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SUBJECT: Provides status of activites in addressing aspects of NRC 871013 ltr re detailed control room design review. Suppl rept submitted upon completion of items identified in status.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

March 29, 1988
G02-88-074

Docket No. 50-397

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

SUBJECT: NUCLEAR PLANT NO. 2
DETAILED CONTROL ROOM DESIGN
REVIEW (TAC NO. 56181)

REFERENCE: LETTER, G.W. KNIGHTON (NRC) TO G.C. SORENSEN (SS), SAME SUBJECT, DATED OCTOBER 13, 1987

Gentlemen:

The Supply System has studied the Safety Evaluation (SE) which summarized the findings of the Staff's review of the November 1, 1985 WNP-2 Summary Report submittal (G02-85-758) and the Site Audit on July 15 through July 18, 1986. We would like to provide a status of our activities in addressing the aspects of the October 13, 1987 letter. The elements of our response (enclosed), follow the sequence presented in the SE.

With regard to the request for a proposed schedule and a supplementary summary report to that which has been submitted; the Supply System will provide the supplement upon the completion of those items as identified in our status.

A093
1/1

Recognizing the length of time this issue has been ongoing, the numerous reviewers and requirements changes between historical and present conditions, the Supply System is proposing the deferral of further audits and the attainment of concurrence with the Staff on a firm approach to closure of the issue. To this end, the Supply System would encourage further discussion of a closure path on this issue upon Staff review of the attached response.

Should you have any questions, please contact Mr. P.L. Powell, Manager, WNP-2 Licensing for the establishment of a closure path discussed above.

Very truly yours,

for R A Gasser Jr.
G.C. Sorensen, Manager,
Regulatory Programs

GCS:RJB:dg

Attachments

cc: JB Martin - NRC RV
NS Reynolds - BCP&R
RB Samworth - NRC
DL Williams - BPA (399)
NRC Site Inspector - 901A

RESPONSE TO
TECHNICAL EVALUATION OF
WASHINGTON PUBLIC POWER SUPPLY SYSTEM
DETAILED CONTROL ROOM DESIGN REVIEW

2.1 ESTABLISHMENT OF A QUALIFIED MULTIDISCIPLINARY REVIEW TEAM

The concern expressed in the Safety Evaluation that while trained Human Factors Specialists participated in the Pre-Licensing PDA, they did not participate in the Post-Licensing DCRDR, is acknowledged to be an accurate observation. The Supply System assures that the Human Factors Specialists utilized in the Preliminary Design Assessment were charged with review and comment upon the continuing program. The intent and result of this activity was a program capable of administration by key utility members without further consultant involvement.

The Technical Evaluation acknowledges the demonstrated effectiveness of our Review Team to have improved our control room. As a result of the expressed concern, we will commit to utilize a Human Factors Specialist in the closure review of the presently identified remaining work task commitments. This commitment is made with the intention of addressing and closing this concern and to assure compliance with Supplement 1 to NUREG-0737 and Standard Review Plan NUREG-0800 Section 18.1.

2.2 FUNCTION AND TASK ANALYSIS TO IDENTIFY CONTROL ROOM OPERATOR TASKS AND INFORMATION AND CONTROL REQUIREMENTS DURING EMERGENCY OPERATIONS

Response included in Section 2.3 (following).

2.3 COMPARISON OF DISPLAY AND CONTROL REQUIREMENTS WITH A CONTROL ROOM INVENTORY

For the following reasons, the Supply System considers element 2 (identification of operator tasks) and element 3 (identification of control room display and control requirements) complete and in compliance to NUREG-0737, Supplement 1:

1. WNP-2 Emergency Operating Procedures have been primarily written to the function level and have followed the BWROG Emergency Procedure Guidelines. Identification and attention to operator tasks are basic to development of guidelines and procedures and are intrinsic to both.

2. The WNP-2 DCRDR Function and Task Analysis methodology (described in submittal GO2-81-84, February 17, 1984 and attached hereto as Attachment 1) provides for analysis of principal control functions to identify Decisions (D) and Actions (A) i.e., operator tasks from which control and display requirements are identified.

3. The WNP-2 methodology was accepted in the Supply System's response to a condition of the five percent operation license; the WNP-2 Task Analysis has been performed as described by the methodology. A brief re-description is attached hereto as Attachment 2 to further justify why an augmented task analysis is not necessary.

2.4 A CONTROL ROOM SURVEY TO IDENTIFY DEVIATIONS FROM ACCEPTED HUMAN FACTORS PRINCIPLES

The Supply System agrees with the Staff's judgment in that this element has been completed. As our control room surveys continue, the status of deficiencies evolve. To aid in the closure of the Technical Evaluation Report (TER), Appendix 2, Deficiencies in WNP-2 Control Room Observed During NRC Survey Check, the following status and explanations are offered.

Each deficiency was reviewed using the WNP-2 selection criteria.

The following terms and definitions are referred to in our discussions for Appendix 2 and subsequent Appendices in the TER. Discussions following are formatted to correspond to the appendices in the TER.

Category I- Safety Related, Minimum Opportunity to Correct Error
Category II- Safety Related, Some Opportunity to Correct Error
Category III- Reliability Related, Minimum Opportunity to Correct Error
Category IV- Reliability Related, Some Opportunity to Correct Error
Category V- No Impact on Safety or Reliability

2.5 ASSESSMENT OF HED's TO DETERMINE WHICH ARE SIGNIFICANT AND SHOULD BE CORRECTED

Element 2.5 is considered to be sufficiently addressed by our previous response to the items identified in Appendix 2 and by our response to Elements 2.6 and 2.7 which follow.

2.6 SELECTION OF DESIGN IMPROVEMENTS

Response included in Section 2.7 (following).

2.7 VERIFICATION THAT SELECTED IMPROVEMENTS WILL PROVIDE THE NECESSARY CORRECTION AND WILL NOT INTRODUCE NEW HED's

The issue of cumulative/interactive impact of HED's was addressed during the DCRDR program in several ways. Reviews were performed by related subjects and not by just individual items; e.g. location, style, functions and arrangement of controls and indicators, mimicking, demarcation lines, color padding and labeling were all performed under one HED per control room panel rather than individually. Many of the proposed control room changes were mocked up on the actual control room panels to review the cumulative and interactive effects of proposed design changes prior to actual implementation. Also, an operators log was initiated both during the mockup stage and used subsequent to implementation to provide for operator feedback on interactive concerns as well as for the identification of additional or new items for correction. This feedback was in addition to post implementation reviews performed by WNP-2 DCRDR personnel. The cumulative/interactive impact of future design changes will be assessed periodically by control room surveys conducted by a WNP-2 Review Team which includes personnel familiar with Human Factors.

The Technical Evaluation Report (TER) noted that the WNP-2 Human Factors Engineering Standards should be reviewed and upgraded as needed to resolve concerns noted and that development of the standards should be a continuing process. The Human Factors Engineering Standards have been reviewed and modified to include the areas of concern expressed in the elements of the TER and the Standards have been split out to cover specific areas. The following is a summary of changes as presented for review. These Standards have been revised several times since initial development and will continue to be upgraded as needs are identified.

SUMMARY OF CHANGES TO THE HUMAN FACTORS ENGINEERING STANDARDS

1) STANDARD LIST OF ACRONYMS AND ABBREVIATIONS (HFES-1)

A survey of the control room and remote shutdown room was made to identify abbreviations/acronyms that were not authorized by this Standard. A revision was then made to the Standard to include the abbreviations/acronyms that were acceptable from a Human Engineering standpoint. For those abbreviations/acronyms that were not acceptable, action was initiated to have the abbreviation/acronym changed to conform to the Standard.

2) CONTROLS STANDARD (HFES-5)

Standard revised to include shape and color coding used at WNP-2 for controls.

3) DEMARCATION STANDARD (HFES-10)

New standard prepared to provide guidance for the selection and application of demarcation lines on control room panels.

4) VISUAL DISPLAYS STANDARD (HFES-7)

Standard revised to include selection and application of meter color banding.

NOTE: No revisions were made to HFES-2 (Annunciator Window Color Standard) since it does include the color coding scheme discussed in Attachment 3 of the TER and is considered to be acceptable.

Element 2.7b suggests reverification of the three items identified in Appendix 3. We have done so and the result is described in Appendix 3 to this report.

2.8 COORDINATION OF CONTROL ROOM IMPROVEMENTS WITH CHANGES FROM OTHER PROGRAMS

The WNP-2 Engineering Instruction for Special Design Review ensures a centralized Human Factors review for every Basic Design Change meeting the established criteria of change to any control room or remote shutdown room panel. Excerpts from the Engineering Instruction is herein included as Attachment 3 for review.

2.9 OTHER DCRDR ACTIVITIES

The remaining Appendixes 4 and 5 of the TER are addressed in this element's response.

2.10 CONTROL ROOM IMPROVEMENTS, IMPLEMENTATION SCHEDULES AND JUSTIFICATION FOR NOT CORRECTING SIGNIFICANT HEDS

The SE requested WNP-2 to identify any Category I or II HED's which it did not intend to correct and provide justification for not correcting them. A review of all HED's was performed by the Supply System. All Category I and II HED's have been corrected and have been previously identified in the WNP-2 DCRDR Summary Report or prior submittals.

The SE also requested that the status of HED's with adequate resolutions but with actions remaining for correction be included in this report. The following is provided for the purpose of delineating progress in the closure of activities noted in Appendix 5 and rationale concerning those items either not yet completed or whose previous recommendations for resolution have been modified or requires clarification.

C-9.2	RHR Steam Condensing Mode Deactivation	Open
D-7.3/7.6	Replace Large CRT's with Small Desk Modules	Closed
D-7.14	Upgrade Alarm Typer/CRT Messages	Closed
E-3.70	Install Redundant Annunciator Controls	Closed
F-3.76	Upgrade Fire Panel Ann. Title Engravings	Open
TA-G-1	Revise Emerg. Procedures Writer's Guide	Closed
TA-G-11	Revise Emergency Procedures	Closed
TA-G-13	Revise/Modify CR Emerg. Flow Chart	Open
TA-G-14	Incorporate ECCS Keep-Fill Pump in EP's	Closed
TA-5.0.0	Revise Emergency Procedures	Closed
TA-5.0.1	Revise Emergency Procedures	Closed
TA-5.1.1	Revise Emergency Procedures	Closed
TA-5.1.3 Item 1	Step 5 to be Revised to Clarify Action	Closed
Item 4	Evaluate Potential Storage Areas for Borax/Boric Acid	Closed
Item 5	Substeps 8.7&8 Remove/Place as Attachment or New Procedure	Closed
Item 6	Substeps 8.2.c Typo/Should Read 8.2.e	Closed
Item 8	Provide Alternate CRD Vent in Place of CRD-V-64	Closed
Items 2/3	Modify RCIC Standpipe/Change Plant Procedures	Closed
TA-5.2.2	Revise Emergency Procedures	Closed
TA-5.2.3	Resolve Drywell Vent Capability per BWROG EP Guide	Open
TA-5.2.4	Revise Emergency Procedures	Closed
TA-5.2.5 Item 1	Provide Instruct. for Responding to Abnormal Secondary Containment Diff. Press./Temperature	Closed
TA-5.2.5 Item 3A	Temp. Limits for Steam Tunnel/Sample Racks SR13/14	Closed
Item 4	Revise PPM 5.3.1 Regard to Higher Rad. Levels	Closed
Item 5	Revise PPM 5.2.5 to Specify Actions Based on Maximum Safe Operating Levels	Closed
Item 7	Revise E.P. Minimize/Clarify Water Level Terminology	Closed

TA-5.2.6	Revise Emergency Procedures	Closed
TA-5.3.1	Revise Emergency Procedures	Closed
TA-5.3.2	Revise Emergency Procedures	Closed
TA-5.3.5	Revise Emergency Procedures	Closed
TA-5.3.6	Revise Emergency Procedures	Closed
TA-5.3.7	Revise Emergency Procedures	Closed
TA-G-2	Review PPM Vol's. 2,3,4,13 Against EP's	Closed
TA-G-4	Resolve Manual Throttle of CRD Pump Discharge	Closed
TA-G-10	Improve RPV Temperature Monitoring	Closed
TA-5.1.3 Item 9	Alternate Method of Boron Injection	Closed

The following pages are the status of the items listed as open within the previous status or that require clarification.

The titles are synonymous with the Staff's Technical Evaluation Report Appendices for clarity and correlation.

APPENDIX 2
to the Staff's TER

DEFICIENCIES IN WNP-2 CONTROL ROOM OBSERVED DURING NRC SURVEY CHECK

APP-2 #1

The use of yellow "post-it's" has been significantly reduced by the use of formatted information stickers for tagging and identifying equipment deficiencies or status. This process has been procedurally approved. Only six yellow "post-it's" were noted in a recent review of the control room. These were dated, approved and used to provide operational data for which the formatted information stickers were not intended for. The use of "post-it's" is not considered a deficiency if used in a judicious manner as noted in this review. This item is considered closed. (Also see APP-2 #4 below).

APP-2 #2

Operations, as a routine, does not leave items, such as boxes of chart paper, laying on benchboards. If done, it is considered very uncommon and only of a transitory nature. Reviews to date have not noted any further instances of the above concern. This item is considered closed.

APP-2 #3

The use of dymo-tape in the control room is allowed as long as it is judiciously and accurately applied. A review of the three areas noted was performed as well as the rest of the control room. No dymo-tape was found on panel P827 as noted and panel P814 was found with two small temporary dymo-tape labels. The reviews indicate that dymo-tape had been sparingly applied, and appears accurate and neat in appearances. Individually, each dymo-tape application was assigned as a Category V deficiency. Combined they were still judged as a Category V and, as such, no further action is required. This item is considered closed.

APP-2 #4

Per procedure, operational instructions or information is allowed to be posted on control room panels provided they are dated and approved. A recent review of the control room indicates that the use of such is minimal and those that are posted are dated and verified. This item is considered closed.

APP-2 #5

A review of the Excess Flow Check Valve Isolation Status Display position indication on Panel P851 was performed for reflected glare, luminous contrast, and engraved lense legend readability. Lense readability was considered good but luminous contrast poor. Indicating lamp lense diffusers were removed; luminous contrast was significantly improved but lense legend readability was severely reduced. The Supply System recognizes this deficiency as a Category II deficiency. The Supply System recommends that the lense diffusers be removed to ensure good luminary contrast for valve position identification and that valve indentification legend labels be installed adjacent to each display of the same size and matrix design for valve identification reference. The need for including X-Y coordinates will be based on the final positioning of the legend labels. This recommendation will be completed by the end of the R-3 Outage.

APP-2 #6

A review for reflected glare on the vertical meters on Panel P813 was performed. These are four vertical oriented meters on the panel. Reflective glare is apparent on the upper portion of the meters due to their location across the top of the panel. A review of their function and operational use was conducted.

- Three meters monitor containment outlet cooler fan temperatures. These are not used for control data as the fan cooler controls are run at 100% open, and are not used for any identified abnormal event. Operations records data from these meters once a shift for monitoring cooler efficiency. Their scales range from $50^{o}F$ to $400^{o}F$. Their normal operating range is below $150^{o}F$, well below the area where glare exists. Containment Temperature Monitoring is a highly redundant and diverse system, with monitoring both on adjacent Panel P814 and on main bench board Panel P601. Thus, if fan cooler performance degrades, redundant and diverse monitoring capability is available.

- One meter monitors containment pressure from -5 PSIG to +3 PSIG. This meter is used in conjunction with the Containment Inerting System to monitor containment pressure during N_2 inerting and subsequent makeup. The control range is from -0.5 PSIG to +1.0 PSIG, just below the reflective glare area. Redundant monitoring (two diverse meters) is available on the main bench board Panel P601. Inerting and Makeup is a highly controlled evolution, and a redundant operator monitoring Panel P601 is a normal practice.

Based on the above, the Supply System recognizes this concern as a Category V for the three cooler fan outlet temperature monitors and a Category IV for the containment pressure monitor. Based on these ratings, expenditure of budget and manpower resources are not warranted.

APP-2 #7

A review of the annunciator response controls and labels for visibility was performed for Panel FCP-2. It was noted that no other controls are located on the panel, the controls are located just below the annunciator alarms, the controls have been distinctively coded by color padding and a white-mushroom head used for the acknowledge push button, and are consistent with other annunciator response controls in arrangement, coding and labeling throughout the control room. Also, the escutcheon labels are readily readable. Based on the above, the lack of adequate visibility of the overall label "Annunciator" on top of the color pad is considered a Category V deficiency and does not warrant the expenditure of manpower or resources.

APPENDIX 3

DEFICIENCIES IN WNP-2 CONTROL ROOM OBSERVED DURING NRC VERIFICATION CHECK

APP-3 #1

Supply System Human Factor Engineering Standards do not specify color guidelines for indicating light bezels. A review of the WNP-2 control room notes that bezels are of a low luster, low contrast design. Thus, the indicating light bezels do not provide any visual distraction nor appear to have any safety or reliability concern. Providing guidelines for procurement could also be excessively restrictive from a part availability and economic viewpoint. Based on the above, the Supply System recognizes this concern as a Category V deficiency which does not warrant budget and manpower resources.

APP-3 #2

The WNP-2 control room has approximately 40 BISI display panels. These panels are consistent in design and have low luster indicating light bezels that do not provide a visual distraction for the operator. The panels provide no control function and are for status monitoring only. In conjunction with the response noted for APP-3 #1 above, the Supply System recognizes this concern as a Category V deficiency which does not warrant budget and manpower resources.

APP-3 #3

During the initial phase of the WNP-2 DCRDR Program, in 1981, a color code standard for annunciator alarms was prepared for prioritization. This standard was reviewed against the applicable sections of NUREG-0700 and is consistent with the guidelines. Each annunciator was reviewed against the DCRDR standard and a color code assigned. All annunciator alarm tiles were color coded prior to WNP-2 initial fuel load. The prioritization color for each tile is controlled by Engineering Design documents and the standard was reissued as Human Factors Engineering Standard HFES-2, Annunciator Window Color Standard (not HFES-1, Standard List of Acronyms and Abbreviations). The Supply System believes that the existing application is consistent throughout the control room and is sufficiently controlled to ensure that prioritization coding is maintained.

APPENDIX 4

DEFICIENCIES IN THE WNP-2 CONTROL ROOM OBSERVED DURING NRC IMPLEMENTATION CHECK

APP-4 #1

A labeling review was conducted for all annunciator controls and deficiencies corrected. All individual control switches presently have their required escutcheon label and each overall control group have their required annunciator group label. This item has been completed.

APP-4 #2

Due to parts procurement difficulties, several acknowledge controls were installed during system design improvements that did not match existing acknowledge controls. This was done to restore the system to operability prior to plant startup from an outage. Subsequently, the correct acknowledge controls were procured and are now installed. This item has been completed.

APP-4 #3

The Supply System will review the annunciator alarm system intensity to ensure that operators are capable of distinguishing the alarm signal from ambient noise. The review will be completed by the end of R-3 refueling outage. The schedule for resolving any noted deficiency will be based on Engineering evaluations at that time. The Supply System recognizes the importance of the operators need to distinguish alarms and assigns this issue a Category II until the review is completed.

APP-4 #4

The Supply System has been and is presently pursuing viable options on reducing the noise level within the control room. Various noise level tests have been made around the control room to determine the sources. The frequencies and associated dB magnitudes have been measured in order to determine what might be incorporated to reduce the level.

One factor should be kept in mind regarding the uniqueness of the WNP-2 Control Room. The WNP-2 Control Room contains a number of back panels (such as the computer panels, Reactor Protective System relay panels, and other misc. panels) which are normally found elsewhere in the non-PGCC (Power Generation Control Complex) type control room. Therefore, it is believed that there will be an inherent noise level which is higher when compared to non-PGCC type plants.

When the noise level is broken down by frequency and dB magnitude and then compared to various industrial standards such as; Speech Interference Levels, NUREG-0700 Exhibit 6.1-26, etc., the WNP-2 Control Room approaches the "slightly raised" voice area. The Supply System has subcontracted out to The National Health Services (JAN '87) and the Boeing Technical Services (JULY '87) to have noise level tests made. These results also indicated that the WNP-2 Control Room is within the upper acceptable limits. Based on the above, the Supply System views this concern as a Category IV deficiency. However, the Supply System believes that improvements in the control room environment is conducive to operator job satisfaction and long term reliability and therefore is pursuing viable options to try and reduce the noise levels to a lower value.

APP-4 #5

The location and seismic mounting concerns of the phone on panel P800 was previously recognized by the Supply System. A design change was issued in March 1986 and implemented during the R-2 outage that mounted the phone on the panels front vertical section for seismic mounting and to keep the phone cord from interacting with panel controls. This item is considered complete.

APP-4 #6

Reflective glare on two Graphic Display System (GDS) CRT screens results in their being hard to read. A number of factors need to be taken into consideration while addressing the glare problem.

1) The glare is primarily caused by the overhead fluorescent lights.

2) An overhead visor was installed to reduce the glare. This helped but did not eliminate it.

3) The brightness control on the CRT has been increased to the maximum available.

4) The CRT's have been in use for 3 years and these CRT's are scheduled to be replaced in the near future. Due to item 3) above, the screens have burnt in and contrast has dimmed.

5) An anti-glare material has been discovered which reduces the glare from outside light sources. However, the maximum size presently available is for a 13 inch CRT whereas the GDS displays are 21 inches.

The two GDS displays on panels P601 and P602 are not required for plant operation or for implementation of emergency procedures. There are no technical specification requirements for their operability. The displays were installed as additional aids for the operator and are redundant to existing control room hardware displays. Display redundancy is also maintained by a third GDS display used by the Control Room Supervisor and the Shift Technical Advisor, and a fourth GDS display located in the Technical Support Center. Based on the above, the Supply System views this concern as a Category III deficiency. However, in light of improving the GDS display screens for readability, the Supply System is pursuing the possibility of obtaining the anti-glare material.

APPENDIX 5
CONCERNS RELATIVE TO WNP-2 HED'S

C-6.84/C-6.85; APP-5 #1

The computer trend recorder located on panel P603 which was enclosed by the control rod drive demarcation lines has been deleted. This item is considered closed.

D-1.27; APP-5 #2

Originally, color banding of the control room instrumentation had been done on a temporary basis for the GE type 180 meters, i.e., the color bands were applied to the case rather than the instrument scale. The installation creates a parallax problem when reading the instrument scales. However, the concern regarding the amount of error created due to the parallax was determined to be nominal. The color banding is installed as an operator aid and not for accuracy. The following items were taken into account when evaluating this response:

1) The Operators have training sessions on how to deal with parallax situations.

2) The risk of creating an additional problem is greatly enhanced whenever a cover is removed from a GE-type 180 meter indicator.

3) Color banding can be directly applied to recorder scales whereas on indicator scales, the cover must be removed. This can only be done during outage periods in most cases.

4) Color banding is now controlled by our Operations Group. By having color banding put on the meter scales, the process is more complicated, thus, a higher risk of creating a problem.

5) Color banding installations are checked and maintained presently by the Operators Group.

6) In light of the above, the color banding on the type 180 indicators will be left installed on the case unless the unit is to be repaired/replaced. At that time the color banding will be installed on the meter scale. New units which are to be installed which require color banding shall have the color banding inserted prior to panel installation.

Due to the above, the Supply System views this concern as a Category V.

D-3.59; APP-5 #3

Supply System Human Factors Engineering Standard HFES-1, Standard List of Acronyms and Abbreviations, was drafted prior to WNP-2 Commercial Operation. Revisions to HFES-1 has occurred as needs are identified. Prior correspondence with the NRC had deferred updating the computer displays until the R-2 outage due to the planned replacement of computer system hardware. Updating and standardization of computer displays for consistent use of acronyms and abbreviations, and consistency with related annunciator alarm descriptions, was completed during the R-2 outage in 1987. Subsequently, HFES-1 has been re-reviewed and revised as warranted. This deficiency is considered closed; however, continued maintenance and application of HFES-1 is considered a Category III issue.

E-1.34; APP-5 #4

Several vertical panels have annunciator response controls above the nominal height of 25 inches. Control room annunciator response controls have been color padded and control shape coding has been applied uniformly. These coding techniques, along with demarcation application to surrounding controls, have improved significantly their visual identification by their uniqueness. Also, a review of the panels of concern shows that no similar push button controls are in proximity to any of the annunciator response controls, and that operators have adjusted and respond to their present locations without any expressed concern. The Supply System evaluated this as a Category V discrepancy which does not warrant the manpower and budget expenditures necessary to upgrade.

E-3.71; APP-5 #5

The above deficiency notes that control coding techniques for easy recognition of controls should be used. The Supply System has applied such coding to the extent practical and as consistent as the existing design component availability and nature of the deficiency allowed. Former Supply System responses have documented their various uses. To ensure that recommended coding techniques, such as color, color shading, demarcation and shape, that have been applied to the WNP-2 Control Room are maintained and applied in a consistent manner, the appropriate Human Factors Engineering Standards have been revised accordingly. This deficiency has been identified as a Category III by the Supply System and resulting appropriate action completed.

E-5.54; APP-5 #6

The five instruments in question involve the scale markings on GE type 180 meters. These meter scales had been changed out with scales made from our graphics unit. The graphics unit did not have any standards to use except for what was called out on the Maintenance Work Request (MWR). As a result, the scale and legend marking standard referenced in Human Factors Engineering Standard HFES-7 was not being used on all work.

Due to the above condition, the Supply System views this concern as a Category II. A scale and legend marking standard will be put in place for our graphics unit by July 1, 1988. An MWR for upgrading the meter scales in question will also be in place by July 1, 1988.

F-5.72; APP-5 #7

The above response to discrepancy E-3.71 (APP-5 #5) adequately resolves and closes this issue. Also, the Human Factors Engineering Standard HFES-1, Standard List of Acronyms and Abbreviations, is not the appropriate location for noting control coding techniques as noted in the TER.

F-6.114; APP-5 #8

The above deficiency notes that DEH Valve Control push buttons are labeled "raise" and "lower" instead of the preferred "open" and "close". These controls are backlighted engraved switches unique to the Westinghouse DEH System. Per the Supply System's previous response:

> The DEH panel was demarcated by control function and group labels applied; e.g., Pressure Control, Turbine Control, Bypass Valve Control. The controls noted above are part of the turbine control group on the BWR control panel. Operating experience to date indicates that with the added demarcation, group labeling and DEH training provided prior to startup, any apparent operator misunderstanding has been clarified.

Recent discussions with simulator training engineers has noted that specific training is provided on the DEH system and that no training evaluations have ever indicated a concern relative to this issue, nor has any operator expressed or shown confusion. Also, valve position information is directly available above the controls for positive feedback and is the primary means of monitoring valve performance. Based on Supply System evaluation, this concern is categorized as Category V and with the existing position feedback and training, does not warrant the administrative and engineering manpower and budget resources necessary to upgrade these unique Westinghouse control lenses.

C-9.2; RHR Steam Condensing Mode Deactivation

Finding C9.2 provided recommendation for the removal of controls, displays and alarms associated with the deactivated RHR Steam Condensing Mode. Removal was scheduled for the third refueling outage, spring of 1988. However, due to engineering manpower, constraints and higher priority efforts ongoing, removal of the associated controls, displays and alarms must be deferred to the fourth refueling outage.

The components in question were reviewed to ensure the deferral would not provide an unacceptable Human Factors risk. The components are well grouped, do not provide a visual distraction to the operator, and have been visibly identified as being deactivated. Experience since initial plant startup in 1984 has not identified any operational deficiencies resulting from the above.

Based on the above reasons, the Supply System has determined that deferral of this item is acceptable. This is considered a Category III deficiency.

F-3.76; Upgrade Fire Alarm Tile Engraving

Finding F-3.76 identified the need to upgrade the engraved descriptions on the control room fire annunciator alarm panels. Procurement and installation of the new engraved lenses was scheduled for the second refueling outage. However, due to engineering constraints and higher priority efforts ongoing, the installation of new lenses must be deferred until fiscal year 1989. Also, Engineering is reviewing the existing Alarm Monitoring System for possible replacement with state-of-the art solid state equipment which would probably eliminate the existing annunciator windows. If this design is selected, upgrading of the existing engravings would not be required.

The concern relative to the existing engraved descriptions has been minimized by the preparation of individual fire alarm annunciator procedures. These procedures are located in the control room and provide sufficient direction and information to the operator for proper alarm response. With the new procedures, the Human Factors concern has been reduced such that the delay in upgrading the engraved descriptions is acceptable. This is considered a Category III deficiency.

TA-G-13; Upgrade Emergency Procedure Flow Chart and Table

The deficiency noted that the Emergency Procedure Flow Chart needed updating to conform to the latest procedures, contained several Human Factor format and color concerns, and that its display table did not conform to NUREG-0700 anthropometric standards. The flow chart has been updated and temporarily located in a more suitable mounting. A permanent display table is being manufactured and will be installed by the end of the third refueling outage. This is considered a Category IV deficiency.

TA-5.1.3 Item 4; Storage Area for Borax and Boric Acid

Specific Emergency Procedure Finding Item 4 for PPM 5.1.3 Stated:

> Borax and Boric Acid for alternate boron injection is stored in the warehouse outside the plant security fence. Its location may delay response to the ATWS event if alternate boron injection is required.

Supply System Response Dated 11/01/85 Noted That:

> Potential storage areas within the plant security fence would be evaluated. Areas would be reviewed based on the necessity of keeping boron out of the reactor coolant during normal operation. An area will be selected to accommodate the Borax and Boric Acid which will not compromise normal plant operations.

Potential storage areas within the plant were reviewed and none found acceptable. Per Engineering and Operations evaluations, the possibility of contamination by these chemicals of the primary system is sufficient that they should not be stored in any area of the plant associated with the plant's drain or radwaste systems. Thus, the existing storage area appears the most practical and appropriate location. Also, Operations access to the warehouse has been improved since the original deficiency was noted which improves access response times. This deficiency is considered a Category V and does not warrant any further action.

TA-5.2.3; Drywell Vent Capability

Specific Emergency Procedure Finding Item 7 for PPM 5.2.3 Stated:

> Step 11 directs use of the two inch containment purge exhaust valves for venting if containment pressure exceeds the limit (approximately 90 PSIG). The two inch vents are considered inadequate for dealing with a heat source causing containment pressurization to 90 PSIG.

Supply System response dated 11/01/85 noted that:

> As a participant in the BWR Owners Group subcommittee for the Emergency Procedure Guidelines, WNP-2 is cognizant of the forthcoming Revision 4 to the guidelines regarding containment venting and combustible gas control. Evaluation and resolution of the WNP-2 venting capability is dependent on the provisions to be addressed in Revision 4 of the guidelines. As noted in the FSAR, WNP-2 will implement the guidelines when issued. Recommendation 7 will be implemented not later than the second refueling outage following EPG Revision 4 approval by the NRC.

The above response is still accurate. Resolution of this finding is still awaiting NRC approval of EPG Revision 4. This is considered a Category II deficiency.

TA-G-2; Review PPM's Against Emergency Procedures

System Operating, General Operating, Abnormal and Emergency Plan Procedures were reviewed for compatibility to Emergency Procedures. Abnormal Procedures addressing primary systems leakage into secondary containment were revised to remove conflicting instruction. WNP-2 believes that the intent of this finding has been met and thus can be closed. However, attention for consistency between procedures, through routine, review/revision of operating procedures during their two year required review cycle, will be a continuing process over the life of the plant.

ATTACHMENT 1

FUNCTION AND TASK ANALYSIS

OF THE WNP-2

EMERGENCY OPERATING PROCEDURES

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

TABLE OF CONTENTS

1.0 INTRODUCTION

This document describes a methodology for function and task analysis of WNP-2 EOPs. Applications for the results of the analysis are also discussed.

2.0 DEFINITIONS

Action Function:	An operator function involving a conscious movement, operation of controls, or execution of a series of procedural steps. Example: "Inject boron into the RPV with SLC."
Control Requirement:	The specific controls required to enable the operator to accomplish an action. Examples: Pump breaker control switch, valve control switch, selector switch.
Decision Analysis:	A form of task analysis in which operator decisions are identified and systematically examined to identify information requirements.

Decision Function:	An operator function involving a determination, evaluation, or judgement through which a procedural branch path is selected. Example: "If suppression pool temperature cannot be maintained below the Heat Capacity Temperature Limit . . ."
Function:	A higher order activity by which the plant operating crew meets the objectives of the operating procedures. Within the context of this document, functions include decisions and actions.
Information Requirement:	Knowledge of system or plant status required as an input to a decision. Examples: Pump status, breaker status, valve lineup status, RPV water level status.

Instrumentation Requirement:	Specific parameters, displays, and design characteristics required to fulfill an information requirement. Example: Pressure indicator with a range of 0 - 150 psig.
Task:	A well defined subdivision of a function; a specific activity contributing toward the accomplishment of a function. Examples: Closing a valve, tripping a breaker.
Task Analysis:	A systematic process by which operator tasks are identified and examined in terms of the conditions, control, instrumentation, skills, etc. associated with the task.

3.0 METHODOLOGY

3.1 General

The EOPs specify the emergency functions of the plant operating crew. Through analysis of these functions and their constituent tasks, control and information requirements necessary to support the performance of the EOPs will be determined.

The function and task analysis of the EOPs will be conducted in the following steps:

(1) Principal control functions will be identified.

(2) Decision and action functions will be identified for each principal control function.

(3) Control and information requirements will be identified for each decision and action function.

The result of the function and task analysis will be identification and application of action and decision functions and the control and information requirements necessary to performing the procedures.

3.2 Identification of Principal Control Functions

The new, symptomatic BWR EOPs typically define principal control functions. These functions generally correspond to the grouping of procedural steps within the EOPs. Examples include RPV water level control, reactor power control, suppression pool level control, and primary containment pressure control.

3.3 Identification of Decision and Action Functions

The EOPs specify performance of the principal control functions in series of procedural steps containing decision and action functions. These decisions and action functions will be separately identified for analysis in terms of control and information requirements.

To facilitate subsequent analysis, the decision and action functions identified in the functional analysis will be classified as follows:

D1 - Decisions which require comparison of a parameter to a predetermined value or limit, such as "above" or "below".

D2 - Decisions related to system status, such as "open" or "initiated".

D3 - Decisoins based upon a procedural requirement, such as "If Boron Injection is required".

D4 - Decisions that are judgmental or which require an estimation of the future state of parameters or system status. Examples include "If RPV water level cannot be maintained", "If RCIC is available", and "If adequate core cooling can be assured".

A1 - Actions that are not directly conditioned upon an explicit decision process, such as "Open the discharge valve" or "Monitor RPV water level".

A2 - Actions that are directly based on the less complex decision functions (type D1 and D2), such as "If pressure is below 10 psig, then stop the pump".

A3 - Actions that are directly based on the more complex decision functions (type D3 and D4), such as "If reactor power is above the APRM downscale trip or cannot be determined, then trip the recirculation pumps".

3.4 Decision Analysis

Before making a decision, the operator must gather and process a set of information. This set includes both information explicitly identified in the step itself such as plant variables, system parameters, and associated limits, and certain supplemental or implicit information. Implicit information may be required to varying degrees, depending upon existing plant conditions, and on system or component availability at the time the decision must be made.

In the decision analysis process, each identified decision function will be examined in terms of the information, both explicit and implicit, the operator requires to effect an evaluation of plant conditions and make the decision. Explicit information needs may be obtained directly from the EOP step itself. Implicit information needs must be derived through analysis of the operator's expected response, system characteristics, and procedural requirements.

3.5 Action Analysis

Actions specified in the EOPs generally require the performance of a particular act or the execution of a series of procedural steps. In the task analysis process, each identified action function will be examined in terms of its constituent tasks. Controls required for the performance of each task may then be identified using available technical reference material, operator input, and installed equipment.

In addition to identifying control requirements, analysis of operator actions will also identify a set of implicit information requirements. Once the action has been taken, the operator must obtain feedback information to verify that the action was performed properly and that it resulted in the desired effect. This feedback

information may be the same set of information processed to make the decision leading to the action, an independent set, or more likely, an intersecting set. It necessarily includes considerable information pertaining to system status, system availability, component operating status and system performance. All of this information falls into the category of implicit information.

3.6 Classification of Information

To facilitate subsequent analysis, the information requirements identified through the analysis of operator decision and action functions will be classified as follows:

I1 - Directly measurable plant parameters, such as RPV water level, suppression pool temperature, or RCIC steam line pressure.

I2 - Parameters derived from one or more type I1 parameters, such as RPV saturation temperature or the Heat Capacity Temperature Limit.

I3 - Type I1 parameters as a function of time, such as RPV cooldown rate.

I4 - Parameters related to system status, such as valve position or breaker status.

As previously discussed, the information may be explicit, implicit, or both, depending upon the decision or action function which requires it.

4.0 APPLICATION

A sample functional analysis is illustrated in Figure 1. The format and content shown is for illustrative purposes only and is not designed to be prescriptive.

The results of the function and task analysis will be used in the following applications:

(a) Identifying operator information and instrumentation requirements for refining the Graphics Display System (SPDS).

(b) In conjunction with the DCRDR, identifying operator control, information and instrumentation requirements for emergency operating procedures.

(c) Verifying provision of instrumentation under Regulatory Guide 1.97.

(d) Refining plant-specific emergency operating procedures.

(e) Identifying performance and knowledge requirements for development of operator training programs.

5.0 SUMMARY

Through functional analysis of the WNP-2 emergency operating procedures, principal control functions and specific emergency response action and decision functions will be identified. The identified action and decision functions will then be analyzed to detemine the information and control requirements necessary to support the accomplishment of these functions. The information and control requirements thus determined are used to define or prioritize requirements for procedures, training, and control room system improvements.

		I	D	A	Implicit Information Requirements	Type
PC/P	Monitor and control			A1	Primary containment pressure trend See primary containment pressure control PC/P below	I3
	primary containment pressure.	I1				
PC/P-1	Operate [the following systems,			A2	See below	
	as required:		D4		None	
	o Containment pressure control systems.			A2	See Table A-21, Drywell/Containment HVAC and Cooling System See Table A-22, Drywell/Containment Purge System	
	Use containment pressure control system operating procedure.]			A2	None	
	[o] SBGT			A2	See Table A-23, SBGT System	
	[and drywell purge],			A2	See Table A-22, Drywell/Containment Purge System	
	only when the temperature in the space being evacuated	I1				
	is below		D1		None	
	[212°F (Maximum Noncondensible Evacuation Temperature)].	I1				
	Use [SBGT and drywell purge operating procedures].			A3	None	
	((CAUTION #21))	I5			See Caution 21	
PC/P-2	Before suppression chamber pressure	I1				
	reaches		D1		Suppression chamber pressure trend	I3
	[the Pressure Suppression Pressure] [17.4 psig (Suppression Chamber Spray Initiation Pressure)],	I1				
	but only if [suppression chamber pressure	I1				
	is above		D1		None	
	1.7 psig (Mark III Containment Spray Initiation Pressure Limit)]	I1				
	[suppression pool water level	I1				

Figure 1. Sample Functional Analysis

ATTACHMENT 2

SUMMARY, WNP-2 EOP TASK ANALYSIS

The purpose of this Attachment is to illustrate the steps performed in the EOP Task Analysis by a specific example, thereby demonstrating that no further information or purpose would result in augmenting the Task Analysis. The overall process is simple in concept, i.e., identify the information and controls required to perform the EOP steps and then show that the required information and control exists for the WNP-2 Operators.

STEP 1: IDENTIFICATION OF REQUIRED INFORMATION AND CONTROL (I/C)

An example is shown on Table 1, Sheet 5.113 and Table 1-10, Sheet 5.367 (attached). In the second column in the Table 1 example, the EOP step is given, broken down to identify Decisions (D), Information (I), or Action (A) required. A comparison to the BWROG EPG's in the first column is also done to ensure completeness of the WNP-2 EOP's. For each Action (A) or Decision (D) that requires system information, i.e., implicit Information/Control, reference to a complete Table for that system is given; in the example, reference to the ADS/SRV system Table 1-10 (attached) is made.

At this point, a conscious decision was made to express the required system Information/Control in term of generic BWR requirements. This was done to satisfy the NRC concern that the Task Analysis not be done with the Plant specific Control Room capabilities in mind. That is, if the required system Information/Control were taken from further analysis of WNP-2 system procedures, then apriori the required Information/Controls exist at WNP-2.

By using our approach, we ensure completeness of the required Information/Controls and maintain an independence from knowing the WNP-2 capabilities before Step 2, below. Therefore, there is no need to augment the Task Analysis.

STEP 2: COMPARE REQUIRED I/C TO AVAILABLE I/C AT WNP-2

To correlate the required Information/Control (I/C) to the available I/C, the form attached as Table 3, Sheet 5.707 for this example was used. Note that the explicit and implicit (via Table 1-10) Information/Control requirement are correlated to a table entry number on the form 2-XXX (as 2-002 for this example). Going to Table 2, Sheet 5.402 (attached), entry 2-002 is given as RPV Pressure. The requirements for this parameter are summarized from Table 1 on the left of the heavy vertical line. In the example

given, pressure for bypass valves full-open of 930 PSIG is given (marked by an arrow). To the right is given available WNP-2 I/C that may be used to satisfy the requirements. The available Information/Control is given with its Location (e.g. CR-P601 is Control Room Panel P601), Range, Setpoints, Resolution, and Limits, if applicable. The comparison of required versus available per parameter is therefore available on one sheet and the findings (if any) are summarized in the final Step 3, below, as part of the Walkdown/Talk through.

STEP 3: SUMMARIZE COMPARISON WITH WALKDOWN/TALKTHROUGH

For the final step the CRDR Task Force consisting of personnel familiar with the writing of the EOP's, Human Factors, and the Task Analysis, used the WNP-2 Simulator and stepped Senior Reactor Operators through the EOP's. This provided the opportunity to summarize the comparison of required verses available I/C from Table 2, and note any Operator and Human Factors feedback. Although, the example used here did not result in any findings, Table 3, Sheets 5.707 and 5.775 are presented as examples.

In total, the EOP Task Analysis resulted in approximately 100 findings which were reported in the Summary Report submittal (G02-85-758). The depth of the Task Analysis has thus been demonstrated and any augmentation would not result in new findings nor supplement the existing Task Analysis.

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7-8-85
DSW
10/8/85

Table 1-10: ADS/SRV Status

RPV water level	2-001	I1
RPV water level limit (low level 1)		I1
RPV water level limit (low level 3)		I1
Drywell pressure	2-005	I1
Drywell pressure limit (high)		I1
Drywell pressure trend		I3
RPV pressure	2-002	I1
RPV pressure change/trend		I3
Local suppression pool water temperature trend	2-014	I3
Suppression pool level change/trend	2-015	I3
LPCS pump discharge pressure	2-046	I1
LPCS pump discharge pressure limit		I1
RHR pump discharge pressure	2-047	I1
RHR pump discharge pressure limit		I1
Tailpipe acoustic/temperature/pressure change	2-048	I3
Generator output change	2-056	I3
SRV accumulator pressure		I1
SRV accumulator air header pressure		I1
Automatic initiation logic status	2-048	I4
Timer initiated/reset status		I4
Manual ADS initiation status		I4
Drywell pressure logic seal-in status		I4
SRV control switch position		I4
SRV solenoid demand signal status		I4
SRV control power status		I4
ADS logic power status		I4
HPCS System (see Table 1-6)		NA
LPCS System (see Table 1-8)		NA
LPCI Mode of RHR (see Table 1-9)		NA
ADS Inhibit Status		2-048

WASHINGTON PUBLIC POWER SUPPLY SYSTEM | MANUAL CALCULATION | 5.113

CALCULATION NO. NE-02-85-17 | REVISION 0

EPG/EOP TASK ANALYSIS

PREPARED BY R.O. VOSBURGH DATE 9-18-84 | VERIFIED BY D.L. Williams DATE 9/27/85

7-2-85

TABLE 1: INFORMATION AND FUNCTIONAL (CONTROL) REQUIREMENTS

EMERGENCY PROCEDURE GUIDELINES (REV. 3)	WNP-2 EMERGENCY OPERATING PROCEDURES	I	D	A	IMPLICIT INFORMATION REQUIRED	TY
RC/P (CONT'D)	5.1.2.3 (CONT'D)					
RC/P-1 IF ANY SRV IS CYCLING,	STEP 6. IF ANY SRV IS CYCLING,		D2		SEE TABLE J-10: ADS/SRV STATUS	
INITIATE IC	[THIS FEATURE DOES NOT EXIST ON WNP-2, THEREFORE IS NOT IN EOI's]					
AND MANUALLY OPEN SRVs	MANUALLY OPEN SRVs			A2	SEE TABLE J-10: ADS/SRV STATUS	
UNTIL RPV PRESSURE	UNTIL RPV PRESSURE	I1				
DROPS TO	DROPS TO		D1		RPV PRESSURE TREND	I3
[935 PSIG (RPV PRESSURE AT WHICH ALL TURBINE BYPASS VALVES ARE FULLY OPEN)].	930 PSIG.	I1				

WASHINGTON PUBLIC POWER SUPPLY SYSTEM	MANUAL CALCULATION	PAGE 5.402
CALCULATION NO. NE-02-85-17-	REVISION 0	
SUBJECT EPG/EOP TASK ANALYSIS		
BY R.O. VOSBURGH RV 7-29-85	DATE 11-29-84	VERIFIED BY [illegible] DATE 6/27/85

TABLE 2: INFORMATION AND CONTROL AVAILIBILITY

A. TYPE I1 & I3 (CONT'D)

EOP REQUIREMENTS			AVAILABLE INFORMATION AND CONTROLS				
No.	Parameter/Function	Range/Setpoint/Limit/Resolution	EPN No.	Output Location	Output Format	Range/Setpoint/Limit/Resolution	Class
2-002	RPV Pressure	Range 0-1130 PSIG	(B22 ≡ MS)				
		Lowest SRV Lift (1075 PSIG) △	B22-N051A	CR-P601	Rec LR/PR-623A	0-1500 PSIG / NA / 5 major 15 minor (20 psi) / Acc. ±7.5 psi .5% [illegible]	1E
[RG 1.97 Item 6]		Hi Scram Setpoint (1037 PSIG)					
	→	Bypass Valves Open (930 G) △	B22-N051B	CR-P601	REC LR/PR-623B	0-1500 PSIG / NA / ↓ / ↓	1E
		Single SRV Steam Cool (700 G)	MS-PR/FR-603 (from MS-PT-3,-1?)	CR-P603	Rec 601	850-1050 PSIG / / 0.5% / 4 major 10 minor (5 PSI)	1E
		LPCS/LPCI Rated Flow (122G)	MS-PS-23C,D	CR-P603-A8	ANN(2-2)	"RPV Press High Trip" / >1037 PSIG	
		Max Alt. Shdn Cooling (120 G)	C34-K636 (C34-R605)	CR-P603-A8	ANN(3-8)	"RFW RPV Press High Alert" / >1015 PSIG	
		HPCS/RCIC Isolation (60G)					
		Min Alt Shdn Cooling (76G)	MS-PS-23A,B	CR-P603-A7	ANN (2-2)	"RPV Press High Trip" / ≥1037 PSIG	
		Min RPV Flooding (98 G)	MS-PS-23A	CR-P603-A7	ANN (6-3)	"RPV Press High Alert" / >1027 PSIG	
		Min SRV Reopen (50 G)					
		Trend					
		Min FW Sys. Operability (160 PSIG)					
		SLC Operate (35 PSIG)					
		LPCS Shutoff Head (360 PSIG)					
		Condensate Supply Switch (100 PSIG)					
		Max Fire Sys. Operability (90 PSIG)					
		Max Cond. Flush Sys Operability (40 PSIG)					

TABLE 3: DCRDR TASK ANALYSIS

EOP NUMBER	FUNCTION IDENT.	REQUIRED INFORM'L CONTR. EXPLICIT	REQUIRED INFORM'L CONTR. IMPLICIT	HED AND/OR COMMENTS (See Sheets 5.771-5.781)
5.1.2.3 (CONT'D)				
STEP 6.	D2		TABLE 1-10	
	A2		TABLE 1-10	
	I1	2-002		
	D1		2-002	
	I1	2-002		

④

TABLE 3 (CONT'D)
Operator Walkthrough

TABLE NO. ITEM NO. PAGE NO.	DESCRIPTION OF FINDING	DISPOSITION OF FINDING
5,1,2 step 12	o 135 psig interlock verification does not exist. Recent setpoint error; found interlock clearing at ~90 psig. Applicable to other EP's.	
5,1,3 step 5	o FCV. RUNback is not automatic, thus operator cannot "confirm".	• Reword to state "reduce FCV to minimum then trip pumps to 15 Hz." Delete wording "Confirm or".
step 8.1.b.	o CRD-V-64 is very difficult to get to and is in a RWP zone. Applicable to other procedures.	
step 8.3	o It is not clear that if the vent & drain valves do not open the operator just where the operator should go to (step 8.4 or 8.6?).	
step 8.3.b.	o Reference to step 8.5.a; can this be changed to reference step 8.2.a thus allowing deletion of actual step 8.5.	
step 8.7. (C,5)	o Location of orifice is not well identified.	

ATTACHMENT 3

SUPPLY SYSTEM ENGINEERING INSTRUCTION	EI 2.40 Rev. 5
SUBJECT: INSTRUCTIONS FOR SPECIAL DESIGN REVIEW	EFFECTIVE DATE: 9-29-86 APPROVING MANAGER: C.D. Livingston for L.T. Pearson

1.0 PURPOSE AND SCOPE

This instruction outlines the process by which BDC's are reviewed for special topics. Criteria are provided to establish if the BDC re- quires special design reviews for the following special topics:

- o ALARA
- o Industrial Safety/Fire Protection
- o Security
- o Emergency Preparedness
- o Equipment Qualification
- o Human Factors
- o Environmental
- o ASME Compliance
- o Control System Failure
- o Pipe Break/Missile
- o Electrical Separation
- o Appendix R Fires
- o Penetrations
- o Reactor Core and System Analysis Parameters

5

2.0 DEFINITIONS

None

3.0 PROCEDURE

Responsibility	Action
Cognizant Engineer	.1 Reviews BDC and PMR design package content against Special Review Criteria (See Attachment 5.1) to determine if special review should be performed.
	.2 If special reviews are appropriate per criteria, obtains names of Reviewer from Engineering Administration and inscribes names in appropriate spaces on Design Review/Approval form. 5
	.3 Submits package to designated reviewer.

F CRITERIA FOR HUMAN FACTORS REVIEWS

Special reviews for human factors considerations must be performed if any of the following criteria are satisfied:

F.1 Changes are made to main control panels.

F.2 Changes are made to remote shutdown panels.

F.3 Changes are made that will modify the operating environment of the main control room by changes in such items as colors of room or panels, light levels, sound levels, addition of flashing lights or modulated sounds, floor panel changes, etc.

G CRITERIA FOR ENVIRONMENTAL REVIEWS

Special reviews for environmental consideration must be performed if any of the following criteria are satisfied:

G.1 Changes are made that will materially change rates, concentrations, or quantities of chemical solutions released to the water or soil.

G.2 Changes are made that will materially change location and/or quantity of water discharged to the river or to the soil.

G.3 Changes are made to the Waste Treatment System.

G.4 Changes are made that will require erection of new structures or earth moving operations outside of previously disturbed areas.

G.5 Changes are made that will result in increased off site noise levels.

G.6 Changes are made that will alter the makeup water intake configuration, or will materially change the location and/or quantity of water withdrawn from the river or from wells.

G.7 Changes are made that will materially alter the rates or quantities of nonradioactive gases, vapors, or particulates released to the atmosphere.

G.8 Changes are made that will increase the risk of accidental release of significant amounts of petroleum products or other toxic or hazardous materials.

G.9 The Engineer determines that the design change should be reviewed for environmental impact.

March 28, 1988

DISTRIBUTION
Docket File
PDR
LPDR
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JLee

DOCKET NO(S). 50-397

Mr. G. C. Sorensen, Manager
Regulatory Programs
Washington Public Power Supply System
P. O. Box 968
Richland, WA 99352

SUBJECT: WASHINGTON PUBLIC POWER SUPPLY SYSTEM - WNP-2

The following documents concerning our review of the subject facility are transmitted for your information.

- ☐ Notice of Receipt of Application, dated _____.
- ☐ Draft/Final Environmental Statement, dated _____.
- ☐ Notice of Availability of Draft/Final Environmental Statement, dated _____.
- ☐ Safety Evaluation Report, or Supplement No. _____ dated _____.
- ☐ Environmental Assessment and Finding of No Significant Impact, dated _____.
- ☐ Notice of Consideration of Issuance of Facility Operating License or Amendment to Facility Operating License, dated _____.
- ☒ Bi-Weekly Notice; Applications and Amendments to Operating Licenses Involving No Significant Hazards Considerations, dated 3/9/88 [*see page(s)*] 7615.
- ☐ Exemption, dated _____.
- ☐ Construction Permit No. CPPR-_____, Amendment No. _____ dated _____.
- ☐ Facility Operating License No. _____, Amendment No. _____ dated _____.
- ☐ Order Extending Construction Completion Date, dated _____.
- ☐ Monthly Operating Report for _____ transmitted by letter dated _____.
- ☐ Annual/Semi-Annual Report- _____ _____ transmitted by letter dated _____.

Office of Nuclear Reactor Regulation

Enclosures:
As stated

cc: See next page

OFFICE	DBSR/PD5						
SURNAME	JLee						
DATE	3/28/88						

NRC FORM 318 (10/80) NRCM 0240

OFFICIAL RECORD COPY

Mr. G. C. Sorensen, Manager
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WPPSS Nuclear Project No. 2
(WNP-2)

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