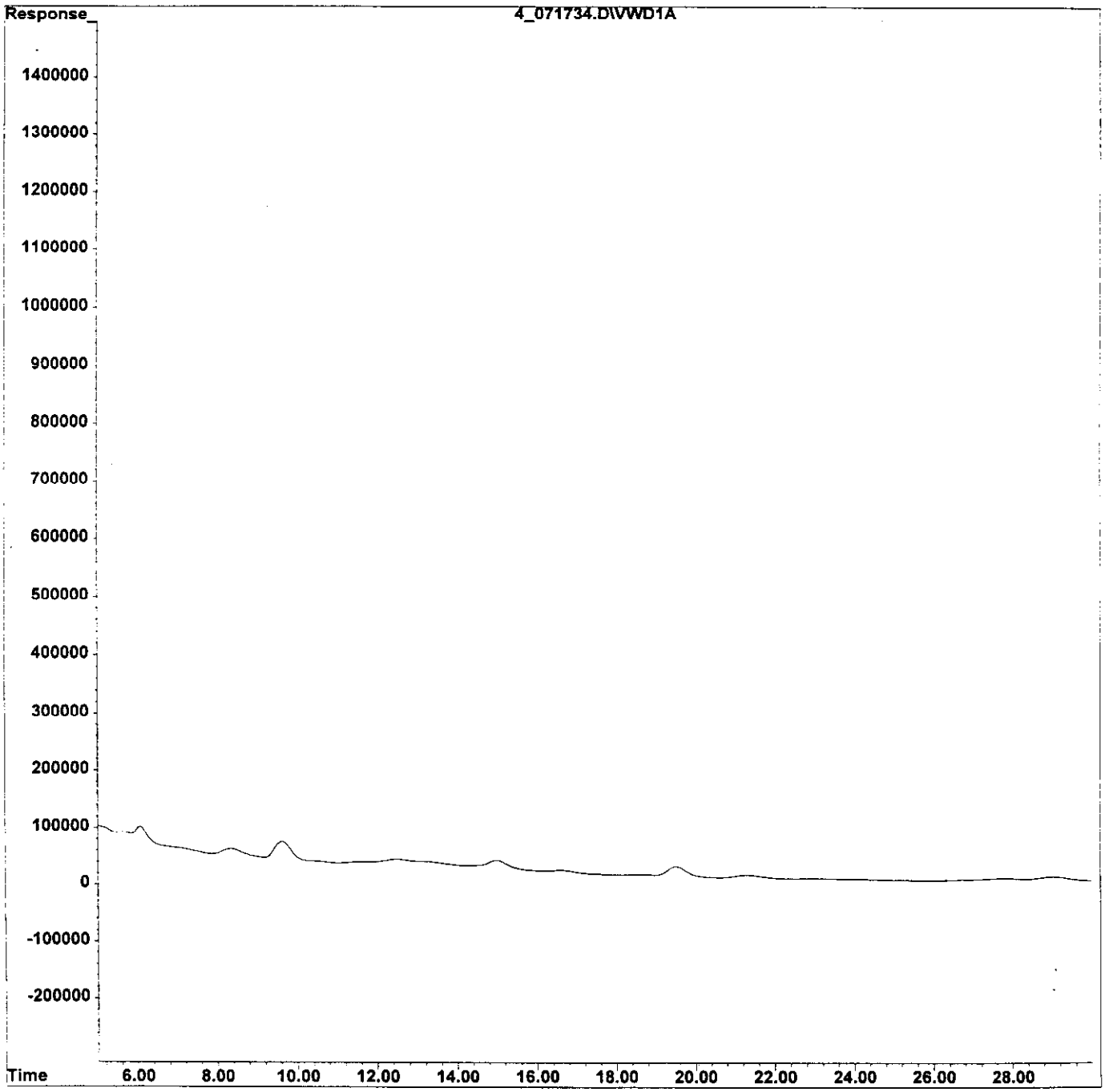
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC4\DATA\4_0717\4_071734.D Vial: 34
Acq On : 18-Jul-1999, 12:55 Operator: SM/JF
Sample : 39244.06 Inst : LC4
Misc : BION07806053 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jul 19 10:49 1999 Quant Results File: 200sg16n.RES

Method : f:\hpchem\lc4\data\4_0717\200sg16n.m
Title-Path : GC200 CALIBRATION - F:\HPCHEM\LC4\DATA\4_0716\
Last Update : Sat Jul 17 14:47:11 1999
Response via : Multiple Level Calibration

Volume Inj. : 100uL
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BION07806053FD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244

Matrix: (soil/water) SOIL Lab Sample ID: 39244.07

Sample Amt: 2.1 G % Moisture: 30.8 Date Received: 07/02/99

Extraction Volume: 10 ML Date Extracted: 07/02/99

Extraction Method: SONC Date Analyzed: 08/08/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	1500	J
121-82-4	RDX	3720	
99-35-4	TNB	238	U
99-65-0	DNB	238	U
479-45-8	TETRYL	619	U
98-95-3	NB	248	U
118-96-7	TNT	977	
1946-51-0	4ADNT	700	
35572-78-2	2ADNT	307	
606-20-2	26DNT	248	U
121-14-2	24DNT	238	U
88-72-2	2NT	238	U
99-99-0	4NT	238	U
99-08-1	3NT	238	U
Surrogate amount spiked		1904.76	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC1\DATA\1_0808\1_080810.D
Acq On : 08 Aug 1999 22:04
Sample : 39244.07
Misc : BION07806053FD
IntFile : EVENTS.E
Quant Time: Aug 9 12:13 1999 Quant Results File: 200SH07.RES

Vial: 10
Operator: SM
Inst : LC1
Multiplr: 9.5238

Method : F:\HPCHEM\LC1\DATA\1_0808\200SH07.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0807\
Last Update : Mon Aug 09 09:18:33 1999
Response via : Initial Calibration

08/11/99

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	15.30	21245719	1659.5	m	A
Target Compounds:					
1) HMX	4.93	12224189	1505.0 ✓J	m	A
2) RDX	7.43	36814388	3718.9 ✓		L
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		L
6) NB	0.00	0	N.D.		A
8) TNT	15.86	19769268	976.7 ✓	m	A
9) 4ADNT	16.64	12553789	700.1 ✓	m	L
0) 2ADNT	17.51	9575582	306.8 ✓	m	L
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

Sm 080999

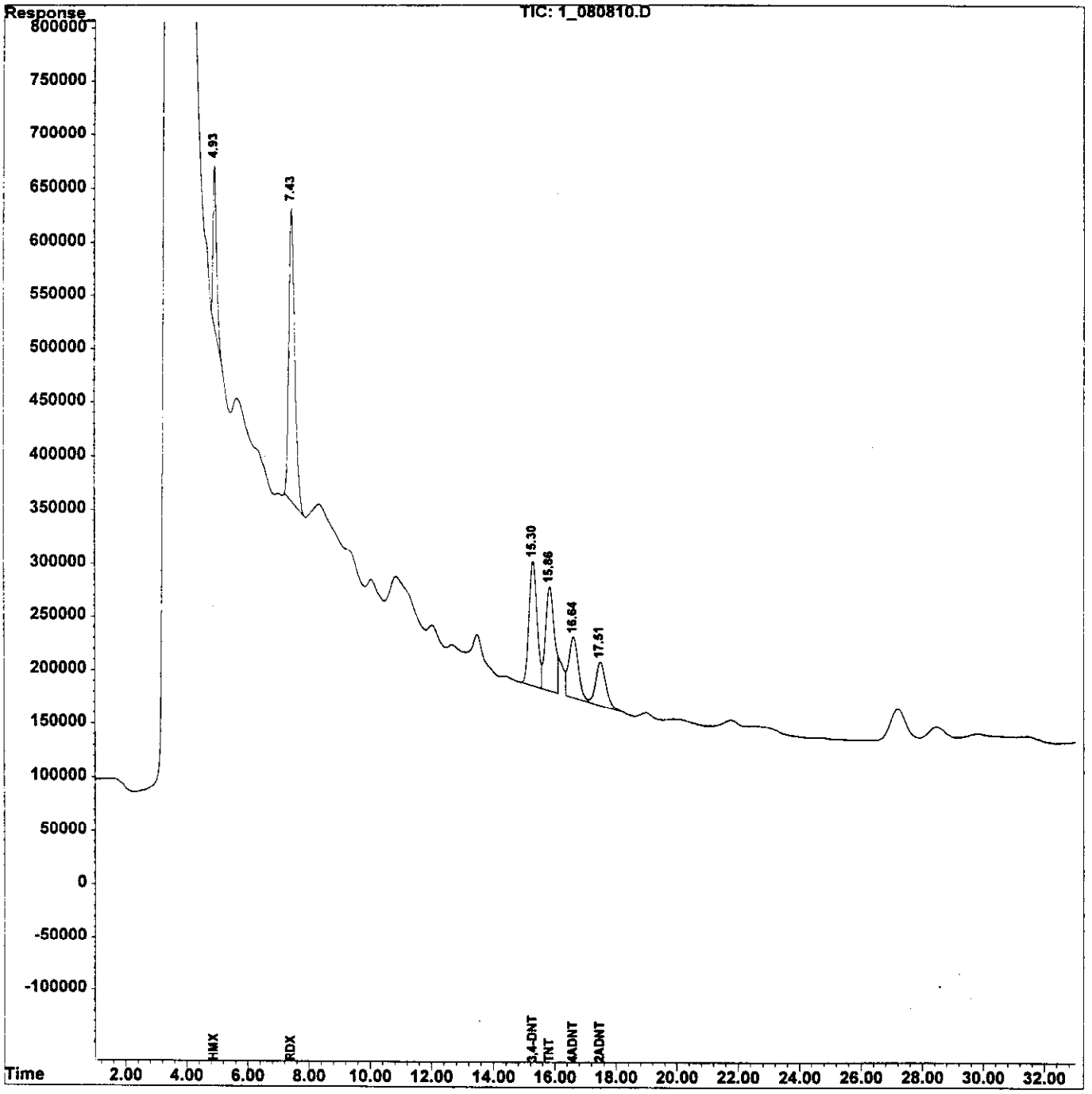
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC1\DATA\1_0808\1_080810.D Vial: 10
Acq On : 08 Aug 1999 22:04 Operator: SM
Sample : 39244.07 Inst : LC1
Misc : BION07806053FD Multiplr: 9.5238
IntFile : EVENTS.E
Quant Time: Aug 9 12:13 1999 Quant Results File: 200SH07.RES

Method : F:\HPCHEM\LC1\DATA\1_0808\200SH07.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0807\
Last Update : Mon Aug 09 09:18:33 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0707\5_070710.D Vial: 10
Acq On : 07 Jul 1999 23:31 Operator: SM
Sample : 39244.07 Inst : LC5
Misc : BION07806053FD Multiplr: 9.5238
IntFile : EVENTS.E
Quant Time: Jul 8 14:02 1999 Quant Results File: 200SG02C.RES

Method : F:\HPCHEM\LC5\DATA\5_0707\200SG02C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0702\
Last Update : Thu Jul 08 13:20:41 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.21	26162546	2056.2		A
Target Compounds:					
1) A HMX	4.51	18283321	1527.2	m	A
2) B RDX	6.90	44847829	3268.6		A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	10.70	10662566	519.3	m	A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.04	23184998	930.7	m	A
9) B 4ADNT	13.33	10207207	711.2	m	A
10) B 2ADNT	13.71	10895067	320.1	m	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

Sm 070854

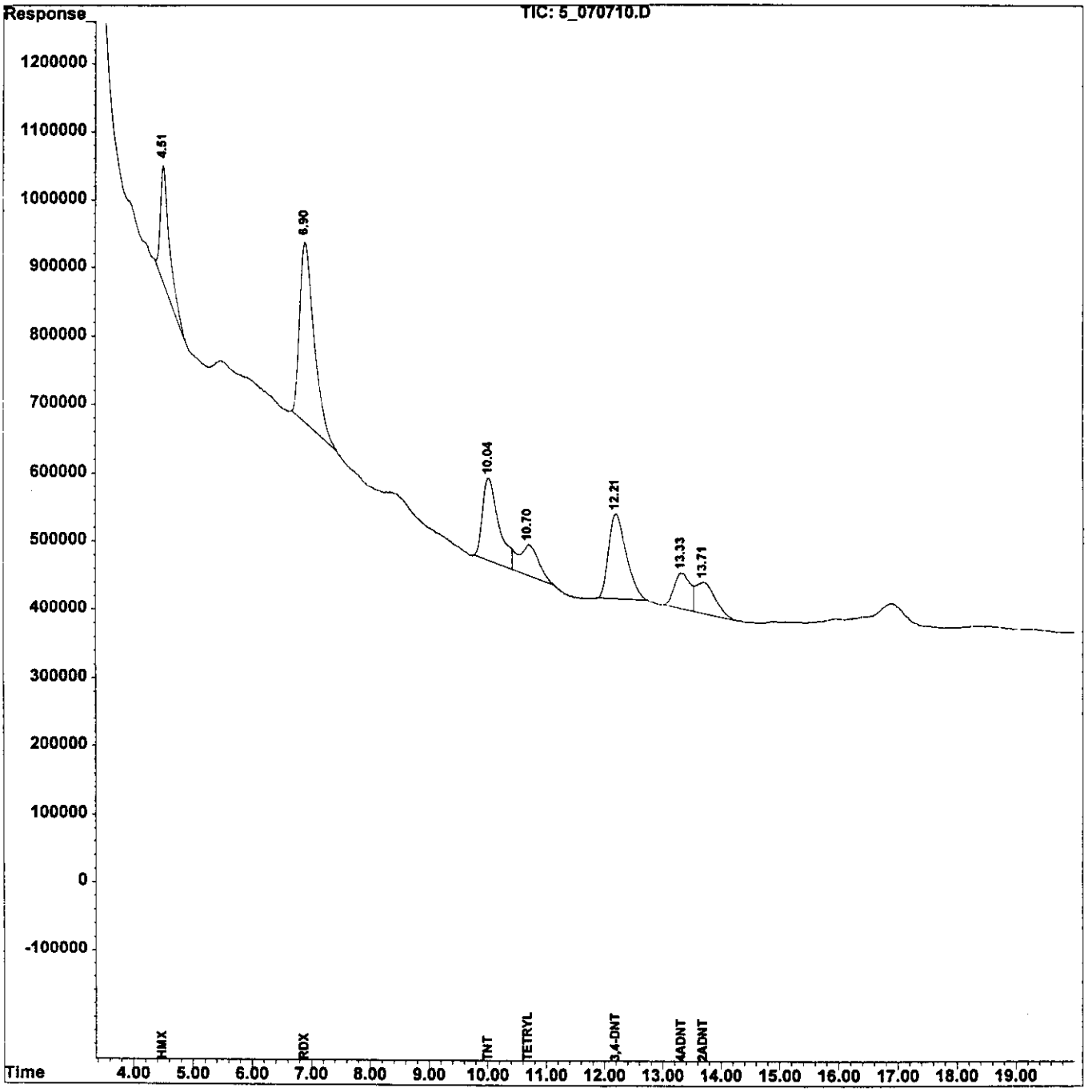
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
5_070710.D 200SG02C.M Thu Jul 08 14:36:27 1999

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0707\5_070710.D Vial: 10
Acq On : 07 Jul 1999 23:31 Operator: SM
Sample : 39244.07 Inst : LC5
Misc : BION07806053FD Multiplr: 9.5238
IntFile : EVENTS.E
Quant Time: Jul 8 14:02 1999 Quant Results File: 200SG02C.RES

Method : F:\HPCHEM\LC5\DATA\5_0707\200SG02C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0702\
Last Update : Thu Jul 08 13:20:41 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC3

LC Column: CARBOSORB Date(s) Analyzed: 07/07/99 07/07/99

Method: 200SG07

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	154556790	158918655	181154643
RDX	174872833	180765350	201398322
TNB	415801833	397660922	437923622
DNB	434969600	461095640	508338017
TETRYL	226811591	204232309	214894355
NB	219720000	237782140	263153446
TNT	303199750	324012288	363535657
4ADNT	280862214	287562929	316924405
2ADNT	279424071	318269529	343121079
26DNT	220110750	234646683	257078983
24DNT	385740857	401609986	449452368
2NT	162351050	160970900	182722996
4NT	136745450	113248500	119212990
3NT	157877250	138307640	157051966
3,4-DNT	177282567	191224880	207843065

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	204622853	235721835	186994955	18.06
RDX	216865542	248402717	204460953	14.53
TNB	489629131	558950675	459993237	14.17
DNB	567686198	657429966	525903884	16.96
TETRYL	248764878	335674531	246075533	21.44 ←
NB	292874410	340055928	270717185	17.56
TNT	404721601	467104131	372514685	17.61
4ADNT	348789639	394924894	325812816	14.45
2ADNT	375430801	426167819	348482660	16.02
26DNT	295045952	348868251	271150124	19.12
24DNT	474456126	563971069	455046081	15.51
2NT	205121388	232823557	188797978	16.14
4NT	127437535	146454959	128619887	10.36
3NT	167443316	189665160	162069066	11.53
3,4-DNT	234835063	287432437	219723602	19.80
MEAN RSD				16.22

FORM VI

EXPLOSIVES INITIAL CALIBRATION : LINEAR REGRESSION SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC3

LC Column: CARBOSORB Date(s) Analyzed: 07/07/99 07/07/99

Method: 200SG07

L1 = 3_070704.D L2 = 3_070705.D L3 = 3_070706.D
L4 = 3_070707.D L5 = 3_070708.D

COMPOUND	SLOPE	INTERCEPT	R2	#
HMX	237034	-44910501.69	0.994	
RDX	249091	-15783461.76	0.995	
TNB	561414	-28394041.75	0.995	
DNB	660200	-19840122.51	0.994	
TETRYL	335400	-35557951.00	0.980	*
NB	341445	-20659254.09	0.994	
TNT	469233	-22313599.95	0.994	
4ADNT	396557	-14568590.74	0.996	
2ADNT	427720	-15624521.64	0.996	
26DNT	350522	-28728415.74	0.992	
24DNT	564259	-23466574.68	0.993	
2NT	234127	-13213361.21	0.995	
4NT	146459	-7233689.192	0.995	
3NT	190109	-9181387.096	0.996	
3,4-DNT	288172	-32067623.52	0.990	

= Column used to flag R2 values that fail. * = R2 value < 0.99

7E

SOIL EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC3 Method: 200SG07

LC Column: CARBOSORB Init. Calib Date(s): 07/07/99 07/07/99

Client Sample No.: EXPL3 Date Analyzed : 07/08/99

Lab Sample ID : L3 6-52 Time Analyzed : 0643

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. AMOUNT	NOMINAL AMOUNT	%D #
HMX	5.06	4.85	5.17	1631	1550	5.2
RDX	7.59	7.35	7.69	659	600	9.9
TNB	10.12	9.87	10.21	480	450	6.7
DNB	12.47	12.15	12.57	263	250	5.4
TETRYL	13.40	12.96	13.52	508	550	-7.7
NB	14.12	13.81	14.21	541	500	8.2
TNT	15.95	15.52	16.06	437	400	9.3
4ADNT	17.16	16.41	17.31	372	350	6.2
2ADNT	18.16	17.39	18.29	355	350	1.5
26DNT	18.85	18.24	18.96	643	600	7.2
24DNT	19.55	18.90	19.68	382	350	9.2
2NT	22.90	22.17	23.05	512	500	2.3
4NT	24.53	23.75	24.67	502	500	0.4
3NT	26.42	25.60	26.58	507	500	1.3
3,4-DNT	15.46	14.91	15.59	749	750	-0.2

QC LIMITS: % Drift of amounts must be less than or equal to 15.0%.

7E

SOIL EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC3 Method: 200SG07

LC Column: CARBOSORB Init. Calib Date(s): 07/07/99 07/07/99

Client Sample No.: EXPL3 Date Analyzed : 07/08/99

Lab Sample ID : L3 6-52 Time Analyzed : 1601

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. AMOUNT	NOMINAL AMOUNT	%D #
HMX	4.95	4.85	5.17	1353	1550	-12.7
RDX	7.47	7.35	7.69	544	600	-9.3
TNB	9.99	9.87	10.21	400	450	-11.1
DNB	12.38	12.15	12.57	221	250	-11.8
TETRYL	13.28	12.96	13.52	444	550	-19.3*
NB	14.05	13.81	14.21	456	500	-8.8
TNT	15.85	15.52	16.06	358	400	-10.5
4ADNT	16.91	16.41	17.31	317	350	-9.4
2ADNT	17.87	17.39	18.29	318	350	-9.1
26DNT	18.66	18.24	18.96	527	600	-12.1
24DNT	19.36	18.90	19.68	313	350	-10.6
2NT	22.68	22.17	23.05	441	500	-11.9
4NT	24.27	23.75	24.67	446	500	-10.8
3NT	26.16	25.60	26.58	442	500	-11.7
3,4-DNT	15.30	14.91	15.59	645	750	-14.0

QC LIMITS: % Drift of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 07/07/99 07/07/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	4.98	4.98	5.01	5.11	5.00
RDX	7.47	7.48	7.51	7.60	7.50
TNB	9.98	10.04	10.04	10.11	10.00
DNB	12.26	12.32	12.34	12.41	12.32
TETRYL	13.11	13.19	13.22	13.30	13.21
NB	13.93	13.97	13.99	14.06	13.96
TNT	15.68	15.74	15.76	15.84	15.74
4ADNT	16.71	16.75	16.78	16.88	16.82
2ADNT	17.74	17.72	17.75	17.85	17.79
26DNT	18.50	18.53	18.54	18.63	18.54
24DNT	19.18	19.18	19.23	19.31	19.24
2NT	22.46	22.52	22.54	22.63	22.56
4NT	24.10	24.09	24.11	24.22	24.15
3NT	25.95	25.98	25.99	26.10	26.03
3,4-DNT	15.12	15.18	15.20	15.28	15.19

COMPOUND	RT CCAL 1	RT CCAL 2
HMX	5.06	4.95
RDX	7.59	7.47
TNB	10.12	9.99
DNB	12.47	12.38
TETRYL	13.40	13.28
NB	14.12	14.05
TNT	15.95	15.84
4ADNT	17.16	16.91
2ADNT	18.16	17.86
26DNT	18.84	18.66
24DNT	19.55	19.36
2NT	22.90	22.68
4NT	24.52	24.27
3NT	26.42	26.16
3,4-DNT	15.46	15.30

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	5.01	0.055	0.164	4.84 - 5.17
RDX	7.52	0.055	0.166	7.35 - 7.69
TNB	10.04	0.056	0.169	9.87 - 10.21
DNB	12.36	0.069	0.207	12.15 - 12.57

FORM IX

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 07/07/99 07/07/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	13.24	0.093	0.278	12.96 - 13.52
NB	14.01	0.067	0.202	13.81 - 14.21
TNT	15.79	0.090	0.270	15.52 - 16.06
4ADNT	16.86	0.150	0.451	16.41 - 17.31
2ADNT	17.84	0.152	0.455	17.38 - 18.29
26DNT	18.60	0.118	0.355	18.24 - 18.96
24DNT	19.29	0.131	0.393	18.90 - 19.68
2NT	22.61	0.146	0.437	22.17 - 23.05
4NT	24.21	0.153	0.458	23.75 - 24.67
3NT	26.09	0.163	0.489	25.60 - 26.58
3,4-DNT	15.25	0.112	0.336	14.91 - 15.59

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244

LC Column: CARBOSORB Init. Calib. Date(s): 07/07/99 07/07/99

Instrument ID: LC3

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 15.25

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #
01	INSTRUMENT BLANK	INSTRUMENT B	07/07/99	1720	0.00 *
02	EXPL1	L1 6-54	07/07/99	1850	15.12
03	EXPL2	L2 6-53	07/07/99	1934	15.18
04	EXPL3	L3 6-52	07/07/99	2019	15.20
05	EXPL4	L4 6-51	07/07/99	2103	15.28
06	EXPL5	L5 6-50	07/07/99	2148	15.19
07	EXPL3	L3 6-52	07/08/99	0643	15.46
08	BION07806032	39244.02	07/08/99	0919	15.47
09	BION07806033	39244.03	07/08/99	1004	15.54
10	BION07806051	39244.04	07/08/99	1049	15.43
11	BION07806052	39244.05	07/08/99	1133	15.40
12	BION07806053	39244.06	07/08/99	1218	15.38
13	BION07806031	39244.01	07/08/99	1432	15.37
14	EXPL3	L3 6-52	07/08/99	1601	15.30
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC5

LC Column: METASIL Date(s) Analyzed: 07/02/99 07/03/99

Method: 200SG02C

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	125442729	117769727	110502270
RDX	125431520	132869416	128999147
TNB	273680826	287034430	280960770
DNB	371457425	379150674	379019958
TETRYL	198425700	198640340	192134748
NB	215677340	217474954	220707675
TNT	232046500	242250088	243335729
4ADNT	136921522	139071922	136349583
2ADNT	320428080	323021786	322320038
26DNT	176236960	195046464	194415797
24DNT	347649900	344741412	343201971
3,4-DNT	113265455	126816597	123205299

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	110738093	105623682	114015300	6.77
RDX	131228083	134846764	130674986	2.78
TNB	282821004	273862853	279671977	2.08
DNB	380912043	389054504	379918921	1.65
TETRYL	198700556	189869102	195554089	2.16
NB	223126423	225721283	220541535	1.85
TNT	239032764	229629853	237258987	2.58
4ADNT	132199846	138913302	136691235	2.03
2ADNT	325369880	329567456	324141448	1.08
26DNT	197028451	191085645	190762663	4.40
24DNT	343957392	348462640	345602663	0.67
3,4-DNT	123932692	118665641	121177137	4.37
MEAN RSD				2.70

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC5 Method: 200SG02C

LC Column: METASIL Init. Calib Date(s): 07/02/99 07/03/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 07/07/99 : 07/07/99

Lab Sample IDs : L3A 6-71 : L3B 6-59 Time Analyzed : 1838 : 1910

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.51	4.48	4.52	105580018	114015300	7.4
RDX	6.86	6.84	6.96	129159265	130674986	1.2
TNB	6.76	6.74	6.78	265331339	279671977	5.1
DNB	8.56	8.53	8.67	377916580	379918921	0.5
TETRYL	10.50	10.47	10.61	185507194	195554089	5.1
NB	9.70	9.66	9.86	219136563	220541535	0.6
TNT	9.95	9.93	10.03	224442995	237258987	5.4
4ADNT	13.20	13.13	13.45	128243946	136691235	6.2
2ADNT	13.54	13.48	13.82	323971002	324141448	0.1
26DNT	12.55	12.50	12.74	185361002	190762663	2.8
24DNT	12.25	12.19	12.45	337851453	345602663	2.2
3,4-DNT	12.04	11.99	12.21	117474226	121177137	3.1

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Instrument ID: LC5

LC Column: METASIL Date(s) ICAL Analyzed: 07/02/99 07/03/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	4.51	4.50	4.50	4.51	4.50
RDX	6.89	6.89	6.91	6.90	6.92
TNB	6.75	6.76	6.76	6.77	6.76
DNB	8.60	8.60	8.61	8.61	8.63
TETRYL	10.53	10.54	10.56	10.56	10.55
NB	9.77	9.75	9.77	9.77	9.80
TNT	9.97	9.98	9.99	10.00	9.98
4ADNT	13.28	13.28	13.31	13.32	13.36
2ADNT	13.66	13.64	13.66	13.68	13.71
26DNT	12.59	12.62	12.65	12.65	12.64
24DNT	12.32	12.30	12.33	12.34	12.36
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	12.09	12.10	12.13	12.13	12.13

COMPOUND	RT CCAL 1	RT CCAL 2
HMX	4.51	0.00
RDX	0.00	6.86
TNB	6.76	0.00
DNB	0.00	8.56
TETRYL	10.50	0.00
NB	0.00	9.70
TNT	9.95	0.00
4ADNT	0.00	13.20
2ADNT	0.00	13.54
26DNT	12.55	0.00
24DNT	0.00	12.24
2NT	0.00	0.00
4NT	0.00	0.00
3NT	0.00	0.00
3,4-DNT	12.04	0.00

COMPOUND	AVG RT	STD DEV	3X STD	RT WINDOW
HMX	4.50	0.008	0.023	4.48 - 4.52
RDX	6.90	0.021	0.064	6.84 - 6.96
TNB	6.76	0.006	0.019	6.74 - 6.78
DNB	8.60	0.023	0.070	8.53 - 8.67

FORM IX

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Instrument ID: LC5

LC Column: METASIL Date(s) ICAL Analyzed: 07/02/99 07/03/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	10.54	0.023	0.068	10.47 - 10.61
NB	9.76	0.033	0.100	9.66 - 9.86
TNT	9.98	0.017	0.052	9.93 - 10.03
4ADNT	13.29	0.054	0.162	13.13 - 13.45
2ADNT	13.65	0.058	0.174	13.48 - 13.82
26DNT	12.62	0.040	0.120	12.50 - 12.74
24DNT	12.32	0.042	0.127	12.19 - 12.45
2NT	0.00	0.000	0.000	0.00 - 0.00
4NT	0.00	0.000	0.000	0.00 - 0.00
3NT	0.00	0.000	0.000	0.00 - 0.00
3,4-DNT	12.10	0.036	0.107	11.99 - 12.21

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244

LC Column: METASIL Init. Calib. Date(s): 07/02/99 07/03/99

Instrument ID: LC5

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 12.10

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	07/02/99	1852	0.00	*
02	EXPL1A	L1A 5-186	07/02/99	1957	12.09	
03	EXPL2A	L2A 5-185	07/02/99	2030	12.10	
04	EXPL3A	L3A 6-55	07/02/99	2102	12.13	
05	EXPL4A	L4A 5-183	07/02/99	2135	12.13	
06	EXPL5A	L5A 5-184	07/02/99	2207	12.13	
07	EXPL1B	L1B 6-61	07/02/99	2241	0.00	*
08	EXPL2B	L2B 6-60	07/02/99	2314	0.00	*
09	EXPL3B	L3B 6-59	07/02/99	2347	0.00	*
10	EXPL4B	L4B 6-58	07/03/99	0019	0.00	*
11	EXPL5B	L5B 6-57	07/03/99	0052	0.00	*
12	EXPL3A	L3A 6-71	07/07/99	1838	12.04	
13	EXPL3B	L3B 6-59	07/07/99	1910	0.00	*
14	BL0702SD	BL0702SD	07/07/99	1943	12.15	
15	BION07806031	39244.01	07/07/99	2016	12.16	
16	BION07806032	39244.02	07/07/99	2048	12.16	
17	BION07806033	39244.03	07/07/99	2121	12.12	
18	BION07806051	39244.04	07/07/99	2153	12.10	
19	BION07806052	39244.05	07/07/99	2226	12.17	
20	BION07806053	39244.06	07/07/99	2258	12.23	*
21	BION07806053FD	39244.07	07/07/99	2331	12.21	*
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC1

LC Column: CARBOSORB Date(s) Analyzed: 08/07/99 08/07/99

Method: 200SH07

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	94920016	69446595	80759156
RDX	182530958	82140158	101049205
TNB	252242278	208241133	236241909
DNB	287962700	281870740	305553590
TETRYL	180153409	107378245	107156826
NB	161032050	178228380	180222640
TNT	216911625	186965325	203738005
4ADNT	252446214	153025043	162275375
2ADNT	367152714	205849143	218831826
26DNT	123950250	137472475	149760588
24DNT	245389214	257163500	286860599
2NT	121315550	130723000	132143886
4NT	76818600	95332230	97974107
3NT	88763050	121547200	124497284
3,4-DNT	111209767	120969040	136656554

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	69998281	69257654	76876340	14.56
RDX	88131736	88356973	108441806	38.72
TNB	203365516	202212143	220460596	10.23
DNB	269112969	270705170	283041034	5.24
TETRYL	100206960	101422320	119263552	28.67
NB	173751576	174633171	173573563	4.31
TNT	174577359	184465413	193331545	8.71
4ADNT	137748254	142503897	169599757	27.88
2ADNT	188582051	191862576	234455662	32.05
26DNT	128571677	127747719	133500542	7.76
24DNT	249133475	251031911	257915740	6.49
2NT	126477633	125826068	127297227	3.38
4NT	91756331	91942802	90764814	9.05
3NT	117355657	115972016	113627041	12.59
3,4-DNT	116339974	112785424	119592152	8.57
MEAN RSD				14.55

FORM VI

EXPLOSIVES INITIAL CALIBRATION : LINEAR REGRESSION SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC1

LC Column: CARBOSORB Date(s) Analyzed: 08/07/99 08/07/99

Method: 200SH07

L1 = 1_080703.D L2 = 1_080704.D L3 = 1_080705.D
L4 = 1_080706.D L5 = 1_080707.D

COMPOUND	SLOPE	INTERCEPT	R2 #
RDX	87740	2553474	0.998
TETRYL	99868	1555735	1.000
4ADNT	139513	2298683	0.998
2ADNT	188846	3492840	0.999

= Column used to flag R2 values that fail. * = R2 value < 0.99

7E

SOIL EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC1 Method: 200SH07

LC Column: CARBOSORB Init. Calib Date(s): 08/07/99 08/07/99

Client Sample No.: EXPL3 Date Analyzed : 08/08/99

Lab Sample ID : L3 6-148 Time Analyzed : 1736

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. AMOUNT	NOMINAL AMOUNT	%D #
RDX	7.47	7.37	7.57	547	600	-8.9
TETRYL	13.25	13.08	13.48	523	550	-4.9
4ADNT	16.73	16.59	16.99	324	350	-7.4
2ADNT	17.58	17.44	17.90	321	350	-8.3

QC LIMITS: % Drift of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC1 Method: 200SH07

LC Column: CARBOSORB Init. Calib Date(s): 08/07/99 08/07/99

Client Sample No.: EXPL3 Date Analyzed : 08/08/99

Lab Sample ID : L3 6-148 Time Analyzed : 1736

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.94	4.89	4.99	68286463	76876340	11.2
TNB	10.09	10.00	10.16	196863889	220460596	10.7
DNB	12.37	12.29	12.51	262925329	283041034	7.1
NB	14.16	14.07	14.29	168541110	173573563	2.9
TNT	15.97	15.85	16.15	171181291	193331545	11.5
26DNT	18.77	18.66	19.04	123451013	133500542	7.5
24DNT	19.40	19.27	19.71	244080104	257915740	5.4
2NT	22.94	22.80	23.34	122565256	127297227	3.7
4NT	24.51	24.38	24.96	90006450	90764814	0.8
3NT	26.41	26.27	26.93	114180939	113627041	-0.5
3,4-DNT	15.43	15.30	15.64	113099120	119592152	5.4

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

SOIL EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC1 Method: 200SH07

LC Column: CARBOSORB Init. Calib Date(s): 08/07/99 08/07/99

Client Sample No.: EXPL3 Date Analyzed : 08/09/99

Lab Sample ID : L3 6-148 Time Analyzed : 0233

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. AMOUNT	NOMINAL AMOUNT	%D #
RDX	7.42	7.37	7.57	554	600	-7.6
TETRYL	13.18	13.08	13.48	514	550	-6.5
4ADNT	16.76	16.59	16.99	327	350	-6.5
2ADNT	17.62	17.44	17.90	329	350	-5.9

QC LIMITS: % Drift of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC1 Method: 200SH07

LC Column: CARBOSORB Init. Calib Date(s): 08/07/99 08/07/99

Client Sample No.: EXPL3 Date Analyzed : 08/09/99

Lab Sample ID : L3 6-148 Time Analyzed : 0233

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.92	4.89	4.99	69266946	76876340	9.9
TNB	10.06	10.00	10.16	200401082	220460596	9.1
DNB	12.36	12.29	12.51	268300183	283041034	5.2
NB	14.17	14.07	14.29	173125736	173573563	0.3
TNT	15.96	15.85	16.15	176823290	193331545	8.5
26DNT	18.83	18.66	19.04	125717768	133500542	5.8
24DNT	19.47	19.27	19.71	246797036	257915740	4.3
2NT	23.11	22.80	23.34	124939213	127297227	1.9
4NT	24.73	24.38	24.96	92025527	90764814	-1.4
3NT	26.66	26.27	26.93	115449123	113627041	-1.6
3,4-DNT	15.45	15.30	15.64	115023951	119592152	3.8

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Instrument ID: LC1

LC Column: CARBOSORB Date(s) ICAL Analyzed: 08/07/99 08/07/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	4.95	4.96	4.95	4.96	4.93
RDX	7.48	7.49	7.50	7.49	7.42
TNB	10.07	10.09	10.13	10.11	10.06
DNB	12.39	12.40	12.46	12.43	12.37
TETRYL	13.30	13.31	13.38	13.33	13.25
NB	14.16	14.18	14.25	14.22	14.15
TNT	15.97	16.01	16.08	16.06	15.95
4ADNT	16.77	16.80	16.90	16.85	16.72
2ADNT	17.69	17.70	17.79	17.74	17.60
26DNT	18.85	18.84	18.94	18.92	18.78
24DNT	19.49	19.50	19.60	19.57	19.42
2NT	23.02	23.08	23.19	23.17	23.01
4NT	24.65	24.67	24.79	24.76	24.60
3NT	26.58	26.64	26.73	26.69	26.53
3,4-DNT	15.44	15.47	15.56	15.53	15.41

COMPOUND	RT CCAL 1	RT CCAL 2
HMX	4.94	4.92
RDX	7.47	7.42
TNB	10.08	10.06
DNB	12.37	12.36
TETRYL	13.24	13.18
NB	14.16	14.17
TNT	15.97	15.96
4ADNT	16.73	16.76
2ADNT	17.58	17.62
26DNT	18.77	18.83
24DNT	19.40	19.47
2NT	22.94	23.11
4NT	24.51	24.73
3NT	26.41	26.66
3,4-DNT	15.43	15.45

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	4.94	0.016	0.047	4.89 - 4.99
RDX	7.47	0.034	0.101	7.37 - 7.57
TNB	10.08	0.027	0.081	10.00 - 10.16
DNB	12.40	0.037	0.110	12.29 - 12.51

FORM IX

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Instrument ID: LC1

LC Column: CARBOSORB Date(s) ICAL Analyzed: 08/07/99 08/07/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	13.28	0.066	0.199	13.08 - 13.48
NB	14.18	0.037	0.112	14.07 - 14.29
TNT	16.00	0.052	0.155	15.84 - 16.15
4ADNT	16.79	0.065	0.196	16.59 - 16.99
2ADNT	17.67	0.078	0.233	17.44 - 17.90
26DNT	18.85	0.064	0.193	18.66 - 19.04
24DNT	19.49	0.073	0.219	19.27 - 19.71
2NT	23.07	0.090	0.271	22.80 - 23.34
4NT	24.67	0.097	0.292	24.38 - 24.96
3NT	26.60	0.109	0.328	26.27 - 26.93
3,4-DNT	15.47	0.055	0.165	15.30 - 15.64

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244

LC Column: CARBOSORB Init. Calib. Date(s): 07/08/99 07/08/99

Instrument ID: LC1A

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 15.03

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #
01	BL0702SD	BL0702SD	07/08/99	0906	15.13
02	LC0702SD	LC0702SD	07/08/99	0951	15.10
03	LD0702SD	LD0702SD	07/08/99	1035	15.01
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
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32					

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC1

LC Column: CARBOSORB Date(s) Analyzed: 07/08/99 07/08/99

Method: 200SG07

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	65334887	65725923	67175482
RDX	63671833	68119108	77268738
TNB	199461889	189928478	193977551
DNB	278547400	259850820	261510913
TETRYL	129307136	103720191	99276662
NB	184452250	178638580	170785395
TNT	206938375	187948488	176999009
4ADNT	140298286	150871086	128738818
2ADNT	202708571	218385900	181822337
26DNT	133751042	137452808	123476366
24DNT	254169786	250268571	240222122
2NT	133850100	123149190	117720385
4NT	116618850	92838690	84932681
3NT	154337150	110876560	110989258
3,4-DNT	132264433	127938873	116872424

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	72720040	74140460	69019358	5.96
RDX	88380451	87518181	76991662	14.47
TNB	209750132	212177047	201059020	4.82
DNB	281643976	284032459	273117114	4.22
TETRYL	110268286	130440008	114602457	12.64
NB	183068818	180003633	179389735	2.98
TNT	193086465	205366436	194067754	6.43
4ADNT	136905453	140873743	139537477	5.71
2ADNT	199556441	202968038	201088257	6.48
26DNT	137209679	135128498	133403679	4.31
24DNT	255334536	261419316	252282866	3.11
2NT	130871721	128457773	126809834	5.06
4NT	95908659	93894020	96838580	12.20
3NT	121379677	118418072	123200143	14.61
3,4-DNT	123951824	124433733	125092257	4.54
MEAN RSD				7.17

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC1 Method: 200SG07

LC Column: CARBOSORB Init. Calib Date(s): 07/08/99 07/08/99

Client Sample No.: EXPL3 Date Analyzed : 07/08/99

Lab Sample ID : L3 6-52 Time Analyzed : 1312

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.78	4.69	4.79	69043843	69019358	-0.0
RDX	7.25	7.03	7.33	79282200	76991662	-3.0
TNB	9.84	9.63	10.01	194407604	201059020	3.3
DNB	12.02	11.77	12.29	258977263	273117114	5.2
TETRYL	12.83	12.51	13.23	100575674	114602457	12.2
NB	13.80	13.51	14.15	160479973	179389735	10.5
TNT	15.61	15.21	16.09	173445027	194067754	10.6
4ADNT	16.17	15.69	16.75	126817320	139537477	9.1
2ADNT	16.96	16.47	17.55	181539684	201088257	9.7
26DNT	18.36	17.78	19.02	124460303	133403679	6.7
24DNT	18.93	18.40	19.56	241349333	252282866	4.3
2NT	22.70	21.84	23.54	121000668	126809834	4.6
4NT	24.33	23.33	25.19	89705442	96838580	7.4
3NT	26.37	25.14	27.28	113690272	123200143	7.7
3,4-DNT	14.99	14.54	15.52	112086469	125092257	10.4

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC1 Method: 200SG07

LC Column: CARBOSORB Init. Calib Date(s): 07/08/99 07/08/99

Client Sample No.: EXPL3 Date Analyzed : 07/08/99

Lab Sample ID : L3 6-52 Time Analyzed : 2225

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.73	4.69	4.79	76434267	69019358	-10.7
RDX	7.14	7.03	7.33	88402924	76991662	-14.8
TNB	9.77	9.63	10.01	221845798	201059020	-10.3
DNB	11.95	11.77	12.29	296925097	273117114	-8.7
TETRYL	12.76	12.51	13.23	114854264	114602457	-0.2
NB	13.72	13.51	14.15	193362556	179389735	-7.8
TNT	15.50	15.21	16.09	210763877	194067754	-8.6
4ADNT	16.00	15.69	16.75	138488726	139537477	0.8
2ADNT	16.80	16.47	17.55	207641929	201088257	-3.3
26DNT	18.17	17.78	19.02	139020098	133403679	-4.2
24DNT	18.74	18.40	19.56	273285456	252282866	-8.3
2NT	22.28	21.84	23.54	138275928	126809834	-9.0
4NT	23.77	23.33	25.19	102485570	96838580	-5.8
3NT	25.61	25.14	27.28	129976962	123200143	-5.5
3,4-DNT	14.87	14.54	15.52	131645580	125092257	-5.2

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Instrument ID: LC1

LC Column: CARBOSORB Date(s) ICAL Analyzed: 07/08/99 07/08/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	4.73	4.75	4.73	4.74	4.74
RDX	7.14	7.24	7.13	7.17	7.20
TNB	9.78	9.91	9.74	9.82	9.88
DNB	11.97	12.15	11.94	12.07	12.13
TETRYL	12.79	13.03	12.74	12.93	13.02
NB	13.75	13.96	13.72	13.90	13.96
TNT	15.50	15.83	15.54	15.75	15.81
4ADNT	16.07	16.43	16.10	16.34	16.42
2ADNT	16.83	17.22	16.92	17.14	17.22
26DNT	18.16	18.64	18.32	18.55	18.64
24DNT	18.78	19.20	18.90	19.12	19.21
2NT	22.37	22.96	22.64	22.88	23.00
4NT	23.93	24.54	24.24	24.46	24.59
3NT	25.85	26.49	26.19	26.42	26.56
3,4-DNT	14.89	15.25	14.90	15.14	15.21

COMPOUND	RT CCAL 1	RT CCAL 2
HMX	4.78	4.73
RDX	7.25	7.14
TNB	9.84	9.76
DNB	12.02	11.95
TETRYL	12.83	12.76
NB	13.80	13.72
TNT	15.61	15.50
4ADNT	16.17	16.00
2ADNT	16.96	16.80
26DNT	18.36	18.17
24DNT	18.93	18.74
2NT	22.70	22.28
4NT	24.33	23.77
3NT	26.37	25.61
3,4-DNT	14.99	14.86

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	4.74	0.018	0.055	4.68 - 4.79
RDX	7.18	0.049	0.148	7.03 - 7.33
TNB	9.82	0.063	0.189	9.63 - 10.01
DNB	12.03	0.086	0.257	11.77 - 12.29

FORM IX

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Instrument ID: LC1

LC Column: CARBOSORB Date(s) ICAL Analyzed: 07/08/99 07/08/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	12.87	0.122	0.365	12.50 - 13.23
NB	13.83	0.108	0.324	13.50 - 14.15
TNT	15.65	0.145	0.436	15.21 - 16.08
4ADNT	16.22	0.176	0.529	15.69 - 16.75
2ADNT	17.01	0.179	0.537	16.47 - 17.55
26DNT	18.40	0.207	0.620	17.78 - 19.02
24DNT	18.98	0.195	0.584	18.40 - 19.56
2NT	22.69	0.282	0.847	21.84 - 23.54
4NT	24.26	0.311	0.934	23.33 - 25.19
3NT	26.21	0.356	1.068	25.14 - 27.28
3,4-DNT	15.03	0.163	0.490	14.54 - 15.52

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244

LC Column: CARBOSORB Init. Calib. Date(s): 07/08/99 07/08/99

Instrument ID: LC1

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 15.03

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #
01	INSTRUMENT BLANK	INSTRUMENT B	07/07/99	2239	0.00 *
02	EXPL1	L1 6-54	07/08/99	0008	14.89
03	EXPL2	L2 6-53	07/08/99	0053	15.25
04	EXPL3	L3 6-52	07/08/99	0138	14.90
05	EXPL4	L4 6-51	07/08/99	0223	15.14
06	EXPL5	L5 6-50	07/08/99	0307	15.21
07	EXPL3	L3 6-52	07/08/99	1312	14.99
08	BION07806031MS	39244.08MS	07/08/99	1533	14.92
09	BION07806031MSD	39244.09MSD	07/08/99	1618	15.14
10	EXPL3	L3 6-52	07/08/99	2225	14.86
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC4

LC Column: METASIL Date(s) Analyzed: 07/16/99 07/16/99

Method: 200SG16N

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	0	0	0
RDX	0	0	0
TNB	0	0	0
DNB	0	0	0
TETRYL	0	0	0
NB	0	0	0
TNT	0	0	0
4ADNT	0	0	0
2ADNT	0	0	0
26DNT	0	0	0
24DNT	0	0	0
2NT	28267720	28034316	29297821
4NT	32548260	32584704	32295210
3NT	34741230	34885848	35237262
3,4-DNT	0	0	0

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	0	0	0	0.00
RDX	0	0	0	0.00
TNB	0	0	0	0.00
DNB	0	0	0	0.00
TETRYL	0	0	0	0.00
NB	0	0	0	0.00
TNT	0	0	0	0.00
4ADNT	0	0	0	0.00
2ADNT	0	0	0	0.00
26DNT	0	0	0	0.00
24DNT	0	0	0	0.00
2NT	27773778	25010362	27676799	5.78
4NT	31404423	33405032	32447526	2.21
3NT	33680453	33366432	34382245	2.36
3,4-DNT	0	0	34382245	0.00
MEAN RSD				3.45

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC4 Method: 200sg16n

LC Column: METASIL Init. Calib Date(s): 07/16/99 07/16/99

Client Sample No.: EXPL3NT Date Analyzed : 07/18/99

Lab Sample ID : L3 6-102 Time Analyzed : 0841

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
2NT	22.72	21.21	23.15	29115531	27676799	-5.2
4NT	23.15	21.55	23.59	33560064	32447526	-3.4
3NT	25.10	23.38	25.56	35800933	34382245	-4.1

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 39244 Inst. ID: LC4 Method: 200sg16n

LC Column: METASIL Init. Calib Date(s): 07/16/99 07/16/99

Client Sample No.: EXPL3NT Date Analyzed : 07/18/99

Lab Sample ID : L3 6-102 Time Analyzed : 1503

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
2NT	22.52	21.21	23.15	29260734	27676799	-5.7
4NT	22.96	21.55	23.59	33813370	32447526	-4.2
3NT	24.89	23.38	25.56	35660029	34382245	-3.7

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Instrument ID: LC4

LC Column: METASIL Date(s) ICAL Analyzed: 07/16/99 07/16/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.00	0.00	0.00	0.00	0.00
RDX	0.00	0.00	0.00	0.00	0.00
TNB	0.00	0.00	0.00	0.00	0.00
DNB	0.00	0.00	0.00	0.00	0.00
TETRYL	0.00	0.00	0.00	0.00	0.00
NB	0.00	0.00	0.00	0.00	0.00
TNT	0.00	0.00	0.00	0.00	0.00
4ADNT	0.00	0.00	0.00	0.00	0.00
2ADNT	0.00	0.00	0.00	0.00	0.00
26DNT	0.00	0.00	0.00	0.00	0.00
24DNT	0.00	0.00	0.00	0.00	0.00
2NT	0.00	0.00	0.00	0.00	0.00
4NT	21.86	22.01	21.99	21.95	22.20
3NT	22.34	22.42	22.40	22.30	22.40
3,4-DNT	24.20	24.30	24.28	24.20	24.35
	0.00	0.00	0.00	0.00	0.00

COMPOUND	RT CCAL 1	RT CCAL 2
HMX	0.00	0.00
RDX	0.00	0.00
TNB	0.00	0.00
DNB	0.00	0.00
TETRYL	0.00	0.00
NB	0.00	0.00
TNT	0.00	0.00
4ADNT	0.00	0.00
2ADNT	0.00	0.00
26DNT	0.00	0.00
24DNT	0.00	0.00
2NT	0.00	0.00
4NT	22.72	22.52
3NT	23.15	22.96
3,4-DNT	25.10	24.88
	0.00	0.00

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	0.00	0.000	0.000	0.00 - 0.00
RDX	0.00	0.000	0.000	0.00 - 0.00
TNB	0.00	0.000	0.000	0.00 - 0.00
DNB	0.00	0.000	0.000	0.00 - 0.00

FORM IX

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 39244

Lab Code: SWOK Instrument ID: LC4

LC Column: METASIL Date(s) ICAL Analyzed: 07/16/99 07/16/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	0.00	0.000	0.000	0.00 - 0.00
NB	0.00	0.000	0.000	0.00 - 0.00
TNT	0.00	0.000	0.000	0.00 - 0.00
4ADNT	0.00	0.000	0.000	0.00 - 0.00
2ADNT	0.00	0.000	0.000	0.00 - 0.00
26DNT	0.00	0.000	0.000	0.00 - 0.00
24DNT	0.00	0.000	0.000	0.00 - 0.00
2NT	22.18	0.323	0.970	21.21 - 23.15
4NT	22.57	0.340	1.021	21.55 - 23.59
3NT	24.47	0.363	1.089	23.38 - 25.56
3,4-DNT	0.00	0.000	0.000	0.00 - 0.00

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 39244

LC Column: METASIL Init. Calib. Date(s): 07/16/99 07/16/99

Instrument ID: LC4

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 0.00

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #
01	INSTRUMENT BLANK	INSTRUMENT B	07/16/99	2032	0.00
02	EXPL1NT	L1 6-104	07/16/99	2136	0.00
03	EXPL2NT	L2 6-103	07/16/99	2208	0.00
04	EXPL3NT	L3 6-102	07/16/99	2240	0.00
05	EXPL4NT	L4 6-101	07/16/99	2311	0.00
06	EXPL5NT	L5 6-100	07/16/99	2343	0.00
07	EXPL3NT	L3 6-102	07/18/99	0841	0.00
08	BLO702SD	BLO702SD	07/18/99	1048	0.00
09	BION07806032	39244.02	07/18/99	1120	0.00
10	BION07806033	39244.03	07/18/99	1152	0.00
11	BION07806052	39244.05	07/18/99	1224	0.00
12	BION07806053	39244.06	07/18/99	1255	0.00
13	EXPL3NT	L3 6-102	07/18/99	1503	0.00
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

☐ RUSH ☐ REEXTRACT ☐ TCLP ☐ DXIN

SAMPLE EXTRACTION LO

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

	SV	PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

BATCH: 990702SD

EXTRACT DATE 1999-07-02 12:32

000059
Page: 1 of 1

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE %	DRY WEIGHT g	AMOUNT EXTRACTED g • ml	EXTRACTED VOLUME ml	GPC VOLUME ml	GPC ELUTE VOL ml	FLORISIL VOL CONC ml	FLORISIL FIN VOL CONC ml	VOL SV - P ml	FIN PROCESS VOLUME ml	SCREEN Y/N Y/N	MS SV - P µl	SURR SV - P µl	BASE pH CONFIRMATION	ACID pH CONFIRMATION
BL0702SD			S/L				2.04	10.00						10.0	N		1000		
BB0702SD			S/L				2.09	10.00						10.0	N		1000		
LC0702SD			S/L				2.00	10.00						10.0	N	500	1000		
LD0702SD			S/L				2.06	10.00						10.0	N	500	1000		
39244.01 GC200	TOLTEST	07/02/1999 10:52 BION07806031	S/L		21.75	1.6	2.04	10.00						10.0	N		1000		
39244.02 GC200	TOLTEST	07/02/1999 10:52 BION07806032	S/L		28.95	1.4	2.00	10.00						10.0	N		1000		
39244.03 GC200	TOLTEST	07/02/1999 10:52 BION07806033	S/L		33.44	1.3	2.01	10.00						10.0	N		1000		
39244.04 GC200	TOLTEST	07/02/1999 10:52 BION07806051	S/L		23.11	1.7	2.18	10.00						10.0	N		1000		
39244.05 GC200	TOLTEST	07/02/1999 10:52 BION07806052	S/L		22.18	1.7	2.24	10.00						10.0	N		1000		
39244.06 GC200	TOLTEST	07/02/1999 10:52 BION07806053	S/L		26.13	1.5	2.00	10.00						10.0	N		1000		
39244.07 GC200	TOLTEST	07/02/1999 10:52 BION07806053FD	S/L		30.85	1.4	2.07	10.00						10.0	N		1000		
39244.08MS GC200	TOLTEST	07/02/1999 10:52 BION07806031			30.85	1.5	2.18	10.00						10.0	N	500	1000		
39244.09MSD GC200	TOLTEST	07/02/1999 10:52 BION07806031			30.85	1.5	2.21	10.00						10.0	N	500	1000		

INITIALS

WEIGHING: GS	EXTRACTION: GS	FLORISIL:
CLEANUP:	KD:	
BLOWDOWN:	TV:	
SURROG. SPIKER: GS	VERIFIER: GP	

ID NUMBERS

FLORISIL CARTRIDGE #:
GPC COLUMN #:
SUBROGATES ID CONC #: 6-7
MATRIX SPIKE SOLID/CONC #(s): 6-45

COMMENTS

27

TOLTEST, INC.

1915 N. 12th St., P.O. Box 2186, Toledo, OH 43603-2186; Voice (419) 241-7175, rax (419) 321-6259
Ship To Address: ATTN: RECEIVING LAB, 1810 N. 12th St., Toledo, OH 43624-1304; Voice (419) 241-7175, Fax (419) 241-1808
Sent From: ☐ Corporate ☐ Plymouth ☐ Monroe ☐ Pittsburgh ☐ Other _____

BIO-210

Chain of Custo Record

25776

Page 1 of 2

Project No.: 37324	Client:
P.O. No.:	Project/Location: NSWC Crane Biofacility
Project Mgr.:	Sampler's Name: Peter J Chevalier
Phone No.	Sampler's Signature: [signature]

Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	8330	Parameters							Preserved Yes/No	LAB USE ONLY Lab #
1	BIO 5073 OU 031	6/12/99	0936	G	Compost	Column 3 sample location 1	1	✓									
2	BIO 5073 OU 032		0937			2						MS/MSD					
3	BIO 5073 OU 033		0935			3											
4	BIO 5073 OU 051		0939			5 1											
5	BIO 5073 OU 052		0940			2											
6	BIO 5073 OU 053		0938			3											
7	BIO 5073 OU 071		0942			7 1											
8	BIO 5073 OU 072		0943			2											
9	BIO 5073 OU 073		0941			3											
10	BIO 5073 OU 091		0945			9 1	2	2									

Item No.	Relinquished By:	Date / Time	Received By:	Date / Time
1	[signature]	6/14/99 1500	J. Hodson	6/15/99 1000

LAB USE ONLY

Were samples delivered ☐ in person ☐ by courier
Were samples preserved ☐ in field ☐ in lab ☐ N/A
Temp of samples 3 °C
Did samples arrive intact and sealed? ☐ yes ☐ no ☐ N/A
Were proper containers used? ☐ yes ☐ no
Was container labeled properly for contents? ☐ yes ☐ no
Were samples packaged properly for type of material? ☐ yes ☐ no
Was shipping label completed properly per regulations? (49 CFR 170, etc.) ☐ yes ☐ no
Comments: _____

TAT

Distribution: Original plus one accompanies shipment (white and yellow); copy to coordinator field files (pink)

Rev. 7/97

TOLTEST, INC.

1915 N. 12th St., P.O. Box 2186, Toledo, OH 43603-2186; Voice (419) 241-7175, Fax (419) 321-6259 B10-210
Ship To Address: ATTN: RECEIVING LAB, 1810 N. 12th St., Toledo, OH 43624-1304; Voice (419) 241-7175, Fax (419) 241-1808
Sent From: ☐ Corporate ☐ Plymouth ☐ Monroe ☐ Pittsburgh ☐ Other _____

Chain of Custody Record

25775

Project No.: 37324
Client:
P.O. No.:
Project/Location: NSWC Crane Bio-Facility
Project Mgr.:
Sampler's Name: Peter J. Chevalier
Phone No.
Sampler's Signature: Peter Chevalier

Item No.	Sample I.D.	Date Sampled	Time Sampled	Type	Matrix	Sample Location	Total No. of Containers	Parameters	Preserved Yes/No	LAB USE ONLY Lab #
1	B10S073 00 091 FT	6/17/99	0945	G	compost	column 9 Sample location 1				
2	B10S073 00 092		0946			2				
3	B10S073 00 093		0944			3				
4	B10S073 00 11 1		0948			11 1				
5	B10S073 00 11 2		0949			2				
6	B10S073 00 11 3		0947			3				
7										
8										
9										
10										

Item No.	Relinquished By:	Date	Time	Received By:	Date	Time
1	Peter Chevalier	6/14/99	1500	J. Hedden	6/15/99	1000
Item No.	Relinquished By:	Date	Time	Received By:	Date	Time
Item No.	Relinquished By:	Date	Time	Received By:	Date	Time
Item No.	Relinquished By:	Date	Time	Received By:	Date	Time

LAB USE ONLY

Were samples delivered ☐ in person ☐ by courier
Were samples preserved ☐ in field ☐ in lab ☐ N/A
Temp of samples 3 °C
Did samples arrive intact and sealed? ☐ yes ☐ no ☐ N/A
Were proper containers used? ☐ yes ☐ no
Was container labeled properly for contents? ☐ yes ☐ no
Were samples packaged properly for type of material? ☐ yes ☐ no
Was shipping label completed properly per regulations? (49 CFR 170, etc.) ☐ yes ☐ no
Comments: _____

TAT

Distribution: Original [illegible] accompanies shipment (white and yellow); copy to coordinator field fi[illegible] (pink)

Rev. 7/97

COOLER RECEIPT / SAMPLE LOG-IN SHEET

COOLER RECEIPT / SAMPLE LOG-IN SHEET (115-ATT2 WB11 / SWL-GA-115 REV 5.0 / GA-115-CRLOGIN-F

LAB NAME: SOUTHWEST LABORATORY OF OKLAHOMA

PAGE 1 OF 1

RECEIVED BY (PRINT NAME): SARAH HODSON

RECEIVED BY (SIGNATURE): S. Hodson

LOGGED IN BY (SIGNATURE): S. Hodson

REC'D DATE 06/15/99

TIME REC'D 10:00

LOG-IN DATE 1999-06-15 10:41

PROJECT: NSWC CRANE

EPISODE: 38999

SAMPLE DELIVERY GROUP: 38999

Remarks

1. CUSTODY SEAL(S): Present/Absent
   Intact/ Broken
2. CUSTODY SEALS NOS.:
   NA
3. CHAIN-OF CUSTODY. Present/Absent
   Sealed In Plastic? Yes/ No
   Taped To Lid? Yes/ No
   Properly Filled Out (Ink, Signed, ETC.)? Yes/ No
4. AIRBILL AirBill/ Sticker Present/Absent
5. AIRBILL NO:
   811674014243
6. COOLER CONDITIONS
   Enough Ice? Yes/ No
   Type of Ice? WET
   Type of Packing? BUB
7. SAMPLE TAGS Present/Absent
8. SAMPLE CONDITION: Intact/ Broken*/ Leaking
   Bottles Sealed In Separate Plastic Bags? Yes/ No
   Correct Containers Used For Tests Indicated? Yes/ No
   Correct Preservative? Yes/ No
   Sufficient Sample? Yes/ No
   Labels Complete (I.D., Date, Time, Signature, Preservative? Yes/ No
   VOA Samples Without Bubbles? Yes/ No~
9. Does Information on Custody Records, Labels, Tags Agree? Yes/ No*
10. RAD SCREEN WITH GIEGER COUNTER? Yes/ No
11. P.O. Called? Yes/ No

Client Sample #	Sample Fraction @	Assigned LAB#	Cooler I.D.	pH Check	ACID/ BASE LOT#	REMARKS: CONDITION OF SAMPLE SHIPMENT, ETC.
BIOS07300031	GC	38999.01	06/15/99-1	N		3.0 C
BIOS07300032		38999.02		N		
BIOS07300032		38999.03		N		
BIOS07300032		38999.04		N		
BIOS07300033		38999.05		N		
BIOS07300051		38999.06		N		
BIOS07300052		38999.07		N		
BIOS07300053		38999.08		N		
BIOS07300071		38999.09		N		
BIOS07300072		38999.10		N		
BIOS07300073		38999.11		N		
BIOS07300091		38999.12		N		
BIOS07300091FD		38999.13		N		
BIOS07300092		38999.14		N		
BIOS07300093		38999.15		N		
BIOS07300111		38999.16		N		
BIOS07300112		38999.17		N		
BIOS07300113		38999.18		N		

* Contact PO and attach record of resolution

@ Sample Fractions: B=SV GC/MS, V= VOA GC/MS or GC, P=Pesticide, H=Herbicide, D=Dioxin, A=Air, I=Inorganics, C=Cyanide, M=Metals, R=Radiochemistry

~ Note samples with bubbles under remarks section.

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

SDG NARRATIVE
August 3, 1999

CONTRACT : TOLTEST

PROJECT : NSWC CRANE

SDG NO : 38999

EPISODE(S): 38999

EXPLOSIVE FRACTION

This SDG consisted of 16 soil samples with applicable MS and MSD for the explosive analysis. The samples, blanks and spikes were extracted and analyzed according to EPA protocol, SW-846, method 8330, REV. 0, 1994.

For soil samples, the percent moisture is determined by drying them at 105° C at the time of receipt. Additional portion of the samples is air-dried prior to analysis. The results are reported on the basis of the air-dried samples. For high-level water samples, direct injection method is used. For low-level water samples, salting out method is used. All of the extracts are diluted by a factor of two prior to analysis according to method 8330. The extracts are diluted in order to be the same consistency as the Mobile Phase.

"P" flags were used when the appropriate compound with sufficient response exceeded 40% deviation, possibly due to interference in the quantitation or confirmation columns.

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

CASE SUMMARY:

Blanks: No problems

Surrogate(s): The surrogate was out of the QC limits in some of the samples of the above SDG due to high concentration of the TNT peaks or dilution of the samples.

Matrix Spikes: TNB and DNB were slightly out of the QC limits in the MS. RDX and DNB were slightly out of the QC limits in the MSD. These analytes were within the QC limits in the LC0615SE and LD0615SE.

Laboratory Control Spikes: No problems

Due to matrix interference, RDX was "EP" flagged in the original of some of the samples.

Tetryl slightly exceeded 15% deviation in the continuing calibration standards 1-062978 and 1-062989.

	Example calculation					
sample #	38999.01					
analyte	RDX					
As=area of analyte in sample			=	1.115E+09		
V(f)=final volume of extract (ml)			=	10		
D=dilution factor			=	2		
CF=mean calibration factor (1/ng/ml)			=	225022.6		
W(V)=weight of sample extracted (g)			=	2		
conc (ug/kg) =	As / CF	V(f) / W(V)	D		ml / ml	ng / g
=	1.115E+09 / 225022.6	10 / 2	2			
=	49535.8					

The explosives referred to in the data package by the abbreviations found in method 8330 are as follows: HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine), RDX (Hexahydro-1,3,5-trinitro-1,3,5-triazine), TNB (1,3,5-Trinitrobenzene), DNB (1,3-Dinitrobenzene), Tetryl (Methyl-2,4,6-trinitrophenylnitramine), NB (Nitrobenzene), TNT (2,4,6- Trinitrotoluene), 24DNT (2,4-Dinitrotoluene), 26DNT (2,6-Dinitrotoluene), 2NT (o-Nitrotoluene), 3NT

SOUTHWEST LABORATORY OF OKLAHOMA
1700 West Albany, Suite A/ Broken Arrow, OK 74012
918-251-2858

m-Nitrotoluene), 4NT (p-Nitrotoluene) , PETN (Pentaerythritol tetranitrate), 2ADNT (2-Amino-4,6-dinitrotoluene), 4ADNT (4-Amino-2,6-dinitrotoluene).

The laboratory utilizes the following flags where appropriate: "J" - indicates a quantitated result, which is below the quantitation limit, but above the detection limit and has been confirmed by the second column. "E"- indicates an out of range value, i.e., a peak that is off-scale or out of the linear calibration range of the detector. The value reported is not to be used. The sample must be diluted and re-run. "D" - indicates a value derived from a secondary dilution. "U" - indicates the compound that is undetected above the quantitation limit. "X" - indicates a comment that is explained in the case narrative.

Shahriar Shahreza
LC Supervisor

2F
SOIL EXPLOSIVES SURROGATE RECOVERY

ıb Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

LC Column(1): CARBOSORB

	CLIENT SAMPLE NO.	S1 1 %REC #	TOT OUT
01	BL0615SE	72	0
02	LC0615SE	78	0
03	LD0615SE	87	0
04	BIOS07300031	69	0
05	BIOS07300032	64	0
06	BIOS07300032MS	82	0
07	BIOS07300032MSD	93	0
08	BIOS07300033	54*	1
09	BIOS07300051	47*	1
10	BIOS07300052	67	0
11	BIOS07300053	65	0
12	BIOS07300071	64	0
13	BIOS07300072	67	0
14	BIOS07300073	59*	1
15	BIOS07300091	54*	1
16	BIOS07300091FD	67	0
17	BIOS07300092	66	0
18	BIOS07300093	161*	1
19	BIOS07300111	85	0
20	BIOS07300112	60	0
21	BIOS07300113	33*	1
22	BIOS07300031DL	8*	1
23	BIOS07300032DL	70	0
24	BIOS07300051DL	77	0
25	BIOS07300071DL	75	0
26	BIOS07300072DL	67	0
27	BIOS07300073DL	66	0
28	BIOS07300091DL	71	0
29	BIOS07300091FDDL	62	0
30	BIOS07300092DL	79	0

S1 = 3,4-DNT

QC LIMITS
(60-140)

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

FORM II

2F
SOIL EXPLOSIVES SURROGATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

LC Column(1): CARBOSORB

	CLIENT SAMPLE NO.	S1 1 %REC #	TOT OUT
01	BIOS07300111DL	77	0
02	BIOS07300112DL	73	0
03	BIOS07300112	52*	1
04			
05			
06			
07			
08			
09			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

S1 = 3,4-DNT

QC LIMITS
(60-140)

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

FORM II

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

Matrix Spike - Client Sample NO.: BIOS07300032

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
HMX	9050	6850	15500	96	54-128
RDX	9050	46200	55000	97	66-109
TNB	9050	0	11900	132*	57-130
DNB	9050	0	12000	133*	74-122
TETRYL	9050	0	6160	68	32-119
NB	9050	0	8730	96	70-135
TNT	9050	9920	16800	75	44-124
4ADNT	9050	1580	10600	100	60-140
2ADNT	9050	872	9240	92	60-140
26DNT	9050	0	8470	94	58-125
24DNT	9050	0	8800	97	59-120
2NT	9050	0	7850	87	79-124
4NT	9050	0	9140	101	74-128
3NT	9050	0	9180	101	79-121

3F

SOIL EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

Matrix Spike - Client Sample NO.: BIOS07300032

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
HMX	8640	15500	100	0	30	54-128
RDX	8640	50900	54 *	8	30	66-109
TNB	8640	10400	121	13	30	57-130
DNB	8640	11000	128 *	9	45	74-122
TETRYL	8640	5850	68	5	30	32-119
NB	8640	8470	98	3	35	70-135
TNT	8640	16800	79	0	30	44-124
4ADNT	8640	10200	100	4	40	60-140
2ADNT	8640	9140	96	1	40	60-140
26DNT	8640	7990	92	6	35	58-125
24DNT	8640	8700	101	1	35	59-120
2NT	8640	7730	89	2	35	79-124
4NT	8640	8820	102	4	35	74-128
3NT	8640	8900	103	3	35	79-121

Column to be used to flag recovery values

* Values outside of QC limits

RPD: 0 out of 14 outside limits
Spike Recovery: 4 out of 28 outside limits

Comments:

FORM III

3H

SOIL EXPLOSIVES LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

LCS Sample NO.: LC0615SE

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
HMX	9500	9510	100	57-137
RDX	9500	9950	105	77-113
TNB	9500	9260	97	64-125
DNB	9500	9380	99	82-118
TETRYL	9500	9330	98	23-124
NB	9500	9230	97	69-143
TNT	9500	9230	97	75-118
4ADNT	9500	9040	95	60-140
2ADNT	9500	9490	100	60-140
26DNT	9500	8120	85	78-117
24DNT	9500	9550	100	74-126
2NT	9500	8140	86	78-123
4NT	9500	9850	104	79-125
3NT	9500	9870	104	78-121

Column to be used to flag recovery values

+ Values outside of QC limits

Spike Recovery: 0 out of 14 outside limits

Comments: _____

FORM III

3H

SOIL EXPLOSIVES LABORATORY CONTROL SPIKE RECOVERY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

LCS Sample NO.: LD0615SE

COMPOUND	SPIKE ADDED (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
HMX	8640	8840	102	57-137
RDX	8640	9220	107	77-113
TNB	8640	8660	100	64-125
DNB	8640	8790	102	82-118
TETRYL	8640	8820	102	23-124
NB	8640	8630	100	69-143
TNT	8640	8500	98	75-118
4ADNT	8640	8470	98	60-140
2ADNT	8640	8650	100	60-140
26DNT	8640	7930	92	78-117
24DNT	8640	8660	100	74-126
2NT	8640	7650	88	78-123
4NT	8640	9310	108	79-125
3NT	8640	9310	108	78-121

Column to be used to flag recovery values

* Values outside of QC limits

Spike Recovery: 0 out of 14 outside limits

Comments: _____

FORM III

4C

EXPLOSIVES METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

BL0615SE

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

Lab Sample ID : BL0615SE Lab File ID : 3_062103

Matrix: (soil/water) SOIL

Date Extracted : 06/15/99 Extraction Method : SONC

Date Analyzed (1): 06/22/99 Date Analyzed (2): 06/22/99

Time Analyzed (1): 0128 Time Analyzed (2): 1230

Instrument ID (1): LC3 Instrument ID (2): LC5

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

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	LC0615SE	LC0615SE	06/22/99	
02	LD0615SE	LD0615SE	06/22/99	
03	BIOS07300031	38999.01	06/22/99	06/22/99
04	BIOS07300032	38999.02	06/22/99	06/22/99
05	BIOS07300032MS	38999.03MS	06/22/99	
06	BIOS07300032MSD	38999.04MSD	06/22/99	
07	BIOS07300033	38999.05	06/22/99	06/22/99
08	BIOS07300051	38999.06	06/22/99	06/22/99
09	BIOS07300052	38999.07	06/22/99	06/22/99
10	BIOS07300053	38999.08	06/22/99	06/22/99
11	BIOS07300071	38999.09	06/22/99	06/22/99
12	BIOS07300072	38999.10	06/22/99	06/22/99
13	BIOS07300073	38999.11	06/22/99	06/22/99
14	BIOS07300091	38999.12	06/22/99	06/22/99
15	BIOS07300091FD	38999.13	06/22/99	07/01/99
16	BIOS07300092	38999.14	06/22/99	07/01/99
17	BIOS07300093	38999.15	06/23/99	07/01/99
18	BIOS07300111	38999.16	06/23/99	06/22/99
19	BIOS07300112	38999.17	06/23/99	07/01/99
20	BIOS07300113	38999.18	06/23/99	
21	BIOS07300031DL	38999.01DL	07/01/99	06/22/99
22	BIOS07300032DL	38999.02DL	07/01/99	06/22/99
23	BIOS07300051DL	38999.06DL	07/01/99	06/22/99
24	BIOS07300071DL	38999.09DL	07/01/99	06/22/99
25	BIOS07300072DL	38999.10DL	07/01/99	06/22/99
26	BIOS07300073DL	38999.11DL	07/01/99	06/22/99

Comments:

FORM IV

4C

EXPLOSIVES METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

BL0615SE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

Lab Sample ID : BL0615SE Lab File ID : 3_062103

Matrix: (soil/water) SOIL

Date Extracted : 06/15/99 Extraction Method : SONC

Date Analyzed (1): 06/22/99 Date Analyzed (2): 06/22/99

Time Analyzed (1): 0128 Time Analyzed (2): 1230

Instrument ID (1): LC3 Instrument ID (2): LC5

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

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

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	BIOS07300091DL	38999.12DL	07/01/99	06/22/99
02	BIOS07300091FDDL	38999.13DL	07/01/99	07/01/99
03	BIOS07300092DL	38999.14DL	07/01/99	07/01/99
04	BIOS07300111DL	38999.16DL	07/01/99	06/22/99
05	BIOS07300112DL	38999.17DL	07/01/99	07/01/99
06	BIOS07300112	38999.17	07/02/99	
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

Comments:

FORM IV

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS07300033

) Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

Matrix: (soil/water) SOIL Lab Sample ID: 38999.05

Sample Amt: 2.0 G % Moisture: 48.6 Date Received: 06/15/99

Extraction Volume: 10 ML Date Extracted: 06/15/99

Extraction Method: SONC Date Analyzed: 06/22/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	5590	
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	2690	
1946-51-0	4ADNT	1340	
35572-78-2	2ADNT	620	
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		2000.00	

30,300 PG

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0621\3_062111.D Vial: 11
Acq On : 22 Jun 1999 07:25 Operator: BW
Sample : 38999.05 Inst : LC3
Misc : BIOS07300033 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jun 22 12:58 1999 Quant Results File: 200SF19.RES

Method : F:\HPCHEM\LC3\DATA\3_0621\200SF19.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0619\
Last Update : Tue Jun 22 11:18:32 1999
Response via : Initial Calibration

06/26/99

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	15.51	29871754	1071.6	m	A
Target Compounds:					
1) HMX	5.13	128363402	5591.8	m	A
2) RDX	7.62	682808925	30344.0	m	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	16.04	136040077	2691.1	m	A
9) 4ADNT	17.04	55977345	1343.6	m	A
10) 2ADNT	18.01	29049990	619.8	m	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

6-22-99

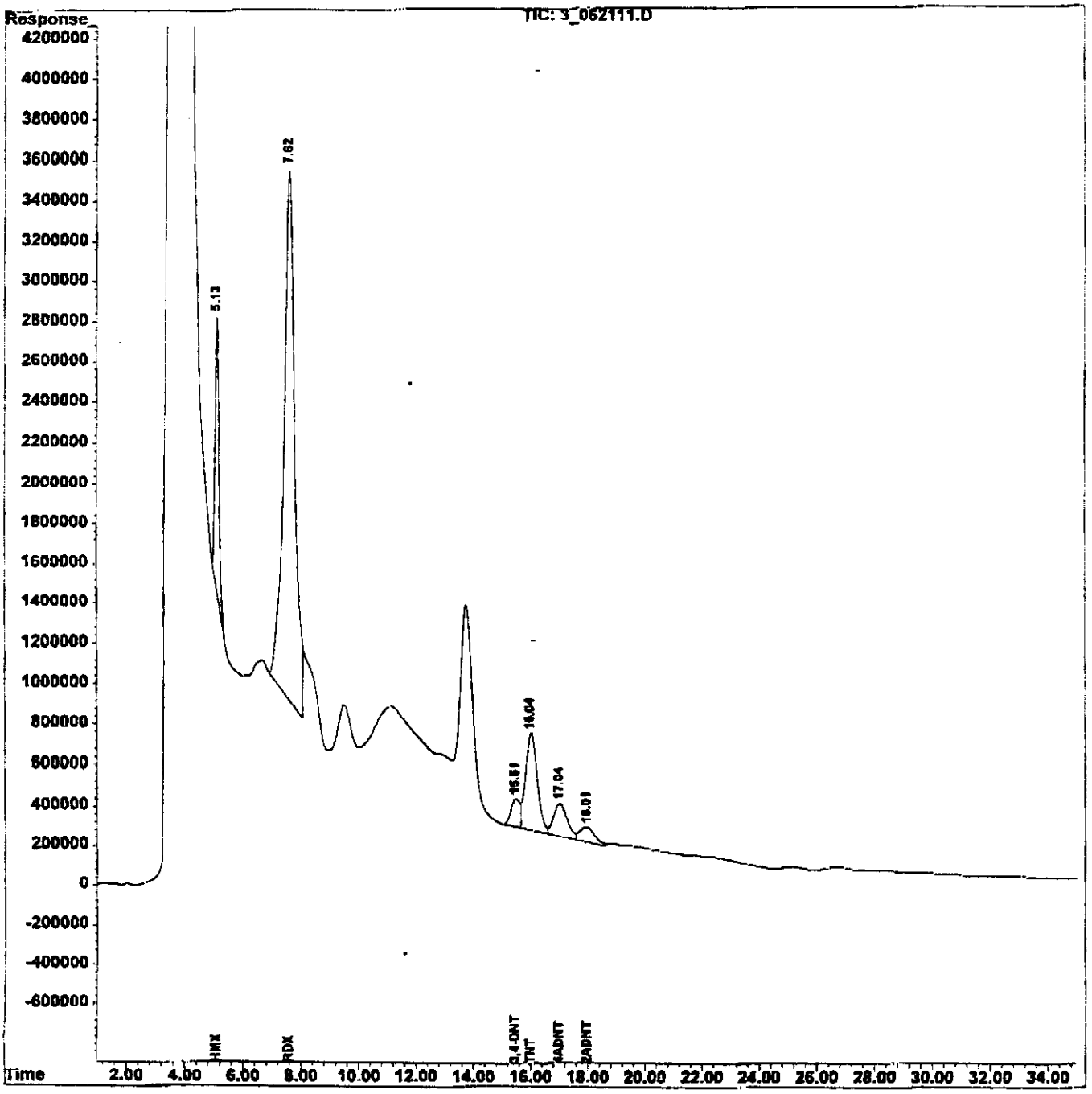
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
3_062111.D 200SF19.M Tue Jun 22 13:03:05 1999

Data File : F:\HPCHEM\LC3\DATA\3_0621\3_062111.D
Acq On : 22 Jun 1999 07:25
Sample : 38999.05
Misc : BIOS07300033
IntFile : EVENTS.E
Quant Time: Jun 22 12:58 1999 Quant Results File: 200SF19.RES

Vial: 11
Operator: BW
Inst : LC3
Multiplr: 10.0000

Method : F:\HPCHEM\LC3\DATA\3_0621\200SF19.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0619\
Last Update : Tue Jun 22 11:18:32 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Data File : F:\HPCHEM\LC5\DATA\5_0621\5_062129.D Vial: 29
Acq On : 22 Jun 1999 14:40 Operator: BW
Sample : 38999.05 Inst : LC5
Misc : BIOS07300033 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jun 23 14:44 1999 Quant Results File: 200SF20C.RES

Method : F:\HPCHEM\LC5\DATA\5_0621\200SF20C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0620\
Last Update : Wed Jun 23 13:17:57 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.31	27559245	2328.4	m	A
Target Compounds:					
1) A HMX	4.54	60030676	5728.8	m	A
2) B RDX	6.96	212263213	19384.0	m	A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	10.54	197199192	10417.2	m	A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.11	63769626	2744.1	m	A
9) B 4ADNT	13.44	17863145	1559.7	m	A
) B 2ADNT	13.62	13733842	519.3	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

6/23/99

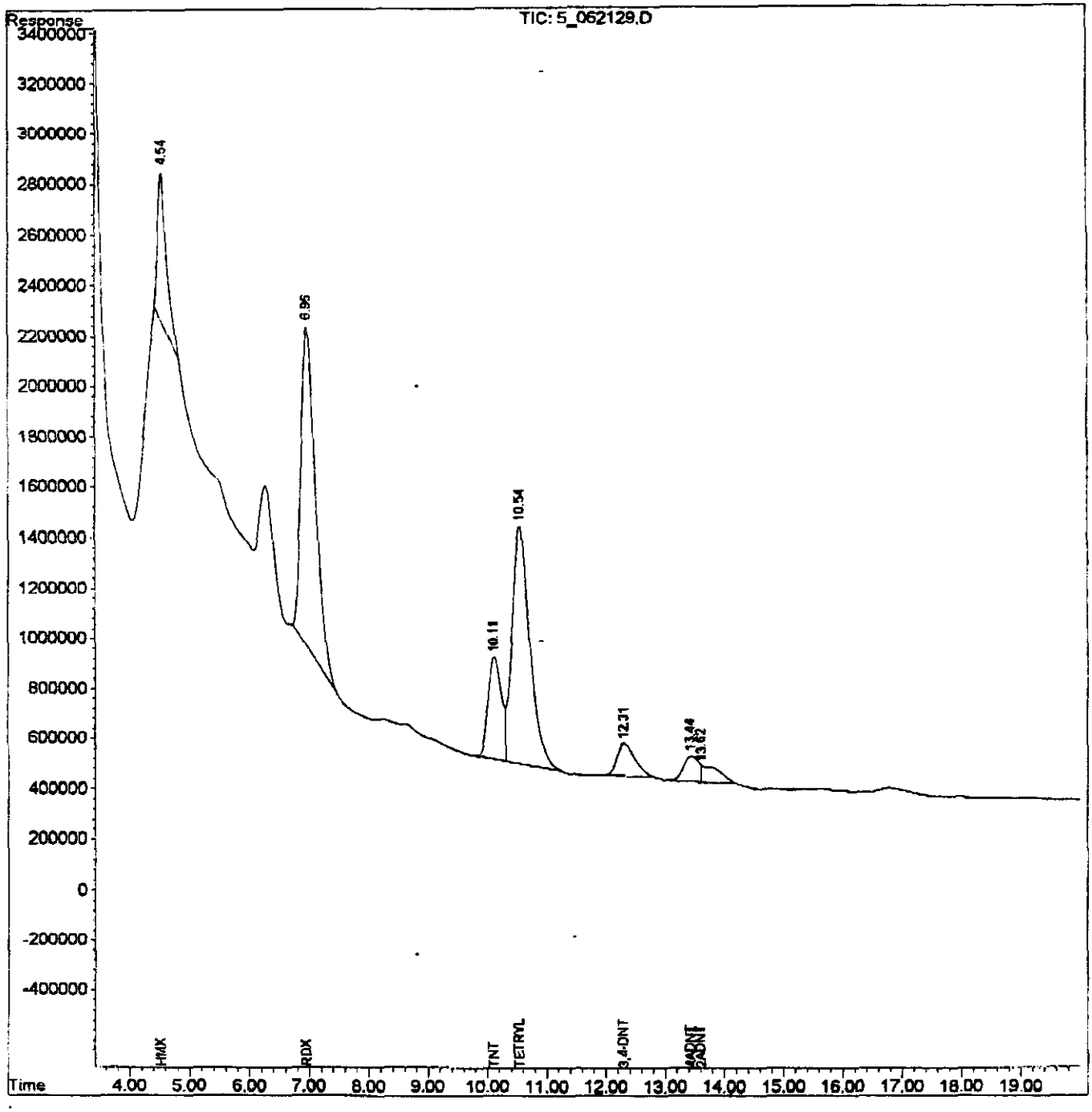
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
5_062129.D 200SF20C.M Wed Jun 23 16:50:11 1999

Data File : F:\HPCHEM\LC5\DATA\5_0621\5_062129.D
Acq On : 22 Jun 1999 14:40
Sample : 38999.05
Misc : BIOS07300033
IntFile : EVENTS.E
Quant Time: Jun 23 14:44 1999 Quant Results File: 200SF20C.RES

Vial: 29
Operator: BW
Inst : LC5
Multiplr: 10.0000

Method : F:\HPCHEM\LC5\DATA\5_0621\200SF20C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0620\
Last Update : Wed Jun 23 13:17:57 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS07300091

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

Matrix: (soil/water) SOIL Lab Sample ID: 38999.12

Sample Amt: 2.0 G % Moisture: 24.6 Date Received: 06/15/99

Extraction Volume: 10 ML Date Extracted: 06/15/99

Extraction Method: SONC Date Analyzed: 06/22/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	7460	
121-82-4	RDX	41000	E
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	11800	
1946-51-0	4ADNT	1850	P
35572-78-2	2ADNT	1040	
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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0621\3_062120.D Vial: 20
Acq On : 22 Jun 1999 14:06 Operator: BW
Sample : 38999.12 Inst : LC3
Misc : BIOS07300091 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jun 23 16:00 1999 Quant Results File: 200SF19.RES

Method : F:\HPCHEM\LC3\DATA\3_0621\200SF19.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0619\
Last Update : Tue Jun 22 11:18:32 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	15.29	29987968	1075.8	m	A
Target Compounds:					
1) HMX	5.10	171208186	7458.3		A
2) RDX	7.52	922282966	40986.2	mE	A
3) TNB	10.08	3169827	58.8	mJ	A
4) DNB	0.00	0	N.D.		A
5) TETRYL	13.52	10424504	314.4-	m	A
6) NB	0.00	0	N.D.		A
8) TNT	15.81	598559176	11840.6	m	A
9) 4ADNT	16.59	76963679	1847.3	m	A
10) 2ADNT	17.47	48560202	1036.1	m	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

6-23-99

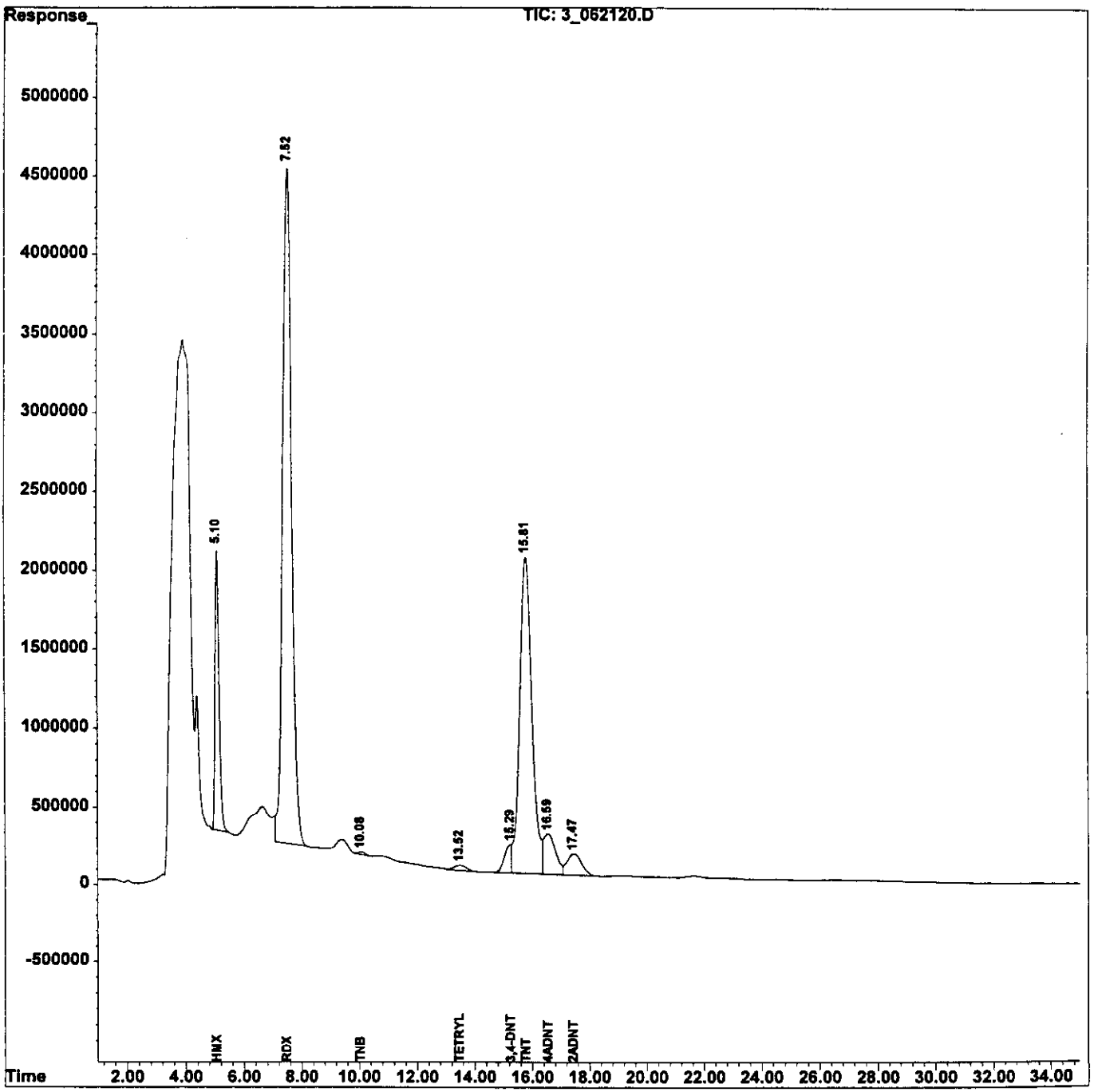
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0621\3_062120.D Vial: 20
Acq On : 22 Jun 1999 14:06 Operator: BW
Sample : 38999.12 Inst : LC3
Misc : BIOS07300091 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jun 23 16:00 1999 Quant Results File: 200SF19.RES

Method : F:\HPCHEM\LC3\DATA\3_0621\200SF19.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0619\
Last Update : Tue Jun 22 11:18:32 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0621\5_062138.D Vial: 38
Acq On : 22 Jun 1999 19:33 Operator: BW
Sample : 38999.12 Inst : LC5
Misc : BIOS07300091 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jun 23 17:07 1999 Quant Results File: 200SF20C.RES

Method : F:\HPCHEM\LC5\DATA\5_0621\200SF20C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0620\
Last Update : Wed Jun 23 13:17:57 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.28	29893929	2525.7	m	A
Target Compounds:					
1) A HMX	4.53	85453098	8154.9	m	A
2) B RDX	6.94	468476911	42781.7	E	A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.08	323337225	13913.8	m	A
9) B 4ADNT	13.40	33521337	2927.0	m	A
) B 2ADNT	13.73	31039869	1173.7	m	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.		A

6/23/99

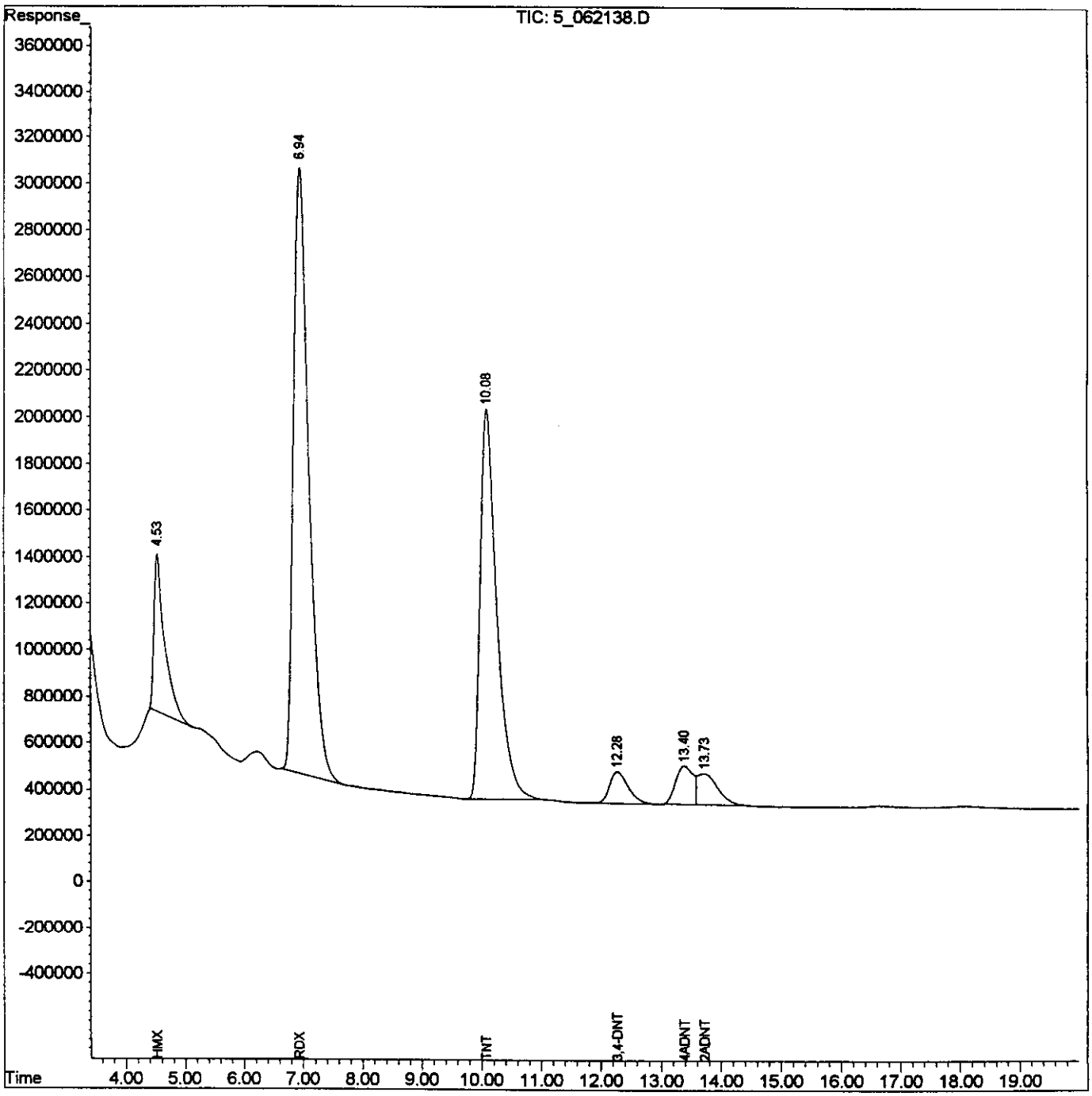
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0621\5_062138.D Vial: 38
Acq On : 22 Jun 1999 19:33 Operator: BW
Sample : 38999.12 Inst : LC5
Misc : BIOS07300091 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: Jun 23 17:07 1999 Quant Results File: 200SF20C.RES

Method : F:\HPCHEM\LC5\DATA\5_0621\200SF20C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0620\
Last Update : Wed Jun 23 13:17:57 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

TOLTEST, INC.
1915 N 12TH STREET
TOLEDO, OH 43603-218

Attn: Rick Grant

REPORT : 38999.12

REPORTED : 08/04/99

PROJECT : NSWC CRANE
LAB# : 38999.12
SAMPLE #: BIOS07300091
LOCATION: C9-SL1

SAMPLED : 06/12/99
SUBMITTED: 06/15/99

MATRIX : Soil

%MOISTURE: 24.6

MISCELLANEOUS

PARAMETER	RESULTS	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
% MOISTURE	24.6	%		06/17/99	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS07300091DL

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

Matrix: (soil/water) SOIL Lab Sample ID: 38999.12DL

Sample Amt: 2.0 G % Moisture: 24.6 Date Received: 06/15/99

Extraction Volume: 10 ML Date Extracted: 06/15/99

Extraction Method: SONC Date Analyzed: 07/01/99

GPC Cleanup: (Y/N) N Dilution Factor: 20.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	7280	DJ
121-82-4	RDX	35900	D
99-35-4	TNB	2500	U
99-65-0	DNB	2500	U
479-45-8	TETRYL	6500	U
98-95-3	NB	2600	U
118-96-7	TNT	12000	D
1946-51-0	4ADNT	1620	DPJ
35572-78-2	2ADNT	1140	DJ
606-20-2	26DNT	2600	U
121-14-2	24DNT	2500	U
88-72-2	2NT	2500	U
99-99-0	4NT	2500	U
99-08-1	3NT	2500	U
Surrogate amount spiked		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC1\DATA\1_0629\1_062972.D Vial: 72
Acq On : 01 Jul 1999 19:19 Operator: SM
Sample : 38999.12DL Inst : LC1
Misc : BIOS07300091DL Multiplr: 100.0000
IntFile : EVENTS.E
Quant Time: Jul 7 19:48 1999 Quant Results File: 200SF29.RES

Method : F:\HPCHEM\LC1\DATA\1_0629\200SF29.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0629\
Last Update : Mon Jul 05 14:16:07 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

	Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:						
7) S	3,4-DNT	14.63	1803103	1426.4	m	A
Target Compounds:						
1)	HMX	4.72	5165800	7277.1	m	A
2)	RDX	7.09	31361888	35892.1	m	A
3)	TNB	0.00	0	N.D.		A
4)	DNB	0.00	0	N.D.		A
5)	TETRYL	0.00	0	N.D.		A
6)	NB	0.00	0	N.D.		A
8)	TNT	15.26	24526793	12029.1	m	A
9)	4ADNT	15.68	2127793	1621.6	m	A
)	2ADNT	16.50	2292417	1141.5	m	A
11)	26DNT	0.00	0	N.D.		A
12)	24DNT	0.00	0	N.D.		A
13)	2NT	0.00	0	N.D.		A
14)	4NT	0.00	0	N.D.		A
15)	3NT	0.00	0	N.D.		A

Jm 070799

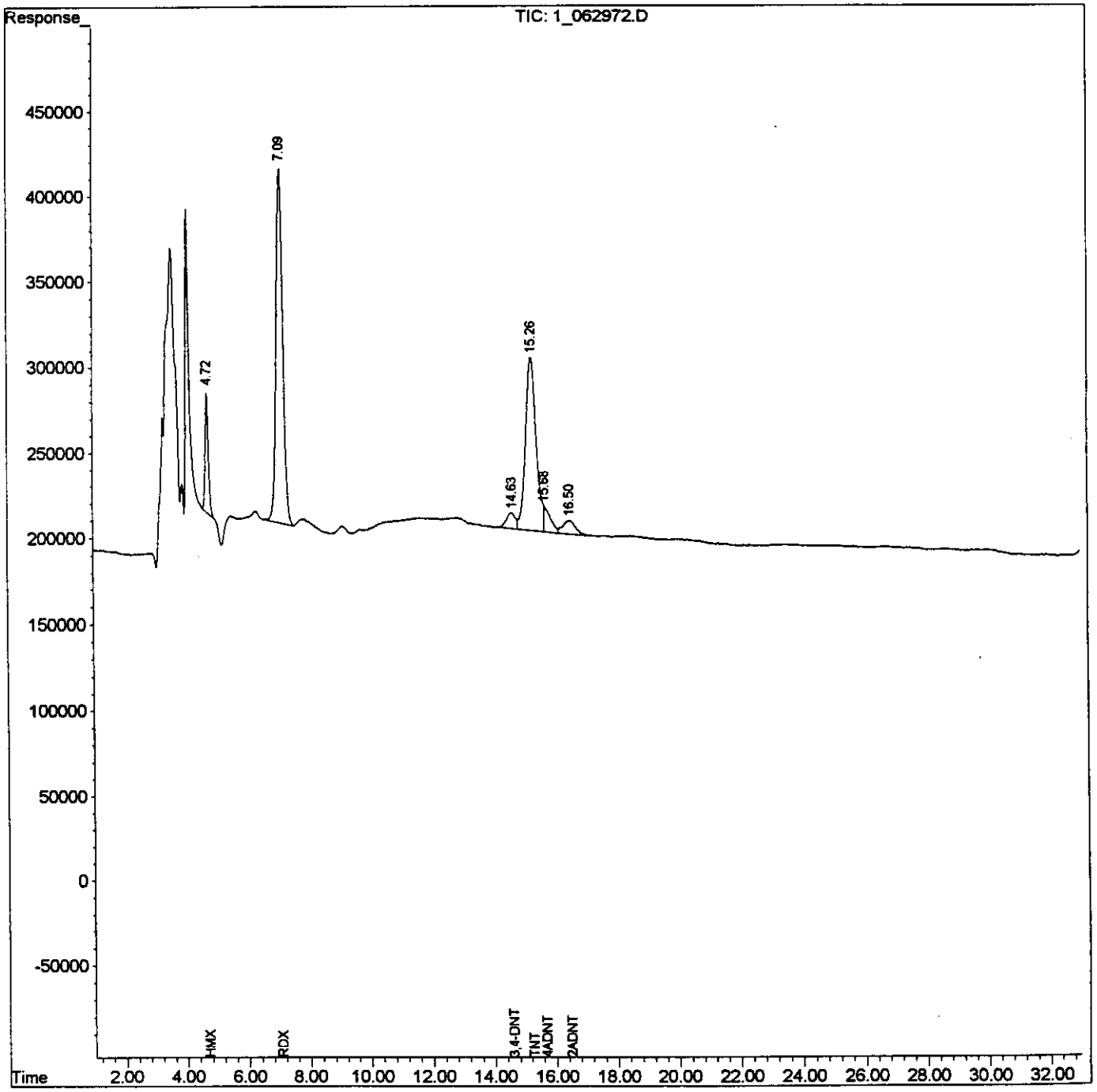
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
1_062972.D 200SF29.M Wed Jul 07 20:08:20 1999

Chromatographic Report

Data File : F:\HPCHEM\LC1\DATA\1_0629\1_062972.D Vial: 72
Acq On : 01 Jul 1999 19:19 Operator: SM
Sample : 38999.12DL Inst : LC1
Misc : BIOS07300091DL Multiplr: 100.0000
IntFile : EVENTS.E'
Quant Time: Jul 7 19:48 1999 Quant Results File: 200SF29.RES

Method : F:\HPCHEM\LC1\DATA\1_0629\200SF29.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0629\
Last Update : Mon Jul 05 14:16:07 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS07300091FD

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

Matrix: (soil/water) SOIL Lab Sample ID: 38999.13

Sample Amt: 2.2 G % Moisture: 28.5 Date Received: 06/15/99

Extraction Volume: 10 ML Date Extracted: 06/15/99

Extraction Method: SONC Date Analyzed: 06/22/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	6040	
121-82-4	RDX	36000	E
99-35-4	TNB	227	U
99-65-0	DNB	227	U
479-45-8	TETRYL	1130	P
98-95-3	NB	236	U
118-96-7	TNT	10700	
1946-51-0	4ADNT	1520	P
35572-78-2	2ADNT	866	
606-20-2	26DNT	236	U
121-14-2	24DNT	227	U
88-72-2	2NT	227	U
99-99-0	4NT	227	U
99-08-1	3NT	227	U
Surrogate amount spiked		1818.18	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0621\3_062121.D Vial: 21
Acq On : 22 Jun 1999 14:51 Operator: BW
Sample : 38999.13 Inst : LC3
Misc : BIOS07300091FD Multiplr: 9.0909
IntFile : EVENTS.E
Quant Time: Jun 23 16:02 1999 Quant Results File: 200SF19.RES

Method : F:\HPCHEM\LC3\DATA\3_0621\200SF19.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0619\
Last Update : Tue Jun 22 11:18:32 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg	Curve
Surrogates/System Monitoring Compounds:				
7) S 3,4-DNT	15.35	37617309	1226.8 m	A
Target Compounds:				
1) HMX	5.10	152541829	6041.0 m	A
2) RDX	7.52	890255177	35966.3 E	A
3) TNB	0.00	0	N.D.	A
4) DNB	0.00	0	N.D.	A
5) TETRYL	13.50	41302277	1132.2 m	A
6) NB	0.00	0	N.D.	A
8) TNT	15.80	596539361	10727.8 m	A
9) 4ADNT	16.55	69594328	1518.6 m	A
10) 2ADNT	17.47	44650179	866.1 m	A
11) 26DNT	0.00	0	N.D.	A
12) 24DNT	0.00	0	N.D.	A
13) 2NT	0.00	0	N.D.	A
14) 4NT	0.00	0	N.D.	A
15) 3NT	0.00	0	N.D.	A

JM
6-23-99

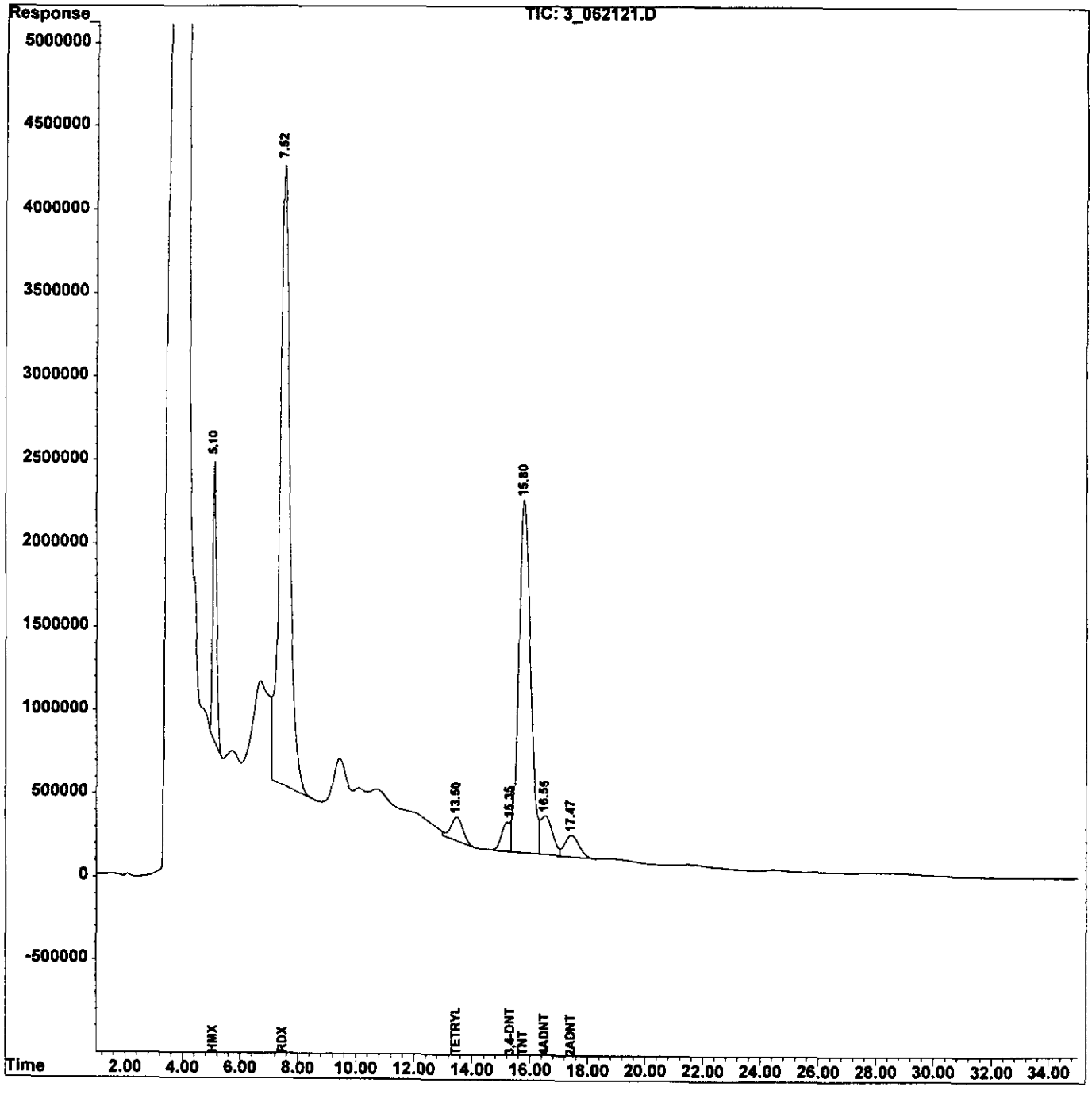
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0621\3_062121.D Vial: 21
Acq On : 22 Jun 1999 14:51 Operator: BW
Sample : 38999.13 Inst : LC3
Misc : BIOS07300091FD Multiplr: 9.0909
IntFile : EVENTS.E
Quant Time: Jun 23 16:02 1999 Quant Results File: 200SF19.RES

Method : F:\HPCHEM\LC3\DATA\3_0621\200SF19.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0619\
Last Update : Tue Jun 22 11:18:32 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0630\5_063037.D Vial: 37
Acq On : 01 Jul 1999 07:54 Operator: SM
Sample : 38999.13 Inst : LC5
Misc : BIOS07300091FD Multiplr: 9.0909
IntFile : EVENTS.E
Quant Time: Jul 5 10:40 1999 Quant Results File: 200SF29C.RES

Method : F:\HPCHEM\LC5\DATA\5_0630\200SF29C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0630\
Last Update : Mon Jul 05 11:35:23 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.36	32827701	2573.2	m	A
Target Compounds:					
1) A HMX	4.55	75427299	6531.7	m	A
2) B RDX	6.99	355583721	25330.0	mE	A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	10.50	42903949	2102.2	m	A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.15	314948428	12286.7	m	A
9) B 4ADNT	13.50	30883389	2142.0	m	A
10) B 2ADNT	13.86	27106280	780.9	m	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.	d	A

Sm 070599

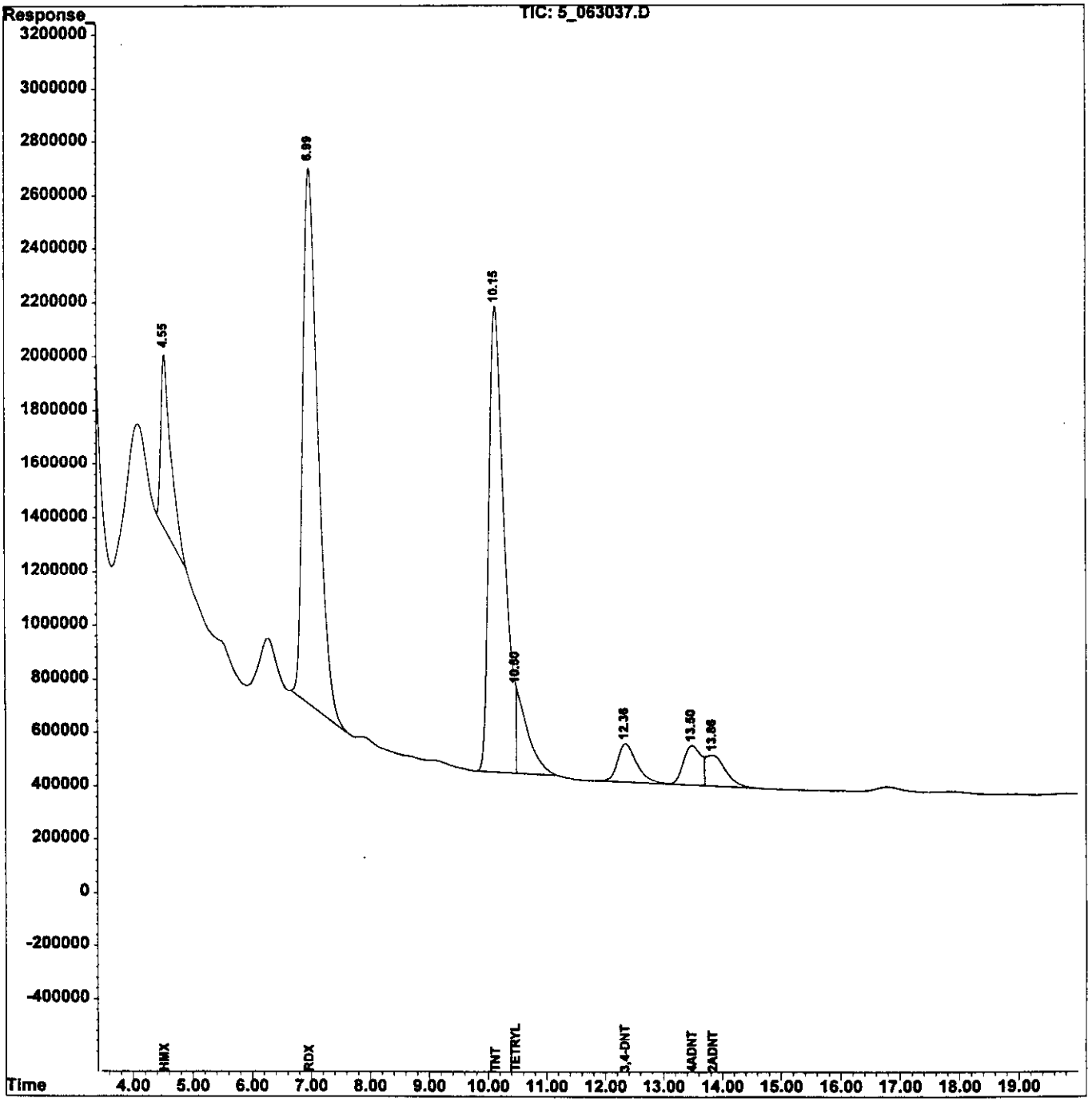
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.
5_063037.D 200SF29C.M Mon Jul 05 12:24:59 1999

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0630\5_063037.D Vial: 37
Acq On : 01 Jul 1999 07:54 Operator: SM
Sample : 38999.13 Inst : LC5
Misc : BIOS07300091FD Multiplr: 9.0909
IntFile : EVENTS.E
Quant Time: Jul 5 10:40 1999 Quant Results File: 200SF29C.RES

Method : F:\HPCHEM\LC5\DATA\5_0630\200SF29C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0630\
Last Update : Mon Jul 05 11:35:23 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



SOUTHWEST LABORATORY OF OKLAHOMA, INC.

1700 West Albany Broken Arrow, Oklahoma 74012 Office (918) 251-2858 Fax (918) 251-2599

TOLTEST, INC.
1915 N 12TH STREET
TOLEDO, OH 43603-218

Attn: Rick Grant

REPORT : 38999.13

REPORTED : 08/04/99

PROJECT : NSWC CRANE
LAB# : 38999.13
SAMPLE #: BIOS07300091FD
LOCATION: C9-SL1

SAMPLED : 06/12/99
SUBMITTED: 06/15/99

MATRIX : Soil

%MOISTURE: 28.5

MISCELLANEOUS

PARAMETER	RESULTS	UNITS	DATE PREPARED	DATE ANALYZED	REFERENCE METHOD
% MOISTURE	28.5	%		06/17/99	

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS07300091FDDL

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

Matrix: (soil/water) SOIL Lab Sample ID: 38999.13DL

Sample Amt: 2.2 G % Moisture: 28.5 Date Received: 06/15/99

Extraction Volume: 10 ML Date Extracted: 06/15/99

Extraction Method: SONC Date Analyzed: 07/01/99

GPC Cleanup: (Y/N) N Dilution Factor: 20.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	6200	DJ
121-82-4	RDX	24900	D
99-35-4	TNB	2270	U
99-65-0	DNB	2270	U
479-45-8	TETRYL	5910	U
98-95-3	NB	2360	U
118-96-7	TNT	10600	D
1946-51-0	4ADNT	1370	DPJ
35572-78-2	2ADNT	705	DJ
606-20-2	26DNT	2360	U
121-14-2	24DNT	2270	U
88-72-2	2NT	2270	U
99-99-0	4NT	2270	U
99-08-1	3NT	2270	U
Surrogate amount spiked		1818.18	

Quantitation Report

Data File : F:\HPCHEM\LC1\DATA\1_0629\1_062973.D Vial: 73
Acq On : 01 Jul 1999 20:04 Operator: SM
Sample : 38999.13DL Inst : LC1
Misc : BIOS07300091FDDL Multiplr: 90.9091
IntFile : EVENTS.E
Quant Time: Jul 7 19:49 1999 Quant Results File: 200SF29.RES

Method : F:\HPCHEM\LC1\DATA\1_0629\200SF29.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0629\
Last Update : Mon Jul 05 14:16:07 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg	Curve
Surrogates/System Monitoring Compounds:				
7) S 3,4-DNT	14.67	1556792	1119.6 m	A
Target Compounds:				
1) HMX	4.71	4840918	6199.4 * m	A
2) RDX	7.09	23920425	24887.0 * m	A
3) TNB	0.00	0	N.D.	A
4) DNB	0.00	0	N.D.	A
5) TETRYL	0.00	0	N.D.	A
6) NB	0.00	0	N.D.	A
8) TNT	15.32	23870784	10643.1 * m	A
9) 4ADNT	15.71	1972148	1366.3 * m	A
) 2ADNT	16.59	1557405	705.0 * m	A
11) 26DNT	0.00	0	N.D.	A
12) 24DNT	0.00	0	N.D.	A
13) 2NT	0.00	0	N.D.	A
14) 4NT	0.00	0	N.D.	A
15) 3NT	0.00	0	N.D.	A

JM 070799

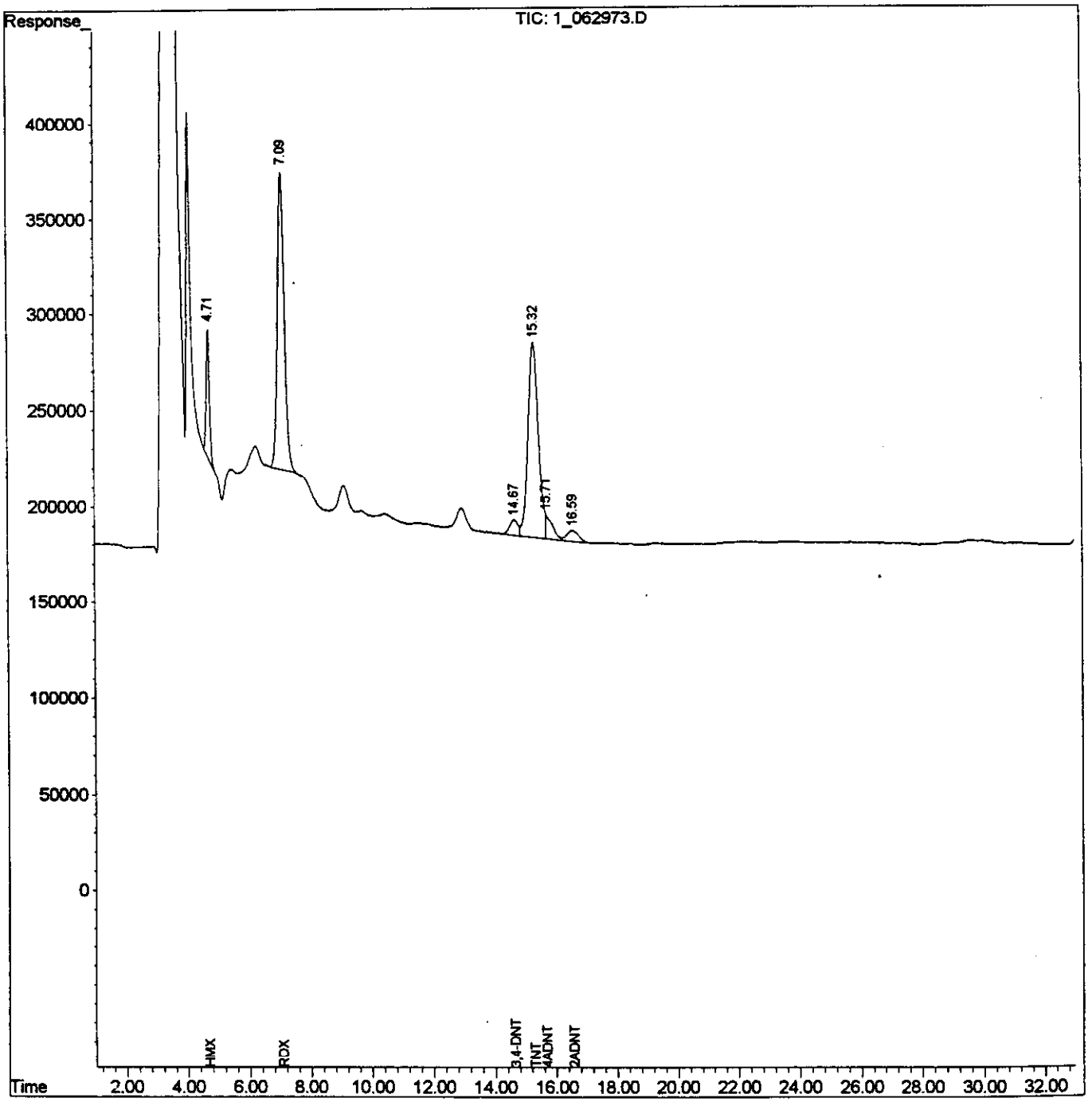
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC1\DATA\1_0629\1_062973.D Vial: 73
Acq On : 01 Jul 1999 20:04 Operator: SM
Sample : 38999.13DL Inst : LC1
Misc : BIOS07300091FDDL Multiplr: 90.9091
IntFile : EVENTS.E
Quant Time: Jul 7 19:49 1999 Quant Results File: 200SF29.RES

Method : F:\HPCHEM\LC1\DATA\1_0629\200SF29.M
Title-Path : - F:\HPCHEM\LC1\DATA\1_0629\
Last Update : Mon Jul 05 14:16:07 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC3

LC Column: CARBOSORB Date(s) Analyzed: 06/19/99 06/20/99

Method: 200SF19

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	226518127	240896528	227053726
RDX	160502629	231440344	240351008
TNB	477988511	568076651	549724929
DNB	677145000	678105500	646937922
TETRYL	354160909	322479545	336113270
NB	409859050	342516280	329062811
TNT	556889938	499669900	492887354
4ADNT	490495286	410022729	395370639
2ADNT	543410214	462387614	444931166
26DNT	371812125	347749375	331843716
24DNT	673969786	596170086	566638097
2NT	280212425	236690465	239351409
4NT	132387530	154584040	157784405
3NT	189058035	202815469	208118880
3,4-DNT	302254700	284838353	269645571

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	218395532	234911153	229555014	3.76
RDX	235267830	257551166	225022595	16.63
TNB	530739807	571004236	539506827	7.04
DNB	627809392	678413934	661682350	3.51
TETRYL	325839976	319499264	331618593	4.24
NB	318024623	345175412	348927635	10.25
TNT	473308414	504822010	505515523	6.15
4ADNT	378037849	409186339	416622568	10.39
2ADNT	427994799	464638242	468672407	9.46
26DNT	321710320	343496589	343322425	5.51
24DNT	548254521	589752231	594956944	8.08
2NT	233037137	250963815	248051050	7.74
4NT	153282462	165660570	152739801	8.09
3NT	201163872	216618167	203554884	4.96
3,4-DNT	258914407	278147409	278760088	5.86
MEAN RSD				7.44

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC3 Method: 200SF19

LC Column: CARBOSORB Init. Calib Date(s): 06/19/99 06/20/99

Client Sample No.: EXPL3 Date Analyzed : 06/22/99

Lab Sample ID : L3 6-04 Time Analyzed : 0043

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.08	5.06	5.16	222084309	229555014	3.3
RDX	7.47	7.40	7.72	234499168	225022595	-4.2
TNB	10.04	9.98	10.26	537274722	539506827	0.4
DNB	12.27	12.14	12.66	620913740	661682350	6.2
TETRYL	12.99	12.83	13.61	329927238	331618593	0.5
NB	14.00	13.85	14.31	319359686	348927635	8.5
TNT	15.67	15.55	16.11	498305350	505515523	1.4
4ADNT	16.43	16.13	17.35	367180377	416622568	11.9
2ADNT	17.31	16.93	18.39	459219760	468672407	2.0
26DNT	18.39	18.16	19.04	297386348	343322425	13.4
24DNT	19.02	18.77	19.77	589408729	594956944	0.9
2NT	22.48	22.19	23.09	233177056	248051050	6.0
4NT	24.05	23.72	24.76	155591411	152739801	-1.9
3NT	25.90	25.57	26.67	202502706	203554884	0.5
3,4-DNT	15.13	14.93	15.65	253751279	278760088	9.0

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC3 Method: 200SF19

LC Column: CARBOSORB Init. Calib Date(s): 06/19/99 06/20/99

Client Sample No.: EXPL3 Date Analyzed : 06/22/99

Lab Sample ID : L3 6-04 Time Analyzed : 0809

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.12	5.06	5.16	221790644	229555014	3.4
RDX	7.58	7.40	7.72	236048374	225022595	-4.9
TNB	10.18	9.98	10.26	538453432	539506827	0.2
DNB	12.49	12.14	12.66	637271646	661682350	3.7
TETRYL	13.30	12.83	13.61	326407956	331618593	1.6
NB	14.22	13.85	14.31	321493219	348927635	7.9
TNT	15.95	15.55	16.11	488143311	505515523	3.4
4ADNT	16.91	16.13	17.35	382870525	416622568	8.1
2ADNT	17.83	16.93	18.39	447833475	468672407	4.4
26DNT	18.80	18.16	19.04	316196705	343322425	7.9
24DNT	19.47	18.77	19.77	562293295	594956944	5.5
2NT	22.94	22.19	23.09	231139159	248051050	6.8
4NT	24.56	23.72	24.76	151514111	152739801	0.8
3NT	26.46	25.57	26.67	198342328	203554884	2.6
3,4-DNT	15.45	14.93	15.65	259912209	278760088	6.8

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC3 Method: 200SF19

LC Column: CARBOSORB Init. Calib Date(s): 06/19/99 06/20/99

Client Sample No.: EXPL3 Date Analyzed : 06/22/99

Lab Sample ID : L3 6-04 Time Analyzed : 1621

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.09	5.06	5.16	226853268	229555014	1.2
RDX	7.47	7.40	7.72	239901288	225022595	-6.6
TNB	10.05	9.98	10.26	541757376	539506827	-0.4
DNB	12.26	12.14	12.66	656024684	661682350	0.9
TETRYL	13.02	12.83	13.61	309367800	331618593	6.7
NB	13.97	13.85	14.31	329063682	348927635	5.7
TNT	15.70	15.55	16.11	497879095	505515523	1.5
4ADNT	16.40	16.13	17.35	382346240	416622568	8.2
2ADNT	17.24	16.93	18.39	468783946	468672407	-0.0
26DNT	18.38	18.16	19.04	315720312	343322425	8.0
24DNT	19.00	18.77	19.77	576998514	594956944	3.0
2NT	22.45	22.19	23.09	233981437	248051050	5.7
4NT	23.99	23.72	24.76	153607119	152739801	-0.6
3NT	25.86	25.57	26.67	196791218	203554884	3.3
3,4-DNT	15.11	14.93	15.65	269651519	278760088	3.3

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 06/19/99 06/20/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	5.12	5.12	5.12	5.11	5.11
RDX	7.59	7.59	7.58	7.58	7.58
TNB	10.14	10.14	10.14	10.13	10.13
DNB	12.46	12.44	12.44	12.43	12.42
TETRYL	13.31	13.29	13.28	13.27	13.27
NB	14.08	14.12	14.10	14.10	14.09
TNT	15.87	15.86	15.86	15.85	15.85
4ADNT	16.87	16.84	16.83	16.83	16.82
2ADNT	17.80	17.79	17.79	17.78	17.78
26DNT	18.67	18.68	18.64	18.64	18.64
24DNT	19.35	19.35	19.33	19.33	19.32
2NT	22.61	22.67	22.67	22.67	22.66
4NT	24.31	24.27	24.26	24.26	24.25
3NT	26.19	26.13	26.13	26.14	26.13
3,4-DNT	15.37	15.33	15.32	15.31	15.30

COMPOUND	RT CCAL 1	RT CCAL 2	RT CCAL 3
HMX	5.08	5.12	5.09
RDX	7.47	7.58	7.47
TNB	10.04	10.18	10.05
DNB	12.27	12.49	12.26
TETRYL	12.99	13.30	13.02
NB	14.00	14.22	13.97
TNT	15.67	15.95	15.70
4ADNT	16.43	16.91	16.40
2ADNT	17.30	17.83	17.24
26DNT	18.39	18.80	18.38
24DNT	19.02	19.47	19.00
2NT	22.48	22.94	22.45
4NT	24.04	24.56	23.99
3NT	25.90	26.46	25.86
3,4-DNT	15.12	15.45	15.10

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	5.11	0.016	0.047	5.06 - 5.16
RDX	7.56	0.053	0.159	7.40 - 7.72
TNB	10.12	0.048	0.145	9.98 - 10.26
DNB	12.40	0.087	0.260	12.14 - 12.66

FORM IX

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 06/19/99 06/20/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	13.22	0.131	0.394	12.82 - 13.61
NB	14.08	0.076	0.228	13.85 - 14.31
TNT	15.83	0.093	0.280	15.55 - 16.11
4ADNT	16.74	0.204	0.611	16.13 - 17.35
2ADNT	17.66	0.244	0.732	16.93 - 18.39
26DNT	18.60	0.146	0.437	18.16 - 19.04
24DNT	19.27	0.168	0.504	18.76 - 19.77
2NT	22.64	0.149	0.447	22.19 - 23.09
4NT	24.24	0.174	0.522	23.72 - 24.76
3NT	26.12	0.184	0.552	25.57 - 26.67
3,4-DNT	15.29	0.120	0.359	14.93 - 15.65

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

LC Column: CARBOSORB Init. Calib. Date(s): 06/19/99 06/20/99

Instrument ID: LC3

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 15.29

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	06/19/99	1952	0.00	*
02	EXPL1	L1 5-190A	06/19/99	2122	15.37	
03	EXPL2	L2 5-173	06/19/99	2206	15.33	
04	EXPL3	L3 6-04	06/19/99	2251	15.32	
05	EXPL4	L4 5-192	06/19/99	2335	15.31	
06	EXPL5	L5 5-141	06/20/99	0020	15.30	
07	EXPL3	L3 6-04	06/22/99	0043	15.12	
08	BL0615SE	BL0615SE	06/22/99	0128	15.18	
09	LC0615SE	LC0615SE	06/22/99	0257	15.36	
10	LD0615SE	LD0615SE	06/22/99	0342	15.43	
11	BIOS07300031	38999.01	06/22/99	0426	15.52	
12	BIOS07300032	38999.02	06/22/99	0511	15.51	
13	BIOS07300032MS	38999.03MS	06/22/99	0555	15.60	
14	BIOS07300032MSD	38999.04MSD	06/22/99	0640	15.62	
15	BIOS07300033	38999.05	06/22/99	0725	15.51	
16	EXPL3	L3 6-04	06/22/99	0809	15.45	
17	BIOS07300051	38999.06	06/22/99	0939	15.48	
18	BIOS07300052	38999.07	06/22/99	1023	15.47	
19	BIOS07300053	38999.08	06/22/99	1108	15.44	
20	BIOS07300071	38999.09	06/22/99	1152	15.40	
21	BIOS07300072	38999.10	06/22/99	1237	15.47	
22	BIOS07300073	38999.11	06/22/99	1322	15.32	
23	BIOS07300091	38999.12	06/22/99	1406	15.29	
24	BIOS07300091FD	38999.13	06/22/99	1451	15.35	
25	BIOS07300092	38999.14	06/22/99	1535	15.16	
26	EXPL3	L3 6-04	06/22/99	1621	15.10	
27						
28						
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Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC5

LC Column: METASIL Date(s) Analyzed: 06/19/99 06/20/99

Method: 200SF20C

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	108359800	102092123	102502243
RDX	120375094	118843624	73077464
TNB	269686230	267786110	260374311
DNB	349134098	348293020	218653427
TETRYL	190919200	189131558	181389930
NB	201299354	202510475	127696286
TNT	233380109	234497561	228731722
4ADNT	125541935	128291073	87966911
2ADNT	278317850	288051016	174021845
26DNT	187688740	190451718	180372404
24DNT	303463400	314634241	197079188
3,4-DNT	121686803	117621208	113818210

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	109077659	101904299	104787225	3.44
RDX	118738881	116485547	109504122	18.64
TNB	278700386	261806101	267670628	2.73
DNB	343834737	338416490	319666354	17.71
TETRYL	198002068	187066981	189301947	3.19
NB	199469812	197664769	185728139	17.49
TNT	239373627	225944765	232385557	2.25
4ADNT	116196613	114633923	114526091	13.94
2ADNT	292975394	288946239	264462469	19.23
26DNT	194607072	184421065	187508200	2.92
24DNT	306998726	301461572	284727425	17.30
3,4-DNT	121474799	117194462	118359096	2.78
MEAN RSD				10.13

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC5 Method: 200SF2

LC Column: METASIL Init. Calib Date(s): 06/19/99 06/20/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 06/22/99 : 06/22/99

Lab Sample IDs : L3A 6-5 : L3B 6-3 Time Analyzed : 1125 : 1157

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.55	4.51	4.57	103125899	104787225	1.6
RDX	6.98	6.91	7.01	118820241	109504122	-8.5
TNB	6.85	6.76	6.88	260063178	267670628	2.8
DNB	8.70	8.60	8.74	350168592	319666354	-9.5
TETRYL	10.78	10.61	10.85	180358971	189301947	4.7
NB	9.88	9.77	9.93	201862924	185728139	-8.7
TNT	10.16	10.01	10.23	228433949	232385557	1.7
4ADNT	13.52	13.34	13.58	118584185	114526091	-3.5
2ADNT	13.88	13.68	13.96	299637245	264462469	-13.3
26DNT	12.90	12.65	13.01	182032633	187508200	2.9
24DNT	12.50	12.34	12.56	313268322	284727425	-10.0
3,4-DNT	12.39	12.13	12.49	114079374	118359096	3.6

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC5 Method: 200SF20C

LC Column: METASIL Init. Calib Date(s): 06/19/99 06/20/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 06/22/99 : 06/22/99

Lab Sample IDs : L3A 6-05 : L3B 6-03 Time Analyzed : 1755 : 1828

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.55	4.51	4.57	101538528	104787225	3.1
RDX	6.97	6.91	7.01	120054649	109504122	-9.6
TNB	6.83	6.76	6.88	255553599	267670628	4.5
DNB	8.69	8.60	8.74	351244506	319666354	-9.9
TETRYL	10.74	10.61	10.85	172537260	189301947	8.9
NB	9.88	9.77	9.93	200621830	185728139	-8.0
TNT	10.14	10.01	10.23	224403790	232385557	3.4
4ADNT	13.50	13.34	13.58	119174303	114526091	-4.1
2ADNT	13.86	13.68	13.96	299597040	264462469	-13.3
26DNT	12.87	12.65	13.01	179179747	187508200	4.4
24DNT	12.49	12.34	12.56	312331639	284727425	-9.7
3,4-DNT	12.35	12.13	12.49	112844293	118359096	4.7

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC5 Method: 200SF20

LC Column: METASIL Init. Calib Date(s): 06/19/99 06/20/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 06/22/99 : 06/23/99

Lab Sample IDs : L3A 6-05 : L3B 6-03 Time Analyzed : 2336 : 0009

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.55	4.51	4.57	101380157	104787225	3.3
RDX	6.99	6.91	7.01	119264166	109504122	-8.9
TNB	6.85	6.76	6.88	256467407	267670628	4.2
DNB	8.71	8.60	8.74	353361015	319666354	-10.5
TETRYL	10.79	10.61	10.85	173143631	189301947	8.5
NB	9.89	9.77	9.93	202582241	185728139	-9.1
TNT	10.16	10.01	10.23	226065851	232385557	2.7
4ADNT	13.57	13.34	13.58	121631773	114526091	-6.2
2ADNT	13.94	13.68	13.96	298104794	264462469	-12.7
26DNT	12.92	12.65	13.01	181048934	187508200	3.4
24DNT	12.53	12.34	12.56	315155175	284727425	-10.7
3,4-DNT	12.40	12.13	12.49	112510739	118359096	4.9

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Instrument ID: LC5

LC Column: METASIL Date(s) ICAL Analyzed: 06/19/99 06/20/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	4.54	4.53	4.54	4.53	4.52
RDX	6.96	6.94	6.97	6.97	6.94
TNB	6.81	6.81	6.83	6.81	6.80
DNB	8.66	8.65	8.68	8.68	8.64
TETRYL	10.72	10.70	10.74	10.68	10.69
NB	9.83	9.82	9.86	9.85	9.81
TNT	10.08	10.09	10.12	10.08	10.09
4ADNT	13.42	13.42	13.47	13.47	13.42
2ADNT	13.78	13.80	13.87	13.83	13.76
26DNT	12.79	12.78	12.82	12.76	12.78
24DNT	12.44	12.42	12.47	12.46	12.40
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	12.27	12.27	12.31	12.25	12.27

COMPOUND	RT CCAL 1	RT CCAL 2	RT CCAL 3	RT CCAL 4	RT CCAL 5
HMX	4.55	0.00	4.54	0.00	4.55
RDX	0.00	6.98	0.00	6.97	0.00
TNB	6.85	0.00	6.83	0.00	6.85
DNB	0.00	8.70	0.00	8.69	0.00
TETRYL	10.78	0.00	10.74	0.00	10.79
NB	0.00	9.88	0.00	9.88	0.00
TNT	10.16	0.00	10.14	0.00	10.16
4ADNT	0.00	13.52	0.00	13.50	0.00
2ADNT	0.00	13.88	0.00	13.86	0.00
26DNT	12.90	0.00	12.87	0.00	12.92
24DNT	0.00	12.50	0.00	12.49	0.00
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	12.39	0.00	12.35	0.00	12.40

COMPOUND	RT CCAL 6
HMX	0.00
RDX	6.99
TNB	0.00
DNB	8.71

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Instrument ID: LC5

LC Column: METASIL Date(s) ICAL Analyzed: 06/19/99 06/20/99

COMPOUND	RT CCAL 6
TETRYL	0.00
NB	9.89
TNT	0.00
4ADNT	13.57
2ADNT	13.94
26DNT	0.00
24DNT	12.53
2NT	0.00
4NT	0.00
3NT	0.00
3,4-DNT	0.00

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	4.54	0.011	0.032	4.51 - 4.57
RDX	6.96	0.016	0.047	6.91 - 7.01
NB	6.82	0.020	0.059	6.76 - 6.88
DNB	8.67	0.022	0.066	8.60 - 8.74
TETRYL	10.73	0.040	0.121	10.61 - 10.85
NB	9.85	0.028	0.085	9.76 - 9.93
TNT	10.12	0.035	0.105	10.01 - 10.22
4ADNT	13.46	0.041	0.124	13.34 - 13.58
2ADNT	13.82	0.047	0.142	13.68 - 13.96
26DNT	12.83	0.061	0.184	12.65 - 13.01
24DNT	12.45	0.037	0.110	12.34 - 12.56
2NT	0.00	0.000	0.000	0.00 - 0.00
4NT	0.00	0.000	0.000	0.00 - 0.00
3NT	0.00	0.000	0.000	0.00 - 0.00
3,4-DNT	12.31	0.059	0.177	12.13 - 12.49

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

LC Column: METASIL Init. Calib. Date(s): 06/19/99 06/20/99

Instrument ID: LC5

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 12.31

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	06/19/99	2044	0.00	*
02	EXPL1A	L1A 5-186	06/19/99	2149	12.27	
03	EXPL2A	L2A 5-185	06/19/99	2221	12.27	
04	EXPL3A	L3A 6-5	06/19/99	2254	12.31	
05	EXPL4A	L4A 5-183	06/19/99	2326	12.25	
06	EXPL5A	L5A 5-184	06/19/99	2359	12.27	
07	EXPL1B	L1B 5-191	06/20/99	0031	0.00	*
08	EXPL2B	L2B 5-190	06/20/99	0104	0.00	*
09	EXPL3B	L3B 6-3	06/20/99	0137	0.00	*
10	EXPL4B	L4B 5-188	06/20/99	0209	0.00	*
11	EXPL5B	L5B 5-205	06/20/99	0242	0.00	*
12	EXPL3A	L3A 6-5	06/22/99	1125	12.39	
13	EXPL3B	L3B 6-3	06/22/99	1157	0.00	*
14	BL0615SE	BL0615SE	06/22/99	1230	12.34	
15	BIOS07300031	38999.01	06/22/99	1335	12.25	
16	BIOS07300032	38999.02	06/22/99	1407	12.25	
17	BIOS07300033	38999.05	06/22/99	1440	12.31	
18	BIOS07300051	38999.06	06/22/99	1512	12.29	
19	BIOS07300052	38999.07	06/22/99	1545	12.31	
20	BIOS07300053	38999.08	06/22/99	1617	12.32	
21	BIOS07300071	38999.09	06/22/99	1650	12.28	
22	BIOS07300072	38999.10	06/22/99	1722	12.36	
23	EXPL3A	L3A 6-05	06/22/99	1755	12.35	
24	EXPL3B	L3B 6-03	06/22/99	1828	0.00	*
25	BIOS07300073	38999.11	06/22/99	1900	12.35	
26	BIOS07300091	38999.12	06/22/99	1933	12.28	
27	BIOS07300111	38999.16	06/22/99	2159	12.42	
28	EXPL3A	L3A 6-05	06/22/99	2336	12.40	
29	EXPL3B	L3B 6-03	06/23/99	0009	0.00	*
30						
31						
32						

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

ıb Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC3

LC Column: CARBOSORB Date(s) Analyzed: 06/22/99 06/23/99

Method: 200SF22

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	210447726	236977319	220737165
RDX	234725000	266838100	243311807
TNB	575129222	615765844	550458449
DNB	625169800	677376400	621261393
TETRYL	304681591	331779064	332832957
NB	300096400	353606360	323108138
TNT	517231938	512533563	492221228
4ADNT	358671857	399864000	374328806
2ADNT	466218429	497578871	445583244
26DNT	301858167	326771733	302822633
24DNT	575102286	648328000	598954605
2NT	240648750	250261640	236634561
4NT	167433550	172157780	157982083
3NT	242389450	226186690	203547760
3,4-DNT	241394300	295801913	255150197

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	218885866	235324153	224474446	5.06
RDX	240125658	258441813	248688476	5.40
TNB	542466571	576522380	572068493	5.01
DNB	619677414	672554919	643207985	4.53
TETRYL	327786241	316679562	322751883	3.70
NB	321984594	346369057	329032910	6.49
TNT	487002317	517229025	505243614	2.87
4ADNT	371949218	404381771	381839130	5.11
2ADNT	437787191	471866704	463806888	5.08
26DNT	304444464	329505326	313080464	4.41
24DNT	586301516	629805775	607698436	5.03
2NT	233745552	249799097	242217920	3.11
4NT	156103950	166498503	164035173	4.12
3NT	202794832	217748491	218533445	7.59
3,4-DNT	252782771	271901030	263406042	8.02
MEAN RSD				5.04

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC3 Method: 200SF22

LC Column: CARBOSORB Init. Calib Date(s): 06/22/99 06/23/99

Client Sample No.: EXPL3 Date Analyzed : 06/23/99

Lab Sample ID : L3 6-34 Time Analyzed : 0906

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	5.11	5.03	5.13	220031693	224474446	2.0
RDX	7.57	7.33	7.63	246691203	248688476	0.8
TNB	10.12	9.81	10.19	551784258	572068493	3.5
DNB	12.40	11.91	12.53	625771708	643207985	2.7
TETRYL	13.24	12.53	13.45	323884538	322751883	-0.4
NB	14.08	13.47	14.25	325429894	329032910	1.1
TNT	15.82	15.15	15.99	481430858	505243614	4.7
4ADNT	16.80	15.64	17.12	381694460	381839130	0.0
2ADNT	17.77	16.44	18.14	429611963	463806888	7.4
26DNT	18.62	17.55	18.93	309485685	313080464	1.1
24DNT	19.28	18.19	19.57	579874291	607698436	4.6
2NT	22.64	21.44	22.96	230990703	242217920	4.6
4NT	24.23	22.82	24.62	151063116	164035173	7.9
3NT	26.10	24.70	26.46	196631935	218533445	10.0
3,4-DNT	15.28	14.46	15.50	261371829	263406042	0.8

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 06/22/99 06/23/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	5.06	5.06	5.07	5.08	5.08
RDX	7.43	7.44	7.45	7.47	7.49
TNB	9.95	9.95	9.97	10.00	10.02
DNB	12.11	12.14	12.17	12.22	12.25
TETRYL	12.80	12.88	12.94	13.00	13.06
NB	13.70	13.78	13.81	13.86	13.90
TNT	15.44	15.45	15.51	15.57	15.62
4ADNT	16.11	16.20	16.28	16.40	16.48
2ADNT	16.96	17.09	17.19	17.31	17.40
26DNT	17.95	18.09	18.17	18.26	18.33
24DNT	18.64	18.71	18.78	18.88	18.96
2NT	21.93	22.02	22.10	22.21	22.29
4NT	23.37	23.51	23.62	23.74	23.83
3NT	25.31	25.35	25.44	25.57	25.68
3,4-DNT	14.79	14.86	14.91	14.98	15.03

COMPOUND	RT CCAL 1
HMX	5.10
RDX	7.57
TNB	10.12
DNB	12.40
TETRYL	13.24
NB	14.08
TNT	15.82
4ADNT	16.80
2ADNT	17.77
26DNT	18.62
24DNT	19.28
2NT	22.64
4NT	24.23
3NT	26.10
3,4-DNT	15.28

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	5.08	0.016	0.048	5.03 - 5.13
RDX	7.48	0.052	0.155	7.32 - 7.63
TNB	10.00	0.064	0.193	9.81 - 10.19
DNB	12.22	0.104	0.313	11.91 - 12.53

FORM IX

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

ıb Code: SWOK Instrument ID: LC3

LC Column: CARBOSORB Date(s) ICAL Analyzed: 06/22/99 06/23/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	12.99	0.154	0.461	12.53 - 13.45
NB	13.86	0.130	0.390	13.47 - 14.25
TNT	15.57	0.141	0.424	15.14 - 15.99
4ADNT	16.38	0.246	0.737	15.64 - 17.12
2ADNT	17.29	0.283	0.850	16.44 - 18.14
26DNT	18.24	0.230	0.690	17.55 - 18.93
24DNT	18.88	0.229	0.688	18.19 - 19.57
2NT	22.20	0.252	0.755	21.44 - 22.96
4NT	23.72	0.300	0.899	22.82 - 24.62
3NT	25.58	0.292	0.876	24.70 - 26.46
3,4-DNT	14.98	0.172	0.516	14.46 - 15.50

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

LC Column: CARBOSORB Init. Calib. Date(s): 06/22/99 06/23/99

Instrument ID: LC3

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 14.98

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT #
01	INSTRUMENT BLANK	INSTRUMENT B	06/22/99	1943	0.00 *
02	EXPL1	L1 5-190A	06/22/99	2112	14.79
03	EXPL2	L2 5-173	06/22/99	2157	14.86
04	EXPL3	L3 6-34	06/22/99	2241	14.91
05	EXPL4	L4 5-192	06/22/99	2326	14.98
06	EXPL5	L5 5-141	06/23/99	0011	15.03
07	BIOS07300093	38999.15	06/23/99	0055	15.14
08	BIOS07300111	38999.16	06/23/99	0140	15.24
09	BIOS07300112	38999.17	06/23/99	0224	15.17
10	BIOS07300113	38999.18	06/23/99	0309	15.39
11	EXPL3	L3 6-34	06/23/99	0906	15.28
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
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28					
29					
30					
31					
32					

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

ab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC1

LC Column: CARBOSORB Date(s) Analyzed: 06/29/99 06/29/99

Method: 200SF29

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	71189194	65825487	72600327
RDX	86283500	81190350	88319667
TNB	210261167	194885111	205857348
DNB	291695500	261751900	278298120
TETRYL	150556273	104131500	111647604
NB	212436300	173657420	182902264
TNT	221785000	193511688	194544723
4ADNT	153538071	121001386	129385780
2ADNT	224969500	190823286	195285186
26DNT	150481708	128583758	138925523
24DNT	247012071	236531457	243309537
2NT	157866600	120586570	130336560
4NT	118709350	86368640	95005516
3NT	135845700	109558670	119365922
3,4-DNT	135485233	119883707	125562231

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	72838745	72483948	70987540	4.16
RDX	89920488	91176888	87378179	4.48
TNB	208805329	209560650	205873921	3.09
DNB	280076006	280547184	278473742	3.86
TETRYL	111170805	131688774	121838991	15.64
NB	184415319	183494366	187381134	7.83
TNT	199997615	209635978	203895001	5.82
4ADNT	127278544	124885989	131217954	9.80
2ADNT	193810260	199201829	200818012	6.89
26DNT	137030850	138568858	138718140	5.63
24DNT	247929801	250545443	245065662	2.22
2NT	131681361	130107132	134115645	10.43
4NT	97962880	95396795	98688636	12.18
3NT	123377523	120266500	121682863	7.77
3,4-DNT	124887205	126229900	126409655	4.48
MEAN RSD				6.95

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC1 Method: 200SF29

LC Column: CARBOSORB Init. Calib Date(s): 06/29/99 06/29/99

Client Sample No.: EXPL3 Date Analyzed : 07/01/99

Lab Sample ID : L3 6-52 Time Analyzed : 0544

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.73	4.69	4.77	72658281	70987540	-2.4
RDX	7.16	7.05	7.19	88356298	87378179	-1.1
TNB	9.75	9.60	9.86	206410763	205873921	-0.3
DNB	11.91	11.73	12.07	273209453	278473742	1.9
TETRYL	12.69	12.46	12.86	111567812	121838991	8.4
NB	13.66	13.46	13.82	177953636	187381134	5.0
TNT	15.42	15.17	15.61	190003723	203895001	6.8
4ADNT	15.95	15.61	16.17	129245697	131217954	1.5
2ADNT	16.74	16.41	16.95	188161638	200818012	6.3
26DNT	18.07	17.73	18.31	131974099	138718140	4.9
24DNT	18.65	18.32	18.88	248649351	245065662	-1.5
2NT	22.16	21.74	22.50	126521635	134115645	5.7
4NT	23.67	23.23	24.01	91569504	98688636	7.2
3NT	25.53	25.06	25.90	119313256	121682863	1.9
3,4-DNT	14.78	14.49	15.01	120999102	126409655	4.3

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC1 Method: 200SF29

LC Column: CARBOSORB Init. Calib Date(s): 06/29/99 06/29/99

Client Sample No.: EXPL3 Date Analyzed : 07/01/99

Lab Sample ID : L3 6-52 Time Analyzed : 1449

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.71	4.69	4.77	71208420	70987540	-0.3
RDX	7.08	7.05	7.19	86713971	87378179	0.8
TNB	9.67	9.60	9.86	205984866	205873921	-0.1
DNB	11.82	11.73	12.07	277046184	278473742	0.5
TETRYL	12.55	12.46	12.86	108376775	121838991	11.0
NB	13.55	13.46	13.82	182669850	187381134	2.5
TNT	15.29	15.17	15.61	199912359	203895001	2.0
4ADNT	15.74	15.61	16.17	123832334	131217954	5.6
2ADNT	16.53	16.41	16.95	192425584	200818012	4.2
26DNT	17.88	17.73	18.31	131887560	138718140	4.9
24DNT	18.46	18.32	18.88	249397774	245065662	-1.8
2NT	21.93	21.74	22.50	126504967	134115645	5.7
4NT	23.43	23.23	24.01	91651051	98688636	7.1
3NT	25.29	25.06	25.90	119139668	121682863	2.1
3,4-DNT	14.62	14.49	15.01	124183824	126409655	1.8

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC1 Method: 200SF29

LC Column: CARBOSORB Init. Calib Date(s): 06/29/99 06/29/99

Client Sample No.: EXPL3 Date Analyzed : 07/01/99

Lab Sample ID : L3 6-52 Time Analyzed : 2348

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.71	4.69	4.77	69501224	70987540	2.1
RDX	7.11	7.05	7.19	85751307	87378179	1.9
TNB	9.70	9.60	9.86	201985436	205873921	1.9
DNB	11.86	11.73	12.07	268764115	278473742	3.5
TETRYL	12.63	12.46	12.86	103307472	121838991	15.2*
NB	13.61	13.46	13.82	177482352	187381134	5.3
TNT	15.37	15.17	15.61	186787575	203895001	8.4
4ADNT	15.88	15.61	16.17	129006323	131217954	1.7
2ADNT	16.68	16.41	16.95	186833093	200818012	7.0
26DNT	18.02	17.73	18.31	129731921	138718140	6.5
24DNT	18.60	18.32	18.88	244053915	245065662	0.4
2NT	22.15	21.74	22.50	124759436	134115645	7.0
4NT	23.66	23.23	24.01	89431447	98688636	9.4
3NT	25.53	25.06	25.90	116425365	121682863	4.3
3,4-DNT	14.73	14.49	15.01	120693968	126409655	4.5

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC1 Method: 200SF29

LC Column: CARBOSORB Init. Calib Date(s): 06/29/99 06/29/99

Client Sample No.: EXPL3 Date Analyzed : 07/02/99

Lab Sample ID : L3 6-52 Time Analyzed : 0800

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.72	4.69	4.77	71492767	70987540	-0.7
RDX	7.10	7.05	7.19	87903694	87378179	-0.6
TNB	9.69	9.60	9.86	207051653	205873921	-0.6
DNB	11.84	11.73	12.07	276275604	278473742	0.8
TETRYL	12.57	12.46	12.86	103275925	121838991	15.2*
NB	13.56	13.46	13.82	179833037	187381134	4.0
TNT	15.29	15.17	15.61	195896406	203895001	3.9
4ADNT	15.77	15.61	16.17	123655633	131217954	5.8
2ADNT	16.57	16.41	16.95	190098082	200818012	5.3
26DNT	17.88	17.73	18.31	132049176	138718140	4.8
24DNT	18.45	18.32	18.88	250252424	245065662	-2.1
2NT	21.90	21.74	22.50	127633348	134115645	4.8
4NT	23.39	23.23	24.01	91602646	98688636	7.2
3NT	25.22	25.06	25.90	119513180	121682863	1.8
3,4-DNT	14.63	14.49	15.01	122001300	126409655	3.5

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Instrument ID: LC1

LC Column: CARBOSORB Date(s) ICAL Analyzed: 06/29/99 06/29/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	4.75	4.74	4.73	4.74	4.73
RDX	7.14	7.14	7.12	7.14	7.13
TNB	9.80	9.77	9.72	9.74	9.74
DNB	12.01	11.93	11.90	11.89	11.90
TETRYL	12.76	12.72	12.68	12.66	12.68
NB	13.74	13.69	13.65	13.64	13.65
TNT	15.50	15.47	15.40	15.39	15.42
4ADNT	16.04	15.97	15.91	15.88	15.91
2ADNT	16.82	16.75	16.69	16.66	16.70
26DNT	18.18	18.10	18.03	18.02	18.05
24DNT	18.74	18.67	18.61	18.59	18.63
2NT	22.30	22.19	22.13	22.13	22.17
4NT	23.80	23.70	23.65	23.64	23.67
3NT	25.67	25.54	25.50	25.50	25.56
3,4-DNT	14.89	14.83	14.77	14.75	14.78

COMPOUND	RT CCAL 1	RT CCAL 2	RT CCAL 3	RT CCAL 4
HMX	4.73	4.71	4.71	4.72
RDX	7.16	7.08	7.11	7.10
TNB	9.75	9.66	9.70	9.69
DNB	11.91	11.82	11.86	11.84
TETRYL	12.69	12.55	12.63	12.57
NB	13.66	13.55	13.61	13.56
TNT	15.42	15.28	15.37	15.29
4ADNT	15.94	15.74	15.88	15.77
2ADNT	16.74	16.53	16.68	16.57
26DNT	18.07	17.88	18.02	17.88
24DNT	18.65	18.46	18.60	18.45
2NT	22.16	21.93	22.15	21.90
4NT	23.66	23.43	23.66	23.39
3NT	25.53	25.29	25.53	25.22
3,4-DNT	14.78	14.62	14.73	14.63

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	4.73	0.014	0.041	4.69 - 4.77
RDX	7.12	0.025	0.075	7.04 - 7.20
TNB	9.73	0.043	0.128	9.60 - 9.86
DNB	11.90	0.056	0.167	11.73 - 12.07

9E
EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Instrument ID: LC1

LC Column: CARBOSORB Date(s) ICAL Analyzed: 06/29/99 06/29/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	12.66	0.067	0.202	12.46 - 12.86
NB	13.64	0.060	0.179	13.46 - 13.82
TNT	15.39	0.073	0.220	15.17 - 15.61
4ADNT	15.89	0.093	0.279	15.61 - 16.17
2ADNT	16.68	0.089	0.267	16.41 - 16.95
26DNT	18.02	0.097	0.290	17.73 - 18.31
24DNT	18.60	0.094	0.281	18.32 - 18.88
2NT	22.12	0.126	0.378	21.74 - 22.50
4NT	23.62	0.130	0.389	23.23 - 24.01
3NT	25.48	0.139	0.418	25.06 - 25.90
3,4-DNT	14.75	0.087	0.260	14.49 - 15.01

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

LC Column: CARBOSORB Init. Calib. Date(s): 06/29/99 06/29/99

Instrument ID: LC1

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 14.75

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	06/29/99	1241	0.00	*
02	EXPL1	L1 6-54	06/29/99	1410	14.89	
03	EXPL2	L2 6-53	06/29/99	1455	14.83	
04	EXPL3	L3 6-52	06/29/99	1539	14.77	
05	EXPL4	L4 6-51	06/29/99	1624	14.75	
06	EXPL5	L5 6-50	06/29/99	1709	14.78	
07	EXPL3	L3 6-52	07/01/99	0544	14.78	
08	BIOS07300031DL	38999.01DL	07/01/99	1320	14.60	
09	BIOS07300032DL	38999.02DL	07/01/99	1404	14.58	
10	EXPL3	L3 6-52	07/01/99	1449	14.62	
11	BIOS07300051DL	38999.06DL	07/01/99	1619	14.66	
12	BIOS07300071DL	38999.09DL	07/01/99	1703	14.61	
13	BIOS07300072DL	38999.10DL	07/01/99	1748	14.63	
14	BIOS07300073DL	38999.11DL	07/01/99	1833	14.64	
15	BIOS07300091DL	38999.12DL	07/01/99	1919	14.62	
16	BIOS07300091FDDL	38999.13DL	07/01/99	2004	14.66	
17	BIOS07300092DL	38999.14DL	07/01/99	2049	14.59	
18	BIOS07300111DL	38999.16DL	07/01/99	2133	14.62	
19	BIOS07300112DL	38999.17DL	07/01/99	2218	14.81	
20	EXPL3	L3 6-52	07/01/99	2348	14.73	
21	BIOS07300112	38999.17	07/02/99	0715	14.73	
22	EXPL3	L3 6-52	07/02/99	0800	14.63	
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

6E

SOIL EXPLOSIVES INITIAL CALIBRATION : CALIBRATION FACTOR SUMMARY

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC5

LC Column: METASIL Date(s) Analyzed: 06/30/99 06/30/99

Method: 200SF29C

COMPOUND	CALIBRATION FACTORS LEVEL 1	LEVEL 2	LEVEL 3
HMX	112552000	99488910	102937318
RDX	133802700	118034816	129944358
TNB	268207674	260192545	264024978
DNB	379375875	360468880	381961888
TETRYL	190614978	179742415	182690999
NB	211645500	205359330	217608526
TNT	234423283	227173617	235522166
4ADNT	125716402	136328015	141750534
2ADNT	321298940	304470704	317378676
26DNT	186035040	183033326	189594655
24DNT	340002720	330731520	341135826
3,4-DNT	120970758	112953834	112745023

COMPOUND	CALIBRATION FACTORS LEVEL 4	LEVEL 5	MEAN	%RSD
HMX	107282278	102638798	104979861	4.82
RDX	128045003	128265368	127618449	4.57
TNB	274385879	264353734	266232962	2.02
DNB	371135688	372210089	373030484	2.25
TETRYL	190530755	184106425	185537114	2.62
NB	212542490	213669363	212165042	2.09
TNT	238805747	229223543	233029671	2.04
4ADNT	128611207	122964271	131074086	5.94
2ADNT	312221398	322336485	315541241	2.33
26DNT	195629939	189221009	188702794	2.49
24DNT	332872802	331409713	335230516	1.48
3,4-DNT	118024233	115202357	115979241	3.03
MEAN RSD				2.97

FORM VI

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC5 Method: 200SF2

LC Column: METASIL Init. Calib Date(s): 06/30/99 06/30/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 07/01/99 : 07/01/99

Lab Sample IDs : L3A 6-55 : L3B 6-59 Time Analyzed : 0406 : 0439

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.54	4.49	4.65	107717449	104979861	-2.6
RDX	6.98	6.84	7.14	120959215	127618449	5.2
TNB	6.83	6.75	6.97	272223925	266232962	-2.3
DNB	8.71	8.55	8.87	355485129	373030484	4.7
TETRYL	10.72	10.48	11.24	182736165	185537114	1.5
NB	9.89	9.70	10.06	206396346	212165042	2.7
TNT	10.12	9.95	10.47	238556898	233029671	-2.4
4ADNT	13.51	13.29	13.77	128757607	131074086	1.8
2ADNT	13.87	13.62	14.20	300884096	315541241	4.6
26DNT	12.85	12.51	13.53	189343692	188702794	-0.3
24DNT	12.49	12.28	12.72	321534268	335230516	4.1
3,4-DNT	12.33	12.01	13.01	119336630	115979241	-2.9

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

7E

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: SWL-TULSA Lab Code: SWOK

Case No.: TOLTEST SDG No.: 38999 Inst. ID: LC5 Method: 200SF29C

LC Column: METASIL Init. Calib Date(s): 06/30/99 06/30/99

Client Sample Nos.: EXPL3A : EXPL3B Date Analyzed : 07/01/99 : 07/01/99

Lab Sample IDs : L3A 6-55 : L3B 6-59 Time Analyzed : 1157 : 1229

COMPOUND	RT	RT WINDOW FROM	RT WINDOW TO	CAL. FACTOR	MEAN CAL. FACTOR	%D #
HMX	4.52	4.49	4.65	107270678	104979861	-2.2
RDX	6.93	6.84	7.14	129272852	127618449	-1.3
TNB	6.79	6.75	6.97	272927978	266232962	-2.5
DNB	8.64	8.55	8.87	377773624	373030484	-1.3
TETRYL	10.64	10.48	11.24	188217194	185537114	-1.4
NB	9.80	9.70	10.06	218877574	212165042	-3.2
TNT	10.05	9.95	10.47	239491010	233029671	-2.8
4ADNT	13.41	13.29	13.77	132294454	131074086	-0.9
2ADNT	13.78	13.62	14.20	319832220	315541241	-1.4
26DNT	12.72	12.51	13.53	188575066	188702794	0.1
24DNT	12.40	12.28	12.72	340157611	335230516	-1.5
3,4-DNT	12.21	12.01	13.01	117946185	115979241	-1.7

QC LIMITS: RPD of amounts must be less than or equal to 15.0%.

9D

SOIL EXPLOSIVES CALIBRATION STANDARD CONCENTRATION SUMMARY

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Injection volume = 200uL Amount Units = ug/mL

COMPOUND	SPIKE AMOUNTS COLUMN 1 Level 1	Level 2	Level 3	Level 4	Level 5
HMX	0.062	0.310	1.55	3.10	6.20
RDX	0.024	0.120	0.600	1.20	2.40
TNB	0.018	0.090	0.450	0.900	1.80
DNB	0.010	0.050	0.250	0.500	1.00
TETRYL	0.022	0.110	0.550	1.10	2.20
NB	0.020	0.100	0.500	1.00	2.00
TNT	0.016	0.080	0.400	0.800	1.60
4ADNT	0.014	0.070	0.350	0.700	1.40
2ADNT	0.014	0.070	0.350	0.700	1.40
26DNT	0.024	0.120	0.600	1.20	2.40
24DNT	0.014	0.070	0.350	0.700	1.40
2NT	0.020	0.100	0.500	1.00	2.00
4NT	0.020	0.100	0.500	1.00	2.00
3NT	0.020	0.100	0.500	1.00	2.00
3,4-DNT	0.030	0.150	0.750	1.50	3.00

COMPOUND	SPIKE AMOUNTS COLUMN 2 Level 1	Level 2	Level 3	Level 4	Level 5
HMX#2	0.070	0.350	0.875	1.75	3.50
RDX#2	0.050	0.250	0.625	1.25	2.50
TNB#2	0.046	0.230	0.575	1.15	2.30
DNB#2	0.040	0.200	0.500	1.00	2.00
TETRYL#2	0.090	0.450	1.13	2.25	4.50
NB#2	0.050	0.250	0.625	1.25	2.50
TNT#2	0.046	0.230	0.575	1.15	2.30
4ADNT#2	0.092	0.460	1.15	2.30	4.60
2ADNT#2	0.100	0.500	1.25	2.50	5.00
26DNT#2	0.050	0.250	0.625	1.25	2.50
24DNT#2	0.050	0.250	0.625	1.25	2.50
2NT#2	0.050	0.250	0.625	1.25	2.50
4NT#2	0.050	0.250	0.625	1.25	2.50
3NT#2	0.100	0.500	1.25	2.50	5.00
3,4-DNT#2	0.066	0.330	0.825	1.65	3.30

9E

EXPLOSIVES RETENTION TIME DATA TABLE

ab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Instrument ID: LC5

LC Column: METASIL Date(s) ICAL Analyzed: 06/30/99 06/30/99

COMPOUND	RT OF ICAL STANDARDS Level 1	Level 2	Level 3	Level 4	Level 5
HMX	4.59	4.58	4.58	4.59	4.57
RDX	7.09	7.00	7.01	6.97	6.96
TNB	6.89	6.88	6.88	6.89	6.87
DNB	8.81	8.72	8.73	8.69	8.67
TETRYL	10.95	10.93	10.92	10.95	10.90
NB	9.99	9.89	9.90	9.86	9.84
TNT	10.27	10.25	10.25	10.27	10.24
4ADNT	13.68	13.54	13.57	13.50	13.53
2ADNT	14.08	13.94	13.96	13.88	13.84
26DNT	13.14	13.12	13.09	13.14	13.09
24DNT	12.63	12.52	12.53	12.48	12.45
2NT	0.00	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00	0.00
3,4-DNT	12.61	12.61	12.59	12.63	12.58

COMPOUND	RT CCAL 1	RT CCAL 2	RT CCAL 3	RT CCAL 4
HMX	4.54	0.00	4.52	0.00
RDX	0.00	6.98	0.00	6.93
TNB	6.83	0.00	6.79	0.00
DNB	0.00	8.71	0.00	8.64
TETRYL	10.72	0.00	10.64	0.00
NB	0.00	9.89	0.00	9.80
TNT	10.12	0.00	10.05	0.00
4ADNT	0.00	13.51	0.00	13.41
2ADNT	0.00	13.87	0.00	13.78
26DNT	12.84	0.00	12.72	0.00
24DNT	0.00	12.49	0.00	12.40
2NT	0.00	0.00	0.00	0.00
4NT	0.00	0.00	0.00	0.00
3NT	0.00	0.00	0.00	0.00
3,4-DNT	12.33	0.00	12.21	0.00

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
HMX	4.57	0.027	0.081	4.49 - 4.65
RDX	6.99	0.051	0.152	6.84 - 7.14
TNB	6.86	0.038	0.113	6.75 - 6.97
DNB	8.71	0.054	0.162	8.55 - 8.87

FORM IX

9E

EXPLOSIVES RETENTION TIME DATA TABLE

Lab Name: SWL-TULSA Case No.: TOLTEST SDG No.: 38999

Lab Code: SWOK Instrument ID: LC5

LC Column: METASIL Date(s) ICAL Analyzed: 06/30/99 06/30/99

COMPOUND	AVG RT	STD_DEV	3X STD	RT WINDOW
TETRYL	10.86	0.125	0.376	10.48 - 11.24
NB	9.88	0.059	0.178	9.70 - 10.06
TNT	10.21	0.087	0.260	9.95 - 10.47
4ADNT	13.53	0.082	0.245	13.28 - 13.77
2ADNT	13.91	0.097	0.291	13.62 - 14.20
26DNT	13.02	0.169	0.506	12.51 - 13.53
24DNT	12.50	0.072	0.216	12.28 - 12.72
2NT	0.00	0.000	0.000	0.00 - 0.00
4NT	0.00	0.000	0.000	0.00 - 0.00
3NT	0.00	0.000	0.000	0.00 - 0.00
3,4-DNT	12.51	0.167	0.502	12.01 - 13.01

8D
EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38999

LC Column: METASIL Init. Calib. Date(s): 06/30/99 06/30/99

Instrument ID: LC5

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
S1 : 12.51

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	S1 RT	#
01	INSTRUMENT BLANK	INSTRUMENT B	06/29/99	2343	0.00	*
02	EXPL1A	L1A 5-186	06/30/99	0048	12.61	
03	EXPL2A	L2A 5-185	06/30/99	0121	12.61	
04	EXPL3A	L3A 6-55	06/30/99	0153	12.59	
05	EXPL4A	L4A 5-183	06/30/99	0226	12.63	
06	EXPL5A	L5A 5-184	06/30/99	0258	12.58	
07	EXPL1B	L1B 6-61	06/30/99	1255	0.00	*
08	EXPL2B	L2B 6-60	06/30/99	1327	0.00	*
09	EXPL3B	L3B 6-59	06/30/99	1400	0.00	*
10	EXPL4B	L4B 6-58	06/30/99	1432	0.00	*
11	EXPL5B	L5B 6-57	06/30/99	1505	0.00	*
12	EXPL3A	L3A 6-55	07/01/99	0406	12.33	
13	EXPL3B	L3B 6-59	07/01/99	0439	0.00	*
14	BIOS07300091FD	38999.13	07/01/99	0754	12.36	
15	BIOS07300092	38999.14	07/01/99	0826	12.33	
16	BIOS07300093	38999.15	07/01/99	1052	12.22	
17	BIOS07300112	38999.17	07/01/99	1125	12.24	
18	EXPL3A	L3A 6-55	07/01/99	1157	12.21	
19	EXPL3B	L3B 6-59	07/01/99	1229	0.00	*
20						
21						
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28						
29						
30						
31						
32						

Column to be used to flag retention time values with an asterisk.
* Values outside of QC limits

FORM VIII

	SV	OD .T • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

[X] RUSH [ ] REEXTRACT [ ] TCLP [ ] 'OXIN

SAMPLE EXTRACTION I

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 990615SE

EXTRACT DATE: 1999-06-15 13:49

000932
Page: 1 of 2

SAMPLE ID (EPISODE #)	CLIENT / CASE	DATE RECEIVED / CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	g or ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
BL0615SE			S/L				2.13	10.0						10.0	N		1000		
BB0615SE			S/L				2.37	10.0						10.0	N		1000		
LC0615SE			S/L				2.02	10.0						10.0	N	500	1000		
LD0615SE			S/L				2.21	10.0						10.0	N	500	1000		
38999.01 GC200	TOLTEST	06/15/1999 10:41 BIOS07300031	S/L		22.15	1.6	2.01	10.0						10.0	N		1000		
38999.02 GC200	TOLTEST	06/15/1999 10:41 BIOS07300032	S/L		37.18	1.3	2.00	10.0						10.0	N		1000		
38999.03MS GC200	TOLTEST	06/15/1999 10:41 BIOS07300032	S/L		37.18	1.3	2.13	10.0						10.0	N	500	1000		
38999.04MSD GC200	TOLTEST	06/15/1999 10:41 BIOS07300032	S/L		37.18	1.4	2.22	10.0						10.0	N	500	1000		
38999.05 GC200	TOLTEST	06/15/1999 10:41 BIOS07300033	S/L		48.57	1.0	2.03	10.0						10.0	N		1000		
38999.06 GC200	TOLTEST	06/15/1999 10:41 BIOS07300051	S/L		48.55	1.0	2.01	10.0						10.0	N		1000		
38999.07 GC200	TOLTEST	06/15/1999 10:41 BIOS07300052	S/L		46.08	1.2	2.15	10.0						10.0	N		1000		
38999.08 GC200	TOLTEST	06/15/1999 10:41 BIOS07300053	S/L		40.40	1.2	2.07	10.0						10.0	N		1000		
38999.09 GC200	TOLTEST	06/15/1999 10:41 BIOS07300071	S/L		42.10	1.2	2.01	10.0						10.0	N		1000		
38999.10 GC200	TOLTEST	06/15/1999 10:41 BIOS07300072	S/L		28.54	1.6	2.29	10.0						10.0	N		1000		
38999.11 GC200	TOLTEST	06/15/1999 10:41 BIOS07300073	S/L		39.05	1.2	2.00	10.0						10.0	N		1000		

INITIALS

WEIGHING:	GS	EXTRACTION:	FLORISIL:
CLEANUP:		KD:	
BLOWDOWN:	3 3 0	TV:	
SURROG. SPIKER:	GS	VERIFIER:	JM
MATRIX SPIKER:	GS	VERIFIER:	JM
SUBMITTED BY:	GS	REVIEWED BY:	08/07/99

ID NUMBERS

FLORISIL CARTRIDGE #:

GPC COLUMN #:

SURROGATES ID CONC #: 6-7

MATRIX SPIKE SOLID/CONC #(s): 6-6

SOP - METHOD # : SWL-OP-CL 300 Rev. 4.0

COMMENTS

	M OD		
	SV	T • PCB	OTHER
CONT EX. (3520B)			
SEP-F (3510B)			
SHAKER			
SONC. (3550)			XXXXX
SOXHLET			

[X] RUSH [ ] REEXTRACT [ ] TCLP [ ] OXIN

SAMPLE EXTRACTION LC

SWLO
SOUTHWEST LABORATORY OF OKLAHOMA, INC.

BATCH: 990615SE

EXTRACT DATE: 1999-06-15 13:49

000932
Page: 2 of 2

SAMPLE ID (EPISODE #)	CLIENT CASE	DATE RECEIVED CLIENT SAMPLE ID	MATRIX/LEVEL	SAMPLE pH	% MOISTURE	DRY WEIGHT	AMOUNT EXTRACTED	EXTRACTED VOLUME	GPC VOLUME	GPC ELUTE VOL	FLORISIL VOL CONC	FLORISIL FIN VOL CONC	VOL SV - P	FIN PROCESS VOLUME	SCREEN Y/N	MS SV - P	SURR SV - P	BASE pH CONFIRMATION	ACID pH CONFIRMATION
					%	g	g • ml	ml	ml	ml	ml	ml	ml	ml	Y/N	µL	µL		
38999.12 GC200	TOLTEST	06/15/1999 10:41 BIOS07300091	S/L		24.58	1.5	2.03	10.0						10.0	N		1000		
38999.13 GC200	TOLTEST	06/15/1999 10:41 BIOS07300091FD	S/L		28.47	1.6	2.21	10.0						10.0	N		1000		
38999.14 GC200	TOLTEST	06/15/1999 10:41 BIOS07300092	S/L		36.53	1.3	2.02	10.0						10.0	N		1000		
38999.15 GC200	TOLTEST	06/15/1999 10:41 BIOS07300093	S/L		47.64	1.1	2.02	10.0						10.0	N		1000		
38999.16 GC200	TOLTEST	06/15/1999 10:41 BIOS07300111	S/L		24.03	1.7	2.22	10.0						10.0	N		1000		
38999.17 GC200	TOLTEST	06/15/1999 10:41 BIOS07300112	S/L		40.28	1.2	2.01	10.0						10.0	N		1000		
38999.18 GC200	TOLTEST	06/15/1999 10:41 BIOS07300113	S/L		43.83	1.2	2.12	10.0						10.0	N		1000		

INITIALS			
WEIGHING:	GS	EXTRACTION:	FLORISIL:
CLEANUP:		KD:	
BLOWDOWN:		TV:	
SURROG. SPIKER:	GS	VERIFIER: JM	
MATRIX SPIKER:	GS	VERIFIER: JM	
SUBMITTED BY:	GS	REVIEWED BY:	06/02/99

ID NUMBERS	
FLORISIL CARTRIDGE #:	
GPC COLUMN #:	
SURROGATES ID CONC #:	6-7
MATRIX SPIKE SOLID/CONC #(s):	6-6
SOP - METHOD # : SWL-OP-	200 Rev. 1.0

COMMENTS

ATTACHMENT 3

1D
EXPLOSIVES ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

BIOS06100032

Lab Name: SWL-TULSA

Lab Code: SWOK Case No.: TOLTEST SDG No.: 38531

Matrix: (soil/water) SOIL Lab Sample ID: 38531.02

Sample Amt: 2.0 G % Moisture: 41 Date Received: 05/14/99

Extraction Volume: 10 ML Date Extracted: 05/14/99

Extraction Method: SONC Date Analyzed: 05/16/99

GPC Cleanup: (Y/N) N Dilution Factor: 2.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: UG/KG	Q
2691-41-0	HMX	5670	
121-82-4	RDX	52600	E
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	16300	E
1946-51-0	4ADNT	3730	
35572-78-2	2ADNT	856	
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		2000.00	

FORM I

Quantitation Report

Data File : F:\HPCHEM\LC3\DATA\3_0515\3_051514.D Vial: 14
Acq On : 16 May 1999 02:56 Operator: MM
Sample : 38531.02 Inst : LC3
Misc : BIOS06100032 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 28 10:13 1999 Quant Results File: 200SE15.RES

Method : F:\HPCHEM\LC3\DATA\3_0515\200SE15.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0515\
Last Update : Fri May 28 10:11:06 1999
Response via : Initial Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) S 3,4-DNT	15.71	60121119	1215.9	m	A
Target Compounds:					
1) HMX	5.15	151548004	5668.6	m	A
2) RDX	7.69	1849009158	52627.2	mE	A
3) TNB	0.00	0	N.D.		A
4) DNB	0.00	0	N.D.		A
5) TETRYL	0.00	0	N.D.		A
6) NB	0.00	0	N.D.		A
8) TNT	16.32	1366095465	16287.5	mE	A
9) 4ADNT	17.10	226271691	3734.2	m	A
10) 2ADNT	17.97	75165257	855.8	m	A
11) 26DNT	0.00	0	N.D.		A
12) 24DNT	0.00	0	N.D.		A
13) 2NT	0.00	0	N.D.		A
14) 4NT	0.00	0	N.D.		A
15) 3NT	0.00	0	N.D.		A

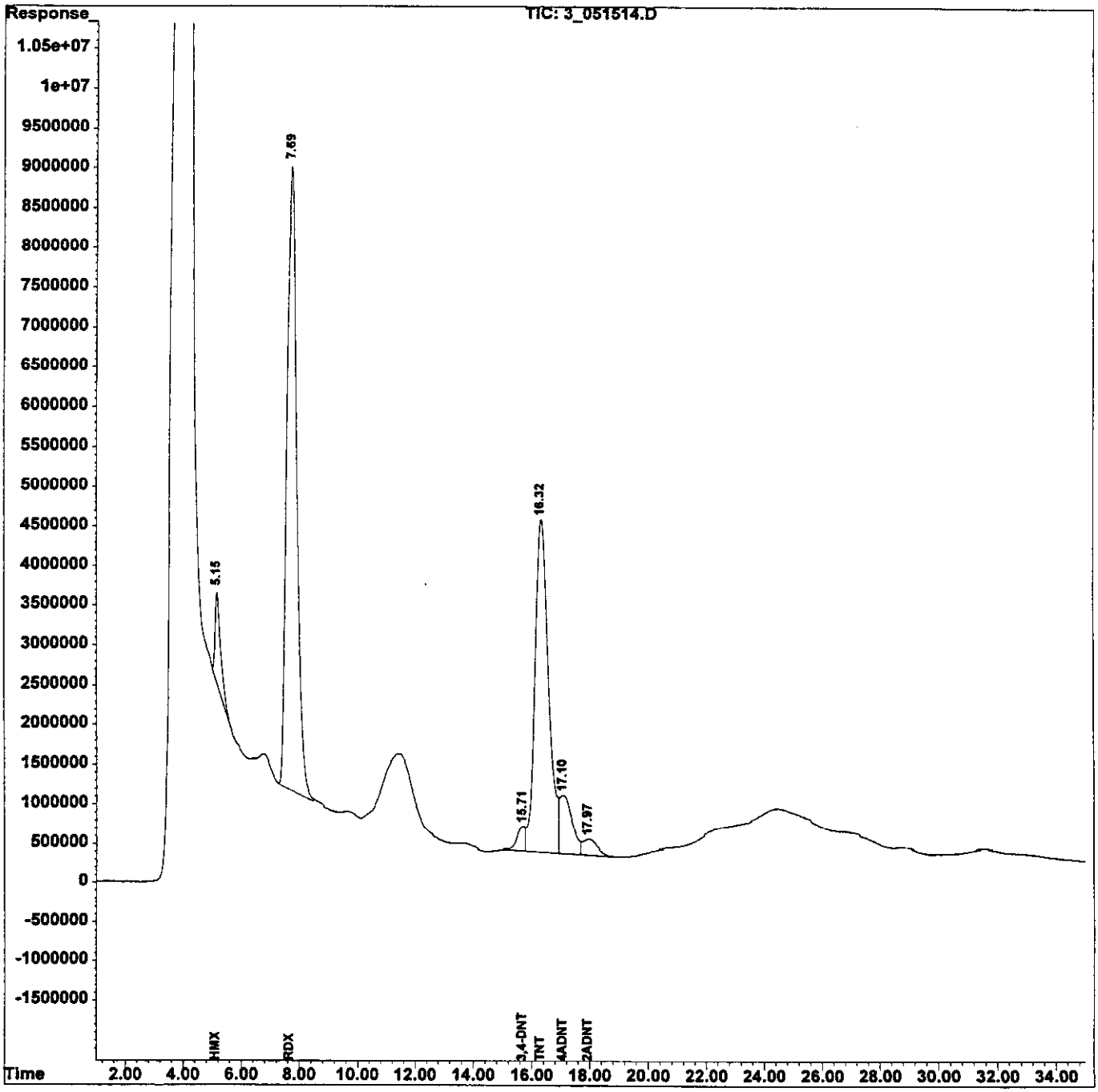
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC3\DATA\3_0515\3_051514.D Vial: 14
Acq On : 16 May 1999 02:56 Operator: MM
Sample : 38531.02 Inst : LC3
Misc : BIOS06100032 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 28 10:13 1999 Quant Results File: 200SE15.RES

Method : F:\HPCHEM\LC3\DATA\3_0515\200SE15.M
Title-Path : - F:\HPCHEM\LC3\DATA\3_0515\
Last Update : Fri May 28 10:11:06 1999
Response via : Multiple Level Calibration

Volume Inj. : 200ul
Signal Phase : CARBOSORB



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Quantitation Report

Data File : F:\HPCHEM\LC5\DATA\5_0517\5_051716.D Vial: 16
Acq On : 18 May 1999 02:19 Operator: MM
Sample : 38531.02 Inst : LC5
Misc : BIOS06100032 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 18 12:22 1999 Quant Results File: 200SE17C.RES

Method : F:\HPCHEM\LC5\DATA\5_0517\200SE17C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0517\
Last Update : Tue May 18 09:08:32 1999
Response via : Initial Calibration

Volume Inj. : 100ul
Signal Phase : METASIL

Compound	R.T.	Response	ug/Kg		Curve
Surrogates/System Monitoring Compounds:					
7) SA 3,4-DNT	12.93	33893005	1807.2		A
Target Compounds:					
1) A HMX	4.66	48058946	3861.4		A
2) B RDX	7.24	637994211	43661.6	mE	A
3) A TNB	0.00	0	N.D.		A
4) B DNB	0.00	0	N.D.		A
5) A TETRYL	0.00	0	N.D.		A
6) B NB	0.00	0	N.D.		A
8) A TNT	10.48	393720893	13768.3		A
9) B 4ADNT	14.28	62956498	3959.9	m	A
10) B 2ADNT	14.54W	31338553	954.0	mJ	A
11) A 26DNT	0.00	0	N.D.		A
12) B 24DNT	0.00	0	N.D.		A

1 correction mm 05/19/99

mm 05/18/99

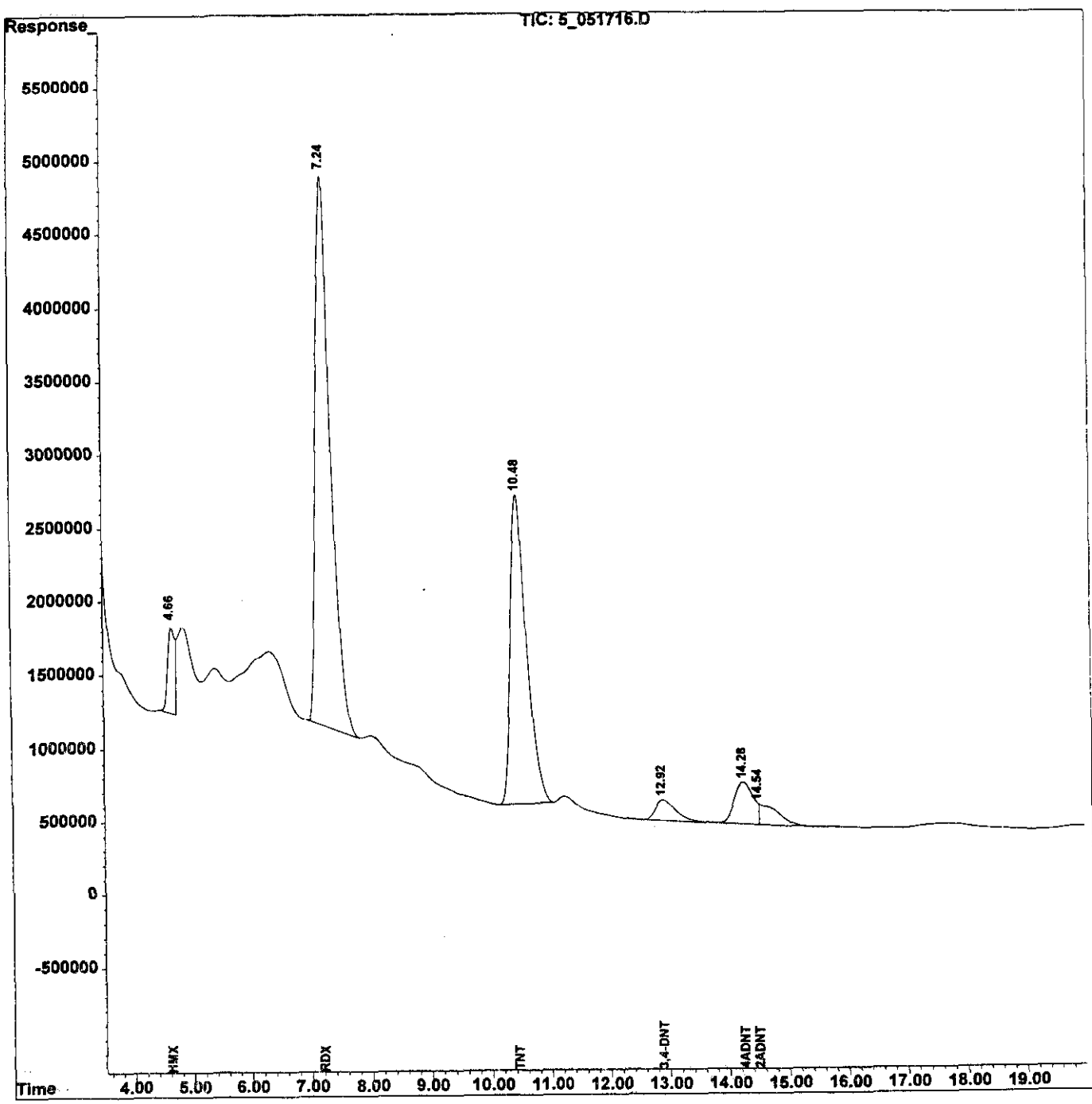
Curve Types : A=Average L=Linear P=Power Q=Quadratic/
(W)= Outside RT Window (E)= > High cal. std. (m)=manual int.

Chromatographic Report

Data File : F:\HPCHEM\LC5\DATA\5_0517\5_051716.D Vial: 16
Acq On : 18 May 1999 02:19 Operator: MM
Sample : 38531.02 Inst : LC5
Misc : BIOS06100032 Multiplr: 10.0000
IntFile : EVENTS.E
Quant Time: May 18 12:22 1999 Quant Results File: 200SE17C.RES

Method : F:\HPCHEM\LC5\DATA\5_0517\200SE17C.M
Title-Path : - F:\HPCHEM\LC5\DATA\5_0517\
Last Update : Tue May 18 09:08:32 1999
Response via : Multiple Level Calibration

Volume Inj. : 100ul
Signal Phase : METASIL



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I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

James M. Hunsicker

SIGNATURE

DIRECTOR, ENVIRONMENTAL PROTECTION DEPARTMENT
BY DIRECTION OF THE COMMANDER

TITLE

11/28/00

DATE