

# Los Alamos National Laboratory

ENVIRONMENTAL RESTORATION

**University of California**  
Environmental Restoration, MS M992  
Los Alamos, New Mexico 87545  
505-665-4557  
FAX 505-665-4747

**U. S. Department of Energy**  
Los Alamos Area Office, MS A316  
Los Alamos, New Mexico 87544  
505-665-7203  
FAX 505-665-4504

Ms. Barbara Driscoll  
NM/Federal Facilities Section  
Environmental Protection Agency  
Region 6  
1445 Ross Avenue, Suite 1200  
Dallas, TX 75202-2733

Date: February 7, 1995  
Refer to: EM/ER:95-J044

Dear Barbara:

**SUBJECT: RESPONSE TO NOTICE OF DEFICIENCY (NOD) COMMENT  
24(b) CONCERNING OPERABLE UNIT (OU) 1082  
RESOURCE CONSERVATION AND RECOVERY ACT  
FACILITY INVESTIGATION (RFI) WORK PLAN**

Enclosed is the Los Alamos National Laboratory's response to the Environmental Protection Agency's (EPA's) Notice of Deficiency comment 24(b) concerning the OU 1082 RFI Work Plan and a certification form signed by the appropriate Laboratory official. This NOD was received at the Los Alamos Area Office (LAAO) on July 18, 1994 and an approval of this RFI Work Plan was received at LAAO in December 1994. Your office requested the enclosed data upon receipt from the analytical laboratory.

The enclosed data include analyses of two samples of effluent from the outfall permitted as EPA05A056 for all the parameters as required under permit number NM0028355 and for the concentrations of the high explosives TNT, RDX, HMX, and for acetone, methyl ethyl ketone, and toluene. N-butyl acetate was not observed as a tentatively identified compound. TNT, RDX, HMX and other high explosives compounds and by-products were detected. No volatile organic compounds were detected. Additional quality assurance and other support documentation is available from the Laboratory on request by EPA. A documented quality review of the enclosed information has been performed in accordance with procedure LANL-ER-AP-01.3.

If you have any questions about this response to the NOD, contact Brad Martin at 505-667-6080 or Paul Treat at 505-667-5808.



5963

TL

B. Driscoll  
EM/ER:95-J044, February 6, 1995  
Page 2

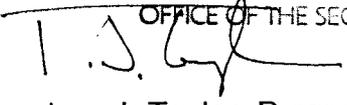
~~To Ben Garcia~~  
NEW MEXICO ENVIRONMENT DEPARTMENT  
Kelli  
Bachman

1995 FEB 17 PM 2:42  
Tevie

Sincerely,

Sincerely,

*for*   
Jorg Jansen, Project Manager  
Environmental Restoration

OFFICE OF THE SECRETARY  


Theodore J. Taylor, Program Manager  
Los Alamos Area Office

JJ/bp

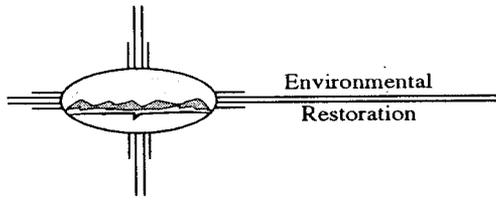
Enc.: a/s

Cy: w/enclosures  
B. Martin, CST-18, MS E525  
T. Glatzmaier, EES-DO/ER, MS M992  
D. McInroy, EM/ER, MS M992  
P. Treat, LAAO, MS A316  
RPF, MS M707

LANL  
#3WA  
OU 1082  
FEB 2 1995

*SA*  
E. Trollinger, LAAMEP, LAAO, MS A316  
B. Swanton, NMED-AIP, LANL, MS J993  
Ed Kelley  
Water & Waste Management Division  
NM Environment Department  
1190 St. Francis Drive  
P. O. Box 26110  
Santa Fe, NM 87502  
T. Taylor, LAAMEP, LAAO, MS A316  
File # 1.4.2.6.1.7.1.2

w/o enclosures  
J. Levings, ERPO, AL, MS A906  
E. Merrill, EM-452, HQ  
W. Spurgeon, EM-452, HQ



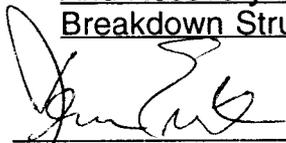
## CERTIFICATION

I certify under penalty of law that these documents 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 violation.

Document Title:

Response To Notice Of Deficiency (NOD) Comment 24(b)  
Concerning Operable Unit (OU) 1082 Resource Conservation  
And Recovery Act Facility Investigation (RFI) Work Plan Work  
Breakdown Structure Number 6.1.03.01.02

Name:

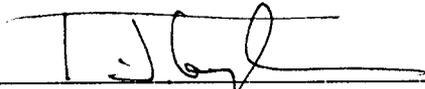


Dennis Erickson  
Division Director  
Los Alamos National Laboratory

Date:

2/10/95

Name:



Joseph Vozella, Chief  
Environment, Safety, and Health Branch  
DOE-Los Alamos Area Office

Date:

2/14/95

or

Theodore J. Taylor  
Program Manager  
Environmental Restoration Program  
DOE-Los Alamos Area Office

RECEIVED  
MS 8-3-94

**SPECIAL SAMPLING OF OUTFALL EPA-05A-056  
TA-16-260 ON AUGUST 3, 1994**

At 10:18 AM on August 3, 1994 outfall EPA-05A-056 was sampled per request of the Environmental Protection Agency. The outfall was sampled for the following parameters: COD, oil & grease, TSS, TNT, HMX, acetone, methyl ethyl ketone, n-butyl acetate and toluene. The analysis will be done by three laboratories due to the variety of parameters which are to be analyzed and to keep in compliance with the Laboratory's NPDES Permit. The following table summarizes where the samples were submitted for analysis.

<b>CST-9, TA-59</b>	<b>M-1, TA-9</b>	<b>CST-9, TA-50</b>
acetone, toluene, methyl ethyl ketone	TNT, RDX, HMX, n-butyl acetate	NPDES Parameters: COD, TSS, oil & grease

All samples were identified by the name "EPA-05A-056". All laboratory correspondence and analytical results will be sent to Mike Saladen of ESH-8.

The samples were submitted under the program code provided by Brad Martin(CST-6) and Donald Hickmott(EES-1) in their memo to Mike Saladen dated July 28, 1994.

16-026 K2

# NPDES Industrial Discharge Monitoring

①  
9/13/94  
21-25

EPA Serial No. 05A-056  
 Date Sampled 8/3/94  
 TA/Bldg. 16-260  
 Flow 0.25 gpm  
10:25 AM Time

Sample No. 94.70532  
 Sampled by J. Alarid  
 Estimated  Measured   
 Samples maintained under chain of custody

**Discharge description:**

color: None foam or floating solids: None

odor: None

Comments: temp = 21.8 °C, sample taken in August per request of EPA.

Preservative(s): H<sub>2</sub>SO<sub>4</sub> to pH <2  Refrigeration

Analysis	Results/Concentration	Time Collected	Date Began	Time Began	Method	Analyzed by
pH	7.4 (SU)	10:25 AM	8/3/94	10:38 AM	150.1	J. Alarid
TSS	0 ± 1 mg/L	↓	8/12	10:01	160.2	LB
C.O.D.	< 10 mg/L	10:26 AM	8/22	9:00	410.4	KS
Oil & Grease, TR	1.5 mg/L	10:28 AM	8/9	10:00	413.1	LB

REVIEWED BY D. Gerth DATE: 9/9/94 (CST-9)  
 REVIEWED BY \_\_\_\_\_ DATE: \_\_\_\_\_ (ESH-8)

**CST-9 VOLATILE ORGANIC ANALYSIS  
SUMMARY OF ANALYTICAL RESULTS**

REMS-3-27

TO: Mike T. Saladen  
THRU: Tony Lombardo, Organic Analysis Task Area Leader  
FROM: Judy Traylor

**REQUEST NUMBER: 18509**  
**MATRIX: WATER**  
**SUMMARY DATE: 10/20/94**

Page 1 of 2

**Results Summary:**

  X  : No target compounds were found in the sample(s) submitted.

  X  : No target compounds were found in the method blank.

      : Target compounds were found in the following sample(s).

**METHOD SUMMARY:**

Extra Samples Analyzed:   1  : BLANK(S)  
  0  : BLIND QC  
  0  : MS/MSD

**REQUEST NUMBER: 18509**

Page 2 of 2

<b>SAMPLE #</b>	<b>DATE COLLECTED</b>	<b>DATE ANALYZED</b>
S94.18835	08/03/94	08/16/94

**HOLDING TIMES: Holding times for all samples were met.**

**PRESERVATION STATUS: Samples were preserved.**

**SURROGATE RECOVERIES: Surrogate recoveries were in control.**

**MATRIX SPIKE RECOVERIES: Matrix spike and matrix spike duplicates were not analyzed.**

**ANALYTICAL METHOD: EPA method 8260, was utilized. A 5 ml sample was analyzed using a Delta Perspective auto-sampler, a TEKMAR purge and trap, an HP 5890 GC with a 70 x 3 micron x 0.53 id, DB-624 column and a HP 5971 MSD.**

**TENTATIVELY IDENTIFIED COMPOUNDS:**

    : No TIC's were found in the samples submitted.

  X  : TIC's were found in the samples submitted.

If you need additional information on the TIC's please contact Tony Lombardo at 667-5889.

*Additional information requested*

MEMORANDUM  
CST-12 ORGANIC SECTION

TO: Don Hickmott  
FROM: Anthony Lombardo CST-12  $\pi$  12/7/94

DATE: November 30, 1994

SUBJECT: Request 18509, sample 94.18835, TIC search results.

TIC Compound	Amount	Ret. Time	CAS number
2-methyl-2-propenoic acid, methyl ester.	9.8 ug/L	7.78 min.	80-62-6

The best match resulting from our spectrum library search software is the compound listed above. This identification is tentative. Other tentatively identified compounds were seen. However, these peaks were attributed to analytical system contamination.

A search was conducted specifically for n-Butyl acetate. No chromatographic peaks exhibited a spectrum which matched the spectrum of n-Butyl acetate. The spectrum of 2-Methyl-2-propenoic acid methyl ester is significantly different than the spectrum of n-Butyl acetate.

If you have any questions, please call me at 667-5889.

**Los Alamos**  
NATIONAL LABORATORY  
**memorandum**

EXPLOSIVES TECHNOLOGY & SAFETY  
DX-16

To/MS: J. Alarid, ESH-18, MS K497  
om/MS: T Rivera, DX-16, MS C920  
ne/FAX: (505)667-4764/(505)667-0500  
Symbol: DX-16:95-017  
Date: January 18, 1995

**SUBJECT: CERTIFICATE OF ANALYSIS**

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Lab. File ID : 22103  
Date received by Lab : August 3, 1994  
Number of Samples : Two (2)  
Sample Type(s) : Water

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I. Introduction

On August 3, 1994, two (2) water samples were received at TA-9-21. The list of analytical tests performed, as well as receipt and analysis, can be found in the attached report. The samples were labeled as follows: EPA-05A-056 10:23 AM, and EPA-05A-056 10:30 AM. A summary of the analytical results immediately follows this memo.

II. Analytical Results/Methodology

The analytical results for this report are presented by analytical tests. Each set of data will include sample identification information, the analytical results, and the appropriate detection limits.

The analysis requested includes: Nitroaromatics by EPA method SW 846 8330, Revision 0 (Nov. 1992), modified as described below.

- 1) Section 5.2, Organic-free reagent water: Distilled, deionized water prepared in-house was used instead of organic-free reagent water.
- 2) Section 5.3, Stock Standard Solutions: Stock standard solutions were not prepared from dry powder explosive samples. Instead, a stock solution was purchased from AccuStandard, Inc. This solution contains all fourteen analytes at a concentration of 1000 µg/ml and was used to prepare all of the standard solutions used (see AccuStandard certificate attached to data package).
- 3) Section 5.4.1: Separate standards for 2,4-DNT and 2,6-DNT were not prepared.

- 4) Section 7.1.1.1, Low-Level Aqueous Sample Preparation: A solid phase extraction procedure was used in place of the salting-out option of Method 8330. The solid phase extractant, Porapak® RDX, was purchased from Millipore Corporation. Quantitation limits for the method were obtained from the following reference: Jenkins, T.F. et al., *Analytica Chimica Acta*, **289** (1994) 69-78. A summary of the method is included with the data package.

### III. Quality Control

The QA/QC information can be found immediately following the analytical data. This QA/QC data are used to assess the laboratory's accuracy and precision during the analytical procedure.

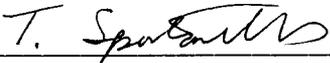
The surrogate 2-methyl-5-nitroaniline was used in this analysis.

### IV. Nonconformances/Comments

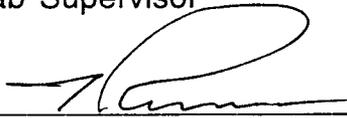
A peak matching the retention time for TNT was found in the method blank on both the primary and confirmation analyses. We suspect that this was caused by contamination of the water used to prepare the blank. The water had been purified long ago and was stored in an explosives handling area. Reagent grade water has been purchased for the preparation of future blanks.

I certify that this Certificate of Analysis is in compliance with the terms and conditions set forth between Group CST-9 and Group DX-16, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Group DX-16 Analytical Chemistry and Quality Assurance Team Leader, or his designee, as verified by the following signatures.

Reviewed and Approved:

  
\_\_\_\_\_

T. Spontarelli  
Lab Supervisor

  
\_\_\_\_\_

T. Rivera  
Team Leader

  
\_\_\_\_\_

M. Stinecipher  
QA Coordinator

Request #: 22103Nitroaromatics and Nitramines in Water Analysis Data Sheet

Sample ID: EPA-05A-056 10:23 AM Lab File ID: 22103  
 Matrix (Soil/Water): Water Date Received: 8-3-94  
 Sample wt/vol: 500-ml Date Extracted: 11-4-94  
 LC Column ID Supelco LC 18 Date Analyzed: 11-8-94

CAS No	Compound	Quantitation Limit (µg/l)	Amount Found (µg/l)
2691-41-0	HMX	0.21	1080.0
121-82-4	RDX	0.27	860.0
99-35-4	1,3,5-TNB	0.042	14.8
99-65-0	1,3-DNB	0.032	0.2
479-45-8	Tetryl	0.24	U
98-95-3	Nitrobenzene	0.13	1.6
5118-96-7	2,4,6-TNT	0.068	239.0
1946-51-0	4-A-2,6-DNT	0.046*	72.4
355-72-78-2	2-A-4,6-DNT		
606-20-2	2,6-DNT	0.085*	7.9
121-14-2	2,4-DNT		
88-72-2	2-NT	0.10	U
99-99-0	4-NT	0.12	U
99-08-1	3-NT	0.13	U

\* Unresolved isomeric mixture

U: Concentration of analyte is less than the quantitation limit.

Note: Quantitation limits taken from - Jenkins, T.F. et al., *Analytica Chimica Acta*, **289** (1994) 69-78.

Nitroaromatics and Nitramines in Water Analysis Data Sheet

Sample ID: EPA-05A-056 10:30 AM Lab File ID: 22103  
 Matrix (Soil/Water): Water Date Received: 8-3-94  
 Sample wt/vol: 500-ml Date Extracted: 11-4-94  
 LC Column ID Supelco LC 18 Date Analyzed: 11-8-94

CAS No	Compound	Quantitation Limit (µg/l)	Amount Found (µg/l)
2691-41-0	HMX	0.21	1030.0
121-82-4	RDX	0.27	735.0
99-35-4	1,3,5-TNB	0.042	6.9
99-65-0	1,3-DNB	0.032	0.3
479-45-8	Tetryl	0.24	U
98-95-3	Nitrobenzene	0.13	1.9
5118-96-7	2,4,6-TNT	0.068	146.0
1946-51-0	4-A-2,6-DNT	0.046*	85.7
355-72-78-2	2-A-4,6-DNT		
606-20-2	2,6-DNT	0.085*	6.3
121-14-2	2,4-DNT		
88-72-2	2-NT	0.10	U
99-99-0	4-NT	0.12	U
99-08-1	3-NT	0.13	U

\* Unresolved isomeric mixture

U: Concentration of analyte is less than the quantitation limit.

Note: Quantitation limits taken from - Jenkins, T.F. et al., *Analytica Chimica Acta*, **289** (1994) 69-78.

Approved  
MS

# Los Alamos

NATIONAL LABORATORY

## memorandum

Chemical Science and Technology  
Responsible Chemistry for America  
Environmental Restoration Program/CST-6  
Los Alamos, New Mexico 87545

To/MS: Mike Saladen, ESH-8, MS  
From/MS: Brad Martin, CST-6, MS E525  
Donald Hickmott, EES-1, MS D462  
Phone/FAX: 7-6080/5-4632  
Symbol: CST-ER/BM-94-21  
Date: July 28, 1994

### SAMPLING AT NPDES OUTFALL EPA05A056

As I described our phone conversation of July 28, 1994, EPA has required OU 1082 to investigate the outfall of TA-16-260 as soon as possible. To quote EPA: "LANL shall sample and analyze the effluent from the NPDES outfall permitted as EPA05A056 for all parameters as required under permit number NM0028355. LANL shall also analyze this sample and determine the concentrations present of ~~TMP, RDX, IDN, acetone, methyl ethyl ketone, n-butyl acetate, and toluene~~. LANL shall indicate which methods are being used for analysis and the detection limits of those methods. Sampling should occur within thirty-days of receipt of this NOD, and the results shall be sent to EPA upon receipt from the laboratory."

We believe that the sample should be sent to CST-9 for analysis by SW 846 methods 8240 or 8260 (volatiles) and 8330 (high explosives). N-butyl acetate is not determined by any of the standard EPA methods, because it is not particularly toxic. Perhaps the chemists in Group DX-16 could analyze for it. If you like we can call Tom Rivera of DX-16 and inquire whether they can easily analyze for n-butyl acetate. Note that the volatiles have a short holding time for analysis, so the sample would have to be processed as rapidly as possible.

The cost center and program code for all of these activities are: 7938/M77B.

If you have any question please call Brad Martin or Don Hickmott at 667-6080.

cy: CST-ER File

Post-it Fax Note	7871	Date	7/29	# of pages	1
To	Mike Saladen	From	D. Hickmott		
Co./Dept.	ESH-8	Co.	EES-1		
Phone #	5-6085	Phone #	7-6080		
Fax #	7-5224	Fax #	5-4632		

EPA-05A-056  
Contact: STEVE  
Rivera  
7-5525

14-9