MACCS2

Current Central Registry Toolbox Version(s): 1.13.1
Code Owner: Sandia National Laboratory (SNL)

Description: The MELCOR Accident Consequence Code Systems (MACCS) code, and its successor code, MACCS2, are based on the straight-line Gaussian plume model was developed originally for the Nuclear Regulatory Commission (NRC). MACCS2 evaluates doses and health risks from the accidental atmospheric releases of radio nuclides. The principal phenomena considered in MACCS2 are atmospheric transport and deposition under time-variant meteorology, short-term and long-term mitigative actions and exposure pathways, deterministic and stochastic health effects, and economic costs.

Nathan Bixler, nbixler@sandia.gov at SNL maintains code under direction of Jocelyn Mitchell at NRC jam@nrc.gov. Radiation Safety Information Computational Center (RISCC), http://www-rsicc.ornl.gov, at Oak Ridge National Laboratory controls the distribution.

A user initiated blog is available, http://maccs2support.chaninconsulting.com, sponsored through Chanin Consulting that provides information related to MACCS2 enhancements and issues.

In May 2004, DOE Office of Quality Assurance Programs (EH-31) performed an evaluation of MACCCS2 against DOE's safety software quality assurance criteria. A gap analysis report was generated that identifies the strengths and weaknesses based upon ASME NQA-1 criteria. Upon completion of this evaluation, MACCS2 V 1.13.1 was included in DOE's safety software Central Registry as a safety analysis toolbox code. Inclusion into DOE's safety software Central Registry provides to DOE sites knowledge of the pedigree of the safety software quality assurance (SSQA) level for MACCS2 V 1.13.1. If another version of MACCS2 is used, DOE sites must assume the responsibility to determine that the quality assurance level meets DOE SSQA requirements. DOE EH-31 published guidance for the use of MACCS2 V 1.13.1. This guidance is recommended for all DOE applications of MACCS2 V 1.13.1.

Reports and publications related to MACCS2:

DOE-EH-4.2.1.3-MACCS2-Gap Analysis, Software Quality Assurance Improvement Plan: MACCS2 Gap Analysis, May 2004.

DOE-EH-4.2.1.4-MACCS2-Code Guidance, MACCS2 Computer Code Application Guidance for Documented Safety Analysis, June 2004.

NUREG/CR 6853, Comparison of Average Transport and Dispersion Among a Gaussian, a Two-Dimensional, and a Three-Dimensional Model, October 2004.

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