



BILL RICHARDSON
GOVERNOR

State of New Mexico
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Telephone (505) 428-2500
Fax (505) 428-2567
www.nmenv.state.nm.us



ENVIRONMENT



RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

December 27, 2004

Lloyd L. Piper, Acting Manager
Carlsbad Field Office
Department of Energy
P.O. Box 3090
Carlsbad, New Mexico 88221-3090

Dr. Steven Warren, President
Washington TRU Solutions LLC
P.O. Box 2078
Carlsbad, New Mexico 88221-5608

**RE: NMED COMMENTS ON THE HANFORD SITE/CENTRAL CHARACTERIZATION PROJECT
FINAL AUDIT REPORT, AUDIT A-03-25
WASTE ISOLATION PILOT PLANT
EPA I.D. NUMBER NM4890139088**

Dear Mr. Piper and Dr. Warren:

On December 3, 2003, the New Mexico Environment Department (NMED) received the Final Audit Report of the Hanford Site/Central Characterization Project (**Hanford/CCP**) Audit Number A-03-25 (**Audit Report**), from the Department of Energy's Carlsbad Field Office (**CBFO**). CBFO and Washington TRU Solutions LLC (**the Permittees**) were required to submit this Audit Report under the Waste Isolation Pilot Plant (**WIPP**) Hazardous Waste Facility Permit as specified in Permit Condition II.C.2.c. The intended scope of this initial certification audit was to ensure the adequacy, implementation, and effectiveness of the Hanford/CCP waste characterization processes for retrievably stored debris (S5000) contact-handled waste relative to the requirements of the WIPP Permit. The Audit Report consisted of the following items:

- A narrative report
- Completed copies of relevant Permit Attachment B6 checklists
- Final CCP standard operating procedures (hardcopy)
- Items corrected during the audit
- Objective evidence examined during the audit
 - General information
 - Acceptable knowledge

041227



- Headspace gas
- Real time radiography
- Visual examination

NMED representatives observed the Hanford/CCP audit on September 8 – 11, 2003. NMED has examined the Audit Report for evidence of compliance with the requirements of Permit Conditions II.C.2 (Audit and Surveillance Program) and II.C.1 (Waste Analysis Plan [WAP]). The Audit Report indicates there were:

- Two WAP-related conditions adverse to quality requiring the issuance of CBFO corrective action reports that were corrected prior to submittal of the Audit Report;
- No deficiencies requiring only remedial actions that were corrected during the audit;
- Five observations identifying conditions that, if not controlled, could result in conditions adverse to quality; and
- Seven recommendations identifying opportunities for improvement.

Attached are NMED's general comments based upon observation of the Hanford/CCP audit and review of the Audit Report. These are provided to guide future audit report preparation and to assist the Permittees in understanding NMED's concerns.

NMED is generally concerned with the manner in which Hanford/CCP evaluated the defense origin of the subject waste stream for this audit, RLMKMD.001 (Mixed Debris), also referred to as "Kerr-McGee, Cimarron Plutonium Fuel Fabrication Facility D&D Debris". This concern is expressed in two broad areas: the completeness of the evaluation of acceptable knowledge (AK) documentation in reaching an impartial defense determination, and the criteria used to identify waste as being defense-related.

NMED is particularly concerned with the incompleteness of the AK documentation associated with this waste stream even after attempting to address this concern identified in CAR 03-081. In responding to CAR 03-081, Hanford/CCP supplemented and documented the defense determination with only the select AK information that supported an affirmative conclusion, with little or no consideration of evidence to the contrary. NMED believes it is especially crucial for the Permittees to ensure that all relevant AK documentation related to defense waste determinations be assessed for those waste streams generated at facilities outside of the nuclear weapons complex.

NMED is also concerned with the criteria used to identify defense-related waste. NMED notes that the assessment provided in the revised CCP AK Summary Report (CCP-AK-RL-001, Rev 1, October 17, 2003) states the "plutonium nitrate solutions used in the fabrication of the [Kerr-McGee mixed] oxides were supplied by the Hanford Plutonium-Uranium Extraction Plant (PUREX)." In the concluding paragraph, the report states that, based on guidance from DOE, "... a TRU waste is eligible for disposal at WIPP if it has been generated in whole or part by one of the *atomic energy defense activities* listed in section 10101(3) of the *Nuclear Waste Policy Act of 1982*. Based on the review of AK, TRU wastes generated during the D&D of the Cimarron Plutonium Fuel Fabrication Facility would be contaminated (commingled) with radiological isotopes originating from the atomic energy defense activities (weapons production) or generated

in support of defense activities..." (emphasis in original). The intent of this interpretation appears to promote the idea that any TRU waste containing *materials* originating from or even tangentially associated with atomic energy defense activities would be eligible for disposal at WIPP, even if the actual *waste* generating activity was not defense-related. NMED rejects this interpretation.

NMED clearly recalls the attempts by the DOE Carlsbad Area Office, which began in November 1995, to expand the definition of "defense waste" to include "all TRU waste under the control of the United States Government..." The September 9, 1996 memo written by DOE General Counsel Robert R. Nordhaus entitled *Interpretation of the Term "Atomic Energy Defense Activities" As Used In the Waste Isolation Pilot Plant Land Withdrawal Act* summarily rejected this broad interpretation. The DOE General Counsel bluntly dismissed the Carlsbad Area Office's interpretation with the following statement: "... [N]either the applicable statutory provisions, the legislative history or the Department's own historic interpretations of the term permit an interpretation of 'atomic energy defense activities' that would extend WIPP's mission to the disposal of waste from DOE's purely civilian atomic energy activities and programs."

NMED has read and generally concurs with this legal analysis. The definition of "defense waste" stated in the July 1, 1981 Agreement for Consultation and Cooperation ("C&C Agreement") between the State of New Mexico and DOE also clearly excludes any radioactive waste generated by the commercial nuclear power industry. NMED believes the correct interpretation of the WIPP Land Withdrawal Act and the C&C Agreement is that in order for TRU wastes to qualify for disposal at WIPP, the waste itself must satisfy three criteria:

1. The waste must not have been generated by the commercial nuclear power industry;
2. The activities or programs generating the waste must have been exempt from regulation by the Nuclear Regulatory Commission (NRC); and
3. The waste must have been generated by "atomic energy defense activities" as defined in the Nuclear Waste Policy Act of 1982.

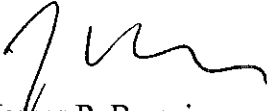
The "pedigree" of the TRU wastes from the decommissioning of the Kerr-McGee Cimarron plutonium fuel fabrication facility, as presented in the AK documentation, does not address the potential for the waste to have been generated by an NRC-licensed commercial nuclear facility nor does it conclusively tie these wastes to "atomic energy defense activities". The DOE Carlsbad Area Office *Interim Guidance on Ensuring That Waste Qualifies for Disposal at the Waste Isolation Pilot Plant* (February 13, 1997) states in the Summary, "If sufficient information is not available showing that waste is defense TRU, the waste will not be accepted for disposal at WIPP... An independent, technically qualified individual must be able to arrive at the same conclusion with the information maintained in the record." Based upon the information provided in the Audit Report, NMED is unable to conclude that waste stream RLMKMD.001 is a defense waste eligible for disposal at WIPP.

NMED concludes that the Audit Report is incomplete in that it does not adequately address all elements examined during the audit. Because of this incompleteness, NMED is withholding approval of the Permittees' Final Audit Report for Hanford/CCP Audit A-03-25 until the

Permittees submit the additional information identified in the paragraph above and in the attached comments that demonstrate full implementation of all relevant permit requirements. Indicate revisions to any text in the Audit Report and checklists with redline/strikeout annotation.

If you have any questions regarding this matter, please contact me at (505) 428-2512.

Sincerely,



James P. Bearzi
Chief
Hazardous Waste Bureau

JPB:soz

Attachment

cc: Charles Lundstrom, NMED WWMD
Steve Zappe, NMED HWB
Tracy Hughes, NMED OGC
Tom Fitzsimmons, WSDE
Laurie King, EPA Region 6
Betsy Forinash, EPA ORIA
Connie Walker, Trinity Engineering
Don Hancock, SRIC
Joni Arends, CCNS
~~File: Red WIPP '04~~

NMED COMMENTS ON THE
HANFORD SITE/CENTRAL CHARACTERIZATION PROJECT (HANFORD/CCP)
FINAL AUDIT REPORT A-03-25

1. The AK summary provided in the Audit Report needs a chronology depicting the timing of mixed oxide fuel pin production and subsequent use by end users. This is necessary before the Permittees may clearly establish a link between the waste generating activity and an atomic energy defense activity, as defined in the Nuclear Waste Policy Act of 1982.
2. The revised Defense Waste Assessment in the AK Summary states, "The mission of the Cimarron Plutonium Fuel Fabrication Facility was to produce mixed plutonium-uranium oxide associated with various government fast reactor research and testing programs. The plutonium nitrate solutions used in the fabrication of the oxides were supplied by the Hanford Plutonium-Uranium Extraction Plant (PUREX). The Kerr-McGee wastes, contaminated by the Kerr-McGee mixed oxides, are therefore commingled defense waste since the plutonium products used by Kerr-McGee were commingled."

In order to demonstrate that the waste is defense-related, there must be a clear linkage between the waste generating activity and an atomic energy defense activity. The spent fuel from the Hanford N-Reactor that was sent to PUREX for re-processing was not a waste; it was a feedstock. This feedstock was used to create two separate products: (1) weapons grade plutonium nitrate and (2) fuel grade plutonium nitrate. The weapons grade material was transferred to the on-site Plutonium Finishing Plant where it was used to manufacture plutonium metal buttons. These metal buttons were then shipped to various weapons production plants.

The Kerr-McGee facility manufactured fuel pellets and pins for the commercial power industry. The primary raw materials for this manufacturing process were the fuel grade plutonium nitrate from the PUREX facility and uranyl nitrate from the Kerr-McGee Nuclear Corporation. These products were then shipped to Argonne National Laboratory-West Experimental Breeder Reactor (EBR-II), ZPPR, and Hanford FFTF reactors for commercial breeder reactor research. As this brief outline demonstrates, there was no waste from an "atomic energy defense activity" used in the fuel pin and pellet manufacturing operations at Kerr-McGee; it was a product intended for commercial use.

3. The revised Defense Waste Assessment states, "Furthermore, mixed oxide fuels were used by test reactors under the DOE's (formerly the Atomic Energy Commission's Fast Breeder Reactor Program) breeder reactor research and testing program. This program's research and test reactors included the Argonne National Laboratory-West Experimental Breeder Reactor (EBR-II), ZPPR, and Hanford FFTF reactors. The primary mission of these projects was support of the commercial power industry; however, numerous defense-related experiments were conducted by these programs."

The AK Summary should specifically include any references for the "numerous defense-related experiments" and include a chronology linking production of Kerr-McGee mixed

oxide fuels and their use in defense-related experiments to the waste proposed for disposal at WIPP.

4. The revised Defense Waste Assessment states, "The ZPPR reactor, identified by the AK as a user of the fuels pins produced by Kerr-McGee, conducted experiments associated with gas generation on WIPP brine, bacteria, and Rocky Flats waste."

The Kerr-McGee facility ceased production in 1979, with final decommissioning occurring from 1983-1987. While ZPPR may have accepted Kerr-McGee material for non-defense-related activities during the 1970s and 1980s, it is NMED's understanding that the referenced WIPP brine experiments likely occurred much later (1990s) in support of the Compliance Certification Application (CCA). Therefore, this link to ZPPR is inappropriate because the activities that the Permittees believe to be defense-related occurred much later than when the ZPPR received Kerr-McGee material. Unless chronological references can be provided which document that the mixed fuel oxide produced by Kerr-McGee was actually used in ZPPR defense-related experiments, the Kerr McGee waste in question would not meet the definition of a waste generated by an atomic energy defense activity.

5. The revised Defense Waste Assessment states, "There was no AK available to document defense experiments at the FFTF, however, proposals for future missions have include [sic] tritium production projects and weapons and waste burn experiments (References C016, P002, and P020)."

If there are no references to defense-related experiments taking place at FFTF at the time it accepted Kerr-McGee material, then assignment of a defense use to the Kerr-McGee material cannot be made. "Proposals for future missions" does not allow assignment of a defense-related activity to past missions.

6. The revised Defense Waste Assessment states, "Ongoing defense experiments were conducted throughout the 30-year operating life of the EBR-II reactor. Thirty-nine experiments have been identified as defense activities including support of the Bettis Atomic Power Laboratory dedicated to supporting the Naval Nuclear Propulsion Program. Other defense program experiments conducted at EBR-II included radiation of thermionic elements and tritium production test materials. During its final year, experiments included a cooperative effort between Los Alamos National Laboratory, and Lawrence Livermore National Laboratory to demonstrate weapons plutonium disposition in a fast reactor. Even though there is no evidence that Kerr-McGee supplied samples or fuel to this test reactor, this example clearly illustrates that one of the missions of DOE's breeder reactor test program was to support defense-related experiments (Reference C016 and P020)."

The information in the AK Summary did not link the EBR-II activities with Kerr-McGee mixed oxide fuel. Without data documenting that a particular waste was generated when material from Kerr-McGee was used in an atomic energy defense activity at EBR-II, the waste would not meet the criteria for disposal at WIPP.

7. The revised Defense Waste Assessment states, "The CH-WAC requires generator sites to use AK to determine if the TRU waste streams to be disposed at WIPP meet the definition of TRU "defense" waste. Based on guidance from DOE, a TRU waste is eligible for disposal at WIPP if it has been generated in whole or part by one of the *atomic energy defense activities* listed in section 10101(3) of the *Nuclear Waste Policy Act of 1982*. Based on the review of AK, TRU wastes generated during the D&D of the Cimarron Plutonium Fuel Fabrication Facility would be contaminated (commingled) with radiological isotopes originating from atomic energy defense activities (weapons production) or generated in support of defense activities for the following functions (References C016 and 10):

- "Defense nuclear materials production
- "Defense nuclear waste and materials by-products management
- "Defense research and development"

The memo from DOE General Counsel Robert R. Nordhaus to Al Alms and George Dials (September 9, 1996) states, "DOE has historically defined the TRU waste eligible for WIPP as follows: Defense waste: Nuclear waste deriving from the manufacture of nuclear weapons and the operation of naval reactors. Associated activities such as the research in the weapons laboratories also produce defense waste." Mr. Nordhaus concluded that "The term 'atomic energy defense activities' permits WIPP to dispose of defense TRU waste resulting from all of the non-civilian activities and programs of DOE, including weapons production, naval reactors, defense research and development, associated defense environmental restoration and waste management, and other defense-related activities, as defined more specifically in the Nuclear Waste Policy Act from which the term was borrowed... On the other hand, neither the applicable statutory provisions, the legislative history or the Department's own historic interpretations of the term permit an interpretation of "atomic energy defense activities" that would extend WIPP's mission to the disposal of waste from DOE's purely civilian atomic energy activities and programs."

Therefore, it appears that DOE's own documents do not support the conclusion presented in the AK Summary. Also note that this Nordhaus memo references the Agreement for Consultation and Cooperation between DOE and New Mexico; this source should be examined for any requirements/ definitions pertaining to defense-related transuranic waste.