



**Department of Energy**

Washington, DC 20585

April 18, 2002

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DNF SAFETY BOARD

The Honorable John T. Conway  
Chairman  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue, NW  
Suite 700  
Washington, D.C. 20004

Dear Mr. Chairman:

The purpose of this letter is to respond to your February 15, 2002, letter concerning actions planned to address the issues regarding the planned Multi-Canister Overpacks (MCO) welding at the Hanford Spent Nuclear Fuel Project. Specifically, you requested the following information:

- The activities required to initiate and complete the MCO welding and inspection, which are needed to place the MCOs into a safe condition equivalent to commercial spent fuel storage.
- The sequence for welding MCOs, taking into consideration an accelerated completion for MCOs with potentially suspect seals.
- Barriers to welding the MCOs.
- If welding is no longer planned, the revised strategy and schedule for providing equivalent safe storage to commercial nuclear fuel storage.

Bullets one, two, and three will be addressed in the enclosure. Bullet four is not applicable because the welding is planned to occur.

If you have any questions, please contact me or have your staff contact Tom Hull, Richland Office, Office of Environmental Management, (301) 903-5677.

Sincerely,

Jessie Hill Roberson  
Assistant Secretary for  
Environmental Management

Enclosure

M. Whitaker, S-3.1  
K. Klein, RL



## Attachment

1. **Activities Required to Initiate And Complete Welding:** MCO welding operations will be provided by an American Society of Mechanical Engineers N-Stamp qualified vendor using Hanford Atomic Metal Trades Council welding personnel. The weld passes will pass both a visual and dye penetrant inspection. The final weld will be tested using a helium leak check procedure. The welding operations will be conducted in two-sample/weld pits at the south end of the Canister Storage Building (CSB). The MCO Handling Machine (MHM) transports the MCO into the sample/weld pit. The sample/weld pit provides access to the exposed top of the MCO shield plug, along with other capabilities, to allow the welding to occur.

The remaining key schedule commitments leading up to the initiation of MCO welding are as follows:

April 30, 2002	Award MCO welding contract;
October 3, 2002	Complete installation of weld hoods and welding machines;
December 20, 2002	Complete MCO welding startup testing and dry runs;
January 31, 2003	Complete readiness activity;
February 3, 2003	Begin welding operations; and
February 28, 2005	Complete welding operations.

Based on the February 3, 2003, start date, all MCO welding is scheduled to be completed by February 28, 2005.

2. **Sequence For Welding MCOs:** Based on the current schedule for receiving MCOs (including Shippingport fuel), the CSB will contain 218 "backlogged" MCOs at the start of welding operations. Several factors will be considered in determining-welding priorities. Considering these factors, the following guidelines are planned for welding operations:

- Welding of the MCOs determined per engineering analysis to have the most suspect seals will commence immediately when the system is operational (approximately six MCOs), and these should be completed within two months of operational commencement. Furthermore, based on the processing times of the individual facilities, approximately one backlogged MCO should be able to be welded per week. Therefore, MCOs 1 through 40 should all be welded one year from operations commencement.
- The process used for mechanical closure of MCOs 1 through 40 may not have fully compressed the MCO sealing ring as specified by the design.

Prompt welding of these MCOs will resolve that concern, therefore, they will be the first backlogged MCOs welded. Additionally, measures will be taken to ensure the adequacy of the mechanical seal is satisfactory per the Authorization Basis (AB) prior to welding.

- Prior to welding MCOs 1 through 40, the locking ringbolt torque will be checked. If bolt movement is detected, the bolt torque will be adjusted to the value defined in the AB to establish a seal taking into account all initial conditions. In addition, if bolt movement is detected, the MCO gas pressure will be verified to be in accordance with AB requirements and adjusted, if necessary, using the CSB sampling system.
  - Welding of MCOs upon initial receipt at CSB will minimize the number of times an MCO is handled by the MHM. Initial receipt welding of all MCOs received after the start of welding operations may not be possible due to weld pit availability. MCOs will normally be welded upon initial receipt at CSB to minimize additional MHM handling operations. If a sample/weld pit is not available, the MCO will be placed in a storage tube to be welded later.
  - Whenever a sample/weld pit becomes available, a backlogged MCO will be welded. The first backlogged MCOs to be welded will be MCOs 1 through 40. These MCOs will be prioritized based on an engineering evaluation of the initial sealing process parameters and the Integrated Leak Test Data.
  - MCOs will not be stacked on top of MCOs 1 through 40 until after they are welded.
3. **Barriers to Welding:** There are currently no technical barriers preventing MCO welding operations. The planned procurement schedule is aggressive and represents a challenge to implementation but it does not represent a barrier at this time. Richland Operations Office intends to apply significant management focus and attention to the procurement phases of the weld and procurement schedule to ensure proper vendor selection and an adequate understanding of the welding specifications and requirements exists. These actions should minimize the chances of procurement activities causing an impact.