

Appendix F

Professional Publications and Presentations: Multimedia, Multipathway, and Multireceptor Risk Assessment (3MRA) Modeling System

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Investigating uncertainty and sensitivity in integrated, multimedia environmental model: Tools for FRAMES-3MRA. J.E. Babendreier, US Environmental protection Agency, Athens, GA and K.J. Castleton, Battelle Pacific Lab, Richland, WA, in publication, **Journal of Environmental Modeling and Software**, 2003.

The 3MRA Risk Assessment Framework. A flexible approach for performing multimedia, multipathway, and multireceptor risk assessments under uncertainty. C.M. Marin, Ambiotec Group, Inc.; V. Guvanasen, HGL, Inc, Herndon, VA; Appearing as the lead paper in: **International Journal of Human and Ecological Risk Assessment**, December, 2003.

An overview of USEPA's integrated multimedia, multipathway, and multireceptor exposure and risk assessment tool. The 3MRA Model. B. Johnson, S. Kroner, D. Cozzie, and Z. Saleem, US Environmental Protection Agency, Washington, D.C. Published in **Brownfield Sites: Assessment, Rehabilitation and Development**; edited by C.A. Brebbia, D. Almorza, H. Klapperich. Wessex Institute of Technology, Southampton, UK, 2002.

The Role of Uncertainty of Vadose Zone Flow and Transport in Multimedia, Multireceptor, and Multipathway Risk Assessment. Varut Guvanasen, Carlos Marin, Theodore P. Lillys, and Zubair A. Saleem, **American Geophysical Union, Annual Meeting**, Washington, DC, May 30, 2002 .

Society for Risk Analysis (SRA): Symposium on Multimedia, Multipathway, and Multireceptor Risk Assessment for Identification of Hazardous Wastes, Atlanta, GA, December 5- 8, 1999.

Session 1

Johnson, W. Barnes, US EPA, 401 M. Street, SW, Washington, DC 20460. AN OVERVIEW OF EPA'S RISK ASSESSMENT FOR IDENTIFICATION OF HAZARDOUS WASTES.

Saleem, Z.A., US EPA, 401 M Street, Washington, D.C. 20460; Marin, C.M., Ambiotec, Harlingen, TX; and Guvanasen, V., HydroGeoLogic, Herndon, VA. AN OVERVIEW OF THE MULTIMEDIA, MULTIPATHWAY, AND MULTIRECEPTOR RISK ASSESSMENT (3MRA) FRAMEWORK FOR HWIR.

Laniak, G. F., US EPA, Athens, GA 30613; Castleton K. J., and Whelan, G., Pacific Northwest National Laboratory, Richland, WA 99352. AN OVERVIEW OF A NATIONAL MULTIMEDIA, MULTIPATHWAY AND MULTIRECEPTOR RISK ASSESSMENT TECHNOLOGY DEVELOPMENT.

Little, KW, and Coburn, JB, Research Triangle Institute, PO Box 12194, Research Triangle Park, NC 27709; Labieniec, P, Labieniec Consulting, 10701 Spring Run Road, Chesterfield, VA 23832; Saleem, Z. and Cozzie, D. US Environmental Protection Agency, Office of Solid Waste, 401 M Street, SW (MD-5307), Washington, DC 20460; Guavanoasen, D, HydroGeoLogic, Inc., 1155 Herndon Parkway, Suite 900, Herndon, VA 20170. SIMULATING MULTIMEDIA RELEASES FROM WASTE MANAGEMENT UNITS FOR HWIR.

Session 2

Saleem, Z.A., US EPA, 401 M Street, SW, Washington, DC 20460; Ambrose, R.B., US EPA, Athens, Georgia 30613; Schwede, D.B., National Oceanic and Atmospheric Administration, RTP, NC, Little, K.L., Research Triangle Institute, RTP, NC 27709; Guvanoasen, D., and Lillys, T.P., HydroGeoLogic, Inc., Herndon, VA 20170. SIMULATING INTEGRATED MULTIMEDIA CHEMICAL FATE AND TRANSPORT FOR NATIONAL RISK ASSESSMENTS.

Pierson, TK, Little, KW, Lutes, AC, Research Triangle Institute, PO Box 12194, Research Triangle Park, NC 27709; Kroner, SM, US Environmental Protection Agency, Office of Solid Waste, 401 M Street, SW (5307W), Washington, DC 20460; Tohmaz, A, 109 Norcross Place, Cary, NC 27513. HUMAN EXPOSURE AND POPULATION RISK MODELS FOR IMPLEMENTING 3MRA.

Beaulieu, SM, McLean, JS, Conrad, GT, Research Triangle Institute, PO Box 12194, Research Triangle Park, NC 27709; and Cozzie, DA, US Environmental Protection Agency, 401 M Street, SW (MD-5307), Washington, DC 20460. PROPOSED METHODOLOGY TO ASSESS ECOLOGICAL EXPOSURE AND RISK FOR 3MRA.

Truesdale, RS, Conrad, GT, Research Triangle Institute, PO Box 12194, Research Triangle Park, NC 27709; and Kroner, SM, US Environmental Protection Agency, Office of Solid Waste, 401 M Street, SW (5307W), Washington, DC 20460. STRATEGIES FOR

NATIONAL SCALE DATA COLLECTION: EXTANT SOURCES AND SPATIAL (GIS) DATA PROCESSING.

Society for Environmental Toxicology and Chemistry (SETAC): Interactive Poster Session on Modeling for National Risk Assessment. Philadelphia, PA. 14 -18, November, 1999.

Simulation of Surface Impoundments in National Risk Assessments. Guvanasen, V., HydroGeologic, Inc., Herndon, VA; Coburn, J.B. Research Triangle Institute, RTP, N.C.; and Saleem, Z., U.S. Environmental Protection Agency, Washington, D.C.

Simulating Emissions of Hazardous Constituents from Non-wastewater Waste Management Units. Labieniec, P.A.* , Labieniec Consulting Services, Chesterfield, VA., Little, K.W., Lawless, P.A., Research Triangle Institute, RTP, NC.

Simulating Atmospheric Exposure in a National Risk Assessment Using an Innovative Meteorological Sampling Scheme. Schwede, D.B., National Oceanic and Atmospheric Administration, Research Triangle Park, N.C., Brode, R.W. and Jindal, M., Pacific

Application of Exams as the Surface Water Module in the HWIR Multimedia Risk Assessment System. Ambrose, Robert B., Jr., P.E.* , U.S. EPA, Athens, GA and Burns, Lawrence A., Ph.D., U.S. EPA, Athens, GA

Simulating Dynamic Response of Regional Watersheds to Emissions from Waste Management Units. Little, K.W.* , Research Triangle Institute, RTP, NC, Labieniec, P.A., Labieniec

Version 4.0 of U.S. EPA's Geochemical Speciation Model MINTEQA2 for Use in National Risk Assessments. Allison, J.D., Allison, T.L., Brown, D.S.* , and Ambrose, R.B., HydroGeoLogic, Herndon, VA; Allison Geoscience Consultants, Flowery Branch, GA; and U.S. EPA, Athens, GA.

Effects of Heterogeneity of porous Media on Fate and Transport Modeling for National Risk Assessment . Guvanasen, V., Kim, J., HydroGeoLogic, Inc., Herndon, VA, Saleem, Z.A., U.S.EPA, Washington, D.C., Schmelling, S., U.S.EPA, Ada, OK, Lee, S., Chen, J-S., Dynamac Corp., Ada, OK.

Proposed Approach for Development of Ecological Benchmarks for a National-Scale Risk Assessment. Beaulieu, S.M.* , Research Triangle Institute, RTP, NC, Spencer, M., University of Haifa, Haifa, Israel, Harmon, A. B., Research Triangle Institute, RTP, NC, and Cozzie, D.A., U.S. EPA, Washington, DC.

Application of GIS Techniques and Other Data Sources for National Risk Assessments: Part 2, “Result (Interactive Demonstration)”. Conrad, G. T*, Truesdale, R. S., Andrews, L.S., Rickman, E. E., Andrews. M., Research Triangle Institute, RTP, NC.

Society for Environmental Toxicology and Chemistry (SETAC). 20th Annual meeting Philadelphia, PA. 14 - 18, 1999. Platform Sessions on **Multimedia, Multipathway, and Multireceptor Risk Assessment:**

Session 1

A Framework For a National Multimedia, Multipathway And Multireceptor Risk Assessment (3MRA) For Identification of Hazardous Wastes. Marin, C.M., Ambiotec, Harlingen, TX; Guvanasen, V., HydroGeoLogic, Herndon, VA; and Saleem, Z.A., USEPA, Washington, D.C.

Successful Design and Implementation of a National Multimedia, Multipathway and Multireceptor Risk Assessment (3MRA) Software System for the Identification of Hazardous Wastes. Karl J. Castleton, Pacific Northwest National Laboratory, Richland, WA 99352; Gerard F. Laniak, US Environmental Protection Agency, Ecosystems Research Division, Athens, GA 30605 and Gene Whelan, Ph.D., Pacific Northwest National Laboratory, Richland, WA 99352.

Application of GIS Techniques and Other Spatial Data Sources for National Risk Assessments: Part 1, Data Sources and methodology. Robert S. Truesdale, Gerald T. Conrad, E.E. Rickman, and Linda S. Andrews. Research Triangle Institute, Research Triangle Park, N.C. 20771.

A Proposed Approach for Conducting National-Scale Ecological Risk Assessments for the Identification of Hazardous Wastes. Stephen M. Beaulieu, Joanie McLean and Gerald T. Conrad, Research Triangle Institute, Research Triangle Park, N.C.; and David A. Cozzie, US Environmental Protection Agency, Washington, DC 20460.

Session 2

SPARC Generated Chemical Properties Database for Use in National Risk Assessments. J. MacArthur Long, Ph. D., Samuel W. Karickhoff, Ph. D., Eric J. Weber, Ph.D., U.S. Environmental Protection Agency, National Exposure Research Laboratory, Athens, GA 30605.

Development of Human Exposure Factor Distributions for Use in a National Risk Assessment. L. E. Meyers, Ph.D., Research Triangle Institute, Research Triangle Park, N.C.

20771, J. Moya, U.S. Environmental Protection Agency, Washington, D.C., and R. W. Whitmore, Research Triangle Institute, Research Triangle Park, N.C. 20771.

Proposed Methodology Used to Estimate Contaminant Transfer Through Aquatic Food Webs for a National Risk Assessment. S. M. Beaulieu, K.W. Little, A.B. Harmon, and T.K. Pierson, Research Triangle Institute, N.C. 20771 and S. M. Kroner, U.S. Environmental Protection Agency, Washington, DC 20460.

Variability and Uncertainty Analyses for National Probabilistic Risk Assessments
C.M. Marin, AMBIOTEC, Inc., V. Guvanasen, HydroGeoLogic, Inc. and Z. A. Saleem, U.S. Environmental Protection Agency, Washington, DC 20460.

OTHER PRESENTATIONS TO PUBLIC FOR INFORMATION EXCHANGE

Hazardous Waste Identification Rule; Identification and Listing of Hazardous Wastes. Application of the Multimedia, Multipathway, and Multireceptor Risk Assessment (3MRA) Model to 36 chemicals for national regulations. Federal Register Notice, Vol 65, No. 135, pp. 44491-444506, July 18, 2000.

National RCRA Program Meeting, Hyatt Regency Capitol Hill Hilton, Washington, DC. Multimedia, Multipathway, and Multireceptor Risk Assessment (3MRA) Workshop. August 17, 2000.