

Avens, H.J., Keenan, J.J., Unice, K.M., Paustenbach, D.J. Estimation and Comparison of airborne toxicant concentrations from the Deepwater Horizon and Exxon-Valdez oil spills. Presented at the Society of Environmental Toxicology and Chemistry (SETAC) North America 31st Annual Meeting; Portland OR. Wednesday November 10th, 2010, Exhibit Hall.

It is estimated that the Deepwater Horizon oil spill in the Gulf of Mexico has already surpassed the Exxon-Valdez oil spill as being the largest in U.S. history. Oil recovery and remediation workers are potentially exposed to volatile toxicants while on boats on or near oil spills. These volatile toxicants include, but are not limited to, benzene, ethyl benzene, and toluene. To estimate inhalation exposures, we have applied one of the most common oil spill analysis software, ADIOS2 (Automated Data Inquiry for Oil Spills-2), which was developed by the National Oceanic and Atmospheric Administration, in partnership with a number of other federal agencies. Input parameters for the model include water temperature and salinity, speed and direction of water currents, wave height, wind speed and direction, oil type, and type and duration of oil release. Model results are compared between the Deepwater Horizon and Exxon-Valdez incidents. Additionally, the results are compared with available air sample measurements which have been collected during each of these spills. The relative pros and cons of using ADIOS2 and other related models for analysis of these two spills are discussed.