

**PACKAGE ID** - 000140IBMPC02 MEPAS3.1G

**KWIC TITLE** - Multimedia Environmental Pollutant Assessment  
System

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**LIMITATION CODE** -COPY                   **AUDIENCE CODE** - LIM

**COMPLETION DATE** - 02/01/1995   **PUBLICATION DATE** - 12/01/1989

**DESCRIPTION** - Integrated system to compute long-term public health risks as the result of the release of hazardous and/or radioactive materials to air, groundwater, surface water, and overland transport pathways.

**PACKAGE CONTENTS** - Software Abstract; Media Directory; MEPAS Tutorial; PNL-10395; Media Includes User's Guide, Executable Module;

**SOURCE CODE INCLUDED?** - No

**MEDIA QUANTITY** - 1 CD Rom

**METHOD OF SOLUTION** - Compute environmental and public health risks either from fate and transport modeling or from monitoring data. Four transport pathways (groundwater, overland, surface water, and atmospheric pathway) and an exposure component are incorporated in the MEPAS3.16 framework. The exposure assessment component provides a summary of risk-based parameters for each problem. The exposure assessment component considers potential exposure of the surrounding population providing information on the potential total

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**METHOD OF SOLUTION - (CONT)** population and maximum individual impacts.

**COMPUTER** - IBM PC

**OPERATING SYSTEMS** - Microsoft DOS (3.n or 5.n)

**PROGRAMMING LANGUAGES** - MICROSOFT FORTRAN (75%) DBASE III+ (20%)  
Microsoft C (5%)

**SOFTWARE LIMITATIONS** - SOURCE CODE NOT INCLUDED IN PACKAGE.

**SOURCE CODE AVAILABLE (Y/N)** - N

**UNIQUE FEATURES** - The unique aspect of MEPAS3.1G is the integration and linkage of public health risks computations for both radionuclide and hazardous chemicals into a single package. MEPAS3.1G provides a balanced approach to each segment based on commonly used methods with a detailed guidance and documentation. MEPAS3.1G also comes with a database containing chemical, physical, and toxicity data for about 300 constituents.

**RELATED SOFTWARE** - MEPAS3.1G is a stand-alone system. The modification of the constituent database requires additional editing software.

**OTHER PROG/OPER SYS INFO** - Large applications with many problems should be subdivided into different application directories. Ten to twenty problems per application directory will give good performance. Too many problems will result in delay for data file updates.

**HARDWARE REQS** - IBM PC or compatible with 640 Kbyte RAM, 20 Mbyte (minimum) fixed disk. A math coprocessor is recommended. The code may not operate if memory resident programs are loaded and reserving a portion of the RAM memory.

**TIME REQUIREMENTS** - Once problem definition is complete, MEPAS3.1G runs typically will take a few minutes on a 486 class computer. Actual run times are application dependent. Runs times will be much longer on computers without a math coprocessor.

**REFERENCES** - J.G. Droppo, D.L. Strenge, J.W. Buck, B.L. Hoopes, R.D. Brockhaus, M.B. Walter, K.J. Castleton, J.P. McDonald, C. Sato, G.P. Streile and G. Whelan, Multimedia Environmental Pollutant Assessment System (MEPAS) Application Guidance. Guidelines for Evaluating MEPAS Input Parameters for Version 3.1, PNL-10395, February 1995; MEPAS Tutorial; J.G. Droppo and J.W. Buck, The Multimedia Environmental Pollutant Assessment System (MEPAS): Atmospheric Pathway Formulations, Revision, PNNL-11080-REV, March 1996; J.G. Droppo, D.L. Strenge, J.W. Buck, B.L. Hoopes, M.B. Walter, and G. Whelan, R.L. Knight and S.M. Brown, Supplemental Mathematical Formulations: The Multimedia Environmental Pollutant

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**REFERENCES - (CONT)** Assessment System (MEPAS), PNL-7201, December 1989; J.W. Buck, B.L. Hoopes, and D.R. Friedrichs, Multimedia Environmental Pollutant Assessment System (MEPAS) Application Guidance, Getting Started with MEPAS, PNL-7136, December 1989; D.L. Strenge and S.R. Peterson, Chemical Data Bases for the Multimedia Environmental Pollutant Assessment System (MEPAS): Version 1, PNL-7145, December 1989, and Errata to MEPAS Data Base Report (PNL-7145), received October 1990; G. Whelan, D.L. Strenge, J.G. Droppo, Jr., B.L. Steelman, and J.W. Buck, The Remedial Action Priority System (RAPS): Mathematical Formulations, DOE/RL/87-09 (PNL-6200), August 1987.

**ABSTRACT STATUS** - IBM PC submitted October 1990 and May 1991. MEPAS2.3G submitted November 1992. MEPAS3.1G submitted 7/12/96. Released AS-IS 7/18/96.

**SUBJECT CLASS CODE** - R

**KEYWORDS** -

COMPUTER PROGRAM DOCUMENTATION  
M CODES  
RADIONUCLIDE MIGRATION  
POLLUTION  
RADIOACTIVITY TRANSPORT  
RISK ASSESSMENT  
INGESTION  
INHALATION  
HAZARDOUS MATERIALS  
PUBLIC HEALTH  
WETLANDS  
UPTAKE  
CARCINOGENS  
ENVIRONMENTAL EXPOSURE PATHWAY  
GROUND WATER  
SURFACE WATERS

**EDB SUBJECT CATEGORIES** -

990200 540320 540330 540130

**SPONSOR** - DOE/DP

**PACKAGE TYPE** - AS - IS