



U.S. Department of Energy  
**Office of River Protection**

P.O. Box 450, MSIN H6-60  
Richland, Washington 99352

08-WTP-115

JUN 06 2008

The Honorable A. J. Eggenberger  
Chairman  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue, N.W., Suite 700  
Washington, D.C. 20004-2901

Dear Mr. Chairman:

THE U.S. DEPARTMENT OF ENERGY (DOE), OFFICE OF RIVER PROTECTION (ORP)  
UPDATED STATUS ON STRUCTURAL STEEL FIRE PROTECTION AT THE WASTE  
TREATMENT AND IMMOBILIZATION PLANT (WTP)

Reference: ORP letter from S. J. Olinger to A. J. Eggenberger, DNFSB, "The U.S.  
Department of Energy (DOE), Office of River Protection (ORP) Status of  
Structural Steel Fire Protection at the Waste Treatment and Immobilization Plant  
(WTP), 07-WTP-189, dated July 19, 2007.

The referenced letter established a path forward for resolving the fire protection issues with  
structural steel at the WTP which are summarized below as the three step solution:

1. Addressing the building stability in the event of a fire considering only the fireproofed  
primary load bearing beams and columns, and taking no structural credit for non-  
fireproofed structural steel members.
2. Assuring that the structural concrete slabs remain stable and capable of supporting  
prescribed loads without the support from non-fireproofed structural steel members.
3. Evaluating the impacts of thermal growth of the non-fireproofed steel on the fireproofed  
primary structural steel members.

Since our July 2007 letter there has been significant progress made in closing the fire protection  
issue through extensive interactions with the Defense Nuclear Facilities Safety Board (DNFSB)  
staff. These discussions led to submittal of several calculations addressing the first two steps for  
the Low Activity Waste (LAW) facility and the Analytical Laboratory facility. The submitted  
calculations were acceptable to your staff. Calculations for the High Level Waste (HLW)  
facility and Pretreatment (PT) facility have been delayed until an acceptable approach to step 3  
has been determined.

The results from steps 1 and 2 for LAW were successful in showing that progressive collapse  
and loss of confinement are not an issue. ORP expects the same results for both HLW and PT.  
Resolution on a path forward to step 3 has proven problematic. While bounding calculations can  
be used to show confinement is maintained, several questions have been raised regarding DOE  
commercial risks associated with long periods of shutdown while repairs are made. Questions  
regarding the restart of DOE nuclear facilities after a catastrophic fire, problems associated with

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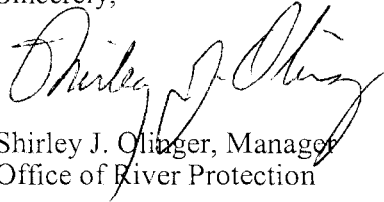
repair or replacement of primary steel suffering plastic deformation from thermal expansion of secondary steel challenging the effectiveness of fire protection coatings, etc. have been raised.

In order to resolve the path forward on step 3, ORP and Bechtel National, Inc. together with the support of our structural Peer Review Team and Fire Protection Engineer, are developing a white paper which organizes the steps into a defensible technical solution for WTP structural steel fire protection. This paper would be forwarded for the DNFSB staff review within the next few weeks.

After your review, we look forward to meeting with the DNFSB to address any remaining questions to be followed by rapid submittal from Bechtel National, Inc. of the remaining calculations.

If you have any questions, you may contact me, (509) 372-3062.

Sincerely,



Shirley J. Olinger, Manager  
Office of River Protection

WTP:WA

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