

**[DNFSB LETTERHEAD]**

January 22, 1996

The Honorable Thomas P. Grumbly  
Assistant Secretary for Environmental Management  
U.S. Department of Energy  
Washington, DC 20585-0113

Dear Mr. Grumbly:

Members of the Defense Nuclear Facilities Safety Board's (Board) staff have been reviewing the issue of radiolytically generated hydrogen in tanks and pipes in facilities at the Rocky Flats Environmental Technology Site (RFETS). Significant effort has been made by the technical staffs of both the Board and RFETS to understand the extent of this hazard and the need for corrective action. The results of this review indicated that passive venting of the tanks was not sufficient to reduce the hydrogen concentration and that active venting would be required to meet the industry standard of 25 percent of the lower flammable limit (LFL) (25 percent of the LFL is one volume percent hydrogen). Subsequent analysis of headspace gas samples taken from tanks in Building 771 showed concentrations that were on the order of 50 volume percent hydrogen, well into the potential explosive range.

During a presentation made to the Board in September 1995 at RFETS, a number of near-term hydrogen mitigation actions were promised, but there has been little progress in mitigating the hydrogen accumulation hazard in Buildings 371 and 771. Currently, five tanks are undergoing continuous purging, but three of these still exceed 25 percent of the LFL. No other tanks have been sampled or purged since August 1995, although many additional tanks and piping are expected to contain hydrogen concentrations in the explosive range. On January 5, 1996, Kaiser-Hill tasked Safe Sites of Colorado to "make every effort to mitigate the hydrogen in at least one of five tanks in Building 371 ... predicted to contain hydrogen in excess of 200 grams TNT equivalent prior to the end of January 1996." While this is a positive step, the Board believes that RFETS should take immediate action to determine where additional problems of this sort exist and to reduce the hydrogen concentration in all tanks and piping which are found to exceed 25 percent of the LFL.

The Board also believes that it is appropriate to incorporate management of the risk associated with hydrogen accumulation into the performance measures for the RFETS Management and Integration contractor.

Pursuant to 42 U.S.C. § 2286b(d), the Board requests that the Department of Energy provide a report, within 30 days of receiving this letter, which establishes a plan of action (with interim milestones) to aggressively address the hydrogen accumulation hazard in Building 371 and 771. This report should address the tanks and piping at risk in the current storage configuration as well as during future processing operations.

Please contact me or have your staff contact Mr. Mark Sautman of our Rocky Flats Site Office if you need any additional information.

Sincerely,

**John T. Conway**  
Chairman

c: Mr. Mark Whitaker  
Mr. Mark Silverman