

September 20, 2007

MEMORANDUM TO: William F. Burton, Chief
Environmental Projects Branch A
Division of Site and Environmental Reviews
Office of New Reactors

FROM: Mark D. Notich, Project Manager */RA/*
Environmental Projects Branch A
Division of Site and Environmental Reviews
Office of New Reactors

SUBJECT: CONFERENCE CALL SUMMARY - JULY 13, 2007; DISCUSSION WITH
SOUTHERN NUCLEAR OPERATING COMPANY (SNC) CONCERNING
THE INPUT AND OUTPUT FILES FOR THE MACCS-2 CODE RUNS
FOR THE EARLY SITE PERMIT FOR THE PLANT VOGTLE SITE

ATTENDEES: NRC - Mark D. Notich
Pacific Northwest National Laboratory - Van Ramsdell, Michael
Sackschewsky
Southern Nuclear Operating Company - Tom Moorer, Dale Fulton
Tetra Tech NUS - Alan Toblin

The NRC staff held a conference call with Southern Nuclear Operating Company (SNC) on Friday, July 13, 2007, to discuss issues concerning the input and output files for the MACCS-2 computer code runs for the early site permit for the Plant Vogtle site. The NRC staff's identification of issues and SNC's responses are detailed below.

NRC Issue - Two sets of MACCS2 input files were provided. These have been compared to determine differences between the two submissions. The input files were also reviewed to identify significant deviations from other AP1000 MACCS2 analyses.

SNC Response - SNC took many of the parameters used as inputs from the Westinghouse MACCS-2 inputs submitted to the NRC in support of the AP1000 Design Certification Document (DCD). Some of the inputs were set to conservatively large values because SNC wasn't using them in the Plant Vogtle ESP computer runs. Also, SNC has discovered a concern with the SECPOP code for agricultural and economic parameters, which is accessed by the MACCS-2 code. There is a disconnect between the

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SECPOP output file and the MACCS-2 input file and this disconnect has been addressed in the current versions of the input/output files that have been provided to the NRC.

- NRC Issue - Initial values for sigma Z changed from 30.5 to 33. The initial sigma Z value is recommended (MACCS2 code document, page 5-22) to be evaluated as the building height divided by 2.15. The building height is given as 65.6 m (in the ATMOS input file), which would correspond to an initial sigma Z value of 30.5 m (the initial value given in the first submission.) What is the basis for the 33 m value?
- SNC Response - SNC will use the 30.5 value in the next MACCS-2 run.but there may be anew building height in Rev 16 of the Design Certification Document
- NRC Issue - The plume release heights were changed from zero (ground level) to 30 m. Is this a building vent height, stack height, or what? As mentioned above, the building height is 65.6 meters.
- SNC Response - Tetra Tech NUS's computer modeler does a ground level release run first, then does a sensitivity analysis run, then does a top of containment release run, then does a sensitivity run.
- NRC Issue - The evacuation speeds were increased from 1.7 m/s to 2.2 m/s. How were these values calculated?
- SNC Response - The evacuation speeds will remain at 1.7 m/s in the next MACCS-2 computer run.
- NRC Issue - The delay time to sheltering was increased from 30 minutes to 42 minutes. What is the basis for the delay time value?
- SNC Response - The delay time for sheltering will remain at 30 minutes in the next MACCS-2 computer run.
- NRC Issue - The emergency period was reduced from 1 week to 1 day. The 1 day period is much shorter than other analysis and is less than the release time for most of the release scenarios. What is the basis for selection of the 1 day value?
- SNC Response - The emergency period will remain a 1 week in the next MACCS-2 computer run.
- NRC Issue - The hotspot relocation delay time (SRTIMHOT) was increased from ½ day to 1 day. What is the basis for this time value?
- SNC Response - The hotspot relocation delay time (SRTIMHOT) will remain at ½ day in the next MACCS-2 computer run.

- NRC Issue - The hot spot relocation dose criterion was increased from 0.5 Sv to 10 Sv, and the normal relocation dose criterion was increased from 0.25 Sv to 10 Sv. What is the reasoning for assigning such high values? The 10 Sv value is generally considered to be a lethal dose.
- SNC Response - SNC will use the 0.5 Sv value in the next MACCS-2 computer run.
- NRC Issue - The site file (Vsite.inp) was updated to correspond to the revised distance intervals. This involved updating most data arrays. The economic cost data values appear to have been increased, possibly representing updated values.
- SNC Response - SNC agreed to go back to the original values.
- NRC Issue - In the ATMOS input file, the release terms include the parameter RDREFTIM which defines the representative time point of each plume segment. There seem to be considerable differences in definition of this parameter among the six AP1000 release scenarios. What was the logic in assigning this parameter to each plume for each scenario?
- The release scenarios were defined using four plume segments. What was the basis for the definition of the four plumes and the release fractions for each plume? The release scenarios are defined by the following MACCS2 parameters.
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| RDOALARM | Time from start of accident initiation until the alarm is given |
| RDREFTIM | Reference time (described above) |
| RDMAXRIS | The plume segment that is expected to carry the greatest risk |
| RDPLHEAT | Heat released in the plume segment |
| RDPLHITE | Height of release of each plume segment |
| RDPLUDUR | Duration of each release of each plume segment |
| RDPELAY | Time from accident initiation until the start of release of each plume segment |
| RDRELFRC | Release fractions for each radionuclide release group and each plume segment |
- SNC Response - These parameters were derived from the Westinghouse MACCS-2 computer runs for the AP1000 Design Certification Document.
- NRC Issue - The heat of release was set to zero for all plumes, which results in a maximum dose estimate for effects close to the reactor. A zero value for heat of release results in no plume rise, causing higher ground level air concentrations and higher deposition values at the short downwind travel distance. This may not necessarily maximize the effects for longer distances, such as crop pathways.

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SNC Response- SNC will use 0.5 as the midpoint for each plume segment and do something similar to the sensitivity analysis for the release heights.

Docket No. 52-011

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SNC Response- SNC will use 0.5 as the midpoint for each plume segment and do something similar to the sensitivity analysis for the release heights.

Docket No. 52-011

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