MACCS2 Software Package Sandia National Laboratories	**Software Defect Notification**

1. Date: 5/26/98
2. Log Number: M2V1-12A
3. Computer Code: ☒ MACCS2 ☐ COMIDA2 ☐ FGRDCF ☐ IDCF2 ☐ DOSFAC2
4. Computer Code Version Number: Version 1.12
5. Defect Classification: ☒ Major   ☐ Minor
6. Does the defect still exist?   ☒ Yes   ☐ No   Defect to be corrected in MACCS2 V1.13

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7. Brief Description of Defect:
When multiple source terms are specified in a single calculation, that is, when the source term change case is invoked in the ATMOS input file by specifying a change record set (ref. Section 5.11 of MACCS2 User's Guide, Vol. 1, SAND97-0594, NUREG/CR-6613), certain parameters specified to be changed will be incorrectly implemented. The source term change case parameters that are involved in the defect are: PSDIST (particle size distribution by group), SIGYINIT and SIGZINIT (initial values for σ_y and σ_z), BUILDH (building height), and some of the released inventory in the fourth plume segment. The source term change case parameters that are not affected by the defect are: PLHEAT (plume heat), PLHITE (plume height), PLUDUR (plume duration), PDELAY (plume release time), REFTIM (plume reference time point), and the inventories of the first 3 plume segments.

8. Brief Description of Evaluation/Impact:
Parameters PSDIST, SIGYINIT, SIGZINIT, BUILDH, and the inventory of the 4th plume segment will be incorrectly implemented if they are specified to be changed in the source terms that follow the initial source term specification. The specified changes for these parameters are actually implemented in the previously defined source term. For example, suppose a user specifies an initial source term with 4 plume segments and then uses 5 source term change cases for a total of 6 source terms in the calculation. In each new source term the following parameters are specified to be changed: plume duration, initial σ_y and σ_z specifications, and release fractions for all 4 plume segments. The 4th plume segment inventory and the σ_y and σ_z values which will be corrupted in the first 5 source terms, all other source term parameters will be implemented correctly (the only entirely correct source term is the 6th and final one).

9. Recommendations:
Avoid using the source term change case feature in MACCS2, or only specify changes for the unaffected parameters listed in Item 7 above.

10. Expected Corrective Actions:
The defect will be corrected in the next release of MACCS2 (Version 1.13)

Julie Gregory		5/26/98
Recorded by	Signature	Date

MACCS2 Software Package Sandia National Laboratories	Software Defect Notification

1. Date: 5/26/98
2. Log Number: M2V1-12B
3. Computer Code: ☒ MACCS2 ☐ COMIDA2 ☐ FGRDCF ☐ IDCF2 ☐ DOSFAC2
4. Computer Code Version Number: Version 1.12
5. Defect Classification: ☒ Major ☐ Minor
6. Does the defect still exist? ☒ Yes ☐ No Defect to be corrected in MACCS2 V1.13

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7. Brief Description of Defect:

When multiple (up to 3) emergency response scenarios are specified in the EARLY input file (ref. Section 6.6.1 of MACCS2 User's Guide, Vol. 1, SAND97-0594, NUREG/CR-6613), certain parameters specified in a new emergency response definition will cause errors to result in the EARLY module calculation. The parameters that are involved in the defect are: RESCON (resuspension concentration coefficient) and RESHAF (resuspension concentration halflife); although these two parameters are not typically used in an alternate emergency response strategy, they potentially may be used. All other parameters that may be specified in an alternate emergency response do not involve the defect.

8. Brief Description of Evaluation/Impact:

Specification of new values for the parameters RESCON and RESHAF in an alternate emergency response scenario in the EARLY input will result in erroneous results (not only for the alternate scenario, but for the initially specified response scenario).

9. Recommendations:

Do not define alternate emergency response scenarios that involve the parameters RESCON or RESHAF.

10. Expected Corrective Actions:

The defect will be corrected in the next release of MACCS2 (Version 1.13)

Julie Gregory		5/26/98
Recorded by	Signature	Date