

paper, to protect workers, the environment and the public from the hazards of fire.

NATURAL PHENOMENA

Since 1992, when the Oak Ridge Environmental Peace Alliance first raised concerns about the structural integrity of weapons production buildings at Y-12 (our concerns were drawn from DOE's own Defense Programs Safety Survey Report, Volume 3, Appendix B, Uranium Facilities, November 1993), DOE has steadfastly worked to amass a reassuring body of documentation asserting the safety of Y-12 buildings.

These safety assurance, according to the Defense Nuclear Facilities Safety Board, May 5, 1994 Memo to G. W. Cunningham from A. H. Hadjian, incorporate refinements which ostensibly reflect "increasingly realistic" conditions. The Safety Board's memo states: "The Board's staff is concerned that the combined uncertainties of these 'increasingly realistic' refinements do not appear to be well understood and may actually exceed the overall seismic margin available in these structures." The Safety Board memo includes specific criticisms of Y-12's reassuring studies.

The continued operation of Y-12 production facilities, contemplated for the foreseeable future in the Y-12 SW-EIS by the preferred alternative, in a run-to-failure mode, ignores significant environment, safety and health risks which will result in the event of a moderate to severe earthquake.

Such an earthquake event is not unlikely. The journal *Science*, in April 1994, evaluated seismic activity in the region which includes the Y-12 nuclear weapons plant and concluded that this region has the second-highest level of seismic activity in the country. Researchers from the University of North Carolina at Chapel Hill also concluded in their study that the small size of the current activity is not only not an indicator that future activity should be expected to be equally small, but, quite the contrary: "The model indicates that the potential for a large, damaging earthquake in the Eastern Tennessee Seismic Zone may be higher than the available historical record suggests." The frequent tremors of today may well herald a more significant temblor in the future. (*A Seismotectonic Model for the 300 Kilometer-Long Eastern Tennessee Seismic Zone*, Powell C. et al, *Science*, Vol. 264, 29 April 1994)

The consequences of a significant earthquake are almost unthinkable—the loss of control of nuclear inventory, the loss of worker's lives, the release of contamination into the atmosphere, the likely potential for multiple catastrophic failures of structures, of fire and water control systems—these are very realistic possibilities which we must think about precisely because they are so unthinkable.

The occurrence of such an earthquake is what DOE appears unwilling to think about. Can it happen here? A *Newsweek* magazine report, August 30, 1999, answers that question with history. The Oak Ridge Reservation was within the impact area of seismic waves of two of the five largest earthquakes in modern US history—the New Madrid fault in Missouri, estimated at 8.7 on the Richter scale to be the most severe earthquake in US history, and the 1886 earthquake in Charleston, SC, registering 6.6 on the Richter scale.

The Y-12 SW-EIS must address the impact of natural phenomena, including earthquakes, on the current operating facilities which will continue to be used under all of DOE's alternatives.

ACCIDENTS

The Y-12 SW-EIS proposes, in its preferred alternative, to construct new facilities which will replace significant portions of the ongoing production activities at Y-12. Equally significant are the facilities for which significant modernization is not proposed in detail by the Y-12 SE-EIS.

Two types of accidents should be considered in the Y-12 SW-EIS: accidents in the new facilities proposed and accidents in facilities which continue without modernization.

Accidents at new facilities are not likely to be by design, but by failure of new systems or failure of Y-12 management to incorporate rigorous safety management on-

Comment No. 20 (cont.)

Issue Code: 13

one sampling location, on the west side of Scarboro. The high concentrations of uranium and slightly elevated concentrations of lead as well as the pesticides observed at this location all suggest that the property owner applies fertilizer and other chemicals to his/her lawn (uranium naturally occur in the phosphate minerals used in fertilizer, and lead is found in pesticides)."

26/15 (cont.)

As discussed in Section 5.12.1, Volume I of the SWEIS, the proposed action and alternatives would not have significant adverse public health impacts. The conservatively estimated MEI dose of 4.5 mrem/year is below the annual dose limit of 10 mrem/year set by DOE Order 5400.1 and the radionuclide NESHAP level of 10 mrem/year. The annual windrose data at Y-12 for the past five years is shown in Figure E.2-2 in Volume II, Appendix E of the SWEIS and Figure 4.7.1-1 in Volume I. The prevailing winds (as stated in Section 4.7.1) are either up-valley (northeasterly) daytime winds or down-valley (southwesterly) nighttime winds.

27/15

Disproportionately high and adverse human health or environmental effects on minority or low-income populations from accidents cannot occur based on the definition and nature of accidents. The risks due to potential accidents are analyzed and discussed in Section 5.14 in Volume I and Section D.7 in Volume II. Potential consequences to workers, the MEI at the Y-12 Site boundary, and the population within 80 km (50 miles) is presented. As the commentor points out, no one can predict an accident or the factors at that moment that would affect exposure levels to workers and the public (e.g., prevailing winds, wind speed, time of day, or location of receptors).

27/15 (cont.)

In response to the accidental release of hydrogen fluoride, the SWEIS analyzes the risks to workers and the public from chemical releases, including hydrogen fluoride. The commentor is referred to Section 5.14.3, Volume I and Section D.7.5.2 in Volume II. As shown in the analysis and depicted in Figure D.7.5-1, exposures from a worst case release of hydrogen fluoride could exceed ERPG-2 levels 60 meters beyond the

28/15