

November 27, 2000

MEMORANDUM TO: File

FROM: N. Kalyanam, Project Manager */RA/*
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3
RE: CLARIFICATION TO THE STAFF SAFETY EVALUATION
(TAC No. MA6173)

The purpose of this memorandum is to place into ADAMS, the e-mails received from Entergy Operations Inc. (the licensee) dated October 5 and November 1, 2000, and the email dated October 31, 2000, from NRC to licensee.

Amendment No. 167 to Facility Operating License No. NPF-38 for Waterford Steam Electric Station, Unit 3 was issued on September 5, 2000, in response to the licensee's Technical Specification (TS) change request NPF-38-217 regarding the addition of main feedwater isolation valves to TS. Subsequently, the licensee requested a correction to a typographical error in the table on page 3 of the Safety Evaluation (SE) sent with the Amendment, and additionally sought some clarification in the SE.

The e-mails provide the exchange of information with regard to the clarification.

Attachments: As stated

Docket No.: 50-382

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NAME	NKalyanam	DJohnson	DJaffe for: RGramm
DATE	11/22/00	11/20/00	11/24/00

OFFICIAL RECORD COPY

From: "MILLER, D BRYAN" <dmill14@entergy.com>
To: "N. Kaly Kalyanam" <NXK@nrc.gov>
Date: Thu, Oct 5, 2000 1:45 AM
Subject: RE: TSCR on the MFIV's

Kaly,

Here are the questions (plus one) that we were unable to resolve on the telephone yesterday (10/3).

1. We requested approval to credit RTO for both the MSLB and FWLB when the steam generator feed pumps (SGFP) are in operation yet the statements made on page 3 of the safety evaluation (SE) appear to approve crediting the RTO for the FWLB only. Have we only been approved for crediting RTO for the FWLB only? Waterford must credit the RTO for the MSLB during SGFP operations in order to show a positive margin for valve closure.
2. Concerning the following statement on page 3 (first paragraph) of the SE: "RTO will be credited for MFIV closure in all other scenarios and the resulting required thrust is less than the available thrust with two exceptions."
 - (a) What other scenarios are being referred to by "all other scenarios?" There is only one other scenario (FWLB when SGFPs in operation) that is applicable to RTO.
 - (b) What are the "two exceptions" being referred to? If RTO is credited for both the FWLB and MSLB when the SGFPs are operating there are no exceptions.
3. Concerning the following statement on page 3 (first paragraph) of the SE: "For the FWLB with the AFW pump in operation, MFIV closure with credit for RTO/AFW pump trip will take 30 seconds." RTO has no function in MFIV closure time when the AFW pump is in operation. RTO credit is only required when the SGFPs are in operation, and AFW pump trip credit is only required when the AFW pump is in operation. Was there a specific reason RTO was mentioned in this sentence?

If you or Kulin need any clarification to these questions please give me a call.

Bryan Miller
Waterford 3
504-739-6692

-----Original Message-----

From: N. Kaly Kalyanam [mailto:NXK@nrc.gov]
Sent: Wednesday, October 04, 2000 9:38 AM
To: dmill14@entergy.com
Subject: TSCR on the MFIV's

Bryan:

I talked to Kulin Desai regarding the couple of questions you had yesterday.

He suggested that you send an email, with the exact questions, and he will come up with the responses, after doing any "research"/talking to his Section Chief, etc.

When you get a chance, please send me the email.

Thanks

Kaly

CC: "KRUPA, MICHAEL A" <MKRUPA@entergy.com>, "BRANDON,...

From: N. Kaly Kalyanam
To: Bryan Miller
Date: Tue, Oct 31, 2000 3:33 PM
Subject: Revised SE for the MFIV amendment package

Bryan,

I am faxing a copy of a sheet with revisions which Kulin Desai brought (page 3 of the SE, which you already have) with the changes indicated by vertical bars. Please see if this clarifies your points. After your confirmation I will send it formally.

Kaly

The results are as follows:

Scenario	Required Thrust (lbs)	Available Thrust (lbs) 2 Accumulators	RTO / AFW Pump Trip Credit?	Closure Time
MSLB (SGFP)	100,398	100,086	No	5 seconds
FWLB (SGFP)	98,478	100,086	Yes	5 seconds
MSLB (AFW)	80,945	100,086	Yes	5 seconds
FWLB (AFW)	106,804	108,526	Yes	30 seconds

Where

lbs = pounds

Each scenario is discussed below:

For the MSLB at 100 percent power, the MFIV will close within five seconds without credit for RTO due to the lower pressure differential pressure across the valve from the residual pressure existing in the ruptured steam generator. RTO will be credited for MFIV closure in all other scenarios and the resulting required thrust is less than the available thrust with two exceptions. The required thrust is slightly greater than the available thrust for the MSLB during SGFP operation, but is considered acceptable due to the use of a conservatively bounding friction coefficient, calculational methods, nitrogen starting pressures, feedwater temperatures, and valve packing assumptions. For the FWLB with AFW pump in operation, MFIV closure with credit for RTO/AFW pump trip will take 30 seconds. The MFIV will experience full differential pressure in this scenario, and will have a longer closure time and continued flow of AFW into the containment. However, the water being pumped into the containment is below the saturation temperature of the containment atmosphere. Therefore, this flow will condense the steam and would not contribute to increased containment pressure. The peak containment pressure is bounded by the MSLB for this plant. The peak pressure for the FWLB is several psi below that for the MSLB. Thus the table demonstrates that RTO and AFW pump high pressure trip instrumentation are required in order to reduce the pressure differential across the MFIV during all accident conditions and thereby increase the MFIV closure speed to support the safety analyses.

The MSIV, MFIV, MFRV, and SFRV are designed to receive the same closure signal, MSIS, and they all close within five seconds. The MFRVs do not depend upon RTO and the AFW pump pressure trip instrumentation for their closure time. The MSIS components undergo response time testing, channel functional tests, and relay functional tests every 18 months, per the Waterford 3 TS. In addition, testing of the MFIV, MFRV, and SFRV will be performed in accordance with the inservice testing (IST) program. These TS and IST requirements provide sufficient assurance that, if the MFIV failed to close, the other valves would provide proper isolation of the feedwater system after a reactor trip to prevent over cooling of the reactor coolant system. The RTO and AFW pump high pressure trip are also subjected to a testing program similar to comparable safety related instrumentation to ensure their functionality. The operating history of the RTO and AFW pump trip instrumentation shows high reliability and, thereby, provides assurance that they will meet their functional requirements. Therefore, the staff finds that the non-safety grade instrumentation components in the steam and feedwater systems will function under the required accident conditions for which they are called upon, and are acceptable.

From: "MILLER, D BRYAN" <dmill14@entergy.com>
To: "N. Kaly Kalyanam" <NXK@nrc.gov>
Date: Wed, Nov 1, 2000 8:52 AM
Subject: RE: Revised SE for the MFIV amendment package

Kimberly reviewed the draft change last night and found it to be acceptable. Thanks for letting us take a look at it in advance.

Bryan

-----Original Message-----

From: N. Kaly Kalyanam [mailto:NXK@nrc.gov]
Sent: Tuesday, October 31, 2000 3:28 PM
To: dmill14@entergy.com
Subject: Re: RE: Revised SE for the MFIV amendment package

That is fine. If I hear something from you tomorrow morning, I can = prepare the package and send it for concurrences and try to send it to you = as soon as possible.

Kaly

>>> "MILLER, D BRYAN" <dmill14@entergy.com> 10/31 3:40 PM >>>
Kaly,

It looks good to me but I would like to have Kimberly Cook (Engineering) review this before you send it out to us. She is on back shift for the outage so I will leave it for her to review tonight. I should be able to let you know something first thing in the morning.

Bryan

-----Original Message-----

From: N. Kaly Kalyanam [mailto:NXK@nrc.gov]=20
Sent: Tuesday, October 31, 2000 2:34 PM
To: dmill14@entergy.com=20
Subject: Revised SE for the MFIV amendment package

Bryan,

I am faxing a copy of a sheet with revisions which Kulin Desai brought =3D (page 3 of the SE, which you already have) with the changes indicated by = =3D vertical bars. Please see if this clarifies your points. After your =3D confirmation I will send it formally.

Kaly