



CHEM-NUCLEAR SYSTEMS, INC.

140 Stoneridge Drive • Columbia, South Carolina 29210

April 25, 1994
RA-0221-94

Mr. John O. Thoma, Section Leader
Engineering & Material Section
Engineering & Geosciences Branch
Division of Waste Management
Office of Nuclear Material Safety & Safeguards
Mail Stop 5-E-4
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Mr. Thoma:

Chem-Nuclear Systems, Inc. (CNSI) provides additional information requested by the US Nuclear Regulatory Commission (NRC) for review of the CNSI Multi-Use Container High Integrity Container Topical Report, Docket Number WM-107.

The initial portion of the first Request for Additional Information (RAI #1) was transmitted with NRC letter dated July 27, 1993. CNSI provided response to most of those requests on November 30, 1993. The remainder of RAI #1 was received with NRC letter dated January 17, 1994. Since that time, we have discussed the comments/requests via telephone, and more recently have met with Mr. Shewmaker on March 23, 1994 to discuss the proposed responses. We have also received in a letter dated April 15, 1994 the open items resulting from the NRC evaluation of our November 30, 1993 response. The enclosed Response Document (three copies) includes our responses to the remaining requests and the open items. Where appropriate, the topical report text has been revised and provided. At the completion of review, CNSI will revise the entire topical report and submit it to the NRC for final concurrence.

CNSI has improved the structural design of the MUC and provides the revised structural analysis to demonstrate conformance to the high integrity container requirements. The initial analytical approach relied on the flexural strength of the fiber reinforced concrete with no structural credit taken, in the disposal environment, for the conventional steel reinforcement included in the design. This analysis was based upon the flexural strength of the fiber reinforced concrete with the modulus at first crack taken as 1000 psi. While this approach is conservative, it does not follow the recommendations of ACI 544.1R-82. The revised structural analysis follows ACI 544.1R-82 guidelines and the flexural strength of the concrete is utilized only to the extent allowed by ACI 318.1-83.

This revised structural analysis requires a slight increase in wall thickness, some rearrangement of the conventional wire mesh reinforcement and the addition of reinforcement in the corners. This design meets the requirements for shallow land disposal up to 25 feet burial depths and engineered barrier disposal.

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The associated changes to payload weight due to the slightly smaller internal cavity have been incorporated. The design for 55 foot deep shallow land disposal has been eliminated. The revised structural analysis is demonstrated in the revised Section 3 of the Topical Report and Revision 1 of CNSI drawing C-110-12416-001.

The CNSI responses to comments on the structural integrity of the MUC provide explanation of the revised structural approach and reference the appropriate sections of the revised Section 3 of the Topical Report. The revised Section 3 and CNSI Drawing C-110-12416-001, Rev. 1, are included as attachments to the response document.

This submittal is divided into three sections followed by Attachments A through T. Section 1.0 provides CNSI responses to Open Items noted in NRC letter dated 4-15-94. Section 2.0 provides CNSI responses to NRC questions/comments 13a, 14b, and 29, all of which address comparisons of U.S./French standards. Section 3.0 provides responses to NRC questions/comments 38 through 98. The attachments are copies of documents, photographs, and drawings referenced in the responses.

The entire submittal including the responses and the attachments is called the Response Document. Certain information in the Response Document is considered proprietary, and it is requested that the NRC withhold disclosure of this document from the public. An affidavit attesting to the confidential nature of the information is attached.

With the enclosed responses, the initial submittal dated April 15, 1992, the Topical Report submitted July 23, 1992, and the additional information provided on November 30, 1993, Chem-Nuclear requests NRC approval of this container design as a high integrity container. If you have any questions, please feel free to contact us.

Sincerely,

CHEM-NUCLEAR SYSTEMS, INC.



William B. House
Corporate Director of Licensing

Enclosures

c: John Greeves, NRC
Robert Shewmaker, NRC
Robert Anderson, CNSI
Mirza Baig, CNSI
Sam Pearson, CNSI
Mike Ryan, CNSI

AFFIDAVIT SUBMITTED TO NUCLEAR REGULATORY COMMISSION
CONCERNING CONFIDENTIAL INFORMATION AND TRADE SECRETS
CONTAINED IN CHEM-NUCLEAR SYSTEMS, INC.
MULTI-USE CONTAINER HIGH INTEGRITY CONTAINER TOPICAL REPORT
SUBMITTALS, DOCKET NUMBER WM-107

STATE OF SOUTH CAROLINA)
) SS:
COUNTY OF RICHLAND)

William B. House states as follows on behalf of Chem-Nuclear Systems, Inc.:

1. I am the Corporate Director of Licensing for Chem-Nuclear Systems, Inc.

2. I have reviewed and am familiar with the contents of the Response Document, dated April 25, 1994, for the Multi-Use Container High Integrity Container Topical Report prepared by Chem-Nuclear Systems, Inc., and (hereinafter called the "Response Document").

3. Chem-Nuclear Systems, Inc. (hereinafter "CNSI") has submitted three copies of the Response Document to the Nuclear Regulatory Commission. These copies contain proprietary information which should be withheld from public disclosure. Copies of the associated topical report will be furnished to the Commission which do not contain proprietary information, such as trade secret information or privileged commercial data, so as to make them available for such public disclosure as may be requested.

4. CNSI, as part of its radioactive waste management services, provides a variety of containers, processing systems and transportation equipment which in certain key respects are unique. Detailed information including certain certification data for waste management services has always been held in confidence by CNSI. The container design and the processes used in manufacturing certain components are considered confidential information that includes Company trade secrets incorporated into such design and processes. This confidential information will be deleted from the copies of the abbreviated version of the associated topical report to be furnished to the Commission and available for public disclosure.

Employees of CNSI sign an agreement regarding protection of trade secret information at the time of entering Company employment, and the data contained in the proprietary version of the Topical Report submitted to the Commission contains the type of information CNSI regards as protected and of the type not to be disclosed to unauthorized persons, including especially competitors, by present or former employees.

