September 20, 2012

CCN 228482
NRC Project #0748

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

SUBJECT: Contract No. DE-AC07-05ID14517 – Next Generation Nuclear Plant Submittal – Additional Information on Selected Fuel Qualification/Mechanistic Source Terms Follow-Up Items – NRC Project # 0748

Upon completion of its reviews of the NGNP white papers on fuel qualification and mechanistic source terms, the NRC working group provided an assessment of the papers that identified several items for follow up as the NGNP technology development and design efforts proceed. Each follow up item has been provided a unique identifier that the NGNP Project and the NRC staff are using to track the status of interactions on each item. These follow up items have been discussed in NGNP meetings with the NRC staff on April 17 and July 24, 2012.

This letter transmits three attachments with additional information on the items discussed in these meetings.

During the April 17, 2012, meeting, at which follow up item FQ/MST-38 (Uncertainty Models) was discussed, NRC requested that NGNP provide information regarding the NGNP approach to model uncertainty in its calculation of mechanistic source terms. The requested information is provided in Attachment 1.

At the July 24, 2012, meeting, during which follow up item FQ/MST-29 (Long Term Modeling of Radionuclide Transport within the Core and the Reactor Coolant System) was discussed, NRC requested information regarding which radionuclides are the major contributors to dose for the HTGR, as well as the relative distribution of those radionuclides among the various barriers of the functional containment. This requested information is provided in Attachment 2.

In both the April 17 and the July 24 meeting, several follow up items that pertain to prototypicality of irradiation testing of coated particle fuel in test reactors such as the ATR at INL were discussed. The follow up items discussed were FQ/MST-2, (Additional Fuel Condition Operating Parameters); FQ/MST-12, Prototypical Irradiation Neutron Spectrum); FQ/MST-13, (Palladium, Silver, and Rare Earth Time at Temperature); and FQ/MST-21, (Flux-Accelerated of Metallic Fission Products During Irradiation). During these discussions NGNP agreed to consider how it might address these issues. The results of the NGNP's assessment of these issues to date has been documented in TEV-1620, "Discussion of NRC FQ/MST Assessment Report Follow Up Items Related to Neutron Flux Spectrum and Effects of Silver, Palladium and Neutron Flux on Radionuclide Transport through Silicon Carbide," which is provided as Attachment 3.

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If you have any questions or require additional information, please contact me at (208) 526-7735 or Jim Kinsey, Director of Regulatory Affairs, at (208) 569-6751.

Sincerely,

David Petti, Director
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JCK:DES

Enclosures

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