

March 1, 2004

MEMORANDUM TO: Michael D. Tschiltz, Chief
Probabilistic Safety Assessment Branch
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation

FROM: Jack Rosenthal, Chief */RA/*
Safety Margins and Systems Analysis Branch
Division of Systems Analysis and Regulatory Effectiveness
Office of Nuclear Regulatory Research

SUBJECT: RELEASE OF RADTRAD VERSION 3.04 PRELIMINARY 1b

I am pleased to announce the release of RADTRAD Version 3.04 Preliminary 1b. A CD-ROM has been given to Mr. Mark Blumberg of your staff with this latest version of RADTRAD.

Version 3.04 is a modification of RADTRAD version 3.03. Changes were made according to NRC Contract NRC-04-02-054 Task Order Number 2. Among the major changes to RADTRAD 3.03 were: (1) GUI improvements, and (2) extra output options to allow easier checking of the input and results.

Input decks from earlier versions are upward compatible to 3.04, but decks generated by 3.04 cannot be run on earlier versions without modifications.

Attached is a table providing the status of the improvements identified by NRR. SMSAB focused on those items that would enhance the usability of RADTRAD based on meetings with NRR staff. Nearly all items are complete. Items B, C, D, E, K and Q require further discussion. Please have Mark Blumberg contact the RES Project Manager, Michael B. Rubin, to discuss them.

This latest version of RADTRAD is provided for your staff to use and provide feedback to RES. After RES receives this feedback we will be happy to consider further improvements to the code.

Please contact me if you have any questions.

Attachment: As stated

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Distribution w/att.: SMSAB R/F DSARE R/F JStarefos

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OFFICE	SMSAB		SMSAB		C:SMSAB	
NAME	MRubin:mb		RHogan		JRosenthal	
DATE	3/1/04*		3/1/04*		3/1/04*	

RADTRAD Enhancements Subtask Status as of December 2003		
Subtask Letter	Description	Summary
A	Modify filter dialogs so they allow flow and efficiency to be varied by time step.	Completed.
B	Modify the source term textbox on the compartment form to have separate entries for aerosol, elemental, organic, and noble gases.	Further discussion with NRR warranted.
C	Revise the NIF and DCF files to incorporate a selection of nuclides more supportive of DBA analyses	NRR needs to provide files that contain the additional isotopes for distribution with RADTRAD. This was already discussed with NRR. SMSAB is awaiting their response.
D	Create an NIF/RIF editor that can produce files appropriate for typical DBA's	NRR has developed a beta version of an NIF/RIF editor that would be suitable to meet this requirement. NRR will determine whether there are any legal impediments to releasing the code for this editor for inclusion in RADTRAD. This was already discussed with NRR. SMSAB is awaiting NRR's response.
E	RADTRAD treatment of filters may underestimate the contribution of the decay products.	RADTRAD formulation would have to be modified to handle this change.
F	Change file handling to allow new, open existing case, copy existing case, and revert options	Completed.
G	The maximum 2 hour display for the LPZ and CR in the output report are unnecessary. Report the 30 day dose instead.	Completed. Current output format done under Task O.
H	Add a results summary at the top of the output report	Completed.
I	Provide an additional environment compartment so there can be an elevated environment and a ground environment.	Completed.

Subtask Letter	Description	Summary
J	Provide the ability to identify more than one compartment as control room.	Completed.
K	Allow a compartment to be designated as a sink to serve as an end node without the need of assigning a volume	Further discussion with NRR warranted.
L	Designate a compartment as split to allow branching the transfer from a single compartment to two or more downstream compartments	Completed.
M	Enable arrow key movement between fields in entry tables	Completed.
O	Output improvement.	Completed.
P	Improve use of RADTRAD with the TID-14844 source term.	Requirement deleted by NRR – not needed.
Q	The code should be able to automatically stop containment sprays when the spray decontamination factor reaches its cutoff value	RADTRAD will be modified to utilize a spray cutoff based on Section 6.5.2 of the Standard Review Plan. Further discussion with NRR is necessary.
R	User model development w/o GUI.	Requirement deleted by NRR – not needed.
S	Modify the Fortran code to allow it to read a deck with an unlimited number of comment lines in it	Completed.
T	Modify the Fortran to echo the input with RADTRAD-generated comments saying what variable goes with what input value	Completed.
U	Support Users' Group Meetings.	Requirement deleted by NRR – not needed.
V	When opening a new/old file the code needs to clear all fields	Completed.
W	Add *.o* to the list of file types in RADTRAD's text editor	Completed.

Subtask Letter	Description	Summary
X	Improve how the code handles loading input decks	Requirement deleted by NRR – not needed.
Y	The pathway 'inactive' switch should be fully implemented	Completed.
Z	Add context sensitive help and tool tips	Completed.
AA	The output file name should be displayed in the output printout.	Completed.
AB	On tables for entering efficiencies and flows, enable the selection option that allows a user to highlight multiple fields and have the code accept the input for all of the fields.	Completed.