



May 11, 2007  
NRC:07:019

Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

**Response to a Request from the NRC for MAAP and MELCOR Input Files for the U.S. EPR**

Ref. 1: Request for Review and Approval of ANP-10268(P) Revision 0, "U.S. EPR Severe Accident Evaluation Topical Report," NRC:06:049, October 31, 2006

AREVA NP Inc. (AREVA NP) submits this letter in response to NRC requests for copies of AREVA NP's MAAP and MELCOR input files for the U.S. EPR. The purpose of this information is to support the NRC's review of the topical report submitted in Reference 1.

The information requested is itemized in Attachment A and provided on the enclosed CD.

The enclosed CD contains the following information:

- A "table of contents" file, labeled <readme.pdf>, which itemizes the contents of the CD
- MAAP input files, comprising the U.S. EPR parameter file, including files and sample input decks
- MELCOR input files, comprising MELGEN and MELCOR input decks

The design information for the U.S. EPR included within the subject input files should not be considered final, as it is subject to change. Final design information will be provided in the application for design certification.

AREVA NP considers the information on the enclosure to this letter to be proprietary in its entirety and thus no non-proprietary version is provided. The affidavit provided with this letter satisfies the requirements of 10 CFR 2.390(b) to support the withholding of the proprietary information from public disclosure.

If you have any questions related to this submittal, please contact Ms. Sandra M. Sloan, Regulatory Affairs Manager for New Plants Deployment. She may be reached by telephone at 434-832-2369 or by e-mail at [sandra.sloan@areva.com](mailto:sandra.sloan@areva.com).

Sincerely,

A handwritten signature in black ink, appearing to read 'Ronnie L. Gardner', written over a horizontal line.

Ronnie L. Gardner, Manager  
Site Operations and Regulatory Affairs  
AREVA NP Inc.

Enclosures

cc: L. Burkhart  
G. Tesfaye  
Project 733

## Attachment A

### 1 MAAP4.07 Model

#### 1.1 Contents of ./maap4/include

The following files are called from each MAAP4 input deck.

**us epr 407.par** U.S. EPR MAAP4.07 parameter file.

**events.inc** include file containing user-defined event codes.

**functions.inc** include file containing user-defined plot functions.

**plots.inc** include file containing plot variable requests.

**pzrvalve.inc** include file containing modeling for the dedicated severe accident depressurization valves.

**fchf.inc** include file containing modeling for the core melt stabilization system.

**pasflood.inc** include file containing modeling for the passive flooding of the core catcher.

**pscd.inc** include file containing modeling for the partial secondary side cooldown function.

**sahrs.inc** include file containing the modeling for the Severe Accident Heat Removal System (SAHRS).

#### 1.2 Contents of ./maap4/lbloca

**lbloca f.inp** MAAP4.07 input file for a LBLOCA scenario.

#### 1.3 Contents of ./maap4/loop

**loop f.inp** MAAP4.07 input file for a LOOP scenario.

#### 1.4 Contents of ./maap4/sbloca

**sloca.inp** MAAP4.07 input file for a SBLOCA scenario.

### 2 MELCOR 1.8.6 Model

#### 2.1 Contents of ./melcor

**epr.gen** MELGEN input deck for a surge line LOCA scenario.

**epr.cor** MELCOR input deck for a surge line LOCA scenario.

#### 2.2 Contents of ./melcor/rif

The following files are "read in files" associated with the MELGEN input deck.

**accum.gen** control function package input for accumulators

**cf\_loop.gen** control functions to determine steady-state pressure drop in main coolant lines

**dch\_epr.gen** decay heat package input

**hs\_sg.gen** steam generator tube bundle heat structures

**ic\_sg.gen** initial conditions in steam generator

**loops.gen** primary coolant loop control volumes and flow paths

**mp.gen** material properties

**NEW\_cf\_press\_LP.gen** control functions to determine steady-state pressure drop in RV

**NEW\_cv\_rpv\_LP\_int.gen** RPV control volumes and flow paths

**NEW\_eprcor\_LP\_int.gen** COR package inputs

**NEW\_fl\_rpv\_LP.gen** RPV flow paths

**NEW\_hs\_rpv\_LP.gen** reactor pressure vessel heat structures

**prz\_sv.gen** pressurizer safety valves

**pumps.gen** reactor coolant pump inputs

**sg.gen** steam generator control volumes and flow paths

**sg\_triple.gen** triple loop SG control volumes and flow paths

**sis\_int.gen** safety injection system model

**sources.gen** time-independent infinite sinks for SG outlet on single and triple loop

**tp\_epr.gen** transfer process inputs

**trips\_int.gen** reactor system trips and control logic

**sahrs\_int\_noRN.inp** severe accident heat removal system inputs

**transients.gen** accident definition inputs

**cv\_inputs.mod** modifications to control volume inputs

**fl\_inputs.mod** modifications to flow path inputs

**hs\_inputs.mod** modifications to heat structure inputs

**PAR\_INPUTS.MOD** modifications to passive autocatalytic recombiner inputs

**ex-vessel-model.mod** modifications to ex-vessel model inputs

A F F I D A V I T

STATE OF VIRGINIA        )  
                                  ) ss.  
COUNTY OF CAMPBELL    )

1. My name is Ronda M. Daflucas. I am Deputy Licensing Manager, for AREVA NP Inc. and as such I am authorized to execute this Affidavit.

2. I am familiar with the criteria applied by AREVA NP to determine whether certain AREVA NP information is proprietary. I am familiar with the policies established by AREVA NP to ensure the proper application of these criteria.

3. I am familiar with the AREVA NP information contained in the input files for the MAAP and MELCOR severe accident analysis codes, and referred to herein as "Documents." Information contained in these Documents has been classified by AREVA NP as proprietary in accordance with the policies established by AREVA NP for the control and protection of proprietary and confidential information.

4. These Documents contain information of a proprietary and confidential nature and are of the type customarily held in confidence by AREVA NP and not made available to the public. Based on my experience, I am aware that other companies regard information of the kind contained in these Documents as proprietary and confidential.

5. These Documents have been made available to the U.S. Nuclear Regulatory Commission in confidence with the request that the information contained in these Documents be withheld from public disclosure. The request for withholding of proprietary information is made in accordance with 10 CFR 2.390. The information for which withholding from disclosure

is requested qualifies under 10 CFR 2.390(a)(4) "Trade secrets and commercial or financial information".

6. The following criteria are customarily applied by AREVA NP to determine whether information should be classified as proprietary:

- (a) The information reveals details of AREVA NP's research and development plans and programs or their results.
- (b) Use of the information by a competitor would permit the competitor to significantly reduce its expenditures, in time or resources, to design, produce, or market a similar product or service.
- (c) The information includes test data or analytical techniques concerning a process, methodology, or component, the application of which results in a competitive advantage for AREVA NP.
- (d) The information reveals certain distinguishing aspects of a process, methodology, or component, the exclusive use of which provides a competitive advantage for AREVA NP in product optimization or marketability.
- (e) The information is vital to a competitive advantage held by AREVA NP, would be helpful to competitors to AREVA NP, and would likely cause substantial harm to the competitive position of AREVA NP.

The information in the Documents is considered proprietary for the reasons set forth in paragraphs 6(b) and 6(c) above.

7. In accordance with AREVA NP's policies governing the protection and control of information, proprietary information contained in these Documents has been made available, on a limited basis, to others outside AREVA NP only as required and under suitable agreement providing for nondisclosure and limited use of the information.

8. AREVA NP policy requires that proprietary information be kept in a secured file or area and distributed on a need-to-know basis.

9. The foregoing statements are true and correct to the best of my knowledge, information, and belief.

Jonda M. Dagle

SUBSCRIBED before me this 11<sup>th</sup>  
day of May, 2007.

Kathleen A. Bennett

Kathleen A. Bennett  
NOTARY PUBLIC, STATE OF VIRGINIA  
MY COMMISSION EXPIRES: 8/31/2011

