



## Department of Energy

Oak Ridge Operations Office  
P.O. Box 2001  
Oak Ridge, Tennessee 37831—  
September 28, 1999

Mr. Steve Kopp, Chair  
Oak Ridge Site Specific  
Advisory Board  
Mail Stop EM-90  
Post Office Box 2001  
Oak Ridge, Tennessee 37831

Dear Mr. Kopp:

**RESPONSE TO THE ENVIRONMENTAL MANAGEMENT SITE SPECIFIC  
ADVISORY BOARD COMMENTS ON THE MELTON VALLEY (D1) PROPOSED  
PLAN OF JULY 1998**

3

Reference is made to the Oak Ridge Site Specific Advisory Board (OR SSAB) letter to the Department of Energy (DOE) dated July 8, 1999, which provided an enclosure entitled "Comments on the Proposed Plan for the Melton Valley Watershed (DOE/OR/01-1724&D3)".

DOE is appreciative of the SSAB participation in the review process for this complex watershed and the SSAB's support for the Proposed Plan (PP). The enclosure provides responses to your specific comments on the plan. These responses will be included in the comment response summary included with the approved ROD.

We appreciate the contributions of the SSAB and look forward to its continued support as we complete the Comprehensive Environmental Response, Compensation, and Liability Act documentation phase and move into field work for the Melton Valley portion of the White Oak Creek Watershed.

Sincerely,

A handwritten signature in black ink, appearing to read "Rodney R. Nelson".

Rodney R. Nelson  
Assistant Manager for  
Environmental Management

cc's w/attachment:

C. Mims  
G. Eidam, BJC  
M. Berry, EPA Region IV  
D. McCoy, TDEC  
LOC

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3

**Comment:** The interim hazard levels chosen to trigger removal of contaminated soil may be so high as to require expensive attention to control the size of post-remediation worker risks. The need for such attention could be reduced by removal of near-surface contamination from a few more acres. The PP appears to assume an unrealistically low number of exposure hours per worker per year.

**Response:** DOE is establishing cleanup levels consistent with the applicable worker protection standards. DOE believes that the assumed exposure scenario for a maintenance worker (200 hours/year exposure) within the waste management area is reasonable. This incorporates the fact that much of a maintenance worker's time will be spent on remediated areas (such as caps) where exposure will be equivalent to background.

**Comment:** The Preferred Alternative proposes to use some contaminated soils as "contour fill" under caps over burial grounds that will remain in place. It is reasoned that these soils are far less contaminated than the waste that resides beneath the present ground surface. The Board cautions that for small savings in cost and risk to workers this practice would increase the losses from the occasional cap failures that eventually will occur. In addition, since the contaminated soil is "in hand," this waste disposal practice would amount to adding new waste to a burial ground known not to be protective. The Board suggests that any such "new" waste beneath the planned caps be considered just like the contents of newly constructed waste disposal facilities. If the waste acceptance criteria (WAC) for a facility so constructed would allow acceptance of the contaminated soils being considered, the practice would be agreeable to our Board. A general protocol could be devised to make such decisions practicable at construction time when a surface soil is being considered for removal.

**Response:** Contaminated soils used as contour fill will most likely be less contaminated than the wastes in the respective burial grounds. The use of contaminated soil for contour fill will also reduce the amount of soil that will be needed from the borrow area. DOE expects that the remedial design report will include a protocol for determining when and where contaminated soil will be used as contour fill. As such, TDEC and EPA will review specific DOE plans regarding this practice.

**Comment:** Because the waters of Melton Valley must eventually attain standards for recreational use, the PP often refers to recreational standards for the area being met after a time. Elsewhere the PP suggests the public use will be restricted. The Board finds these statements confusing, and asks that the Record of Decision (ROD) very carefully define its usage of the word "recreational". Everybody interested should be able to understand what this important ROD means.

**Response:** The ROD recognizes that the waters in Melton Valley are classified by the State of Tennessee for recreational use, but will remain restricted because of the presence of nearby burial grounds and other sources. Attainment of recreational standards remains a component of the Melton Valley remedial action objective. This allows DOE to achieve compliance with Applicable or Relevant and Appropriate Requirements (ARARs) by meeting conditions consistent with the designated use.

**Comment:** The ROD must express a definite commitment to seek funding for maintenance and other stewardship work needed to attain compliance with the remedial action objectives. The Board is also concerned that the coverage in the PP of just what actions stewardship will require would not be adequate for the ROD. We expect that the Stewardship Working Group will comment on these needs.

**Response:** This ROD contains a description of "Institutional Controls." The O&M costs for the selected remedy account for such activities as cap maintenance, water treatment, monitoring, and cryogenic barrier maintenance. These costs do not include administrative long-term institutional control costs. This is clarified in the ROD. Administrative long-term institutional control costs are not addressed in the proposed plan or ROD because additional analysis is required to finalize the elements of long-term institutional control and associated costs. This analysis will be documented in the Land Use Implementation Plan and Remedial Design Work Plan (RDWP) that will be developed specifically for Melton Valley and reviewed by the regulatory agencies.

**Comment:** The ROD should increase the attention given to the radiation levels expected from longer-lived radionuclides a few hundred years hence, at least by reference. At that time the levels of buried strontium-90, cesium-137, and especially tritium will be very much reduced.

**Response:** Given the actions included in the selected remedy (such as the containment, removal, In Situ Vitriification (ISV), and institutional controls), exposure to long-lived radionuclides will be precluded. However, below is a summary of radionuclide inventory after significant decay of short-lived radionuclides has occurred.

The West Seep subbasin is the highest ranked subbasin in terms of total radionuclide inventory (not including Old Hydrofracture (OHF)/New

Hydrofracture Facility (NHF) grout sheet inventory). The highest ranked subbasin based on risk contribution to White Oak Dam is SWSA 4 Main. Decay of radionuclides in these subbasins will result in radionuclide inventories of less than 10 percent of the disposed activities by the year 2050 and less than 1 percent of the disposed activities by the year 2200. This rapid decrease in activity is based on the decay of short-lived beta-emitters ( $^{106}\text{Ru}$ ,  $^{60}\text{Co}$ , and trivalent rare earths). The bulk of the remaining activity consists of  $^{137}\text{Cs}$  and  $^{90}\text{Sr}$  with half-lives of 30.2 and 28.5 years, respectively. Long-lived TRU and uranium isotopes account for less than 2 Ci out of a total of more than 500,000 Ci disposed in the West Seep subbasin and less than 10 Ci out of a total of more than 71,500 Ci disposed in the SWSA 4 Main subbasin.

About 112,400 of the approximately 500,000 Ci initially disposed in the West Seep subbasin can be attributed to  $^{152}\text{Eu}$  and  $^{154}\text{Eu}$  in the HFIR control plates in several auger holes in the NE Auger Hole area of SWSA 6. Because of the relatively short half-lives (13.3 years and 8.8 years, respectively) of these radionuclides, by the year 2050 only about 3500 Ci of this activity will remain, and by 2200 the activity will have decreased to about 1 Ci. By the year 2200, only about 1300 of an initial 173,000 Ci of mixed fission products disposed in the SWSA 6 portions of the West Seep subbasin and about 640 of an initial 110,000 Ci disposed in the West Seep portions of Pits 2, 3, and 4 will remain.

In the SWSA 4 Main subbasin, the initial disposed inventory of about 71,500 Ci, consisting primarily of mixed fission products of short to medium half-lives (< 1 to 30 years), will have declined to about 3000 Ci by the year 2050 and to less than 500 Ci by the year 2200.

**Comment:** Page 13 of the PP suggests that waste from grout sheets can possibly migrate to shallow groundwater. After wells are plugged, the words overstate the likelihood of serious migration. We understand that the sparse groundwater near the grout sheets is saline. The shallow groundwater is not saline. Some of the wells may be contaminated, but the threat of that spreading widely seems less ominous.

**Response:** This text has been modified somewhat from the proposed plan to the ROD. It now states that the possibility of contaminant migration from hydrofracture waste to shallow groundwater will require well closure. Groundwater monitoring and institutional controls are still required, even though the possibility of contaminant migration is low (especially given planned well Plugging and Abandonment (P&A)).