



United States Government

Department of Energy

# memorandum

Carlsbad Field Office  
Carlsbad, New Mexico 88221

DATE: November 5, 2001  
 REPLY TO  
 ATTN OF: CBFO:QA:TJR:VW:01-1497:UFC:2300  
 SUBJECT: Issuance of Corrective Action Reports (CARs) 02-007 through 02-011  
 TO: James Nunz, LAAO



The Carlsbad Field Office (CBFO) performed Audit A-02-04 of the LANL TRU Waste Program on October 22-26, 2001. The audit team identified five (5) conditions adverse to quality, which have been documented in the attached CARs.

Please have cognizant management of the LANL TWCP document, on the attached CAR Continuation Sheets, their proposed corrective actions with a schedule for completion and forward them to me prior to the response due date identified in CAR Block 14, LANL must also document the acceptability of any data generated prior to the resolution of the corrective actions as required by Section B6 of the WIPP Hazardous Waste Facility Permit.

If you have any questions or comments, please contact me at (505) 234-7311.

/s/ signature on file

Thomas J. Reese  
Acting Quality Assurance Manager

## Attachments

cc: w/attachments  
 T. Harms, DOE-HQ \*ED  
 K. Watson, CBFO \*ED  
 L. Chism, CBFO  
 M. Eagle, EPA \*ED  
 B. Walker, EEG \*ED  
 D. Winters, DNFSB \*ED  
 S. Zappe, NMED  
 M. Gerle, WTS Operating Record  
 W. Ledford, CTAC \*ED  
 J. Schuetz, CTAC \*ED  
 T. Bowden, CTAC  
 \*ED denotes electronically distributed

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# CORRECTIVE ACTION REPORT

1. CAR No.: 02-007	2. Activity Report No.: A-02-04	3. Page <u>1</u> of												
4. Controlling Document: TWCP-PLAN-0.2.3-001,R.5	5. CBFO Assessment Team Leader: Thomas J. Reese													
6. Responsible Organization: Los Alamos National Laboratory	7. CAQ Was Discussed With: J. Fabryka-Martin													
<b>8. Requirement that was violated:</b>  See the continuation sheet.														
<b>9. Condition Adverse to Quality:</b>  See the continuation sheet.														
<b>10. Suggested Actions (Optional):</b>  														
11a. Significant CAQ (Yes or No): Yes 11b. Work Suspension Recommended (Yes or No): No 11c. CCA-Related (Yes or No): No 11d. RCRA-Related (Yes or No): Yes														
12. Types of Actions: Remedial: <input checked="" type="checkbox"/> Investigative: <input checked="" type="checkbox"/> Root Cause: <input checked="" type="checkbox"/> Actions to Preclude Recurrence: <input checked="" type="checkbox"/>														
13. CAR Initiator: <u>Steve Calvert/Dick Blauvelt</u> Date: <u>10/30/01</u>														
14. Response Due Date: <u>11/30/01</u> Corrective Action Plan Required: YES														
15. Concurrence: /s/ signature on file <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; text-align: center;">Assessment Team Leader</td> <td style="width: 15%; text-align: center;">11-05-01 Date</td> <td style="width: 33%; text-align: center;">Responsible Assistant Manager</td> <td style="width: 15%; text-align: center;">Date</td> </tr> <tr> <td style="text-align: center;">/s/ signature on file</td> <td style="text-align: center;">11-05-01 Date</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">Quality Assurance Manager</td> <td></td> <td></td> <td></td> </tr> </table>			Assessment Team Leader	11-05-01 Date	Responsible Assistant Manager	Date	/s/ signature on file	11-05-01 Date			Quality Assurance Manager			
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# CBFO CORRECTIVE ACTION REPORT

(continuation sheet)

1. CAR No.: 02-007

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## Block # 8

1. TWCP-PLAN-0.2.3-001,R.5, Section B-3c, requires, in part that, "If the physical form of the waste in a particular container does not match the waste stream description, LANL reassigns that waste container to another waste stream and assigns the preliminary EPA hazardous waste number(s) associated with that new waste stream assignment"
2. TWCP-PLAN-0.2.6-001, R4, Section 1.3.2.6, requires certain actions be performed when recurring conditions adverse to quality are identified.
3. TWCP-PLAN-0.2.3-001,R.5, Section B4-3e(2), requires that AK accuracy be defined as "Accuracy is the degree of agreement between an observed sample result and the true value. The percentage of waste containers which require reassignment to a new waste matrix code and/or designation of different EPA hazardous waste numbers based on the reevaluation of AK or on obtaining sampling and analysis data are reported as a measure of AK accuracy."
4. TWCP-PLAN-0.2.3-001, R.5, Section B4-3b(4), states that, "The LANL procedures that describe the process for evaluating AK and resolving discrepancies are *Acceptable Knowledge Documentation* (TWCP-QP-1.1-021) and *Waste Characterization Data Reconciliation with Acceptable Knowledge* (TWCP-QP-1.1-038). These procedures require that, if different sources of information indicate that different hazardous wastes are present, LANL includes all sources of information in the AK record and conservatively assigns all potential EPA hazardous waste numbers. Alternatively, LANL may justify an alternative assignment and document the justification in the auditable record. The assignment of hazardous waste numbers is tracked in the auditable record to the required documentation."

## Block # 9

1. Several drums containing lead have been discovered during RTR. These drums had been assigned to a non-mixed waste stream by AK. The drums have been reassigned to a mixed waste stream with several hazardous waste numbers instead of a new waste stream with only a D008 designation.
2. The LANL TRU project has written several NCRs on drums for containing lead (when AK indicated they were non-mixed). LANL has not taken the required actions to address this recurring condition adverse to quality.
3. The AK accuracy report does not reflect the NCRs written due to the discovery of lead in drums that were designated as non-mixed by AK.
4. The process for resolving discrepancies in the AK record is not described in the procedure for compiling the AK record (TWCP-QP-1.1-021, R5).

# CORRECTIVE ACTION REPORT

1. CAR No.: 02-008	2. Activity Report No.: A-02-04	3. Page <u>1</u> of															
4. Controlling Document: TWCP-PLAN-0.2.3-001,R.5	5. CBFO Assessment Team Leader: Thomas J. Reese																
6. Responsible Organization: Los Alamos National Laboratory	7. CAQ Was Discussed With: J. Fabryka-Martin																
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<b>9. Condition Adverse to Quality:</b>  See the continuation sheet.																	
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# CBFO CORRECTIVE ACTION REPORT

(continuation sheet)

1. CAR No.: 02-008

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**Block # 8**

1. TWCP-PLAN-0.2.3-001, R.5, Section, B4-2c, requires in part that, *"Supplemental AK information, as appropriate, is collected to support required TRU waste stream information. LANL includes this information in the AK written record."*
2. TWCP-PLAN-0.2.3-001, R.5, Section, B4-3d, requires in part that, *"AK includes information regarding the physical form of the waste, the base materials composing the waste, and the process that generates the waste. Waste characterization (i.e., RTR or VE, headspace gas sampling and analysis, and homogeneous waste sampling and analysis) are used to confirm AK information."*

**Block # 9**

1. The AK record is missing supplemental information to support the AK summary report for waste streams TA-55-21 and TA-55-22. Examples are RTR and HGAS data generated prior to the issuance of the WIPP Hazardous Waste Facility Permit.
2. Confirmation results are being used as actual AK information and also as characterization data, instead of existing AK information.

# CORRECTIVE ACTION REPORT

1. CAR No.: 02-009	2. Activity Report No.: A-02-04	3. Page <u>1</u> of <u>5</u>
4. Controlling Document: TWCP-PLAN-0.2.3-001,R.5		5. CBFO Assessment Team Leader: Thomas J. Reese
6. Responsible Organization: Los Alamos National Laboratory		7. CAQ Was Discussed With: Larry Souza, David Martinez, Laura Ortega, Chris Leibman
8. Requirement that was violated:  (See Continuation Sheet)		
9. Condition Adverse to Quality:  (See Continuation Sheet)		
10. Suggested Actions (Optional):  		
11a. Significant CAQ (Yes or No): Yes		
11b. Work Suspension Recommended (Yes or No): No		
11c. CCA-Related (Yes or No): No		
11d. RCRA-Related (Yes or No): Yes		
12. Types of Actions: Remedial: <input checked="" type="checkbox"/> Investigative: <input checked="" type="checkbox"/> Root Cause: <input checked="" type="checkbox"/> Actions to Preclude Recurrence: <input checked="" type="checkbox"/>		
13. CAR Initiator: <u>Steve Davis / Dorothy Gill</u> Date: <u>October 27, 2001</u>		
14. Response Due Date: <u>11/30/01</u> Corrective Action Plan Required: <b>YES</b>		
15. Concurrence: /s/ signature on file		
Assessment Team Leader	11-05-01 Date	<u>NA</u> Responsible Assistant Manager <span style="float: right; padding-right: 50px;">Date</span>
/s/ signature on file Quality Assurance Manager	11-05-01 Date	
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17. Acceptance of Proposed Corrective Actions:		
_____	_____	
Assessment Team Leader	Date	
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Quality Assurance Manager	Date	

# CBFO CORRECTIVE ACTION REPORT

(continuation sheet)

1. CAR No.: 02-009

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**Block # 8 Requirement that was violated:**

1. TWCP-PLAN-0.2.3-001, R.5, Table B3-2: MDL QAO.

TWCP-PLAN-0.2.3-001, R.5, section B3-1, Method Detection Limit, and section B3-5, Method Detection Limit.

SW-846, Chapter One, section 5, Definitions, Method Detection Limit (MDL).

2. TWCP-PLAN-0.2.6, R4, section 2.1.2, Implementing Procedures, "B. Implementing procedures shall include the following information as appropriate to the work performed: 2. Technical, regulatory, quality assurance, or other program requirements."

SW-846, section 8000B, section 7.6, Retention time windows: "Retention time windows are crucial to the identification of target compounds.... The width of retention time windows should be carefully established to minimize the occurrence of both false positive and negative results....".

3. TWCP-PLAN-0.2.3-001, R.5, section B3-5, "Precision is assessed by analyzing duplicates and replicate analyses of on-line control standards..."

TWCP-PLAN-0.2.3-001, R.5 Tables B3-2 and B3-3, Precision.

4. TWCP-PLAN-0.2.6, R4, section 2.4.3.2.A, Calibration, "M&TE requiring calibration shall be calibrated at periodic intervals established and maintained to ensure acceptable reliability, where reliability is described as the probability that M&TE will remain in-tolerance throughout the interval."

TWCP-DTP-1.2-041, R.4, section 6.6, bullet #4: "Sample bottles heated to 60°C for at least 15 minutes prior to use".

5. TWCP-PLAN-0.2.6, R4, section 2.1.3 A, "TWCP processes are established and maintained to identify, control, and maintain items. ...Processes are established in applicable implementing procedures to control consumables and items with limited operating or shelf life and to prevent the use of incorrect or defective items."

6. TWCP-PLAN-0.2.3-001, R.5, Table B3-2.

7. SW-846, Method 8000B, section 7.4.2.2: "Internal standard calibration involves the comparison of instrument responses from target compounds in the sample to the responses of specific standards added to the sample or sample extract prior to injection".

8. The procedures for performance of the HSG Sampling and Analysis require revision. The inadequacies are both procedural and requirements related. See the continuation sheet, Block 9 for details.

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(continuation sheet)

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**Block # 9 Condition Adverse to Quality:**

- 1A. The current MDLs, and those dated 3/8/01, were calculated using an incorrect Student-t factor. The factor used was for 7 samples (3.14); only four samples were analyzed and hence 4.54 should have been used as the Student-t factor.
- 1B. Some % recoveries for individual data points used to calculate the MDLs, dated 3/8/01, were above the upper accuracy limit of 130%.
2. Procedure TWCP-DTP-1.2-041, R.4 does not include how retention times and retention time windows are determined. The operator was unable to describe the process used to determine retention time and retention time window.
3. LANL does not assess batch precision if the sample/sample duplicate do not contain any target analyte above PRQL.
4. Procedure TWCP-DTP-1.2-041, R. 4, requires sample bottles to be heated to 60°C. Because heating is controlled by thermocouples that are not calibrated, LANL is unable to demonstrate compliance with this requirement.
5. ASTM Type II water, used to humidify nitrogen, was used beyond its expiration date (7/31/01).
6. During the audit the target analyte, Methanol, contained in a standard, was searched against two available libraries (Appendix VIII and MBS75K). Neither library identified the compound as Methanol (the Appendix VIII library identified Methanol as Hydrazine, and the MBS75K library identified it as acetic acid, hydroxyl).
7. Internal standards are injected 30 seconds prior to sample injection.
8. Technical review comments for HSG procedures:

Headspace Gas Sampling and Analysis Using an Automated Manifold, TWCP-DTP-1.2-041, Revision 4, Effective date: 09/18/00.

- A. Only analytical equipment is listed in section 6.1, Apparatus and Materials. Although Attachment 1, System Overview, provides text regarding the sampling equipment, a complete description, including performance specifications, of sampling system is not included in the body of the procedure.
- B. The OCS, described in section 4.2.7, is required to contain a "minimum of six of the analytes listed in Table 1"; this table contains hydrogen and methane. However, the WAP requirement for the OCS, in section B1-1b(3), is that it contain a minimum of six target analytes from WAP Table B3-2; this table does not contain hydrogen and methane. The wording of the procedure allows for the OCS to contain only four (4) WAP target analytes, hydrogen and methane
- C. The procedure requires the use of ASTM Type II water but does not describe how compliance to this standard is demonstrated (section 6.1.2).
- D. Humidified nitrogen is identified as a "cleaning and compression gas" in section 6.1.2, but section 6.8.2.1, Load the Manifold Cleaning Standard, appears to use a hydrogen/methane gas standard for cleaning. The cleaning standard is then analyzed (section 6.8.3) for the presence of VOCs, and it is unclear how system carry-over or contamination with hydrogen and methane is assessed.



# CBFO CORRECTIVE ACTION REPORT

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1. CAR No.:

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E. The set-up of page 14 implies that Table 4 belongs to the custom gaseous standard. The page is formatted as follows:

- Custom gaseous standard (Records are submitted and maintained by the TWCP RMDC Center):  
Table 4. Mole Fractions in Custom Liquid Full VOC Standard

*Table 4 etc.*

F. Hydrogen and methane standards, listed under Custom gaseous standards, section 6.1.2, are not identified as a separate item in this section.

G. Sections 6.4.2.3 and 6.8.8.5 require the introduction of 12.5 ng BFB into the GC injection port from a 250 µl sample loop. However, section 6.1.1.1 references using 50 ng of BFB for the tune (250 µl of a 200 ng/mL standard), and 6.1.2, Custom gaseous standards, specifies that a 200 ng/mL standard is used (equivalent to 50 ng when using a 250µl sample loop). It is unclear, from the procedure, what amount of BFB is used to tune the MS.

H. Table 7, GC/MS initial calibration acceptance criteria, requires an RF %RSD of < 35 for each analyte. The procedure does not provide a calculation for RF.

I. The procedure does not provide the calculation used to determine the concentration of target analytes.

J. Section 6.8.4.14 appears to describe an initial calibration sequence, although section 6.8.4 is titled "Load the Continuing Calibration Standard".

K. Table 13 does not require collection of an OCS for hydrogen and methane, although Table 1 has an accuracy requirement for these gases. An on-line blank, to demonstrate system cleanliness, is also not required by Table 13 for hydrogen and methane, but is usually required to support quantitative data.

L. Section 6.10.5.3 references an "internal standard loop"; this loop is not represented on Figure 1, nor referenced in the rest of the procedure.

M. Section 8.0 does not list specific records that must be maintained, referring only to "applicable" records.

Procedure: Headspace Gas Analysis Batch Data Report Preparation. TWCP-DTP-1.2-025, Revision 4/IC1, Effective date: 09/18/00.

A. In accordance with the first sentence of section 6.1, the analyst(s) and/or technical supervisor prepare the batch data report. However, section 6.1.12 requires the raw data to be signed and dated. It is unclear from the procedure if this requirement applies to the technical supervisor if he/she was not the analyst.

B. Section 6.1.8 states that the "required reports" should be included in the data package, but does not define what reports these are.

C. Sections 6.2, 6.3, and 6.5-6.9 describe the various reviews required of the data generator (analyst), independent technical reviewer, technical supervisor, and data generation level QA reviewer. However, Attachment 6 appears to require all reviewers to review all items listed on the extensive Data Generation Level Review Checklist (Attachment 6).

D. The last bullet of section 6.9 requires the data generation level QA reviewer to ensure that completeness has been calculated. The procedure does not specify when, how, and by whom this calculation is made.

# CBFO CORRECTIVE ACTION REPORT

(continuation sheet)

1. CAR No.:	2. Activity No.: A-02-04	3. Page <u>5</u> of <u>5</u>
<p>E. Not all the items listed on Attachment 2 (Table of Contents) are addressed in the text of section 6. The procedure does not describe generation or content of the Memo to Batch Data Report, nor how the 72-hour Temperature Equilibrium Plots are obtained.</p> <p>F. How the filter information is documented (Attachment 6, last item) is not described in the procedure (see also adequacy comment "A" for TWCP-DTP-1.2-038, R.2).</p> <p>Procedure:<u>HGAS Filter Removal and Replacement for TWCP. TWCP-DTP-1.2-038, Revision 2/IC3, Effective date: 06/19/00.</u></p> <p>A. Section 6.1.11 of procedure TWCP-DTP-1.2-025, R.4 requires "a copy of the filter information for the waste container" be included in the Batch Data Report. However, procedure TWCP-DTP-1.2-038, R.2, section 6.6, requires only that the information be provided to the HGAS analyst who is responsible for recording it in accordance with TWCP-DTP-1.2-025, R.4. Procedure TWCP-DTP-1.2-025, R.4 does not contain instructions for recording this information.</p> <p>B. Section 8.0, Records, references "records generated as a result of implementation of this procedure are submitted as part of the HGAS batch data report...". It is unclear which records are referenced as no records are generated during execution of section 6.0, Procedure.</p> <p>Procedure:<u>Tracking and Reporting of Tentatively Identified Compounds, TWCP-QP-1.1-040, Revision 1/IC1, Effective date: 09/15/00.</u></p> <p>A. The TIC identification criteria, specified in section 6.1.1, do not contain the last criterion (last bullet) of section 6.1.4 in procedure TWCP-DTP-1.2-025, R5.</p>		



# CBFO CORRECTIVE ACTION REPORT

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# CORRECTIVE ACTION REPORT

1. CAR No.: 02-011	2. Activity Report No.: A-02-04	3. Page <u>1</u> of <u>2</u>																														
4. Controlling Document: DOE WIPP 01-3187		5. CBFO Assessment Team Leader: Thomas J. Reese																														
6. Responsible Organization: Los Alamos National Laboratory		7. CAQ Was Discussed With: Greg Bayhurst, Peter Lindahl																														
8. Requirement that was violated:  (See Continuation Sheet)																																
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(continuation sheet)

1. CAR No.: 02-011

2. Activity No.: A-02-04

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**Block # 8 Requirement that was violated:**

1. QAPP, DOE WIPP 01-3187, section 2.3.2.5 Comparability: "...sample data should be comparable with other measurement data from similar samples and sample conditions."
2. TWCP-PLAN-0.2.6-001,R.4, Section 2.1.2 Implementing Procedures, B. *Implementing procedures include the following information as appropriate to the work to be performed:*
  3. *Sequential description of the work to be performed, including any allowance for out-of-sequence processing*
  4. *Quantitative or qualitative acceptance criteria sufficient for determining that activities were satisfactorily accomplished.*  
Ref. TWCP-DTP-1.2-057, section 6.9.3, 6.12.
3. QAPP, DOE/WIPP 01-3187, section 2.3.2.5, Comparability: "...sample data should be comparable with other measurement data from similar samples and sample conditions." Ref. TWCP-DTP-1.2-057, section 6.11.2.
4. QAPP, DOE/WIPP 01-3187, section 4.2.6, QC Requirements for Program Sampling and Analysis: "Each sampling batch shall draw, at a minimum, a field reference standard,.....".  
TWCP-PLAN-0.2.3-002, R.2, section 3.1.3, Hydrogen Volume Percent, QC Requirements for GGT Gas Sampling and Analysis: "...Each sampling batch will have a field reference standard,.....".  
Ref. TWCP-DTP-1.2-056, section 8.10.

**Block # 9 Condition Adverse to Quality:**

1. Drums and canisters are stored in an environmentally uncontrolled trailer. Both drums and canisters are moved outside for loading and unloading. Performing the test in these circumstances results in drums experiencing different temperature profiles (for example, drums processed in winter versus summer, and day-time temperatures versus night-time temperatures).
2. Samples are routinely analyzed twice and the average result reported; this practice is not described in procedure TWCP-DTP-1.2-057, Rev. 2. Additionally, there are no limits stipulated for the allowable spread between the two results.
3. The operator routinely changes integration parameters for hydrogen, including those for QC samples. The procedure does not contain any guidance/instructions for this process.
4. The Field Reference Standard is sampled in the analytical facility and not where drums are sampled. The reference standard analyzed, therefore, is a laboratory control sample and not the required field reference standard.