NAC INTERNATIONAL

Atlanta Corporate Headquarters
3930 East Jones Bridge Road, Suite 200
Norcross, GA 30092
Phone 770-447-1144
Fax 770-447-1797
www.nacintl.com

November 9, 2018

Ms. May Ma
Office of Administration
Mail Stop: TWFN-7-A60M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: **Comments on Draft NUREG-2224, "Dry Storage and Transportation of High Burnup Spent Nuclear Fuel," NRC Docket ID NRC-2018-0066**

Dear Ms. Ma:

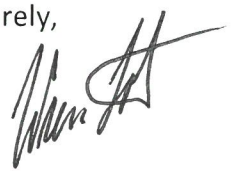
NAC International Inc. ("NAC") is writing to share its comments regarding draft NUREG-2224. NAC has extensive experience in the transportation of spent nuclear fuel. This includes the transportation of low burnup and high burnup fuel both domestically and abroad. NAC has obtained a Certificate of Compliance (CoC) from the NRC authorizing the transportation of high burnup PWR fuel without having to use damaged fuel cans or demonstrating moderator exclusion. In other words, NAC was the first to be authorized for shipment of bare high burnup PWR fuel assemblies using a method that protected and demonstrated the adequacy of the HBU fuel cladding. Obtaining this approval resulted in many first of kind questions, evaluations, and analyses.

After reviewing draft NUREG-2224, we noticed that one of the significant questions raised during our endeavor to obtain approval for the bare shipment of high burnup PWR fuel was not included. After a transportation cask is loaded, the remaining water must be purged from the cask and in our CoCs, the cask must be vacuum dried and backfilled with helium. These evolutions must be performed within an analytically based time limit. Failure to meet these time requirements results in an action for the cask to be re-flooded with water to re-establish an acceptable cooling method for the fuel assemblies.

The NRC rejected NAC's request to ship bare high burnup PWR assemblies that have been subjected to a cask re-flood. ISG-11, "Cladding Considerations for the Transportation and Storage of Spent Fuel," Revision 3 discusses this type of repeated cycling. It also establishes a limit of 10 cycles and cladding temperature variations less than 65°C (117°F) for both low burnup and high burnup fuel. However, ISG-11 is written in reference to dry cask storage only and not transportation. NAC encountered this exact issue when obtaining its CoC for the transportation of bare high burnup PWR fuel assemblies.

The NRC should revise draft NUREG-2224 to include a discussion of this issue. It should provide the basis for why they have a concern with cycling high burnup fuel at least once in transportation and not dry cask storage, and specifically with respect to any limitations on reflooding a previously dried cask. It would also benefit the industry if the NRC would include guidance on addressing their concerns.

Sincerely,



Wren Fowler
Director, Licensing
NAC International Inc.

Cc:
Ms. Aida Rivera-Verona, NMSS/DSFM, NRC
Mr. Michael Layton, NMSS/DSFM, NRC
Mr. Marc Dapas, NMSS, NRC
Mr. Scott Moore, NMSS, NRC
NRC Document Control Desk