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 SORESENSEN,G.C. Washington Public Power Supply System
 RECIP.NAME RECIPIENT AFFILIATION
 TOTH,A. Region 5, Ofc of the Director

SUBJECT: Forwards update of status sheets used to track items/issues
 identified during Mar & Apr 1989 NRC SSOMI at plant.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

May 12, 1989

G02-89-089

Docket No. 50-397

NRC-Region V

Attn: Al Toth

1450 Maria Lane, Suite 210.

Walnut Creek, CA

Dear Mr. Toth:

SUBJECT: NRC CONDUCTED SSOMI - DESIGN PHASE AT
WNP-2 DURING MARCH AND APRIL 1989.

Attached please find an update of the status sheets we used to track items/issues identified by your team during the subject inspection. Please note that we have included as enclosures, thereto a number of documents reflecting actions already taken.

Should you have any questions regarding this material please contact Larry Grumme at (509) 377-8668 or Dewey Hulbert at (509) 377-8648.

Sincerely,



R. Sorensen, Manager,
Regulatory Programs

enclosure(s)

cc: C. J. Bosted, Resident NRC Inspector (901A)
J. B. Martin, RV NRC
R. B. Samworth, NRC
D. L. Williams, BPA (399)
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April 6, 1989

NCR SSOMI STATUS # 1

BDC 84-0190 SM-75/85

125VDC battery life calcs were questioned as were the WNP-2 batteries vs lifetime calcs.

A review of Supply System calculations has resulted in the conclusion that the capability of the hardware and tech spec surveillances are acceptable. Confirmation has been provided that the tech spec requirement (210 volt) is acceptable for an "old cold" battery. Questions arose relating to the precision associated with the techniques/methods used by the Supply System in determination of the battery voltage profiles. The Supply System will adjust their calculation methods to reflect the more precise techniques.

5/4/89 UPDATE

The Supply System has resolved this item by issuing a Calculation Modification Record (CMR) to the listed calculations stating that:

- a) IEEE 485 will be used for performing battery calculations.
- b) The calculation shall also include that the peak load does not exceed the battery's one-minute rating,
- c) The calculation shall include a voltage level prediction/approximation for the battery duty cycle to verify that the system voltage does not fall below minimum levels stated in Licensing Documents.
- d) The calculation shall also include a calculation for sizing the battery charger.

The following is a list of the three CMR's and their respective calculations:

- o CMR 89-161, against Calculation No. 2.05.01, Rev. 7
- o CMR 89-162, against Calculation No. E/I 02-08-02, Rev.1
- o CMR 89-163, against Calculation No. 2.05.06, Rev. 2

Copies of the calculations are attached as Enclosure A.

April 6, 1989

NRC SSOMI STATUS #3

Calc failed to consider loads
from a TSW pump switchover and
then LOCA.

G. Bradstad/
S. Chauduri

5/4/89 UPDATE

The NRC observed that the Supply System should have considered in BDC 84-0190 the existence of TSW pump switch-over concurrent with a LOCA resulting in lower available bus voltage than predicted for the analyzed worst case bus loading.

The Supply System response to this observation is as follows:

Consideration of normal plant operations concurrent with a LOCA is outside the WNP-2 design base. Specifically, for the case identified by the NRC, such pump switch-over activities are infrequent and, therefore, from a probabilistic standpoint it is incredible to consider such actions concurrent with a Design Basis Accident (DBA).

This position is substantiated by such examples as 1) Operational transients and DBA's are not considered to occur concurrently, or 2) Technical specifications allow safety related equipment to be out-of-service for periods of hours to days.

Considering the above, WNP-2 policy is not to document any design consequences outside the Plant Design Base. Accordingly over design safety assessment and accompanying Unreviewed Safety Question Evaluation is silent relative to this "Non Design Basis" Event.

April 6, 1989

NRC SSOMI STATUS # 4

PMR 88-0306

Control Room HVAC - Change from automatic intake valve operation to manual.

The NRC position is that the licensed design basis control room operator dose is based on a LOCA occurring coincident with a single failure in the isolation system and that the revised configuration coopts the single failure such that, given a LOCA the control room operators are assured of receiving the same level of dose. Accordingly, the 50.59 process would require that an unreviewed safety question exists and analysis together with receipt of NRC approval for the analysis should have been effected.

5/4/89 UPDATE

The Supply Systems position is that the licensing basis for the Plant is that a RG 1.75 hot short must be assumed when separation within divisions is not provided, without consideration as to its probability of occurrence.

If this had not been a forced assumption, then on Labor Day we could have performed a 50.59 analysis to justify leaving the system as is even though it did not meet our hot short FSAR commitment on the basis that the probability of a LOCA and then a hot short within the next day or two was so low as to not be a meaningful increase in probability. Note, the LOCA has never been identified as the cause of the hot short; they are clearly unrelated (in terms of cause and effects) events. This type of an analysis would have been very logical, technically justified etc. but not allowed by the rules for implementing non-mechanistic assumptions.

With us being forced to consider the hot short without probabilistic risks being allowed, we had one option barred from consideration without us apriori receiving NRC approval; i.e. the option of leaving the system "as-is" based upon acceptable risk.

We then performed the 50.59 analysis evaluating the hot-short induced/or caused failure to the unpressurized recirculation mode against the change to manual operation within three hours. This analysis showed the latter to be of less consequence, in fact the former did not meet the GDC and SRP - clearly an USQ.

To argue that this second analysis should have considered the hot short risk is inconsistent: if we can't use it to evaluate one option (e.g., leaving the system 'as-is"); then it shouldn't be allowed or required for any other evaluation.

It would also be using an assumption we are not allowed to take; that is replacing committed to non-mechanistic assumption with a probabilistic risk approach. This is a level of commitment in the license for which it is not reasonable of us to assume that we could back out of by a 50.59 analysis. Also, applying a 50.59 analysis to justify such a departure from the licensing basis would fail as 50.59 is based upon risk, consequence, margin and tech specs. Non-mechanistic assumptions by their nature do not allow for consideration of the first three items.

In summary, while there is some logic to what the NRC is suggesting, it is not allowed by consistent application of their rules to which we are a committed.

April 6, 1989

NRC SSOMI STATUS # 5

5/4/89 UPDATE

Deleted

April 6, 1989

NRC SSOMI STATUS # 6

RHR/LPCI

Prime: S. Scammon

- a) Criteria used for surveillance acceptance for LPCI flow conditions are not based on engineering system calc. J. Snyder/
D. Wilsey
- b) Generic Issue with respect to other ECCS pumps/flows. G. Gelhaus

The calculation for determining RHR-P-2A minimum discharge pressure used in the Tech Spec surveillance testing procedure was incorrect. Comparing the current system design pressure calculation with the surveillance testing results shows the technical specification requirement may not have met the tech spec required value of 7450 gpm on four occasions. However, in no way was safety affected because of the large margin between the design requirement and analysis basis. The most recent test results show the pump meets the corrected requirements and will accommodate measurement instrument sensitivities. A refinement of the existing calculation is believed to be possible which would show these four problem results may still be acceptable. The refined system design analysis will be bench-marked against additional tests to be run during the R-4 refueling outage utilizing calibrated instrumentation to provide further assurance the refined conclusions are correct.

This problem does not affect the other ECCS pumps because of the larger margins between tech spec limit and minimum pump discharge pressures measured.

The surveillance testing procedures for all ECCS pumps discharge flow and pressure will be revised to reflect the appropriate criteria based on the system design calculations.

5/4/89 UPDATE

Upon completion of the Generation Engineering calculation for determining the correct RHR pump technical specification flow and pressure conditions, previous plant data relied upon to complete the surveillance testing will be reviewed. The purpose of the review is to determine whether or not all previous testing satisfies the new criteria. Review of past data does not indicate a change in pump performance indicative of degradation. The data

is representative of "data scatter" thought to be caused by varying flows conditions and instrument drift. Any data not within the new criteria would then represent a failure to establish the conditions that demonstrate the Tech. Spec values in LCO 314.5.1. Actual pump performance remains acceptable. Given a criteria failure, an LER will be written to document the error per 10CFR50.73 (a) 2(i)B.

The cause of the calculation error was the usage of flow and pressure data that did not represent actual pump performance conditions. The calculation thus yielded a non-conservative criteria. The Tech spec criteria is based upon the pump design criteria (7450 gpm, 26 psid at 68(deg.)F). The actual flow conditions used in the cycle specific ECCS analysis relies on a flow versus differential pressure curve that yields approximately 7067 gpm at the same 26 psid conditions and at 140 (deg.)F. Therefore margin does exist between the pump design (Tech Spec Value) and the valves used to verify PCT is not exceeded.

The selection of the pump design criteria as the tech spec value is considered a significant contributor to this problem. The Supply System will submit a technical specification amendment request due to the very small margin between the pump performance data and the design criteria. Reliance on the ECCS analysis data is considered acceptable and has been applied by other plants.

All ECCS calculations are also being re-calculated by Generation Engineering. Only the RHR pumps represent a potential LER due to the calculation error and minimal pump design margin.

A criteria not resulting in an LCO violation will result only in the appropriate procedure revisions.

April 6, 1989

NRC SSOMI STATUS # 7

RHR ACCEPTANCE TEST CRITERIA

It is not obvious whether the surveillance acceptance test value of 7450 gpm includes an instrument tolerance of ± 150 gpm. It was determined from General Electric that the NSSS analysis versus Design requirements will accomodate the expected instrument tolerance.

5/4/89 UPDATE

The 383 gpm margin between the 7450 gpm Tech Spec criteria and the 7067 gpm value used in the ECCS analysis is sufficient to account for the flow indication loop inaccuracy of ± 150 gpm. It is typical for the NSSS vendor to coordinate the instrumentation accuracy with the system design basis. Plant specific design basis information substantiating where the flow inaccuracy is accounted for has not been found. Neither has the basis for the margin between the pump design values and those used in the ECCS analysis. Sufficient margin is believed to exist. We are continuing to attempt to obtain the bases from the NSSS vendor. Failing this, and if necessary, following approval of the before mentioned license amendment, the 150 gpm could be added to the 7067 gpm valve.

April 6, 1989

NRC SSOMI STATUS # 8

PMR 85-0328 Design Safety Assessment
for Hot Spot Removal (RPV Drainline)

Prime: S. Scammon

- a) Incomplete with regard to installation phase. NRC characterizes coverage of installation phase as part of "Design".

The existing 50.59 Evaluation covers only the resulting in place changed configuration after the modification is complete. This issue relates to conditions which will or may exist during the actual modification process and the manner in which the evaluation processes and results, as a result of deliberations conducted by the Supply System, have been documented. NRC would seem to prefer that these deliberations be documented as a part of our 50.59 process.

Although current regulations and guidance (Guidelines for 10CFR50.59 Safety Evaluations, NSAC-125, December 1988, Draft) do not clearly address 10CFR50.59 Safety Evaluations, as used to evaluate processes employed while implementing a modification, the Supply System has addressed this concern and is in the process of evaluating our position.

Several initiatives are underway which should address in-process Safety Evaluation concerns:

- o Plant Technical has requested an assessment of Safety Evaluations as used in plant modification processes (Reference letter M.R. Wuestefeld to L.L. Grumme, dated January 10, 1989.) Engineering Assurance plans to perform this assessment in 1989.
- o 10CFR50.59 Team; A Supply System Team was formed to address key 10CFR50.59 issues (November 8, 1988).
- o Engineering Assurance Assessment 88-005 on 10CFR50.59 Evaluations completed and issued on November 4, 1988.
- o Engineering Assurance participation on Design Review of BDC-85-0328-0A Hot Spot Removal. Currently, several issues concerning in-process considerations for 10CFR50.59 are open and are in the resolution process.

5/4/89 UPDATE

PPM 1.3.4 is currently being revised to require 10CFR50.59 to be applied to the installation/modification process. This will account for all configuration changes required to execute a Plant Design Change.

A USQA has been documented for the implementation of the hot spot removal effort. The USQA concluded that a USQA does not exist, thus permitting execution without prior NRC concurrence.

April 6, 1989

NRC SSOMI STATUS # 9

RHR INTERLOCK

Basic Design Change required interlock limit switch to be set as close as possible to valve seat lift-off. Plant Technical took that criteria and incorporated into testing of modification. Initially it appeared there was lack of communication here in the involvement of the Design Engineer in setting test criteria. However, it appears that good communication is being achieved.

- o NRC questioned whether or not the callout should not take on a requirement aspect, and
- o That we involve Generation Engineering in the process. (The MWR is not filed with the BDC package and there is no evidence that the Generation Engineer ever knows what was used).

5/4/89 UPDATE

It would appear that there is agreement that adequate communication is effected in matters of this kind.

April 6, 1989

NRC SSOMI STATUS # 10

Hot Spot Removal Team

No formal mandatory representation on the part of i.e. QA/QC, etc. on the Design Review Team.

The NRC position is that depth of QA/QC involvement in the overall work process appears to be minimal, i.e., they should be cognizant of overall mod from initiation of design to closeout. They were only informal members of this review team. In the memo of 11/2/88 calling a team meeting, they were not listed in the team list. In spite of the fact that three individuals from QA and QC attended, they did not exhibit sufficient interest in critical aspects of the removal part of the installation phase. A QC Engineer has not been assigned. The responsible QA Engineer appeared to be concerned only with the HP aspects. None of the QA/QC personnel contacted had a copy of the PMR.

5/4/89 UPDATE

The involvement of many Supply System groups during the early planning/review meetings is voluntary to allow their necessary participation in other higher priority activities.

Specifically, as an example, with regard to QA and QC their mandatory involvement is initiated upon availability of implementing documents such as the MWR. Please find attached as Enclosure B, evidence of the activities conducted or to be by QA and QC during the hot spot removal activities of PMR 85-0328.

April 6, 1989

NRC SSOMI STATUS # 11

Procurement

Prime: Koenigs

a) CG dedication evaluations

G. Gelhaus/
M. Etchamendy

(Supply System has conducted an internal investigation of our dedication process and is presently evaluating actions required to enhance same, including the identification of critical characteristics. The results of our deliberations will be made available to the NRC upon completion of the implementing plans.)

b) Evaluations do not provide "critical characteristics".

(See a. above).

c) Receiving Inspection (RI) Program needs
"beefing-up".
o Better acceptance criteria.
o More detailed RI based on
critical characteristics.

G. Wooley

(Prerequisite to these issues is the identification of critical characteristics discussed under 6.a. above. Enhancement of these areas will be covered in the plan to be provided as designated under 6.a.)

5/4/89 UPDATE

Supply System personnel responsible for performing these dedications have been given additional instructions and emphasis on defining critical characteristics and receipt inspection/testing criteria. The KEG Committee is finalizing it's funding and action plan. It is expected this action plan will be initiated by 6/1/89.

In the interim, a revision to PPM 1.3.39 is being developed to address concerns with commercial grade dedication and other generic issues related to the procurement process including evaluation of "critical characteristics" (i.e. Generic Letter 89-02, EPRI CG and TERI documents).

April 6, 1989

NRC SSOMI STATUS # 12

Target Rock Valves

Some ambiguity appears in Target Rock Valve modification - between procurement and testing specifications. For example the testing specification criteria specifies no leakage through valve. The procurement specification - material specification - does not require testing for a stellite valve seat material. The procurement specification will be revised to provide proper testing criteria. It is to be noted, however, that the manufacturer has been testing the valves to the desired criteria despite the ambiguity in the testing requirements.

5/4/89 UPDATE

Revisions to the subject specifications have been effected to resolve the noted ambiguities. A copy of the revised specification is included as Enclosure C.

April 6, 1989

NRC SSOMI STATUS # 13

Target Rock Valve Procurement

The service conditions failed to specify the 34.7 psi LOCA conditions. No leakage testing requirements were included for this condition.

The specification is also being revised to include this testing requirement.

5/4/UPDATE

Revisions to the subject specifications have been effected to resolve the noted ambiguities. A copy of the revised specification is included as Enclosure C.

April 6, 1989

NRC SSOMI STATUS # 14

Supply System Internal SSOMI

(Procurement QA and Plant QA/QC involvement in the internal SSOMI are reflected in the documentation included in the installation and test, and procurement sections of the SSOMI Source Book. In addition, members of both organizations are on the IDR teams and members of Engineering Assurance are a part of the Installation and Test surveillance activities. Checklists and procurement attribute evaluations are coordinated between all these groups. Completion of the checklists and attribute evaluation listings will be effected upon availability of the MWR's. Plant QA/QC and Procurement QA molded their standard procedures to the internal SSOMI efforts.

A modification to the internal SSOMI Plan is being processed to clarify the above interactions and provide additional guidance on report coverage and responsibility.)

5/4/89 UPDATE

The revision to the Supply System SSOMI Plan has been implemented. A copy of the revision is attached as Enclosure D.

April 6, 1989

NRC SSOMI STATUS #15

PART 21

Part 21 provisions are missing in MAC TECH Contract. Contract C-30230 does not have Part 21 requirements involved. MACH TECH performed QCI work in RHR V-53A.

5/4/89 UPDATE

The Supply System does not apply Part 21 to support service contracts since the vendor personnel perform under the Supply System QA Program and are under the direction of a Supply System Technical Representative. If the contractor performs a Turnkey Service i.e. ISI, NDE, fabrication, installation or repair of equipment, he would work under his own quality program and Part 21 would be imposed in his PO/Contract. These types of services are all evaluated on a case-by-case basis for application of quality requirements and Part 21 regulatory requirements. Also, contracted support personnel all go through Supply System General Employee Training (GET) which includes QA and Part 21 training.