

**Modifications to User's Guide to CTDMPLUS:**

**Volume 2. The Screening Mode (CTSCREEN)\***

**March 1993**

\* The complete User's Guide (EPA/600/8-90/087) was published in October 1990 and is available as Accession No. PB91-136564 from NTIS.

### **Section 2.1.2 CTSCREEN for Unstable /Convective Conditions**

- 1) Add to the end of the third paragraph (beginning "model -calculated wind ...") in the section:

Mixing heights are primarily determined as a function of hill height (0.5h, 1.0h, 1.5h; h= hill height) although consideration is also given to plume buoyancy. A mixing height (zimax) is determined for which it is estimated that all sources will have less than 10% plume penetration through the mixed layer. If zimax is below the top of the a hill, it replaces the 0.5h mixing height. If zimax is above the top of the hill, it replaces the 1.5h mixing height. If all sources have greater than 90% penetration of a given mixing height, that mixing height is not modeled. The maximum number of mixing heights is three times the number of hills. The actual number of mixing heights may, in fact, be less.

- 2) In the fourth paragraph, change five meteorological variables to four.

- 3) Table 2-2: Delete mixing height under the list of variables

- 4) Replace the last paragraph with the following:

This matrix yields 36 combinations for each wind direction and mixing height. The maximum number of simulations for unstable conditions is calculated from the following:

$$\text{number of simulations} = 36 * (\text{number of wind directions}) * (\text{number of mixing heights})$$

For a particular mixing height, only the receptors associated with the hill from which that mixing height was derived are modeled. Concentrations at other receptors for that simulation are set equal to missing (-999.)

### **Section 3.1.1 CTDM.IN File**

- 1) At the end of the first paragraph, replace the last sentence and the list of switch names with the following:

The switches ICASE, ITOPN, ISIGV, IWD, IUNSTA, IPOL, and IQ must be included in the CTDM.IN file, but are not used by CTSCREEN.



3) In Figure 3-1, change line group 2 from

0 0 2 1 1 1 0 1 0 1 1 1 0 0 0  
to

0 0 2 1 1 1 0 1 0 1 0 1 1 0 0

4) In Figure 3-2, change line group 2 from

0 0 2 1 1 1 0 1 0 1 1 0 1 0

to  
0 0 2 1 1 1 0 1 0 1 0 1 0 1 0

5) In Figure 3-3, change line group 2 from

0 0 2 1 1 1 0 1 0 1 1 0 0 1

to  
0 0 2 1 1 1 0 1 0 1 0 1 0 0 1

### Section 3.1.2

1) In table 3-3, change the second parameter in group 3 from

L  
to  
XHL, YHL

### Section 3.2 CTSCREEN OUTPUT FILES

1) Replace Section 3.2.2 with the following:

CTSCREEN optionally creates two files of concentrations: one for stable conditions (UNCONC) and one for unstable conditions (UNCONC). The user has the option of having these files written in text or binary format. Concentrations at each receptor for all simulations are included in the file. The format of the files is given in Table 3-5 (both files have the same format).

2) Add Section 3.2.4 as follows:

The METDAT file lists the meteorology maximum concentration, and source

contribution (for the source with the highest impact) for each simulation.

3) Add Section 3.2.5 as follows:

The user has the option of creating a file (SOURCES) containing source contribution information. The file can be written in text or binary format and contains the total concentration and contribution from each source for each receptor for each simulation.

4) Replace Table 3-5 with the following:

TABLE 3-5. FORMAT OF THE STCONC AND UNCONC FILES

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Line group	Columns	Format	Description
S))))))))))	1-5	I5	Year (dummy value = 52)
1*	6-10	I5	Month (dummy value = 2)
	11-15	I5	Day (dummy value = 29)
	16-20	I5	Simulation number
	21-25	I5	Number of receptor with maximum concentration
	26-30	I5	Number of receptors
	31-50	A20	Units of concentration
2**		8E10.3	Concentration ( $\mu\text{g}/\text{m}^3$ )

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\* Each hour.  
 \*\* Eight values per line until receptor list is exhausted, each hour.

**Section 3.3 INSTRUCTIONS FOR EXECUTION OF CTSCREEN**

1) Delete the existing text from this section; these instructions are inappropriate. Please note the following:

CTSCREEN is available from the EPA's Support Center for Regulatory Air Models (SCRAM) bulletin board system as PKZIP archive files. The CR8CTSC.EXE and RUNCTSC.BAT programs are no longer distributed. CTSCREEN may be run from the CTDMPPLUS menu driver or directly from DOS. A description of the menu driver and its operation can be found in the CTDMPPLUS users's guide (Perry et al, 1989).

2) The file tree structure needed to run CTSCREEN with the menu driver is:

```

C:\S))))) , MENU.BAT
*
*
R\CTDM
  T
  /))Q \EXE\          FITCON.EXE, HCRIT.EXE, PLOTCON.EXE
*                    RECGEN.EXE, CTSCREEN.EXE,
*                    DRIVEIT.EXE, DRIVEIT.OVR
*
  /))Q \TERRAIN\     *.XY, *.OPT, *.DAG, *.PLT, *.FO,
*                    *.HOP, *.HPT, *.CID
*
  /))Q \FILES\       CTSCREEN.SFC, CTSCREEN.PFL, *.CIN,
*                    *.HCO, *.RCT, *.STC, *.UNC, *.MET
*                    *.SRC
*
R

```

3) The file naming convention needed to run CTSCREEN with the menu driver is essentially the same as that listed in TABLE 5-2 in the CTDMPLUS user's guide (Perry et al, 1989). The following files should be added.

<u>Description</u>	<u>Required Name</u>	<u>Extension</u>
Meteorological file	METDAT	.MET
Source contribution file	SOURCES	.SRC
Concentration file - stable conditions	STCONC	.STC
Concentration file - unstable conditions	UNCONC	.UNC