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July 13, 2022

U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

Attn: Document Control Desk

Subject: Submission of an Amendment Request for the NAC International MAGNASTOR® Cask System, Amendment No. 13

Docket No. 72-1031

References:

1. U.S. Nuclear Regulatory Commission (NRC) Certificate of Compliance (CoC) No. 1031 for the NAC International MAGNASTOR Cask System, Amendment No. 9, December 7, 2020
2. MAGNASTOR Cask System Final Safety Analysis Report (FSAR), Revision 12, NAC International, September 2021
3. ML060970083, Department of Energy, Idaho Operations Office, Notice of Issuance of Materials License SNM-2508 for TMI-2 Independent Spent Fuel Storage Installation, March 19, 1999
4. ML060970085, Safety Evaluation Report of Three Mile Island Unit 2 Independent Spent Fuel Storage Installation Safety Analysis Report, March 19, 1999
5. ML060970079, License for Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste, SNM-2508, Docket No. 72-20, U.S. DOE, March 19, 1999
6. NRC PDR 8808170310, Post-Defueling Monitored Storage Proposed License Amendment and Safety Analysis Report, GPU Nuclear Three Mile Island Nuclear Station Unit II, DPR 73 Docket No. 50-320, August 16, 1988
7. ML20059D154, Issuance of Amendment No. 48 for Possession Only License No. DPR-73 for Three Mile Island Nuclear Station Unit 2, December 28, 1993
8. ML20011F536, GPU, Defueling Completion Report, Final Submittal, February 22, 1990
9. ML20090B852, NRC Letter Proposed Possession Only License, Proposed Technical Specifications and Supporting Safety Evaluation for Post Defueling Monitored Storage at Three Mile Island Unit 2, February 20, 1992
10. ED20220089, Submission of Data Disk for the NAC International MAGNASTOR® Cask System, Amendment No. 13, July 13, 2022

NAC International (NAC) hereby submits an amendment application to Reference 1 to include the remaining damaged core material from the Three Mile Island Unit 2 (TMI-2) reactor that experienced the March 28, 1979 reactor accident. This remaining radioactive material from the reactor core is the material that was left in place as part of the licensing action initiated via Reference 6 and was subsequently approved via Reference 7. The Reference 6 licensing action acknowledged that the reactor

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vessel (RV) has had essentially all the reactor core removed and the reactor coolant system (RCS) has been defueled to the extent reasonably achievable. Thus, the possibility of criticality in the reactor building (RB) would be precluded. Thus, the remaining damaged core material can remain in place and the unit can been maintained in "post-defueling monitored storage" (see Reference 7). As a condition of entering the Post-Defueling Monitored Storage (PDMS) on site at TMI-2, the NRC implemented Technical Specifications (TS) at TMI-2 (see Reference 7) which included limiting the mass of fuel and physical loads transferred over the reactor vessel (see Reference 9, Section 3/4.2.1, 3/4.2.2, and 3/4.2.3) to protect the known configurations of the spent nuclear fuel.

The purpose of this amendment application is to authorize the storage of the remaining TMI-2 damaged core material in the MAGNASTOR system. The following discussion points provide NAC's basis for why the remaining material is within the scope of 10 CFR Part 72 for interim storage at an independent spent fuel storage facility (ISFSI). Specifically, the existing MAGNSTOR ISFSI at TMI.

During the April 6, 2022, MAGNASTOR Amd. 13 pre-submittal application meeting with the NRC, the NRC questioned whether the remaining TMI-2 reactor core material was within the scope of 10 CFR Part 72. During the pre-submittal meeting, NAC referred to this material as "fuel bearing material". However, this is the same material that was in scope during the defueling efforts for TMI-2 during the 1980's. Towards the end of those defueling efforts, as described in the executive summary of Reference 8, it was recognized that removal of the remaining damaged fuel material would require tedious, labor-intensive effort with an attendant significant occupational exposure and was determined to have no significant impact on public health and safety. Thus, it is apparent that the material in question was treated by the NRC, at the time, as spent nuclear fuel along with its associated radioactive materials, notwithstanding its severe damage and various configurations. This is further supported by the activities that followed the removal of the bulk of the damaged reactor core.

The damaged reactor core material that was removed from TMI-2 was subsequently shipped off-site to Idaho National Engineering and Environmental Laboratory (INEEL) in TMI-2 canisters. In 1996, the U.S. Department of Energy (DOE) submitted an application to the NRC for a site-specific 10 CFR Part 72 license. This license was for the dry storage of the TMI-2 canisters at INEEL using an ISFSI. The NRC subsequently issued the materials license notice to DOE in 1999 (see Reference 3). This included a Safety Evaluation Report (SER) (see Reference 4) and corresponding license (i.e., SNM-2508) (see Reference 5) under NRC Docket No. 72-20. There are two important points relative to the question of whether the scope of MAGNASTOR Amd. 13 is applicable to 10 CFR Part 72.

First, had work continued to remove all of the remaining damaged core material at TMI-2, this material would also have been shipped to and stored at the INEEL ISFSI under the Reference 5, 10 CFR Part 72 site-specific license. Second, the characterization of the material stored under SNM-2508 makes it clear the physical form of the material being stored is not that of a "typical" or standard spent fuel assembly but rather the remnants of what used to be a typical spent fuel assembly. This shows that the material NAC is requesting to be authorized in MAGNASTOR constitutes "spent fuel" and other associated radioactive materials within the scope of 10 CFR Part 72.

As seen in Conditions 6, 7, and 8 of Reference 5, the NRC issued a 10 CFR Part 72 site-specific license for spent fuel that was not reasonably considered to be a "typical spent fuel assembly". Rather, the material license issued characterizes the material physical form to be stored as: debris consisting of

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significantly damaged fuel and control assemblies and non-fuel reactor components in the form of partially intact assemblies, conglomerate core material, previously molten materials, rubble, and fines. Condition 8 furthers this by stating the maximum quantity of material as: 82,985.9 kg U initially contained in the fuel assemblies of the damaged TMI-2 reactor core, contained in roughly 139,292 kg of material removed from the TMI-2 reactor vessel. Therefore, based on the information provided in References 3, 4, 5, 6, and 7 as well as the definition of spent nuclear fuel in 10 CFR 72, which includes "other radioactive materials associated with fuel assemblies," NAC believes that what we are requesting to be authorized in MAGNASTOR is within the scope of 10 CFR Part 72. Further, it is not substantially different than what is already authorized under SNM-2508 for dry storage under 10 CFR Part 72. For convenience, these references are being provided via Enclosure 1 to this letter.

Consistent with NAC administrative practice, this proposed FSAR revision is numbered to uniquely identify the applicable changed pages. Revision bars mark the FSAR text changes on the Revision 22A pages (Enclosure 5). The included List of Effective Pages (Enclosure 5) identifies the revision level of all pages in the Reference 2 FSAR with Revision 22A incorporated. Enclosures 3 and 4 detail the list of FSAR and drawing changes, respectively. Enclosure 2 contains supporting NAC calculations. The calculation data disk for the Amendment 13 submittal has been provided in a separate submittal (Reference 10). In order to better facilitate the review process, NAC is providing the Revision 22A changed pages with appropriate backing pages. In accordance with NAC's administrative practices, upon final acceptance of this application, the 22A changed pages will be reformatted and incorporated into the next revision of the MAGNASTOR FSAR.

Note, currently there are three MAGNASTOR amendments being processed through various stages of rulemaking (i.e., Amds 10, 11, and 12). At this time, NAC is electing to hold back submitting a set of proposed TS and FSAR TS bases changes for Amd. 13. NAC will submit the proposed Amd. 13 changes at a later date. Additionally, NAC requests NAC proprietary information contained in Enclosures 2 and 5 to be withheld from public disclosure via 10 CFR 2.390.

If you have any comments or questions, please contact me on my direct line at 678-328-1236.

Sincerely,

Wren Fowler
Director, Licensing
Engineering

Attachment:
Attachment 1 – NAC International Affidavit Pursuant to 10 CFR 2.390

Enclosures:
Enclosure 1 – ED20220069 Supporting References 3, 4, 5, 6, 7, 8, and 9
Enclosure 2 – Supporting Calculations for MAGNASTOR FSAR, Amendment 13, Revision 22A
Enclosure 3 – List of Changes for MAGNASTOR FSAR, Amendment 13, Revision 22A
Enclosure 4 – List of Drawing Changes for MAGNASTOR FSAR, Amendment 13, Revision 22A
Enclosure 5 – MAGNASTOR, FSAR Changed Pages and LOEP, Amendment 13, Revision 22A

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AFFIDAVIT PURSUANT TO 10 CFR 2.390

George Carver (Affiant), Vice President, Engineering and Support Services, of NAC International, hereinafter referred to as NAC, at 3930 East Jones Bridge Road, Peachtree Corners, Georgia 30092, being duly sworn, deposes and says that:

1. Affiant has reviewed the information described in Item 2 and is personally familiar with the trade secrets and privileged information contained therein, and is authorized to request its withholding.
2. The information to be withheld includes the following NAC Proprietary Information that is being provided to support the technical review of NAC's Request for a Certificate of Compliance (CoC) (No. 1031) for the NAC International MAGNASTOR Cask System.

   - Enclosure 2, NAC International Proprietary Calculations
     - 30076-2020 Rev. 3, Structural Evaluation of CC6 Vertical Concrete Cask
     - 30097-3001 Rev. 0, Thermal Evaluation of TMl-2 for Transfer and Storage Conditions
     - 30097-5001 Rev. 0, TMI-2 Source Term and Heat Load Evaluation
     - 30097-5002 Rev. 0, TMI-2 Storage/Transfer Shielding Evaluation
     - 30097-6001 Rev. 2, TMI-2 Criticality Evaluation
   - Enclosure 5, MAGNASTOR FSAR, Revision 22A – Proprietary Version

   NAC is the owner of the information contained in the above documents. Thus, all of the above identified information is considered NAC Proprietary Information.

3. NAC makes this application for withholding of proprietary information based upon the exemption from disclosure set forth in: the Freedom of Information Act ("FOIA"); 5 USC Sec. 552(b)(4) and the Trade Secrets Act; 18 USC Sec. 1905; and NRC Regulations 10 CFR Part 9.17(a)(4), 2.390(a)(4), and 2.390(b)(1) for "trade secrets and commercial financial information obtained from a person, and privileged or confidential" (Exemption 4). The information for which exemption from disclosure is herein sought is all "confidential commercial information," and some portions may also qualify under the narrower definition of "trade secret," within the meanings assigned to those terms for purposes of FOIA Exemption 4.
4. Examples of categories of information that fit into the definition of proprietary information are:

   a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by competitors of NAC, without license from NAC, constitutes a competitive economic advantage over other companies.

   b. Information that, if used by a competitor, would reduce their expenditure of resources or improve their competitive position in the design, manufacture, shipment, installation, assurance of quality or licensing of a similar product.
   c. Information that reveals cost or price information, production capacities, budget levels or commercial strategies of NAC, its customers, or its suppliers.
   d. Information that reveals aspects of past, present or future NAC customer-funded development plans and programs of potential commercial value to NAC.
   e. Information that discloses patentable subject matter for which it may be desirable to obtain patent protection.

   The information that is sought to be withheld is considered to be proprietary for the reasons set forth in Items 4.a, 4.b, and 4.d.

5. The information to be withheld is being transmitted to the NRC in confidence.

6. The information sought to be withheld, including that compiled from many sources, is of a sort customarily held in confidence by NAC, and is, in fact, so held. This information has, to the best of my knowledge and belief, consistently been held in confidence by NAC. No public disclosure has been made, and it is not available in public sources. All disclosures to third parties, including any required transmittals to the NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements, which provide for maintenance of the information in confidence. Its initial designation as proprietary information and the subsequent steps taken to prevent its unauthorized disclosure are as set forth in Items 7 and 8 following.

7. Initial approval of proprietary treatment of a document/information is made by the Vice President, Engineering, the Project Manager, the Licensing Specialist, or the Director, Licensing – the persons most likely to know the value and sensitivity of the information in relation to industry knowledge. Access to proprietary documents within NAC is limited via "controlled distribution" to individuals on a "need to know" basis. The procedure for external release of NAC proprietary documents typically requires the approval of the Project Manager based on a review of the documents for technical content, competitive effect and accuracy of the proprietary designation. Disclosures of proprietary documents outside of NAC are limited to regulatory agencies, customers and potential customers and their agents, suppliers, licensees and contractors with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.

8. NAC has invested a significant amount of time and money in the research, development, engineering and analytical costs to develop the information that is sought to be withheld as proprietary. This information is considered to be proprietary because it contains detailed descriptions of analytical approaches, methodologies, technical data and/or evaluation results not available elsewhere. The precise value of the expertise required to develop the proprietary information is difficult to quantify, but it is clearly substantial.

9. Public disclosure of the information to be withheld is likely to cause substantial harm to the competitive position of NAC, as the owner of the information, and reduce or eliminate the availability of profit-making opportunities. The proprietary information is part of NAC's comprehensive spent fuel storage and transport technology base, and its commercial value extends beyond the original development cost to include the development of the expertise to determine and apply the appropriate evaluation process. The value of this proprietary information and the competitive advantage that it provides to NAC would be lost if the information were disclosed to the public. Making such information available to other parties, including competitors, without their having to make similar investments of time, labor and money would provide competitors with an unfair advantage and deprive NAC of the opportunity to seek an adequate return on its large investment.

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STATE OF GEORGIA, COUNTY OF GWINNETT

Mr. George Carver, being duly sworn, deposes and says:

That he has read the foregoing affidavit and the matters stated herein are true and correct to the best of his knowledge, information and belief.

Executed at Peachtree Corners, Georgia, this 13th day of July, 2022.

George Carver
Vice President, Engineering and Support Services
NAC International

Subscribed and sworn before me this 13th day of July, 2022.

Notary Public

HEATH MICHAEL BALDNER
NOTARY PUBLIC
FORSYTH COUNTY, GEORGIA
My Commission Expires
07-20-2024