



ENTERGY

Entergy Operations, Inc.

P.O. Box 8

Portland, LA 70066

Te 504 739 6774

R. F. Burski

Director

Nuclear Safety

Waterford 3

W3F1-91-0649

A4.05

QA

November 7, 1991

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Subject: Waterford 3 SES  
Docket No. 50-382  
License No. NPF-38  
Idaho National Engineering Laboratory (INEL)  
Draft Report on Intersystem Loss of Coolant  
Accident (ISLOCA) Risks

Gentlemen:

Waterford 3 on September 10, 1991, received a letter dated August 15, 1991, from the NRC Project Manager requesting comments on the subject report within sixty days of the receipt of the NRC letter. The purpose of this letter is to provide Waterford 3 comments on the subject report.

Overall, we believe the report is reasonably accurate and indicates that the ISLOCA risk at Waterford 3 is very small. The report highlights the excellent administrative controls, training, and interlocks that prevent human errors from contributing significantly to the ISLOCA risk.

Specific and detailed comments are provided in Attachment one (1). We would like to thank the NRC for the opportunity to review and comment on the draft report.

Please contact me or Robert J. Murillo should there be any questions regarding these comments.

Very truly yours,

RFB/RJM/ssf

Attachment

cc: R.D. Martin (NRC Region IV), R.B. McGehee,  
N.F. Reynolds, NRC Resident Inspectors Office

9111150157 911107  
PDR ADOCK 03000382  
P PDR

ADD 11

Waterford 3 Comments on Idaho National  
Engineering Laboratory (INEL) Draft Report  
on Intersystem Loss of Coolant Accident  
(ISLOCA) Risks

General

The SDC system does not include two high pressure recirculation lines to the RCS hot legs. The high pressure safety injection system does include two injection lines to the hot legs as shown on Figure 3.3. [Page 17]

In Figure 3.4 & B.11, air operated valve SI-106A/B is not shown between the RWSP and SI-107A/B. Also, check valves SI-107, 1071, and 108A/B are drawn backwards (showing flow in the reverse direction). [Page 21, B-24]

Sequence 1B - SDC ISLOCA During Startup

This sequence relies on the Automatic Closure Interlock (ACI) to isolate low pressure piping as pressure increases during startup. Waterford 3 has removed this interlock, but has installed alarms to alert the operator that the valves are not fully closed when pressure increases above the alarm setpoint. This alarm provides equal (if not better) protection against an ISLOCA. Thus, even through ACI has been removed, a value of  $1.0E-03$  is appropriate for ACIF in the event trees of Figure 4.1 and B.2. [Page B-4]

The screening values for ACIF ( $1.0E-03$ ) and human failures OFIP, PTD, and FTDGN (1.0) given in the text are not the same as shown in the event tree in Figures 4.1 and B.2 ( $3.0E-03$  and 0.5). [Page B-7]

Sequence 2 - LPSI Discharge ISLOCA

No credit for an alarm on high pressure between the upstream check valves (indicating a failed open check valve) was given because an annunciator card for a similar alarm on the high pressure hot leg injection line was pulled. The alarm for the LPSI discharge line has typically been in service and would therefore, be available to alert the operator not to open the valve with a potentially failed open check valve. Credit for this alarm would reduce the core damage frequency for ISLOCA below  $1.0E-06$ . [Page 28]

The analysis assumes that the operator fails to isolate the leak given that the operator has detected and properly diagnosed the LOCA. This assumption does not account for an operator's first reaction which is to undo the wrong action particularly if there were an immediate and obvious indication of a problem (i.e., close the LPSI discharge valve that he has just opened). An operator failure probability of 1.0 for FTI in Figures 4.2 and B.4 is thus overly conservative. [Page B-12]

#### Sequence 5 - ISLOCA During SDC

The analysis of this sequence assumed that check valve SI-108A/B was failed open with a probability of 1.0 based on the as-found condition of the valve. Although this valve was not leak tight and would have allowed pressurization of the downstream low pressure piping, the leak rate through the valve was not sufficient to result in a large ISLOCA. The back flow rate through SI-108 was estimated, based on test data, to be about 15 gpm. Since this is well within the capacity of one charging pump, the operator would have sufficient time to depressurize and prevent core damage. Thus, the core damage probability is even lower because another failure (e.g. gross failure of SI-108) would need to be included. (Note that closing motor operated SI-106 also prevents draining the RWSP in the event of a break in the suction piping). [Page 42, B-23]