CHARACTERIZATION AND MUTAGENICITY OF SHALE OIL FRACTIONS, Deborah S. Sklarew, Donald M. Schoengold, Richard A. Pelroy†, Sylvia P. Downey, Barbara A. Vieux, James T. Cresto†, Physical Sciences Dept. and Biology Dept.†, Pacific Northwest Laboratory, operated for the Department of Energy by Battelle Memorial Institute

Product oils from several shale oil operations have been analyzed for organic compounds which are potential biological/environmental hazards. Two fractionation schemes have been compared both from an analytical and a biological point of view. The first method involves acid-base fractionation; the second uses partition chromatography on Sephadex LH-20. Fractions have been tested for mutagenicity in the Ames assay and those which gave positive results were further subdivided and analyzed by gas chromatography-mass spectrometry. In the case of the Sephadex LH-20 method, mutagenicity is concentrated in the methanol fractions; in the acid-base separation, mutagenicity is found in the basic and tar fractions.