ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT ON PROPOSED AMENDMENT TO 10 CFR PART 72 "LIST OF APPROVED SPENT FUEL STORAGE CASKS: NAC-MPC SYSTEM REVISION 6"

Office of Federal and State Materials and Environmental Management Programs

U.S. Nuclear Regulatory Commission (NRC)

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I. THE PROPOSED ACTION

The proposed action is to amend 10 CFR 72.214 to revise the NAC International, Inc. (NAC), NAC-MPC System listing within the "List of approved spent fuel storage casks" to include Amendment No. 6 to the Certificate of Compliance (CoC) No. 1025. Amendment No. 6 would modify the present cask system CoC to include the following changes to the configuration of the NAC-MPC storage system as noted in Appendix B of the Technical Specifications (TS): (1) incorporation of a single closure lid with a welded closure ring for redundant closure into the Transportable Storage Canister (TSC) design; (2) modification of the TSC and basket design to accommodate up to 68 La Crosse Boiling Water Reactor (LACBWR) spent fuel assemblies (36 undamaged Exxon fuel assemblies and up to 32 damaged fuel cans (in a preferential loading pattern)) that may contain undamaged Exxon fuel assemblies and damaged Exxon and Allis Chalmers fuel assemblies and/or fuel debris; (3) the addition of zirconium alloy shroud compaction debris to be stored with undamaged and damaged fuel assemblies; (4) minor

design modifications to the Vertical Concrete Cask (VCC) incorporating design features from the MAGNASTOR system for improved operability of the system while adhering to as low as is reasonably achievable (ALARA) principles; (5) an increase in the concrete pad compression strength from 4000 psi to 6000 psi; (6) added justification for the 6-ft soil depth as being conservative; and (7) other changes to incorporate minor editorial corrections in CoC No. 1025 and Appendices A and B of the TS. Also, the Definitions in TS 1.1 will be revised to include modifications and newly defined terms; the Limiting Conditions for Operation and associated Surveillance Requirements in TS 3.1 and 3.2 will be revised; and editorial changes will be made to TS 5.2 and 5.4.

II. THE NEED FOR THE PROPOSED ACTION

This rulemaking is needed to revise a cask system listing within the "List of approved spent fuel storage casks" in 10 CFR 72.214. On January 16, 2009, and as supplemented on February 11, April 1, April 30, September 22, 2009, and January 8, 2010, the certificate holder (NAC) submitted an application to the NRC that requested an amendment to CoC No. 1025. NAC requested modifications to the cask design that included the following changes to the configuration of the NAC-MPC storage system as noted in Appendix B of the TS:
(1) incorporation of a single closure lid with a welded closure ring for redundant closure into the TSC design; (2) modification of the TSC and basket design to accommodate up to 68 LACBWR spent fuel assemblies (36 undamaged Exxon fuel assemblies and up to 32 damaged fuel cans (in a preferential loading pattern)) that may contain undamaged Exxon fuel assemblies and damaged Exxon and Allis Chalmers fuel assemblies and/or fuel debris; (3) the addition of zirconium alloy shroud compaction debris to be stored with undamaged and damaged fuel assemblies; (4) minor design modifications to the VCC incorporating design features from the

MAGNASTOR system for improved operability of the system while adhering to ALARA principles; (5) an increase in the concrete pad compression strength from 4000 psi to 6000 psi; (6) added justification for the 6-ft soil depth as being conservative; and (7) other changes to incorporate minor editorial corrections in CoC No. 1025 and Appendices A and B of the TS. Also, the Definitions in TS 1.1 will be revised to include modifications and newly defined terms; the Limiting Conditions for Operation and associated Surveillance Requirements in TS 3.1 and 3.2 will be revised; and editorial changes will be made to TS 5.2 and 5.4. The NRC staff performed a detailed safety evaluation of the proposed CoC amendment request and found that an acceptable safety margin is maintained.

III. ENVIRONMENTAL IMPACTS OF PROPOSED ACTION

The potential environmental impact of using the NAC-MPC System was initially analyzed in the environmental assessment for the final rule to add the NAC-MPC System to the list of approved spent fuel storage casks in 10 CFR 72.214 (65 FR 12444; March 9, 2000). The environmental assessment for the March 9, 2000, final rule concluded that there would be no significant environmental impact to adding the NAC-MPC System, and therefore, the NRC issued a finding of no significant impact (FONSI), which continues to be valid. The instant environmental assessment, for this Amendment No. 6, tiers on the environmental assessment for the March 9, 2000, final rule. Tiering on past environmental assessments is a standard process under the National Environmental Policy Act.

NAC-MPC System casks are designed to mitigate the effects of design basis accidents that could occur during storage. Design basis accidents account for human-induced events and the most severe natural phenomena reported for the site and surrounding area. Postulated accidents analyzed for an independent spent fuel storage installation (ISFSI), the type of facility

at which a holder of a power reactor operating license would store spent fuel in casks in accordance with 10 CFR Part 72, include tornado winds and tornado-generated missiles, a design basis earthquake, a design basis flood, an accidental cask drop, lightning effects, fire, explosions, and other incidents.

Considering the specific design requirements for each accident condition, the design of the cask would prevent loss of containment, shielding, and criticality control. Maintaining containment, shielding, and criticality control adequately ensures that the risk to public health and safety will not be compromised. The NRC staff performed a detailed safety evaluation of the proposed CoC amendment request and found that an acceptable safety margin will be maintained, that the proposed changes provide reasonable assurance that the spent fuel can be stored safely in accordance with the acceptance criteria specified in 10 CFR Part 72, and that there continues to be reasonable assurance that public health and safety will be adequately protected.

The staff documented its findings in a safety evaluation report (SER) which is available electronically via the NRC's Electronic Reading Room at http://www.nrc.gov/NRC/ADAMS/index.html. From this site, the public can gain entry into the NRC's Agencywide Document Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The SER for Amendment No. 6 can be found under ADAMS Accession No. ML100890536.

Any resulting increase in either occupational exposure or offsite dose rates from the implementation of Amendment No. 6 would remain well within the 10 CFR Part 20 limits. Therefore, the proposed action now under consideration would not change the potential effects analyzed in the environmental assessment for the March 9, 2000, final rule. Therefore, the NRC staff has determined that an acceptable safety margin will be maintained and that there

will be no significant effect on the human environment as a result of the NRC approving Amendment No. 6.

IV. ALTERNATIVE TO THE PROPOSED ACTION

The alternative to this action is to withhold approval of Amendment No. 6 and to require any Part 72 general licensee, seeking to load spent fuel into NAC-MPC System casks under the changes described in Amendment No. 6, to request an exemption from the requirements of 10 CFR 72.212 and 72.214. Under this alternative, each interested Part 72 licensee would have to prepare, and the NRC would have to review, a separate exemption request, thereby increasing the administrative burden upon the NRC and the costs to each licensee. The proposed action is thus considered to be the preferred alternative, and the alternative of withholding approval of Amendment No. 6 is not further considered.

V. ALTERNATIVE USE OF RESOURCES

There were no irreversible commitments of resources determined in this assessment.

VI. AGENCIES AND PERSONS CONTACTED

No agencies or persons outside the NRC were contacted in connection with the preparation of this environmental assessment.

VII. FINDING OF NO SIGNIFICANT IMPACT

The environmental impacts of the proposed action have been reviewed under the requirements in 10 CFR Part 51.

Based on the foregoing environmental assessment, the NRC concludes that this rulemaking entitled “List of Approved Spent Fuel Storage Casks: NAC-MPC System Revision 6” will not have a significant effect on the human environment. Therefore, the NRC has determined that an environmental impact statement is not necessary for this rule.

Certain documents related to this rulemaking, including comments received by the NRC, may be examined at the NRC Public Document Room, 11555 Rockville Pike, Rockville, MD.