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SUBJECT: Application for amend to License NPF-21,changing Tech Specs to eliminate main steam line radiation monitor scram & MSIV closure functions per GE Topical Rept NEDO-31400.Changes will reduce unnecessary plant shut downs.

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October 31, 1991
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Docket No. 50-397

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

Gentlemen:

Subject: NUCLEAR PLANT NO. 2, OPERATING LICENSE NPF-21
REQUEST FOR AMENDMENT TO THE TECHNICAL SPECIFICATIONS
FOR ELIMINATION OF THE MAIN STEAM LINE RADIATION MONITOR SCRAM
AND ISOLATION VALVE CLOSURE FUNCTIONS

References: 1) GE Topical Report NEDO-31400, "Safety Evaluation for Eliminating the Boiling Water Reactor Main Steam Line Isolation Valve Closure Function and Scram Function of the Main Steam Line Radiation Monitor", dated May 1987

2) Letter, AC Thadani (NRR) to GJ Beck (BWROG) "Acceptance for Referencing of Licensing Topical Report NEDO-31400, 'Safety Evaluation for Eliminating the Boiling Water Reactor Main Steam Line Isolation Valve Closure Function and Scram Function of the Main Steam Line Radiation Monitor'", dated May 15, 1991

In accordance with the Code of Federal Regulations, Title 10 Parts 50.90 and 2.101, the Supply System hereby submits a request for amendment to the WNP-2 Technical Specifications. Specifically, the Supply System is requesting that the Technical Specifications be modified, as attached, to eliminate the Main Steam Line Radiation Monitor (MSLRM) Scram and Main Steam Isolation Valve (MSIV) Closure functions as recommended and justified in Reference 1 and approved by the Staff in Reference 2. As stated in Reference 1 the proposed changes will reduce the potential for unnecessary reactor shutdowns caused by the spurious actuation of the MSLRM trips and increase plant operational flexibility by maintaining the availability of the condenser heat sink capabilities.

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The MSLRM system consists of four redundant radiation monitors located external to the main steam lines outside of primary containment. The monitors are designed to detect a gross release of fission products indicative of fuel failure. As originally intended their function was to mitigate the release of the detected fuel failure by providing a Scram signal (terminating the initiating event) and MSIV closure trip (assuring containment of the release). However as stated in the Reference 1 and indicated in the WNP-2 Final Safety Analysis Report (FSAR) no credit is taken for these signals in any design basis event for terminating the initiating event or assuring the release remains within accepted limits. The only design basis accident in which either the MSLRM scram or MSIV isolation functions are mentioned is the control rod drop accident (CRDA). In this event the isolation is referred to but, to be consistent with the requirements of Standard Review Plan (SRP) 15.4.9, the radioactive contents (noble gases and iodine) of the coolant resulting from the event are assumed to be transferred to the condenser and turbine before the isolation occurs. Hence the MSLRM isolation provides no benefit.

The Reference 1 topical report analyzed two cases for the CRDA event: the FSAR bounding case (with isolation) and a case without isolation. The first case, with isolation, calculated thyroid and whole-body doses at the exclusion area of 4.3 and 0.31 Rem respectively. Acceptable doses as specified by the SRP are 75 Rem thyroid and 6 Rem whole-body. The second case, without isolation, is the same as that with isolation because the SRP requirements assumed that all the noble gases and iodine released reached the turbine and condenser before isolation. But in the second case if sufficient power remains to operate the condenser steam jet air ejector (SJAE) the released noble gases and iodine are treated and reduced by the Offgas Processing System. In this case, as calculated in the referenced topical report for plants such as WNP-2 with delay times of 46 and 42 hours for kryptons and xenons, respectively, the resulting whole-body dose is approximately 0.01 Rem. The thyroid dose is less than the first case because with some SJAE operation the iodine release will be limited by charcoal adsorption in the Offgas Processing System. The amount of reduction will depend on the efficiency and duration of SJAE operation but will still be a reduction in the amount calculated in the case with isolation. Both cases are well within the acceptability criteria of SRP 15.4.9 (less than 75 Rem thyroid and 6 Rem whole-body). At low power with no SJAE capability the condenser vacuum is created by the Mechanical Vacuum Pump (MVP). An alarm will cause MVP isolation and condenser isolation. However, the release will be the same as that for the first case because of the SRP 15.4.9 requirement to assume that all the radioactive contents of the event are transferred to the condenser.

With the acceptability of the analysis, further benefit is realized in that removal of the trips will enhance plant safety and operability by reducing the exposure to spurious trips and by maintaining access to the heat removal capabilities of the condenser. As noted in the topical report eight scrams have been attributed to the MSLRM system since 1980 (162 plant operating years).

Removing the system would represent a reduction in transient initiating events which in turn represents a 0.3% reduction in core damage frequency probability. Further, as reported in the topical report the reduction in scram frequency has economical benefit in avoiding an unnecessary scram and the associated plant recovery lost time. As estimated by the topical report this results in an annual cost savings of $25,000 per utility.

The referenced topical report also evaluated the impact that removal of these functions would have on reactivity control system failure frequency. The results were a negligible increase (1.4 x E-9 events per year) which is offset by the 0.3% reduction in core damage frequency. Hence, the final result is a net improvement to safety.

The most significant operational impact with the existing MSLRM trip functions is the unnecessary scram and isolation of the reactor vessel. This action isolates the primary heat sink, imposes a large transient on the vessel and results in safety-related system actuations. Subjecting the reactor system to unnecessary vessel isolations diminishes plant reliability, complicates scram recovery and is adverse to the concept of maximizing plant safety. Eliminating the main steam line isolation and scram functions from the MSLRM will help avoid undue vessel isolations during normal plant evolutions, such as switching condensate demineralizer beds. And as recognized in the second analyzed case maintaining the SJAE's operational (condenser unisolated) during an event permits continued use of the Offgas System to process radioactivity during transients that may occur. Thus, the operator maintains control over the pathway of a potential release.

The Staff in approving the topical report identified three conditions to be met in order to implement the proposed change. The first was that the applicant demonstrate that the assumptions with regard to input values in the generic analysis bound those of the plant. The Supply System has reviewed the topical report against the latest WNP-2 analysis (increased fuel rod failures and current meteorology data) and confirms that the analysis provided therein bounds the WNP-2 Safety Analysis assumptions and is appropriate for justifying the proposed changes for WNP-2.

The second condition was that the applicant provide reasonable assurance that increased significant levels of radioactivity in the main steam lines will be controlled expeditiously to limit both occupational doses and environmental releases. Reasonable assurance is provided in the plant response to increased radiation levels as detected by the offgas pretreatment monitor. The pretreatment monitor is a more sensitive monitor than the MSLRM because the N-16 source, dominating the radiation signal to the MSLRM, has decayed by the time the pretreatment monitor can be affected by any increased levels of activity. And, as required by the WNP-2 Technical Specifications a level of 332 millicuries/second (after a 30 minute delay) at the SJAE discharge will prompt a power reduction to return to acceptable levels within 72 hours or a shutdown within the next 12 hours if the limit cannot be met. This graded response to the more sensitive pretreatment monitor will ensure that actions are taken to limit occupational doses and environmental releases.

The final condition was that the applicant commit to standardizing the MSLRM and offgas pretreatment monitor alarm setpoints at 1.5 times the nominal (full power) nitrogen-16 background dose rate at the monitor locations and commits to promptly determine possible contamination levels in the plant reactor coolant and the need for additional corrective actions, if either the MSLRM or Offgas pretreatment monitors exceed their alarm setpoints. Upon approval of this change, but prior to implementation, the Supply System will have in place procedures satisfying the above conditions.

It should be noted that the Supply System, in reviewing the Safety Evaluation Report (SER) provided by the Staff in Reference 2, identified a statement that is not appropriate for WNP-2. Specifically, at the end of the first paragraph of Section 2.2, the SER states that "The plants' Technical Specifications require both MSLRM and SJAE radiation monitors. Both monitors will activate an alarm in the control room". This statement implies that both alarm functions are in the WNP-2 Technical Specifications.

The SJAE radiation monitor alarm is required by the WNP-2 Technical Specifications, however no reference to the MSLRM radiation monitor alarm currently exists in the WNP-2 Technical Specifications. Both monitors do provide an alarm in the control room and the present response to the MSLRM alarm is similar to that described as typical in the topical report. Further, as discussed above the MSLRM setpoint will be standardized at 1.5 times the nominal (full power) nitrogen-16 background dose rate and, upon alarm, directions will be provided to promptly determine possible contamination levels in the plant reactor coolant and the need for additional corrective actions. The Supply System considers that these actions, combined with the controls over plant modifications, meet the intent of the SER and there is no need to include the MSLRM alarm in the WNP-2 Technical Specifications.

The NRC Interim Policy Statement on Technical Specifications of February 3, 1987 which provides screening criteria for determining Technical Specification content supports this position. A comparison of the MSLRM alarm function and the screening criteria follows to support this position.

Criterion 1: Installed instrumentation that is used to detect and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.

The MSLRM alarm is not used for, nor capable of, detecting a significant abnormal degradation of the reactor coolant boundary.

Criterion 2: A process variable that is an initial condition of a Design Basis Accident (DBA) or Transient Analyses that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The MSLRM alarm does not function to monitor a process variable that is an initial condition of a DBA or Transient Analyses. It does not monitor a process variable which is controlled within prescribed bounds so that initial conditions to Transient Analyses or Design Basis Accidents are maintained at all times.

Criterion 3: A structure, system or component that is part of the primary success path which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

The MSLRM alarm does not function (no credit is taken for it) in any primary success path for the mitigation of a DBA or Transient analyses.

Since the MSLRM alarm does not satisfy the screening criteria, inclusion of this function in the Technical Specifications is not warranted.

The intent of the SER that the function be a required feature of the plant is assured by the provisions of 10 CFR 50.59. 10 CFR 50.59 governs all procedure and design changes to assure that changes to the plant are not made that adversely affect the health and safety of the public. Hence, the alarm, alarm function and governing procedures will be controlled under 10 CFR 50.59 so that the public health and safety are not threatened. With this control the intent of the SER is met.

As noted in the topical report the proposed changes will provide a net improvement in overall plant safety. The Supply System concurs with this statement and provides the following in support of a no significant hazards assessment.

1) The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated because the functions being removed do not contribute to avoidance or mitigation of any previously evaluated accidents. Further the changes have been shown to have an insignificant impact to overall reactivity control failure frequency. This insignificant impact is in turn offset by the 0.3% reduction in core damage frequency realized by the implementation of these changes. Hence the probability or consequences of previously evaluated accidents are not significantly increased due to this change. To the contrary as stated in the topical report the changes provide a net improvement in overall plant safety.

2) The proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated because the changes do not introduce any new features to the plant design nor any new modes of plant operation. Therefore, no new or different kind of accident is credible.

3) The proposed changes do not involve a significant reduction in a margin of safety because as shown in the topical report the changes represent an overall improvement in plant safety. Safe operation of the plant is further enhanced by elimination of the unnecessary scram and isolation of the reactor vessel. With implementation of these changes the primary heat sink remains available, a large transient on the vessel and safety-related actuations are avoided, and the Offgas Processing System remains available to control the pathway of a potential release. As such the margin of safety is enhanced by the proposed changes.

As discussed above, the Supply System considers that these changes do not involve a significant hazards consideration, nor, as shown by the topical report analysis, is there a potential for significant change in the types or significant increase in the amount of any effluents that may be released offsite, nor does it involve a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(C)(9) and therefore, per 10 CFR 51.22(b), an environmental assessment of the change is not required.

This Technical Specification change has been reviewed and approved by the WNP-2 Plant Operations Committee (POC) and the Supply System Corporate Nuclear Safety Review Board (CNSRB). In accordance with 10 CFR 50.91, the State of Washington has been provided a copy of this letter.

Very truly yours,

GC Sorensen

G. C. Sorensen, Manager
Regulatory Programs

PLP/bk
Attachments

cc: RG Waldo - EFSEC
JB Martin - NRC RV
NS Reynolds - Winston & Strawn
PL Eng - NRC
DL Williams - BPA/399
NRC Site Inspector - 901A

STATE OF WASHINGTON)
)
COUNTY OF BENTON)

Subject: Request for Amendment to Tech Specs MSLRM Scram and Isolation Functions

I, G. C. SORENSEN, being duly sworn, subscribe to and say that I am the Manager, Regulatory Programs, for the WASHINGTON PUBLIC POWER SUPPLY SYSTEM, the applicant herein; that I have full authority to execute this oath; that I have reviewed the foregoing; and that to the best of my knowledge, information, and belief the statements made in it are true.

DATE: 31 OCTOBER, 1991

G. C. Sorensen, Manager
Regulatory Programs

On this date personally appeared before me G. C. SORENSEN, to me known to be the individual who executed the foregoing instrument, and acknowledged that he signed the same as his free act and deed for the uses and purposes herein mentioned.

GIVEN under my hand and seal this 31st day of October 1991.

Notary Public in and for the
STATE OF WASHINGTON

My Commission Expires April 29, 1995