

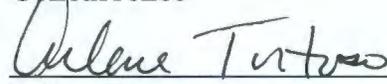
**THIRD ADDENDUM TO IN SITU REDOX MANIPULATION
EVALUATION OF POTENTIAL RADIONUCLIDE AIR EMISSIONS**

The 100-D Area ISRM process involves a chemically reduced aquifer that serves as a permeable treatment zone for hexavalent chromium contaminated groundwater. The treatment zone is created by injecting a strong reducing agent (sodium dithionite) into the aquifer through a series of wells parallel to the Columbia River shoreline. The sodium dithionite reacts fairly rapidly with numerous metallic elements present in the aquifer in an oxidized state, after which the majority of the remaining chemical reaction by-products (predominantly sulfate) are pumped out of the treated portion of the aquifer and transferred to the ISRM evaporation pond. The number of ISRM wells and the volume of purgewater generated during the extraction phase of barrier emplacement, necessitated a means to increase the effective rate of evaporation in the pond. The Turbomister was installed to keep pace with purgewater extraction and stay within the minimum freeboard limit established for the pond. This addendum approves continued operation of the Turbomister through the end of December 2004.

To minimize the potential impact of emissions on the public and the environment, the following operational constraints have been imposed on the Turbomister

- The Turbomister is located at the north edge of the evaporation pond, approximately 200 meters away from the river
- The Turbomister is oriented away from the river in the direction of the northwest prevailing wind, optimizing the capture of mist within the pond
- The Turbomister is positioned at an angle of 20 degrees above horizontal, lessening the potential for significant dispersion of mist outside of the pond area
- The Turbomister does not operate continuously due to controls (wind speed and direction) that optimize containment of mist within the pond and reduce the likelihood of dispersion toward the river.

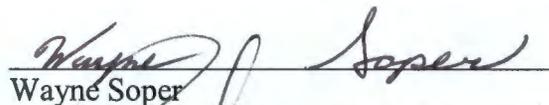
Concurrence



Arlene Tortoso

U.S. Department of Energy, Richland Operations Office

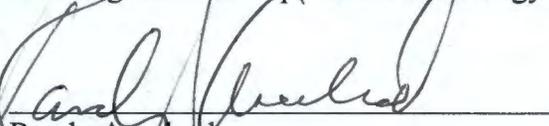
4/1/03
Date



Wayne Soper

Washington State Department of Ecology

4-7-03
Date



Randy Acselrod

Washington State Department of Health

4/2/03
Date

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