

**Impact of Atmospherically Deposited Salts on the Localized Corrosion Performance of Materials Used for the Interim Storage of Used Nuclear Fuel**

For the interim storage of used nuclear fuel, the storage casks/containers will be exposed to conditions under which considerable dust and/or atmospheric aerosols may be deposited on the surface. These dust layers may contain a sizeable portion of water soluble salts, particularly in marine environments where many interim storage systems are located. These soluble salts will deliquesce if sufficient moisture is present, resulting in the formation of potentially corrosive brine on the material surface. Experimental results have illustrated that some stainless steels, such as 304SS (a common material of construction for interim storage containers) can and will undergo localized corrosion in elevated temperature conditions where a chloride rich brine has formed on the surface. In this presentation, the results of this test program, as well as efforts to address the potential for corrosion stifling under conditions where a limited quantity of reactant is present will be discussed.

*Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.*