



United States Department of the Interior

OFFICE OF THE SECRETARY

OFFICE OF ENVIRONMENTAL POLICY AND COMPLIANCE

Richard B. Russell Federal Building

75 Spring Street, S.W.

Atlanta, Georgia 30303

ER 03/202

April 14, 2003

Michael Lesar
Nuclear Regulatory Commission
MS-T6 D59
Office of Nuclear Materials Safety and Safeguards
Washington, DC 20555-001

2/98/03
68 FR 97.28

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Rules and Directives
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RE: Draft Environmental Impact Statement (DEIS) on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at Savannah River Site, Columbia, and Richmond Counties, Georgia; Aiken, and Barnwell Counties, South Carolina

Dear Mr. Lesar:

The Department of the Interior has reviewed the subject document. We provide the following comments for your consideration..

GENERAL COMMENTS:

The document is well organized and written. We appreciate the obvious effort that has gone into it. However, our ability to assess groundwater impacts and to develop a sense of possible contaminant plume migration pathways is hindered by the lack of explicit and detailed geo-hydrologic information in some instances. We encourage expansion and enhancement of the relevant data and discussions in the text.

SPECIFIC COMMENTS:

Page 2-16, Section 2 Alternatives, Including the Proposed Action, Subsection 2.2.4.2.3
PDCF Liquid Stream:

No information is provided about monitoring buried and exposed pipes for leaks that could result in discharge of liquid waste to ground water. We suggest that monitoring/detection, response, and enforcement protocols related to pipe integrity and leaks be included in the DEIS.

Page 3-9, Section 3 Affected Environment, Subsection 3.3 Hydrology, Subsection 3.3.1
Surface Water, paragraph 3, line 24:

Fourmile Branch appears to flow southwesterly in figures 3.2 and 3.3, not southeasterly as described in the text. This apparent discrepancy should be checked and corrected if warranted.

E-RDS=ADM-03
Call = T. Harris (TFH)
A. Lester (ACL)

Template = ADM-013

Page 3-9, Subsection 3.3.1 Surface Water, paragraph 4, lines 39-40:

Discharge information, including permitted and streamflow discharges, should be described with the same units of measure as those for stream discharge. The use of standard units of measure reduces confusion and facilitates comparison of values. For example, using the same unit of measure to describe the magnitude of the Savannah River Site (SRS) contribution to total streamflow in the two paragraphs above lines 39 and 40 would facilitate comparison. A standard unit of measure format should be used throughout the document, such as describing discharge in millions of gallons per day (MGD), cubic feet per second (cfs), or cubic meters per day (m³/s). Options include either following the standard unit of measure with equivalent measures in alternate units in parentheses in the text, or adding an appendix with conversion tables, comparative table, or equations to facilitate reader comparison between and among units of measure. The standard unit of measure format should be consistently applied for linear distances, area, volume, and discharges.

Page 3-10, Section 3 Affected Environment, Subsection 3.3.2 Ground Water, first sentence, line 8:

The sentence reads, "Several underground aquifers occur..." The word "underground" is redundant and should be deleted; all aquifers are below ground.

Page 3-10, Subsection 3.3.2 Groundwater, first paragraph, lines 8-23:

The description of aquifers should be expanded to include aquifer properties, such as lithology, horizontal and vertical transmissivity, and storage. This information would allow estimating the extent and timing of potential ground-water contamination that could travel and impact nearby rural or municipal ground-water users.

Page 3-11, Subsection 3.3.2 Groundwater, first and third paragraphs, lines 1-11 and 23-28, respectively:

The description of ground-water flow in F-Area is incomplete. As written, the description is inadequate for estimating the likelihood of potential contamination of underlying aquifers from the surface. Ground water flows from areas of recharge to areas of discharge; the report describes lateral flow direction and identifies discharge areas but does not mention recharge areas or recharge rates. If the F-Area is located on a ground-water divide and the top of the aquifer begins as close as 3 feet below land surface as described elsewhere in this section, it is probable that the proposed Mixed Oxide Fuel (MOX) facility, the Pit Disassembly and Conversion Facility (PDCF), and the Waste Solidification Building (WSB) are located in a recharge area.

Surface contamination or spills occurring in a recharge area can easily be introduced into a shallow aquifer, as indicated by the existence of contaminated ground water from past operations in F-Area (pp. 3-11 through 3-13). This section should be expanded to provide information about recharge rates and location of recharge areas in F-Area.

Page 3-11, Subsection 3.2.2 Groundwater, lines 30-34:

The discussions in this section indicate that the Upper Three Runs Creek Aquifer is divided into two zones by the Tan Clay Confining Unit of the Dry Branch Formation. The two zones and the Tan Clay Confining Unit, however, are not depicted in figure 3.4, "Underground Aquifers at the SRS" (p. 3-10). Without this information, it is not possible to visualize and understand the ground-water-flow system that underlies the proposed MOX facility. Specifically, it is not clear how the two aquifer zones and the Tan Clay Confining Unit within the Upper Three Runs Aquifer relate to the land-surface topography (outcrop areas), the Gordon Confining Unit, the Gordon Aquifer, and the Steed Pond Aquifer. Figure 3.4 should be redrawn or modified to reflect the text.

Additionally, the discussion regarding the occurrence of a water table in the lower aquifer zone beneath the Tan Clay Confining Unit is confusing. It raises the questions "Is there a water table in the upper aquifer zone? If not, why?" Subsection 3.3.2 should be rewritten to eliminate the vague and incomplete description of the ground-water system underlying the proposed MOX facility in F-Area.

The text appears to refer to the Upper Three Runs Creek Aquifer and the Upper Three Runs Aquifer interchangeably. This is confusing and should be clarified. If the two names refer to a single geologic unit, then only one term should be used throughout the DEIS for consistency.

Page 3-13, Subsection 3.3.2 Groundwater, lines 8-20:

This section indicates that ground water in the Upper Three Runs Aquifer beneath the proposed MOX facility is contaminated with various heavy industrial and nuclear contaminants. Moreover, recent sampling indicates that ground-water contamination is absent above the Tan Clay Confining Unit but is present in the lower aquifer zone beneath the confining unit. The discussion and analysis, as currently written, are inadequate for an assessment of the potential for additional contamination at the site relative to the contamination that already exists there, the spatial distribution of contaminated zones in the underlying aquifer, and the potential direction of ground-water movement and contribution to base flow in tributaries to the Savanna River near the F-Area.

We recommend improving the discussion to support this assessment. An adequate discussion should (1) explain why the upper aquifer zone is not contaminated, (2) identify the locations of the wells recently sampled for ground-water contamination at the MOX site, (3) identify the locations of sources that may have contaminated the lower aquifer zone, and (4) explain how the topography and surficial geology of the MOX site relates to the outcrops of the upper and lower aquifer zones.

Page 3-45, Subsection 3.10.1.1 Pathways for Human Exposure to Radiation and Radioactivity, second paragraph, lines 12-21:

An additional pathway not identified in this paragraph is atmospheric particulate matter that has

settled on the ground and that can be introduced into ground water by recharging precipitation in a recharge area, or if the deposits are washed into surface water by overland runoff in areas where the surface water is in hydraulic connection with the ground water. We suggest that the potential for ground-water contamination from atmospheric particulate matter deposited on the land surface at the MOX or F-Area sites be addressed in the DEIS.

Page 4-46, Section 4 Environmental Consequences, Subsection 4.3 Impacts of Proposed Action, Subsection 4.3.5.4 Hydrology, line 1:

Without further information about ground-water recharge and flow paths, there is insufficient information to determine whether all or any contaminants in a hypothetical spill would be captured by base flow contributed to the Upper Three Runs Creek, or whether some could pass in ground water that flows under the creek and continues down-gradient. The DEIS should provide sufficient information to distinguish between these possibilities. The DEIS should also provide information on the ultimate fate of a hypothetical spill that is wholly or partly intercepted by the creek. We suggest that the DEIS provide information on processes that affect the transport and fate of these potential contaminants in the environment, for example, some forms of plutonium would be likely to sorb onto clay particles in subsurface materials or streambed sediments rather than travel with the water.

If you should have any questions concerning these comments please contact Ms Brenda Johnson, U.S. Geological Survey, 703-648-6832.

Sincerely,

A handwritten signature in black ink, appearing to read 'Gregory Hogue', with a long horizontal flourish extending to the right.

Gregory Hogue
Regional Environmental Officer

cc:
FWS, R4
USGS, Reston
OEPC, WASO