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# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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May 29, 2001

The Honorable Spencer Abraham  
Secretary of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-1000

Dear Secretary Abraham:

On April 10, 2001, the Department of Energy (DOE) issued its *Plan for the Transfer of All Long-Term Chemical Separation Activities at the Savannah River Site from the F-Canyon Facility to the H-Canyon Facility Commencing in Fiscal Year 2002*. This plan was sent to Congress in response to a request in the 2001 National Defense Authorization Act. The Defense Nuclear Facilities Safety Board (Board) has reviewed this plan to ensure that a sound, comprehensive safety strategy for use of the canyons has been proposed using complete and accurate data and assumptions.

After careful review, the Board has concluded that not all pertinent information has been reviewed and evaluated to support a comprehensive safety strategy and plan for use of the canyons. More specifically, the *Plan for the Transfer of All Long-Term Chemical Separation Activities at the Savannah River Site from the F-Canyon Facility to the H-Canyon Facility Commencing in Fiscal Year 2002* does not contain the elements necessary to respond fully to the Defense Authorization Act's request. Specific comments on the plan are provided in the enclosure to this letter.

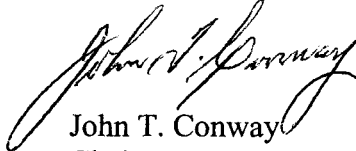
DOE's plan for long-term chemical separation activities at the Savannah River Site was based, in large part, on the *Savannah River Site Canyons Nuclear Material Identification Study*, issued in February 2001 and transmitted to the Board on April 24, 2001. This study underestimates the future role of F-Canyon, especially in light of factors such as the recent decision to suspend the Plutonium Immobilization Plant, the potential to cancel the plutonium stabilization and packaging project in Building 235-F, and the continuing stabilization work in F-Canyon and FB-Line. Resolution of other outstanding questions may also invalidate the conclusions of this study. For example, the disposition paths for many materials identified by DOE as not needing canyon processing remain poorly defined or not well justified—canyon processing of these materials may still be the safest and most efficient option available. DOE has also not detailed the distribution of materials stabilization activities between F-Canyon and H-Canyon. Understanding this distribution is essential in order to define the timing of the closure of either canyon. The results of an additional study, the *Unallocated Off-Specification Highly-Enriched Uranium Study*, have not been finalized and may also affect long-term

planning, particularly the length of time that H-Canyon would be required to operate and the distribution of materials between F-Canyon and H-Canyon.

After reviewing this information, the Board concludes that DOE does not yet have a firm plan for long-term chemical separations activities at the Savannah River Site. It does appear likely that future chemical processing in the F-Canyon will be needed. However, if DOE does not soon identify a schedule for future work in F-Canyon, the separations capability in the facility will become idle in fiscal year 2002. This will occur because a significant lead time is associated with the introduction of new materials into the chemical separations facilities. In addition to preparing environmental impact documentation, flow sheets must be finalized, the safety basis must be developed and approved, facility modifications must be completed, and facility readiness must be established and verified. Allowing the F-Canyon to become idle when additional processing needs exist would not be an effective use of resources and could have a significant adverse impact on the timely and efficient reduction in risk realized by the processing and stabilization of excess nuclear materials.

The Board requests that DOE review the detailed comments in the enclosure and provide a written response to the Board. Additionally, once responses are provided, the Board requests a briefing on DOE's proposed resolution of these issues.

Sincerely,



John T. Conway  
Chairman

c: The Honorable Carolyn L. Huntoon  
Mr. Mark B. Whitaker, Jr.  
Mr. Greg Rudy

Enclosure

## Enclosure

### **Comments on the *Department of Energy Plan for Transfer of All Long-Term Chemical Separations Activities at the Savannah River Site from the F-Canyon Facility to the H-Canyon Facility Commencing in Fiscal Year 2002***

On April 10, 2001, the Department of Energy (DOE) Acting Assistant Secretary for Environmental Management provided the House and Senate Armed Services Committees with a document entitled *Department of Energy Plan for Transfer of All Long-Term Chemical Separations Activities at the Savannah River Site from the F-Canyon Facility to the H-Canyon Facility Commencing in Fiscal Year 2002*. The document was created in response to language in the fiscal year 2001 National Defense Authorization Act requiring DOE to submit such a plan to Congress.

Based on a review by the Board's staff, the document is lacking in several key respects and does not provide a satisfactory answer to the Congressional request. The principal deficiencies are summarized below:

**A plan for transfer of chemical separations from F-Canyon to H-Canyon is not presented.** The report provided by DOE is a two-page document that makes no definitive statements regarding plans for use of F-Canyon beyond fiscal year 2002. The report states that currently planned chemical separations in F-Canyon will be completed in fiscal year 2002, but that it may be advantageous to continue chemical separations in F-Canyon beyond fiscal year 2002. The report does not characterize what types of materials may be processed in F-Canyon after fiscal year 2002 or how long chemical separations in F-Canyon may continue. The report simply does not answer the Congressional request for a plan for transferring chemical separations activities from F-Canyon to H-Canyon.

**A plan for providing long-term chemical separations capability at Savannah River is not presented.** The Congressional language requested that DOE provide a plan for transferring *long-term* chemical separations activities at the Savannah River Site to H-Canyon. The document provided by DOE does not define "long-term," discuss what long-term separations capabilities are likely to be required, or evaluate whether H-Canyon adequately provides such capabilities. The DOE report simply states that H-Canyon will operate through 2004, and perhaps a few years longer if the highly-enriched uranium disposition program (joint venture with the Tennessee Valley Authority) is successful, and that all materials in the DOE complex can be dispositioned without chemical separation in F-Canyon.

**The needs of programs other than Environmental Management are not discussed.** The report discusses only the materials stabilization activities planned by the Office of Environmental Management, and does not address the needs of other DOE program offices.

The report does not acknowledge the fact that DOE is presently evaluating the use of F-Canyon to provide processing capability required by the Office of Fissile Materials Disposition. Additionally, the potential needs of other programs (e.g., Defense Programs) are not discussed.

**Drawbacks to non-F-Canyon disposition paths are not discussed.** The report states that none of the materials in the DOE complex *require* chemical separation in F-Canyon. It also states, however, that DOE will determine whether it would be more advantageous to process some materials in F-Canyon based on the potential impacts on H-Canyon, “for reasons such as cost-effectiveness.” The report does not discuss how long it would take H-Canyon to deal with all the materials likely to require chemical separations, whether such materials could be safely stored for such a length of time, or whether there are any other drawbacks associated with not using F-Canyon. Furthermore, the report does not acknowledge that F-Canyon is better suited by design for processing some material types, and that use of F-Canyon for such materials would reduce hazards and radiological exposure for workers. For example, certain weapon components that can be fed directly to the F-Canyon dissolver would require manual size reduction in order to fit in the H-Canyon dissolver. The *Savannah River Site Canyons Nuclear Material Identification Study* shows that a 3-year size reduction campaign would be required to support the use of H-Canyon to process parts from Rocky Flats Environmental Technology Site. This campaign would entail 3 years of hands-on size reduction in FB-Line followed by repackaging and cross-site shipment of the materials to H-Canyon.

**Other planned work in F-Canyon is not discussed.** The DOE report does not discuss other work presently planned to continue in F-Canyon and FB-Line beyond fiscal year 2002. The americium/curium vitrification project is scheduled to be conducted in the Multi-Purpose Processing Facility in F-Canyon during 2004–2005. FB-Line, which is attached to F-Canyon, also will carry out various projects in future years, including characterization and repackaging of plutonium-bearing residues through fiscal year 2006, declassification of weapons components by melting through fiscal year 2006, and vault storage of special nuclear materials through at least fiscal year 2007. DOE has yet to demonstrate that significant savings will result from shutting down F-Canyon separations activities while other parts of F-Canyon and FB-Line remain active.

**In the absence of a plan, F-Canyon separations will become idle in fiscal year 2002.** A significant lead time is associated with the introduction of new materials into the chemical separations facilities. In addition to preparing environmental impact documentation, flow sheets must be finalized, the safety basis must be developed and approved, facility modifications must be completed, and facility readiness must be established and verified. If DOE does not soon identify a schedule for future work in F-Canyon, there will be no work ready to be performed after the presently scheduled materials are processed, and the separations capability will become idle.