

**Steve Zappe**

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**From:** Watson, Kerry - DOE [Kerry.Watson@wipp.ws]  
**Sent:** Tuesday, September 07, 2004 6:13 PM  
**To:** 'ron\_curry@nmenv.state.nm.us'; 'james\_bearzi@nmenv.state.nm.us'; Zappe, Steve  
**Cc:** Detwiler, Paul - DOE; Piper, Lloyd; Rose, Elizabeth - DOE; Johnson, Gloria; Holland, Ava - DOE; Warren, Steven; Kehrman, Bob - WRES  
**Subject:** FW: AMWTP Response to Root cause report rejection  
**Importance:** High



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AMWTP-RCA-04-00  
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Dear Mr. Curry,

In accordance with Compliance Order HWB 04-07 (CO) Schedule of Compliance paragraph 80.F. the respondents are providing correspondence from the Advanced Mixed Waste Treatment Project (AMWTP) regarding the Root Cause Analysis required under Carlsbad Field Office (CBFO) Corrective Action Report (CAR) 04-033 Revision 1.

Please direct questions to Lloyd Piper at (505) 234-7300 or Kerry Watson at (505) 234-7357.

Thank you.





765 Lindsay Blvd  
Idaho Falls, ID 83402  
Tel: (208) 524-8484  
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September 1, 2004

Martin Navarrete  
Carlsbad Field Office  
4021 National Parks Highway  
Carlsbad, NM 88221

**Subject: Submittal of Advanced Mixed Waste Treatment Project Investigation and Root Cause Analysis Report AMWTP-RCA-04-007 for closure of CBFO CAR 04-033 Revision 1 – ED-028-2004**

**Reference:** Letter: Martin Navarrete, CBFO to Jeff Snook, NE-ID: Rejection of Corrective Action Plan for Corrective Action Report 04-033 - CBFO:QA:MPN:GS:04-1809, dated August 30, 2004

BNFL Inc. has completed an Investigation and Root Cause Analysis addressing inadequacies identified by CBFO review of the root cause analysis provided in CAR 04-033 Revision 1 closure package submitted August 19, 2004. AMWTP Root Cause Report AMWTP-RCA-04-007 is submitted for your review and verification of Corrective Action completion for CAR 04-033 Revision 1.

Please contact me if you have any questions regarding the submittal of this objective evidence or require additional information. I can be reached at 208-557-7062 or by email address [edumas@bnflinc.com](mailto:edumas@bnflinc.com).

Sincerely,

A handwritten signature in cursive script that reads "Elvin Dumas".

Elvin Dumas, Quality Assurance Manager  
Advanced Mixed Waste Treatment Project

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Cc:

with attachment:

M. Adams, NE-ID (2 copies)

w/o attachment:

A. Holland, CBFO \*ED

K. Watson, CBFO \*ED

J. May, CTAC \*ED

B. Edgerton, NE-ID \*ED

R. Provencher, NE-ID \*ED

J. Snook, NE-ID \*ED

R. Taft, NE-ID \*ED

J. Wells, NE-ID \*ED

A. Dobson, BNFL Inc. \*ED

C. Marden, BNFL Inc. \*ED

E. Schweinsberg, BNFL Inc. \*ED

D. Swale, BNFL Inc. \*ED

P. Utley, BNFL Inc. \*ED

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**Investigation and Root Cause Analysis Report**

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RCA Tracking No: AMWTP-RCA-04-007
Location: AMWTP
Department: AMWTP TRU Program
Date of Event: June – July, 2004
Source/Reference Documents: <ol style="list-style-type: none"><li>1. AMWTP Certification Authority letter CBFO: NTP: KWW: VW:04-1061 dated March 9, 2004</li><li>2. CBFO Corrective Action Report CAR 04-032 issued 6/24/04</li><li>3. CBFO CAR 04-033 Revision 1 issued 8/9/04</li><li>4. Root cause report AMWTP-RCA-04-005</li><li>5. Root cause report 357R-04</li></ol>
<b>Problem/Condition Description:</b> <p>In June and July of 2004, the Carlsbad Field Office issued two Significant Corrective Action Reports to the Advanced Mixed Waste Treatment Project for violations of the AMWTP Certification Authority. The Corrective Action Reports identified inadequacies in BNFL Inc. Waste stream lot and container management resulting in certification and shipment of containers that did not comply with the authorization in the AMWTP Certification letter.</p> <p>In summary, on June 22, 2004 CBFO determined that AMWTP shipped a container on March 22, 2004 that was not listed on the AMWTP Container list attached to the AMWTP Certification letter, and therefore was not authorized for WWIS certification. The AMWTP Container list identified the above ground inventory of BNINW216 Lot 1 authorized under the March 9, 2004 Certification for WWIS entry and shipment. AMWTP issued an internal Corrective Action Report, CAR 6950 on June 23, 2004 to direct immediate, remedial, investigative and preventive actions.</p> <p>Subsequently, on July 15, 2004, AMWTP determined from additional information obtained from records of the 3100m3 Project sampling activities, that the original population of BNINW216 and BNINW218 above ground waste inventory subjected to random solids sampling and characterization had excluded a subpopulation of the available above ground inventory. BNFL Inc. had submitted and received approvals of AMWTP Waste Stream Profiles for the remaining above ground inventory of BNINW216 Lot 1 and BNINW218 waste streams. This approval was based on the solids characterization from the 3100m3 Project, failing to recognize the exclusion of a subpopulation of waste inventory for each of these waste streams. Consequently, BNFL Inc. certified and shipped 74 containers from the BNINW216 and 29 containers from the BNINW218 waste streams that were not included in the original population of waste that was subject to solids sampling.</p>



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**Problem/Condition Description: (continued)**

At time of discovery, AMWTP shipment IN040029 had been received at WIPP on July 13, 2004 and shipment IN040030 was in transit. AMWTP personnel reviewed the payload containers for these two shipments and determined that IN040030 included containers that were not part of the original population subjected to solids sampling. IN040030 was stopped in transit and returned to the AMWTP. All payload containers in shipment IN040029 were confirmed to be part of the original population subjected to solids sampling. AMWTP issued CAR 8217 on July 15, 2004 to direct immediate, remedial, investigative and preventive actions.

**Analysis Summary:**

In response to each Condition Adverse to Quality, separate Investigative and Root Cause Analyses were conducted to determine the root cause(s) and recommend corrective actions to preclude recurrence (references 4 and 5). This Root Cause Analysis Report supplements the two analyses to consider the collective conclusions of the reports and ensure that corrective actions taken by AMWTP will correct and prevent recurrence of these conditions adverse to quality.

A MORT analysis review of the events and causes documented in references 4 and 5 was performed in this review to prevent any oversight in the identification of causal factors. Several underlying factors were identified in reference 5 that are consistent with the conclusion of the initial review documented in reference 4. The events and causes reported in references 4 and 5 were critically reviewed to ensure a comprehensive analysis was performed and the identification of all broken or non-existent barriers was complete.

This analysis highlights that the reported conditions were fundamentally caused by a Management failure to identify and implement adequate procedural controls to ensure that Certification authority limits and requirements for verification of random sampling could be satisfied under the conditions in which the work was being performed. In both cases, the conditions adverse to quality would have been prevented with appropriate procedural controls implemented for waste container management and waste stream population lot container identification in preparation of waste stream profiles and container certifications.

1. The lack of institutional procedural steps to control WWIS entry and certification of containers that were not identified in the Container Lot 1 list of the AMWTP Certification directly led to the shipment of a container not authorized under the AMWTP Certification, resulting in the issuance of CBFO CAR 04-032.
2. The lack of institutional procedural steps in Waste Stream Profile preparation to identify Waste Stream lots subjected to solids sampling directly led to the failure to question and recognize the exclusion of a subpopulation of containers that had not been subjected to random sample selection, resulting in the issuance of CBFO CAR 04-033.

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## Investigation and Root Cause Analysis Report

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### Causal Factors:

#### Root Cause:

**Management Methods LTA ORPS CAT Code A4B1C03: Management direction created insufficient awareness of impact of actions on safety/reliability**

#### Direct Cause:

**Barrier/Controls LTA ORPS CAT Code A5B1C03: Checklist Less than Adequate**

### Discussion:

#### **CAR 04-032**

In the analysis (reference 4) performed in response to CAR 04-032, the report determined that the root cause was a Management Problem in Work organization and Planning Deficiency.

After receiving the Certification Letter in March 2004, AMWTP recognized that Attachment 4 Container list was a limitation of authorization but did not identify and implement procedural controls to ensure that only containers within the authorization were submitted to WWIS for certification. Further, AMWTP Management was aware that the list of containers was incomplete and would require updates as additional containers from above ground inventory entered the AMWTP characterization processes. Despite this awareness, no formal mechanism was put into place to manage control of WWIS entry, or to document and submit updates to the container list to CBFO.

In the analysis (reference 5) performed in response to CAR 04-033, this underlying Management Problem is further recognized in section 6.2.2.6; "Typically, the project has managed by lot number instead of container IDs. However, in the case of WSP-216. Lot 1, BNFL received certification that was based on a list of container IDs. Despite this, BNFL did not put into place a control to ensure that the containers that were being entered into the WWIS were consistent with the list included in the certification letter."

#### **CAR 04-033 Revision 1**

In the analysis of this condition, a causal factor reported in reference 5 identified that "BNFL failed to adequately evaluate EDF-909 as the basis for the core sampling for WSP-216 Lot 1 and WSP-218."

The underlying causes attributed to this Causal factor identified Less than Adequate reviews and Management inadequacy in that "Management direction created insufficient awareness of impact of action on safety/reliability. Management did not set up an expectation that the EDF should be reviewed in sufficient detail to identify the containers addressed by the sampling population and to verify compliance with the protocol requirements of the WAP."



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**Causal Factors: (continued)**

The analysis reveals that there were inadequacies in establishing procedural barrier/controls, which if implemented, would have prevented the condition adverse to quality.

The procedures used to support preparation of waste stream profiles, MP-TRUW-8.14, "Preparation of Waste Stream Profiles" and MP-TRUW-8.25 "RCRA Statistical Sampling" did not include provisions for identification of waste containers in sampling populations used to support the Sampling and analysis information presented in the Waste stream profiles. Such procedural controls would have required a full identification of the containers that represented the population, and would have required the Site Project Manager to reconcile differences in the total population.

Additionally, in section 4 of reference 5, the report discusses a point in the timeline of activities at which there was an opportunity to identify this problem after an Observer inquiry raised a question regarding whether the entire population of waste for BNINW216 had been considered during the 3100m<sup>3</sup> sampling selection. The report further points out that AMWTP had not been included in the evaluation to the response to the inquiry. While not an underlying cause, had the response to the inquiry included an evaluation by AMWTP, it may have resulted in the identification and prevention of the condition adverse to quality.

**Corrective Actions to Preclude Recurrence:**

In the Corrective Action Plan submitted for CAR 04-033 Revision 1, AMWTP has identified and revised the implementing procedures used to prepare Waste Stream Profiles, conduct RCRA Statistical Sampling, and perform Data Reconciliation. These procedures have been revised to include specific controls for container and waste stream lot management that will prevent certification of containers that have not satisfied the requirements of the AMWTP Certification authority and the WIPP Permit requirements.

AMWTP Procedure for RCRA Statistical Sampling, MP-TRUW-8.25 includes steps requiring:

- Configuration controlled documentation of all container identification numbers for all waste stream lots
- Documented verification of container identifications chosen for random solids sample selection from a configuration controlled waste stream lot container identification list

AMWTP Procedure for Data Reconciliation, MP-TRUW-8.11 includes steps requiring:

- All containers assigned to a waste stream lot have completed all characterization analysis
- All containers are verified to have been identified on a controlled waste stream lot container identification list

The AMWTP Procedure for Preparation of Waste Stream Profile Forms, MP-TRUW-8.14 includes steps requiring:

- Verification of container identifications included in the Waste Stream Profile are identified on a waste stream lot container identification list

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**Immediate actions**

Immediate actions were taken to assess the impact of the conditions documented on CBFO CAR 04-033 for shipments IN040029 and IN040030. Shipment IN040030 was determined to contain waste containers that were not part of the original population subjected to random solids sampling and was stopped in transit and returned to AMWTP. Upon receipt, the Ten Drum Overpack Payloads were disassembled to remove the containers that were not part of the original sample population. AMWTP has compiled and validated the remaining above ground inventory of BNINW216 and BNINW218 waste containers and documented the inventory into controlled lists that identify the remaining containers that were part of the original sample population. These lists are documented in BNFL-5232-RPT-TRUW-19 Population Determination for Waste Stream Profiles BNINW216 and BNINW218.

**Recommended Actions:**

Recommend CBFO review the process for distribution or communication of external agency issues and reports, relevant to the AMWTP Certification Authority, to ensure that AMWTP Management is cognizant of potential issues and is able to complete a thorough evaluation of impacts.

**Documents Reviewed:** See Reference Documents

**RCA Investigation Team Members:**  
E. Dumas/AMWTP QA Manager

**Method and Level of RCA Performed:** Management Oversight and Risk Tree Analysis

**Direct Cause(s) of the Problem:**

**Barrier/Controls LTA ORPS CAT Code A5B1C03: Checklist Less than Adequate**

**Root Cause of the Problem:**

**Management Methods LTA ORPS CAT Code A4B1C03: Management direction created insufficient awareness of impact of actions on safety/reliability**

**Applicable Cause Code:** See above.

RCA Investigator/ Date: E. Dumas 9/1/04

QA Manager: E. Dumas Date: 9/1/04

Waste Programs Manager: D. Shale Date: 9/1/04





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