

PACKAGE ID - 000791C760000 SLAB-LLNL

KWIC TITLE - Steady State Dense Gas Dispersion

AUTHORS - Ermak, D.L.
Lawrence Livermore National Lab., CA (United States)

LIMITATION CODE -UNL **AUDIENCE CODE** - UNL

COMPLETION DATE - 03/01/1984 **PUBLICATION DATE** - 03/13/1984

DESCRIPTION - SLAB-LLNL is a steady-state one-dimensional program which calculates the atmospheric dispersion of a heavier than air gas that is continuously released at ground level. The model is based on the steady-state crosswind-averaged conservation equations of species, mass, energy, and momentum. It uses the air entrainment concept to account for the turbulent mixing of the gas cloud with the surrounding atmosphere and similarity profiles to determine the crosswind dependence.

PACKAGE CONTENTS - NESC Tape Description; Software Abstract; SLAB Programming Features; UCRL-92494, Rev. 1, Preprint; Media Includes Source Code, Sample Problem;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 CD Rom

METHOD OF SOLUTION - The SLAB-LLNL coupled, ordinary differential equations are numerically solved by using a combination of the fourth order Runge-Kutta method and the Adams-Moulton predictor corrector method.

COMPUTER - CDC7600

OPERATING SYSTEMS - NOS

PROGRAMMING LANGUAGES - LRLTRAN

SOFTWARE LIMITATIONS - The nearly uniform crosswind distribution is assumed.

SOURCE CODE AVAILABLE (Y/N) - Y

RELATED SOFTWARE - SLAB-LLNL is an outgrowth of the earlier time-dependent SLAB program. FEM3 is a numerical model that simulates heavy gas dispersion in the atmosphere by solving the time-dependent, three-dimensional conservation equations of mass, momentum, energy, and species.

OTHER PROG/OPER SYS INFO - SLAB-LLNL calls several LLNL system and plotting routines; these are not included.

PACKAGE ID - 000791C760000 SLAB-LLNL

HARDWARE REQS - 74,000 (octal) words

TIME REQUIREMENTS - A typical simulation requires a few CP seconds on a CDC7600.

REFERENCES - Donald L. Ermak and Stevens T. Chan, A Study of Heavy Gas Effects on the Atmospheric Dispersion of Dense Gases, UCRL- 92494, Rev. 1 Preprint, April 1985; Louise Morris, SLAB Programming Features, Lawrence Livermore National Laboratory Memorandum, February 7, 1986.

ABSTRACT STATUS - Abstract first distributed April 1986. CDC7600 version submitted March 1986. Released AS-IS by ESTSC 3/15/95.

SUBJECT CLASS CODE - R

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
S CODES
GAS FLOW
DISPERSION RELATIONS
TURBULENT FLOW

EDB SUBJECT CATEGORIES -
990200 540120

SPONSOR - DOE/DP

PACKAGE TYPE - AS - IS