STATE CHANGE HISTORY

Initiate → by RICHARD FLESSNER

Assign Work 2/5/2002 2 54 21 PM Owner DUANE SCHOON

Assign → by TOM SHELEY

Conduct Work 2/6/2002 1 44 22 PM Owner TERRY VANDENBOSCH

Work Complete → by TERRY VANDENBOSCH

Review & Approval 5/15/2002 3 18 02 PM Owner DUANE SCHOON

Approved → by DUANE SCHOON

Quality Check 5/21/2002 5 08 02 PM Owner PBNP CAP Admin

Complete and Close → by JULIE KREIL

Done 5/22/2002 8 40 04 AM Owner (None)

SECTION 1

Activity Request Id:	CA003692		
Activity Type:	Corrective Action	Submit Date:	2/5/2002 2:54 21 PM
Site/Unit:	Point Beach - Common		
Activity Requested:	Revise the EOP validation process to ensure that appropriate initiating events are included. Utilize PRA input in determining what initiating events are applicable. **** SEE UPDATE ****		
CATPR:	Y	Initiator:	FLESSNER, RICHARD
Initiator Department:	EX Engineering Processes PB	Responsible Group Code:	PO PB Operations PB
Responsible Department:	Plant	Activity Supervisor:	DUANE SCHOON
Activity Performer:	TERRY VANDENBOSCH		

SECTION 2

Priority:	2	Due Date:	8/5/2002
Mode Change Restraint:	(None)	Management Exception From PI?:	Y
QA/Nuclear Oversight?:	N	Licensing Review?:	N
NRC Commitment?:	N	NRC Commitment Date:	

SECTION 3

Activity Completed:

1/18/2002 12.52PM - LARRY PETERSON:
Due date extended as requested and approved by F. Cayia in prior update. Retruned to R. flessner for completion

1/18/2002 12.54PM - LARRY PETERSON:
Reassigned to R Flessner for completion following extension.

2/22/2002 12.12PM - MARK RINZEL:
This item has been exempted from performance indicators by the Plant Manager via e-mail dated 2/21/2002. This has been changed to indicate this exemption in the item's section two.

5/15/2002 3.18.02 PM - TERRY VANDENBOSCH:
OM 4.3.2 revision 2 was issued on May 13, 2002 This change to the validation process incorporates the use of PRA to determine the types of scenarios and event initiators required for validation of changes to the EOPs. OM 4.3 3 has been canceled OM 4 3 2 now contains both the verification and validation process.

5/21/2002 5:08:02 PM - DUANE SCHOON:
Action complete.

5/22/2002 8:40.04 AM - JULIE KREIL:
Action completed as documented in update above from 5/15/2002. CLOSED CA003692.

SECTION 4

QA Supervisor:	(None)	Licensing Supervisor:	(None)

SECTION 5

Project:	CAP Activities & Actions		
State:	Done	Active/Inactive:	Inactive
Owner:	(None)	AR Type:	Daughter
Submitter:	RICHARD FLESSNER	Assigned Date:	2/6/2002
Last Modified Date:	5/22/2002 8:40.04 AM	Last Modifier:	JULIE KREIL
Last State Change Date:	5/22/2002 8:40.04 AM	Last State Changer:	JULIE KREIL
Close Date:	5/22/2002 8:40.04 AM		
One Line Description:	Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW		
NUTRK ID:	CR 01-3595		
Child Number:	1		
References:	CR 01-2278 RCE 01-069 GOOD CATCH OM 4.3 2 OM 4.3 3 CANCELED		
Update:	Action out a ACE that is being classified as a ROOT CAUSE. Due dates and priority set out ACE 314. Contact the author of ACE 314 for any clarification TPS ACTIVITY COMPLETED is old information from the ACE that was cloned into this action by responsible ACE individual --- Disregard *****		
Import Memo Field:			
CAP Admin:	PBNP CAP Admin	Site:	Point Beach
OLD_ACTION_NUM:			
Cartridge and Frame:			

NOTES/COMMENTS

Exception from performance indicators by DENNIS HETTICK (2/28/2002 8 01·40 AM)
The plant manager approved exception from performance indicators for this item e mail attached

ATTACHMENTS AND PARENT/CHILD LINKS

ACE000314· Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW

CAP001415 Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW

FW Request for Performance Indicator Exception for tTRACK actions rtf (6255 bytes)

Nuclear Power Business Unit
DOCUMENT REVIEW AND APPROVAL

* Per Jim Green, Total Rewrite, take Rev Bars off! GW 5/13

Note: Refer to NP 1.1.3 for requirements.

I - INITIATION

Doc Number OM 4.3.2 Unit PB0 Usage Level Information Proposed Rev No 2

Title EOP/AOP Verification/Validation Process Classification NA

☒ Revision ☐ Cancellation ☐ New Document ☐ Other (e.g., periodic review, admin hold)

List Temporary Changes/Feedbacks Incorporated:

Description of Alteration/Reason (If necessary, continue description of changes on PBF-0026c and attach)

Total rewrite, revised format per Procedure Writers' Guide, incorporated OM 4.3.3, EOP Validation (Rev. 0) information and PRA Core Damage Risk data. See PBF-0026c for details.

List other documents required to be effective concurrently with the revision (e.g., other procedures, forms, drawings, etc.):

PBF-2102a (Rev. 0), 2102b (Rev. 0), 2103a (Rev. 0), 2103b (Rev. 0), 2103c (Rev. 0)

Document Preparer (print/sign) James G Green / [signature] Date 5/1/02

Indicates draft prepared according to NP1.1.3, any commitments/bases changes have been documented and resolved.

II - TECHNICAL REVIEW

(Cannot be the Preparer or Approval Authority)

Technical Reviewer (print/sign) JC VANDERNBOSCH / [signature] Date 5/1/02

Indicates draft technically correct, consistent with references/bases/upper tier requirements, requirements of NP 1.1.3 completed

III – DOCUMENT OWNER REVIEW

Required Reviewers/Organizations: OPS / TRAINING / REGULATORY / NUCLEAR ENG / PRA

Validation Required? ☒ NO ☐ YES ☐ WAIVED (Group Head Approval and Reason Required) NOTE: REQ REVIEWS HAVE BEEN COMPLETED

Reason Validation Waived: (Continue on PBF-0026c if necessary.)

Validation Waiver Approval: [signature] 5/7/02 Group Head Signature

Changes pre-screened according to NP 5.1.8? ☐ NO ☒ YES (Provide documentation according to NP 5.1.8)

Screening completed according to NP 5.1.8? ☒ NA ☐ YES (Attach copy) Safety evaluation required? ☐ NO ☐ YES

Training or briefing required? ~~☒~~ NO ☒ YES If YES, training or briefing required before issue? ☒ NO ☐ YES

Training assistance desired? ~~☒~~ NO ☒ YES If YES, Training Coordinator contacted/date: P Smith / 5/7/02

☒ QR/MSS Review NOT Required (Admin or NNSR only) ☐ QR Review Required ☐ MSS Review Required (reference NP 1.6.5)

Document Owner (print/sign) G.D. STRAMARSKY / G.D. Stramarsky Date 5.4.02

Indicates document is technically correct, can be performed as written, does not adversely affect personnel or nuclear safety, appropriate reviews have been performed (i.e., technical, cross-disciplinary, validation and 50.59/72.48), comments have been resolved and incorporated as appropriate, affected documents/ training/briefing have been identified and word processing completed. Document Control notified if emergent issuance required (e.g., may be less than 2 days for procedure issuance)

IV - APPROVAL

(The Preparer, Qualified Reviewer (QR), and Approval Authority shall be different individuals)

QR/MSS (print/sign) N/A / Date

Indicates 50.59/72.48 applicability assessed, any necessary screenings/evaluations performed, determination made as to whether additional cross-disciplinary review required, and if required performed

MSS Meeting No

Approval Authority (print/sign) K Sokol / [signature] Date 5/7/02

V – RELEASE FOR DISTRIBUTION

☒ NA ☐ YES Pre-implementation requirements complete (e.g., training/briefings, affected documents, word processing, etc.)

☒ Specific effective date not required. Issue per Document Control schedule.

☐ Required effective date (Coordinate date with Document Control)

Document Owner/Designee (print/sign) K Sokol / [signature] Date 5/7/02

Effective Date (to be entered by Document Control) MAY 13 2002

REC'D MAY 16 2002 MICROFILMED

MAY 31 2002

PBF 0026a

References NP 1.1.3 NP 1.1.5 NP 1.1.6 NP 1.2.3 NP 1.2.5 NP 1.2.6

Doc Number OM 4.3.2 Revision 1 Unit PB0

Title EOP/AOP Verification/Validation Process

Temporary Change Number _____

Description of Changes:

Step *	Change/Reason
Cover Sheet	Added cover sheet per Procedures Writers' Guide. / This is pre-screened to Criteria #1-Editoral.
1.0	Simplified PURPOSE statement and incorporated information from OM 4.3.3, EOP Validation / This is pre-screened to Criteria #2-Administrative Procedure.
2.0	Added new section {DISCUSSION} per Procedures Writers' Guide. / This is pre-screened to Criteria #1-Editoral.
2.1 through 2.2	Incorporated information from the old PURPOSE sections of OM 4.3.2 and OM 4.3.3. / This is pre-screened to Criteria #1-Editoral.
2.3	Added steep 2.3 in reference to the PRA Risk matrix in Attachment D / This is pre-screened to Criteria #2-Administrative Procedure.
2.4 through 2.7	Added steps. / This information is clarifying in nature. This is pre-screened to Criteria #2-Administrative Procedure.
3.1 through 3.3	Incorporated information from the old RESPONSIBILITIES sections of OM 4.3.2 and OM 4.3.3. / This is pre-screened to Criteria #1-Editoral.
3.4	Added {Nuclear Engineering} responsibility. / This is pre-screened to Criteria #2-Administrative Procedure.
3.5	Added {Reactor Engineering} responsibility. / This is pre-screened to Criteria #2-Administrative Procedure.
4.1	Added {General} step to Section 4.0. / This allows a place for non-specific information to be located together. / This is pre-screened to Criteria #2-Administrative Procedure.
4.1.1 through 4.1.2	Incorporated information from the old PROCEDURE sections of OM 4.3.2 and OM 4.3.3. / This is pre-screened to Criteria #1-Editoral.
4.1.3	Added step to cross reference other procedures in the event standard steps are revised. / This is pre-screened to Criteria #2-Administrative Procedure.
4.1.4	Added step to reference the EOPSTPT for applicable changes. / This is pre-screened to Criteria #2-Administrative Procedure.
4.1.5	Incorporated information from the old PROCEDURE section of OM 4.3.2. / This is pre-screened to Criteria #1-Editoral
4.1.6	Added step referencing the Deviation Document / This is pre-screened to Criteria #2-Administrative Procedure.
4.2.1 NOTE	Added NOTE / This information is clarifying in nature This is pre-screened to Criteria #2-Administrative Procedure.

Other Comments

* Note: Recording of Step Numbers is not required for multiple occurrences of identical [illegible] which not beneficial to reviewers

Doc Number OM 4.3.2 Revision 1 Unit PB0

Title EOP/AOP Verification/Validation Process

Temporary Change Number _____

Description of Changes:

Step *	Change/Reason
4.2.1	Added new step to differentiate between Technical changes and Editorial changes to EOPs/AOPs. / This is pre-screened to Criteria #2-Administrative Procedure.
4.2.2	Added new step to reference new Attachment A for Tech. Evaluation Guidelines. / This is pre-screened to Criteria #2-Administrative Procedure.
4.2.3	Incorporated information from the old PROCEDURE section of OM 4.3.2. / This is pre-screened to Criteria #1-Editoral.
4.2.4	Incorporated information from the old PROCEDURE section of OM 4.3.2. Revised (Verification Team) requirements. Added PRA Group reference. / Expanded Team member requirements and PRA Group involvement allows for more accurate evaluation. This is pre-screened to Criteria #2- Administrative Procedure.
4.2.5 through 4.2.8	Incorporated information from the old PROCEDURE section of OM 4.3.2. / This is pre-screened to Criteria #1-Editoral.
4.2.8 NOTE	Added NOTE. / This information is clarifying in nature. This is pre-screened to Criteria #2-Administrative Procedure.
4.2.9	Added step referencing a safety review. / This is pre-screened to Criteria #2-Administrative Procedure
4.2.10 Note through 4.2.13	Added this NOTE and steps to ensure specific groups review/evaluate procedure changes that effect their areas of responsibility. / This is pre-screened to Criteria #2-Administrative Procedure.
Section 4.3	Incorporated information from the old PROCEDURE section of OM 4.3.2, and revised and reformatted the steps within the section to be consistent with the Validation steps. / This is pre-screened to Criteria #1-Editoral.
Section 4.4	Incorporated information from the old PROCEDURE section of OM 4.3.3. / This is pre-screened to Criteria #1-Editoral
4.4.1.a through 4.4.1.b	Incorporated information from the old PROCEDURE section of OM 4.3.3. / This is pre-screened to Criteria #1-Editoral.
4.4.1.c	Added new step referencing Table-top validation method. / This is pre-screened to Criteria #2-Administrative Procedure.
4.4.2	Added new step defining the Validation Team Leader qualifications / This is pre-screened to Criteria #2-Administrative Procedure.
4.4.3.a	Incorporated information from the old PROCEDURE section of OM 4.3.3. / This is pre-screened to Criteria #1-Editoral

Other Comments

* Note: Recording of Step Number(s) is not required for multiple occurrences of identical information or when not beneficial to reviewers.

Doc Number OM 4.3.2 Revision 1 Unit PB0

Title EOP/AOP Verification/Validation Process

Temporary Change Number _____

Description of Changes:

Step *	Change/Reason
4.4.3.b through 4.4.3.d	Added new sub-steps defining the requirements of the Validation Team. / This is pre-screened to Criteria #2-Administrative Procedure.
4.4.3.e	Incorporated information from the old PROCEDURE section of OM 4.3.3. / This is pre-screened to Criteria #1-Editoral.
4.4.4	Added new step directing the Validation Team to review the Verification Teams work. / This is pre-screened to Criteria #2-Administrative Procedure.
4.4.5 through 4.4.6	Incorporated information from the old PROCEDURE section of OM 4.3.3. / This is pre-screened to Criteria #1-Editoral.
4.5.1.a through 4.5.1.d	Incorporated information from the old PROCEDURE section of OM 4.3.3. / This is pre-screened to Criteria #1-Editoral.
4.5.1.e	Added new step for the evaluation of the Simulator response. / This is pre-screened to Criteria #2-Administrative Procedure.
4.5.1.f	Incorporated information from the old PROCEDURE section of OM 4.3.3. / This is pre-screened to Criteria #1-Editoral.
4.5.2.a	Added new step to define the course of the simulator scenario performance. / This is pre-screened to Criteria #2-Administrative Procedure.
4.5.2.b through 4.5.2.c	Incorporated information from the old PROCEDURE section of OM 4.3.3. / This is pre-screened to Criteria #1-Editoral.
4.5.2.d	Added new step to direct use of alternative methods of validation for parts of the procedure that are not evaluated by the simulator. / This is pre-screened to Criteria #2-Administrative Procedure.
Section 4.6	Added new section to define the steps to be followed during a Walkthrough Validation. / This is pre-screened to Criteria #2-Administrative Procedure
Section 4.7	Added new section to define the steps to be followed during a Table-top Validation. / This is pre-screened to Criteria #2-Administrative Procedure.
Section 4.8 NOTE	Added NOTE to direct the re-performance of portions of the verification or validation processes. / This is pre-screened to Criteria #2-Administrative Procedure.
4.8.1 through 4.8.2	Incorporated information from the old PROCEDURE section of OM 4.3.3. / This is pre-screened to Criteria #1-Editoral.
4.8.3	Added new step for the evaluation of the Simulator response. / This is pre-screened to Criteria #2-Administrative Procedure.

Other Comments

* Note Recording of Step Number(s) is not required for multiple occurrences of identical information or when not beneficial to reviewers.

Doc Number OM 4.3.2 Revision 1 Unit PB0

Title EOP/AOP Verification/Validation Process

Temporary Change Number _____

Description of Changes:

Step *	Change/Reason
4.8.4 through 4.8.5	Incorporated information from the old PROCEDURE section of OM 4.3.3. / This is pre-screened to Criteria #1-Editoral.
4.8.6	Added new step describing the post-validation responsibilities of the Team Leader. / This is pre-screened to Criteria #2-Administrative Procedure.
4.9.1 NOTE	Added NOTE. / This information is clarifying in nature. This is pre-screened to Criteria #2-Administrative Procedure.
4.9.1	Added new step describing the final approval process. / This is pre-screened to Criteria #2-Administrative Procedure.
4.9.2	Incorporated information from the old PROCEDURE section of OM 4.3.3 / This is pre-screened to Criteria #1-Editoral.
4.9.3	Added new step describing the Operations Manager responsibilities / This is pre-screened to Criteria #2-Administrative Procedure.
5.1 through 5.9	Incorporated information from the old PROCEDURE section of OM 4.3.2. Deleted references to {NOM EOP}, {NP 1.2.2} and {PBNP EOP}. / {NOM EOP} and {NP 1.2 2} have been canceled. {PBNP EOP} is a redundant reference. This is pre-screened to Criteria #1-Editoral.
5.10 through 5.12	Added references to new forms developed from the forms in the old OM 4.3.3. / This is pre-screened to Criteria #2-Administrative Procedure.
6 0	Added new section {BASIS} per Procedures Writers' Guide. / This is pre-screened to Criteria #1-Editoral.
Attachment A	Added new Attachment A to provide guidance for Technical Evaluations. / This is pre-screened to Criteria #2-Administrative Procedure.
Attachment B	Added new Attachment B to provide guidance for Status Tree Evaluations. / This is pre-screened to Criteria #2-Administrative Procedure.
Attachment C	Incorporated information from the old TABLE 1 of OM 4.3.3. / This is pre-screened to Criteria #1-Editoral.
Attachment C step 2.3	Added new step for guidance in the validation of actions taken outside the Control Room. / This is pre-screened to Criteria #2-Administrative Procedure.
Attachment D	Added new Attachment D to provide guidance for PRA Core Damage Risk Assessment. / This is pre-screened to Criteria #2-Administrative Procedure.

SINCE THIS IS COMBINING OM 4.3.3 + 4.3.2 THE TITLE OF OM 4.3.2 WILL BE CHANGED TO EOP/AOP VERIFICATION/VALIDATION PROCESS [illegible] 5/7/02

Other Comments

* Note Recording of Step Numbers is not required for multiple occurrences of identical information or when not beneficial to reviewers

OM 4.3.2

EOP/AOP VERIFICATION/VALIDATION PROCESS

DOCUMENT TYPE:	Administrative
REVISION:	2
EFFECTIVE DATE:	May 13, 2002
APPROVAL AUTHORITY:	Department Manager
PROCEDURE OWNER (title):	Group Head
OWNER GROUP:	Operations

1.0 PURPOSE

The purpose of this procedure is to establish the requirements for the verification and validation processes for the Emergency Operating Procedures (EOP) and Abnormal Operating Procedures (AOP).

The verification and validation processes are applicable to procedures designated with EOP, ECA, SEP, CSP, ST, and AOP.

2.0 DISCUSSION

2.1 Verification of EOPs and AOPs is the process of independently checking that the procedures are technically correct, that any deviations from the corresponding ERG/ARG guidance are justified, that the procedures are compatible with plant hardware, and that the procedures adhere to the guidance in OM 4.3.1, AOP and EOP Writers' Guide.

2.2 Validation of EOPs and AOPs is the process of exercising procedures to ensure that they are usable, that the language and level of information is appropriate, and that the procedures will function as intended. The validation requirements of this procedure are not applicable to revisions made for the correction of typographical errors.

2.3 The matrix in Attachment D was developed based on initiating events with a frequency of core damage greater than 1E-6 and an initiating event frequency of greater that 1E-3. The selected scenarios were then compared to the procedures that the operator would most likely use to prevent core damage. It is expected that procedure validation would consider those scenarios where an X is marked. This matrix is risk based only and should not be used as the sole consideration for determining scenarios for procedural validation.

2.4 EOPs, AOPs, and supporting documentation are revised for the following reasons:

- Plant design changes
- Operator comments or change requests
- Industry or plant operating experience
- ERG or ARG revisions
- Corrective action program
- Tech Spec changes
- Revisions to other related program instructions

2.5 EOP revisions associated with design changes, Tech Spec changes, or other related procedure changes should normally be implemented concurrently with the change. EOP revisions required to correct technical deficiencies in the EOPs shall be completed in a timely manner.

2.6 Operator requalification training on EOPs provides a means of periodically verifying the technical adequacy of emergency procedures. Operators and training personnel are responsible for ensuring that problems or discrepancies discovered in EOPs during training are documented . Proposed enhancements and suggestions for improvement of the EOPs should also be encouraged.

2.7 Temporary changes to the EOPs and AOPs will be processed and controlled by NP 1.2.3, Temporary Procedure Changes. These changes are usually limited to emergent technical changes and do not require verification or validation per this procedure.

3.0 RESPONSIBILITIES

3.1 Manager's Supervisory Staff (MSS)

The MSS shall have the responsibility of reviewing and approving revisions to the EOPs and AOPs.

3.2 Operations Manager

The Operations Manager shall have the overall responsibility for the EOP Verification and Validation processes.

The Operations Manager shall designate the personnel who will comprise the Verification Team.

3.3 EOP Writer

The EOP writer shall determine the need for revision of the EOP supporting documents and develop revisions for those documents as necessary.

3.4 Nuclear Engineering

Nuclear Engineering should coordinate the necessary changes if a revision to the EOPSTPT is required.

3.5 Reactor Engineering

Reactor Engineering should initiate revisions to the Safety Parameter Display System (SPDS) if revision to CSP-ST.0. Critical Safety Function Status Trees. are required. These revisions shall not be implemented until approval of the CSP-ST.0 revision

4.0 PROCEDURE

4.1 General

4.1.1 The Emergency Response Guideline (ERG) or Abnormal Response Guideline (ARG) documents shall be reviewed to evaluate the intent of the corresponding ERG/ARG steps and whether the proposed change constitutes a deviation from the WOG guidelines.

4.1.2 The applicable EOP Deviation Document shall be reviewed to ensure that previous commitments are properly evaluated and to assess the justification for the present version of the step.

4.1.3 Similar or related steps/actions contained in other emergency procedures shall be evaluated for potential impact.

4.1.4 When setpoints are involved, the EOP Setpoint Document (EOPSTPT) shall be reviewed to ensure that setpoints are correctly implemented and to determine if revision of the EOPSTPT is required.

4.1.5 Review the applicable portions of OM 4.3.1, AOP and EOP Writers' Guide, to ensure compliance with the writers guide.

4.1.6 All safety related deviations from the WOG guidelines shall be documented and justified in the associated Deviation Document.

4.2 Verification Process

NOTE: **Technical changes involve any of the following:**

- **Changing the method of performing a step or the sequential order of steps**
- **Changing the intent of any step, note, or caution**
- **Adding, deleting, or changing numerical values, limits, bands, or setpoints**
- **Changing instrumentation or controls used in the procedure**
- **Changing entry/exit conditions or symptoms**
- **Addition or deletion of steps, notes, cautions, graphs, tables, etc.**
- **Any change which deviates from the WOG guidelines**

4.2.1 Technical changes to EOPs should be verified by a multi-discipline team (at least three members) to maximize effectiveness of the verification process Non-technical (editorial) changes to EOPs and changes to AOPs may be verified by a single individual provided that the individual is a licensed operator and a qualified reviewer.

4.2.2 Technical changes to EOPs and changes to AOPs should be evaluated using Attachment A, Technical Evaluation Guidelines. Changes to Critical Safety Function Status Trees should be evaluated using Attachment B, Status Tree Evaluation Guidelines.

4.2.3 To ensure an independent verification process, personnel who have been involved in the development of the procedures(s) being verified should not be selected as verifier or appointed to the Verification Team.

4.2.4 The Verification Team members shall consist of, as a minimum, a Chairman, a licensed operator (SRO or RO), and a Training representative. Other members should be selected based on the type of change(s) being made to the procedure. For technical changes, a member of the PRA Group should review the changes but does not have to be a part of the Verification Team meeting.

4.2.5 The Verification Team members shall be listed on PBF-2102a, EOP Verification Team Meeting Form.

4.2.6 Verification Team members should obtain source documents as necessary, such as WOG guidelines, Deviation Documents, and Background Documents. Other documents such as Tech Specs, FSAR, and other supporting procedures may also be applicable.

4.2.7 Review applicable portion(s) of the revised procedure. Depending upon the scope of the revision, it may be necessary to review the entire procedure and other interfacing procedures to adequately verify the revision. If step numbering or sequencing is affected by the revision, then the entire procedure shall be verified for internal step number referencing.

NOTE: **Minor discrepancies may be resolved by the Verification Team without the use of PBF-2102b, EOP Verification Discrepancy Form.**

4.2.8 Identify and document discrepancies on PBF-2102b, EOP Verification Discrepancy Form.

4.2.9 A safety evaluation, in addition to the screening review, should be prepared for changes which involve new deviations from the WOG guidelines.

NOTE: **The required reviews contained in the following steps may be performed concurrently with the verification process if the appropriate personnel are part of the verification team. If performed separately, the review should be identified as a Cross-Discipline Review. The Operations procedure writer is responsible for ensuring that assigned reviewers understand the scope of the review required.**

4.2.10 Engineering shall review EOP/AOP revisions which involve any of the following:

a. New deviations from WOG guidelines or changes in the method or scope of deviations from the ERG or ARG.

b. Addition, deletion, or changes in setpoints or setpoint usage.

c. Changes to status trees or other changes affecting SPDS displays.

d. Additions or changes to actions outside the control room which could impact radiation dose estimates.

e. Changes in instrumentation used in EOPs which could affect compliance with Reg Guide 1.97, Post Accident Monitoring Instrumentation.

f. Proposed revisions to AOPs that affect Technical Specifications surveillance requirements.

4.2.11 Reactor Engineering should review proposed revisions to EOPs or AOPs which may affect Reactivity Management.

4.2.12 The PRA Group should review any proposed major revisions to EOPs or AOPs.

4.2.13 Organizations other than Operations (such as Chemistry, Radiation Protection, or Maintenance) should review proposed revisions to EOPs and AOPs which affect actions by the affected organization.

4.3 Resolution of Verification Discrepancies

4.3.1 Verification discrepancies are documented using PBF-2102b, EOP Verification Discrepancy Form. so that future revisions will not undo corrections or improvements made as a result of the verification process

4.3.2 The Validation Chairperson shall assign personnel (preferably those responsible for writing the procedures) to prepare a resolution for each discrepancy.

4.3.3 The personnel assigned to resolve the discrepancy shall:

a. Propose a resolution to correct the discrepancy on PBF-2102b, EOP Verification Discrepancy Form.

b. Obtain concurrence from the Verification Chairperson, as applicable.

c. If the Verification Chairperson does not concur with the resolution, coordinate efforts to assess and resolve the discrepancy.

d. Document the final resolution on PBF-2102b, EOP Verification Discrepancy Form.

4.3.4 If the discrepancy cannot be resolved between the personnel assigned to resolve the discrepancy and the Verification Chairperson, then the Verification Chairperson shall recommend a corrective action and obtain approval from the Operations Manager or designee.

4.3.5 After resolution of the discrepancy has been determined, the Verification Chairperson shall:

a. Ensure the procedure is changed to incorporate the resolution of the discrepancy.

b. Determine the scope of any additional verification required.

c. Document completion of the additional verification.

d. Determine if additional training is required and, if so, notify the Training Department.

4.4 Validation Process

4.4.1 The validation method shall be selected using the following guidance:

a. The simulator method is preferred and should be used, when practical, because this method:

- More accurately demonstrates operator response to a specific scenario.
- Effectively identifies discrepancies between instructions and Control Room hardware.
- Effectively identifies discrepancies between instructions and the operators execution of them.

b. The walkthrough method should be used when:

- Use of the simulator method is impractical due to modeling constraints or other limitations.
- In combination with the simulator method when the simulator method is partially impractical.
- When the revision affects action taken outside the Control Room.
- For changes which do not warrant simulator validation due to the nature or scope of the change.

NOTE: **The walkthrough method is more effective than a table-top discussion in ensuring that the instructions contain the necessary level of detail and are compatible with plant hardware and personnel.**

c. The table-top method should be used only when the simulator and walkthrough methods cannot be used effectively OR for minor editorial or technical revisions which do not involve plant hardware and do not warrant simulator or walkthrough validation.

4.4.2 The Validation Team Leader shall be designated based upon the scope of the validation and the validation method(s) to be used. The Validation Team Leader should possess expertise in as many of the following areas as possible:

a. Supervisory skills

b. Plant Operations

c. Operations Training

d. Technical Bases

e. Development of EOP/AOPs

4.4.3 The Validation Team members requirements should be based on the following:

a. Technical changes to an EOP should be validated by a multi-disciplined team consisting of at least three members. Revisions to AOPs and minor changes to EOPs do not require a multi-disciplined team nor do they require a minimum of three team members.

b. The Validation Team should collectively be knowledgeable in the following areas:

- Plant Operations
- Training/Simulator Instruction
- Technical Bases
- Development of EOP/AOPs

c. At least one member of the Validation Team shall be a licensed operator. The operations personnel used as the operating crew for the validation scenarios may be included as part of the Validation Team.

d. At least one member of the Validation Team shall be a simulator instructor (N/A for walkthrough or tabletop validation methods).

e. The Validation Team members shall be listed on PBF-2103a, EOP Validation Form.

4.4.4 The Validation Team Leader shall review the PBF-2102a, EOP Verification Team Meeting Form and any PBF-2102b, EOP Verification Discrepancy Form(s) to determine the validation methods to be used and identify significant changes incorporated into the new procedure revision.

4.4.5 The Validation Team Leader shall outline one or more scenarios encompassing the identified changes in the procedure. Select plant failures that will initiate the desire response, considering the following:

a. Use both single and multiple failures where practical.

b. Use concurrent and sequential failures where practical.

c. Use dual unit failures where practical.

d. If the simulator is to be used, select simulator malfunctions that closely model the selected failures.

4.4.6 Each validation scenario shall be documented using on PBF-2103b, EOP Validation Scenario Form.

4.5 Simulator Validation Method

4.5.1 The Procedure Writer or Validation Team Leader should prepare for simulator validation as follows:

a. Schedule licensed operators and a simulator instructor to participate in the simulator validation. Operators selected should be representative of the training level expected of all operators.

b. Arrange for the needed resources to support the validation such as simulator time, copies of procedures and relate instructions, and copies of the scenarios to be covered.

c. Review the purpose and objective of the validation with the operator(s) involved. Include a discussion of the procedure revision.

d. Brief the operators on how the validation will be conducted.

e. Evaluate any known simulator characteristics which are different from the actual plant responses for impact on the validation.

f. Prior to beginning the scenario, the Validation Team will discuss any differences between units that may come into play during execution of the scenario. The Validation Team Leader should ensure that the operators are aware of these differences and what effect they have on execution of the steps to be validated.

4.5.2 Conduct of the Simulator Method.

a. The operators will use the procedures in response to the scenario enacted on the simulator. The procedure writer may be present but should not interfere or provide guidance during the scenario.

b. The Validation Team will assess the procedures by noting any problems or deviations during the simulator run.

c. At the conclusion of each simulator run, the Validation Team will conduct a debriefing as follows:

- Evaluate the instruction using Attachment C, Validation Guidelines and document all discrepancies on PBF-2103c, EOP Validation Discrepancy Form.

- Allow operators to present any problems or discrepancies that they identified during the simulator run. Document all discrepancies identified.

- Discuss any deviations noted during the simulator run to identify discrepancies in the procedures.

d. Any portions of the procedure or other procedures impacted by the revision which cannot be validated on the simulator should be validated separately using the walkthrough or tabletop methods.

4.6 Walkthrough Validation Method

4.6.1 The Procedure Writer or Validation Team Leader should prepare for walkthrough validation as follows:

a. Schedule personnel to participate in the walkthrough. Individuals selected should be representative of the training level expected of all similarly qualified personnel.

b. Arrange for the needed resources to support the validation such as copies of procedures and relate instructions, and copies of the scenarios to be covered, and related technical documentation.

c. Review the purpose and objective of the validation with the personnel involved. Include a discussion of the procedure revision.

d. Brief the personnel on how the validation will be conducted.

e. Prior to beginning the walkthrough, the Validation Team will discuss any differences between units that may come into play during execution of the walkthrough. The Validation Team Leader should ensure that the personnel are aware of these differences and what effect they have on execution of the steps to be validated.

4.6.2 Conduct of the Walkthrough Validation

a. Walkthrough validation should be performed at the in-plant location(s) where the procedure would be performed.

b. If the procedure being validated is written for either unit, then a walkthrough should be performed on both units.

c. The Validation Team Leader will use the scenario to direct the walkthrough by first providing the plant initial conditions and then providing appropriate cues while the personnel walk through each procedure step.

d. The personnel will use the procedures in accordance with the scenario and walk through or talk through actions they would take in response to each instruction step. Personnel should:

- Describe actions they are taking.
- Identify information sources used to take actions.
- Identify controls used to carry out actions expected system response(s), how response(s) are verified, and action(s) to be taken if response(s) did not occur.

e. At any time during the walkthrough, personnel may stop to identify any problems or discrepancies in the procedures. Validation Team members may ask questions during the validation.

f. The Validation Team will assess the procedures by noting any performance problems during the walkthrough.

g. At the conclusion of each walkthrough, the Validation Team will conduct a debriefing as follows:

- Evaluate the instruction using Attachment C, Validation Guidelines.
- Review comments made during the walkthrough and document all discrepancies identified.
- Discuss any performance deviations to identify discrepancies in the procedures which resulted in the deviation.

4.7 Table-Top Validation Method

4.7.1 The Procedure Writer or Validation Team Leader should prepare for table-top validation as follows:

a. Schedule personnel to participate in the validation. Individuals selected should be representative of the training level expected of all similarly qualified personnel.

b. Arrange for the needed resources to support the validation such as copies of procedures and relate instructions, and the scenarios to be covered.

c. Review the purpose and objective of the validation with the personnel involved. Include a discussion of the procedure revision.

d. Brief the personnel on how the validation will be conducted.

e. Prior to beginning the scenario, the Validation Team will discuss any differences between units that may come into play during execution of the scenario. The Validation Team should ensure that the personnel are aware of these differences and what effect they have on execution of the steps to be validated.

4.7.2 Conduct of the Table-Top

a. The Validation Team Leader will use the scenario to direct the table-top discussion by first providing the plant initial conditions and then providing appropriate cues while the performer discusses each procedure step.

b. The personnel will use the procedures in accordance with the scenario, discussing the actions taken in response to each instruction step while identifying any problems or discrepancies in the procedure(s).

c. During the table-top, the Validation Team will discuss and evaluate the instructions against Attachment C, Validation Guidelines. All discrepancies from the checklist or from individual comments will be documented on an on PBF-2103c, EOP Validation Discrepancy Form.

d. The Validation Team will assess the procedures by noting any performance problems during the walkthrough.

e. At the conclusion of the table-top discussion, the Validation Team will discuss any deviations to identify discrepancies in the procedures which resulted in the deviation and document all discrepancies on PBF-2103c, EOP Validation Discrepancy Form.

NOTE: **EOP/AOP changes to resolve verification/validation discrepancies may require repeating portions of the verification and/or validation process.**

4.8 Resolution of Validation Discrepancies

4.8.1 Validation discrepancies are documented using form PBF-2103c. EOP Validation Discrepancy Form, so that future revisions will not undo corrections or improvements made as a result of the validation process

4.8.2 The Verification Team Leader shall assign personnel (preferably those responsible for writing the procedures) to prepare a resolution for each discrepancy.

4.8.3 Discrepancies involving plant response from simulator validation shall be evaluated to determine if they were caused or aggravated by simulator modeling deficiencies.

4.8.4 The personnel assigned to resolve the discrepancy shall:

a. Propose a resolution to correct the discrepancy on PBF-2103c, EOP Validation Discrepancy Form.

b. Obtain concurrence from the Validation Team Leader, as applicable.

c. If the Validation Team Leader does not concur with the resolution, coordinate efforts to assess and resolve the discrepancy.

d. Document the final resolution on PBF-2103c, EOP Validation Discrepancy Form.

4.8.5 If the discrepancy cannot be resolved between the personnel assigned to resolve the discrepancy and the Validation Team Leader, then the Validation Team Leader shall recommend a corrective action and obtain approval from the Operations Manager or designee.

4.8.6 After resolution of the discrepancy has been determined, the Validation Team Leader shall:

a. Ensure the procedure is changed to incorporate the resolution of the discrepancy.

b. Determine the scope of any additional validation required.

c. Document completion of the additional validation.

d. Determine if additional training is required and, if so, notify the Training Department.

4.9 Final Approval of EOP/AOP Revisions

NOTE: Temporary changes to the EOPs and AOPs can be approved via NP 1.2.3, Temporary Procedure Changes.

4.9.1 Following completion of the verification and validation process, including resolution of all discrepancies, final approval is obtained.

4.9.2 MSS review and approval is required for technical revisions to the EOPs. If the basis and step deviation documents are affected by the change, the revised background document should be submitted with the EOP for MSS review.

4.9.3 All EOP/AOPs and background documents shall be approved by the Operations Manager or his designee.

5.0 REFERENCES

5.1 NUREG 0899, Guidelines for the Preparation of Emergency Operating Procedures

5.2 NRC Generic Letter 82-33, Supplement 1 to NUREG-0737 - Requirements for Emergency Response Capability

5.3 C. W. Fay letter to H. R. Denton, "Response to Generic Letter No. 82-33. . . .." April 15, 1983.

5.4 OM 4.3.1, AOP and EOP Writers' Guide

5.5 Westinghouse Owners' Group (WOG), Emergency Response Guidelines (ERGs)

5.6 Westinghouse Owners' Group (WOG), Abnormal Response Guidelines (ARGs)

5.7 PBF-2102a, EOP Verification Team Meeting Form

5.8 PBF-2102b, EOP Verification Discrepancy Form

5.9 Institute of Nuclear Power Operations (INPO) Guidelines, Emergency Operating Procedures Verification Guidelines, 83-004, March 1983

5.10 PBF-2103a, EOP Validation Form

5.11 PBF-2103b, EOP Validation Scenario Form

5.12 PBF-2103c, EOP Validation Discrepancy Form

6.0 BASES

NONE

ATTACHMENT A
TECHNICAL EVALUATION GUIDELINE
Page 1 of 3

1.0 (EOP)
Are entry conditions consistent with those listed in the Owner's Group guidelines or are deviations justified in the basis and deviation documents
(AOP/SEP)
Are entry conditions logical. (reflective of the expected conditions leading to performance of the instruction). Are the entry conditions observable.

2.0 (EOP)
Is the sequence of steps consistent with that in the Owner's Group Guidelines or are deviations adequately justified in the basis and deviation documents.
(AOP/SEP)
Are the steps sequenced logically. Does the sequence follow good operations principles.

3.0 (EOP)
Are all steps consistent with the intent of those in the Owner's Group Guidelines or are deviations adequately justified in the basis and deviation documents.
(AOP/SEP)
Is the intent of each step understandable. Does the step provide adequate detail.

4.0 (EOP)
Have all applicable Owner's Group Guideline steps been incorporated into the procedure or are deviations adequately justified in the basis and deviation documents.
(AOP/SEP)
Are the steps necessary instructions provided to the user.

5.0 (EOP)
Are differences from the Owner's Group Guidelines consistent with the intent of the Owner's Group Guidelines.

6.0 (EOP)
Is documentation adequate to explain the intent of complex steps.
(AOP/SEP)
Is documentation adequate to explain the intent of complex steps.

7.0 (EOP)
Is all Owner's Group Guidelines "bracketed" information, pertinent to the plant design, incorporated.
(AOP/SEP)
Is applicable plant design and components clearly addressed by the instruction.

ATTACHMENT A
TECHNICAL EVALUATION GUIDELINE
Page 2 of 3

8.0 (EOP)
Have all references to systems or components in the Owner's Group Guidelines that are applicable to the plant design been included.
(AOP/SEP)
Are all references to system, component and plant design clear and correct.

9.0 (EOP)
Are required computations, specified in the procedure. consistent with Owner's Group Guidelines or deviations adequately justified within source documents.
(AOP/SEP)
Are all required computations specified in the procedure. Has adequate guidance been given and is space available for working and recording computations.

10.0 (EOP)
Are the cautions and notes, as specified in the procedure, consistent with the Owner's Group Guidelines or are deviations adequately justified in the basis and deviation documents.
(AOP/SEP)
Are cautions and notes specified in the instruction clear and concise. Do they provide adequate information to convey the message.

11.0 (EOP)
Are the contingency actions in the procedure consistent with those specified in the Owner's Group Guidelines or are deviations adequately justified in the basis and deviation documents.
(AOP/SEP)
If specified/used, are contingency actions clear and easily understood. Do they provide adequate detail for implementation.

12.0 (EOP)
Is there a conflict between the foldout page requirements and the action steps of the procedure.
(AOP/SEP)
Is there any conflict between steps and required actions.

13.0 (EOP)
Are the required steps to be performed consistent with the plant design.
(AOP/SEP)
Are the steps consistent with plant design.

14.0 (EOP)
Are the quantitative ranges as specified in the procedure consistent with the plant design.
(AOP/SEP)
Are the quantitative ranges as specified in the procedure consistent with the plant design.

ATTACHMENT A
TECHNICAL EVALUATION GUIDELINE
Page 3 of 3

15.0 (EOP)
Are the limits, as specified in the procedure consistent with those specified in the Owner's Group Guidelines or are deviations adequately justified in the basis and deviation documents.
(AOP/SEP)
Are limits clearly specified.

16.0 (EOP)
Are the charts, tables, and curves presented in the procedure consistent with the Owner's Group Guidelines or are deviations adequately justified in the basis and deviation documents.
(AOP/SEP)
Are the charts, tables, and curves consistent with the information provided in source documents.

17.0 (EOP)
Do parameter values, numerical values, and setpoints in the procedure correspond with the parameter values, numerical values, and setpoints specified in Setpoints Document.
(AOP/SEP)
Do parameter values, numerical values, and setpoints in the procedure correspond with the parameter values, numerical values, and setpoints specified in supporting technical documentation.

18.0 (EOP)
If the revision involves a change to a setpoint, have all the procedures affected been revised. Verify against the list of affected procedures contained in the setpoints document.

19.0 (EOP)
If the revision affects a "standard" step, have all of the procedures affected been revised. Verify against the list of affected procedures contained in the standard step document.

ATTACHMENT B
STATUS TREE EVALUATION GUIDELINE
Page 1 of 3

1.0 WRITERS' GUIDE CONVENTIONS

1.1 Procedure Title

1.1.1 Is the title 10 words or less.

1.1.2 Are the important words placed at or near the beginning of the title.

1.2 Identification Information

1.2.1 Does the procedure number include the required information:

a. Instruction type

b. Instruction number

2.0 STATUS TREE FORMAT

2.1 Page Format

2.1.1 Does the Status Tree clearly show the transitions.

2.2 Symbol Coding

2.2.1 Are the symbols used correctly.

2.2.2 Are arrows positioned correctly.

2.3 Function Flow and Branching

2.3.1 Does the flow path move from left-to-right.

2.3.2 Is sufficient spacing allowed between flow paths.

2.3.3 Are the number of arrowheads sufficient to indicate flow.

2.3.4 Does the flow path go down for each favorable response.

ATTACHMENT B
STATUS TREE EVALUATION GUIDELINE
Page 2 of 3

3.0 READABILITY

3.1 Text

3.1.1 Is the text in black type against a light background.

3.1.2 Is the text readable at arms length under degraded lighting conditions.

3.1.3 Is the typeface legible and consistent.

3.1.4 Is spacing between letters and words adequate.

3.1.5 Is the correct line spacing used.

4.0 WRITING STYLE

4.1 Step Construction

4.1.1 Does each step contain only one statement.

4.1.2 Are the statements simple and precise.

4.1.3 Are double negatives avoided.

4.1.4 Are terms used consistently within and among status trees.

4.1.5 Does each decision step clearly indicate a yes or no answer.

5.0 MECHANICS OF STYLE

5.1 Spelling

5.1.1 Is the spelling correct.

5.2 Abbreviations and Acronyms

5.2.1 Are abbreviations and acronyms used consistently

5.2.2 Are abbreviations used in accordance with the Writers' Guide.

ATTACHMENT B
STATUS TREE EVALUATION GUIDELINE
Page 3 of 3

5.3 Curves and Tables

5.3.1 Are the curves and tables legible, consistent with the instructions, and usable.

5.3.2 Are the safe and unsafe regions of curves labeled.

5.4 Hyphenation

5.4.1 Are hyphens used correctly.

5.4.2 Is hyphening at the end of a line avoided.

ATTACHMENT C
VALIDATION GUIDELINES
Page 1 of 4

1.0 USABILITY

1.1 Level of Detail

1.1.1 Are the introductory sections of the instruction sufficient.

1.1.2 Is there sufficient information to perform the specified actions at each step.

1.1.3 Are the alternatives adequately described at each decision step.

1.1.4 Are labeling, abbreviations, and nomenclature as provided in the instruction sufficient to enable the operator to find the needed equipment.

1.1.5 Does the instruction have all information or instructions needed to manage the emergency condition.

1.1.6 Are the actions sufficient to correct the condition.

1.1.7 Are the titles and numbers sufficiently descriptive to enable the operator to find appropriate instructions.

1.2 Understandability

1.2.1 Is the instruction's typeface easy to read.

1.2.2 Are the figures and tables easy to read with accuracy.

1.2.3 Can the values on figures and charts be easily determined.

1.2.4 Are the cautions and note statements readily understandable.

1.2.5 Are the individual instruction steps readily understandable.

1.2.6 Were the step sequences understood

ATTACHMENT C
VALIDATION GUIDELINES
Page 2 of 4

2.0 OPERATIONAL CORRECTNESS

2.1 Plant Compatibility

2.1.1 Can the actions specified in the procedure be performed in the designate sequence.

2.1.2 If alternate success paths exist, does the procedure use the best method to accomplish the task.

2.1.3 Can the information from the plant instrumentation be obtained, as specified, by the instructions.

2.1.4 Are the available Control Room instrumentation and annunciators adequate for the Operator to recognize the entry or prerequisite conditions.

2.1.5 Are the instructions entry or prerequisite conditions appropriate for the plant symptoms displayed to the operator.

2.1.6 Is all the equipment required to accomplish the task specified in the instruction.

2.1.7 Do the plant resources agree with the instruction.

2.1.8 Are the instrument readings and tolerances stated in the instruction consistent with the instrument values displayed on the instruments.

2.1.9 Is the instruction physically compatible with the work situation (e.g., too bulky to hold, binding would not allow them to lie flat in the work space, no place to lay the instruction down to use).

2.1.10 Are the instrument readings and tolerances specified by the instruction for remotely located instruments accurate.

2.1.11 Can plant parameters be maintained within limits or bands specified in the procedure.

ATTACHMENT C
VALIDATION GUIDELINES
Page 3 of 4

2.2 Operator Compatibility

2.2.1 If time intervals are specified, can the instruction action steps be performed on the plant within or at the designated time intervals.

2.2.2 Will environmental conditions permit completing the required actions.

2.2.3 If concurrent or sequential steps are required by more than one individual, can the required actions be coordinated adequately.

2.2.4 Can personnel follow the designated action step sequences.

2.2.5 Can a particular step, set of steps, or other information be readily located when required.

2.2.6 Can instruction branches be entered at the correct point.

2.2.7 Are place keeping aids utilized as required by the user's guide.

2.2.8 Are instruction exit points adequately specified.

2.2.9 Are the procedures compatible with the operating shift manning.

2.2.10 If steps and instructions are verified with signoffs, are provisions adequate.

2.2.11 Do Operators interfere with each other physically.

2.2.12 Is there adequate Radiation Protection support and/or provisions to make the required entries into contaminated areas.

2.2.13 Does plant staffing support procedure requirements.

2.2.14 Is the procedure adequate to allow properly trained personnel to complete the task without errors.

ATTACHMENT C
VALIDATION GUIDELINES
Page 4 of 4

2.3 Additional Guidelines for Validation of Local Operator Actions

2.3.1 Can the Operator easily locate the component from a combination of the information in the procedure and operator training/knowledge.

2.3.2 Is the component clearly identified by name and/or number.

2.3.3 Is the component easily accessible.

2.3.4 Are special tools needed to operate the component.

2.3.5 Is the environment at the component location suitable to allow the operator to perform desired actions.

2.3.6 Do the local actions require more than one operator.

2.3.7 Are communications available from the remote location.

2.3.8 Is the Operator performing the local actions familiar with the procedure and does he/she understand the objective and/or consequences of his/her actions.

2.3.9 Are the local actions required to be performed in a specific time period. If so, can the actions be completed within this time period.

ATTACHMENT D
PRA CORE DAMAGE RISK MATRIX
Page 1 of 1

Procedure	EVENT				
	SGTR	Turbine Trip without the Condenser	LOOP	Loss of CCW	Steam Line Break
EOP 0	X	X	X	X	X
EOP 0.0	--	--	--	--	--
EOP 0.1	--	X	X	X	--
EOP 0.2	--	--	X	X	--
EOP 0.3	--	--	X	X	--
EOP 0.4	--	--	X	X	--
EOP 1	X	--	X	--	X
EOP 1.1	--	--	--	--	--
EOP 1.2	X	--	--	X	--
EOP 1.3	--	--	X	--	--
EOP 2	--	--	--	--	X
EOP 3	X	--	--	--	X
EOP 3.1	X	--	--	--	--
EOP 3.2	X	--	--	--	--
EOP 3.3	X	--	--	--	--
ECA 0.0	--	--	X	--	--
ECA 0.1	--	--	X	--	--
ECA 0.2	--	--	--	--	--
ECA 1.1	--	--	--	--	--
ECA 1.2	--	--	--	--	--
ECA 2.1	X	--	--	--	X
ECA 3.1	X	--	--	--	--
ECA 3.2	X	--	--	--	--
ECA 3.3	X	--	--	--	--
CSP C.1	X	--	X	X	X
CSP H.1	X	--	X	--	X

STATE CHANGE HISTORY

Initiate → by RICHARD FLESSNER

Assign Work 2/5/2002 3 09.10 PM Owner RICK WOOD

Assign → by RICK WOOD

Conduct Work 2/15/2002 10 38 58 AM Owner JAMES MASTERLARK

Return → by JAMES MASTERLARK

Assign Work 7/30/2002 3 51 37 PM Owner RICK WOOD

Assign → by RICK WOOD

Conduct Work 7/30/2002 3 57.40 PM Owner JAMES MASTERLARK

Return → by JAMES MASTERLARK

Assign Work 9/10/2002 10 36 27 AM Owner RICK WOOD

Assign → by RICK WOOD

Conduct Work 9/11/2002 2 38 17 PM Owner JAMES MASTERLARK

SECTION 1

Activity Request Id:	CA003693		
Activity Type:	Corrective Action	**Submit Date:**	2/5/2002 3:09:10 PM
Site/Unit:	Point Beach - Common		
Activity Requested:	Complete the analysis portion of the PRA model review to identify any other risk-significant vulnerabilities in the current EOPs.		
CATPR:	N	**Initiator:**	FLESSNER, RICHARD
Initiator Department:	EX Engineering Processes PB	**Responsible Group Code:**	EPP Engineering Programs PRA PB
Responsible Department:	Engineering	**Activity Supervisor:**	RICK WOOD
Activity Performer:	JAMES MASTERLARK		

SECTION 2

Priority:	3	**Due Date:**	12/31/2004
Mode Change Restraint:	(None)	**Management Exception From PI?:**	Y
QA/Nuclear Oversight?:	N	**Licensing Review?:**	N
NRC Commitment?:	N	**NRC Commitment Date:**	

SECTION 3

Activity Completed:

1/18/2002 12.52PM - LARRY PETERSON:
Due date extended as requested and approved by F. Cayia in prior update. Retruned to R flessner for completion.

1/18/2002 12 54PM - LARRY PETERSON:
Reassigned to R. Flessner for completion following extension

2/15/2002 10 38AM - RICK WOOD.
Please document the scope of this project that we can accomplish by the suggested due date per our discussion

7/30/2002 3:57 40 PM - RICK WOOD:
Risk significant items have been identified but not thoroughly reviewed This item will be extended as discussed with L Armstrong on 7/30/2002.

9/11/2002 2:38:17 PM - RICK WOOD:
A project plan has been approved to perform the PRA notebook update. The due date extension is consistent with the due dates in that project plan.

SECTION 4

QA Supervisor:	(None)	Licensing Supervisor:	(None)

SECTION 5

Project:	CAP Activities & Actions		
State:	Conduct Work	Active/Inactive:	Active
Owner:	JAMES MASTERLARK	AR Type:	Daughter
Submitter:	RICHARD FLESSNER	Assigned Date:	9/11/2002
Last Modified Date:	9/11/2002 2:38.17 PM	Last Modifier:	RICK WOOD
Last State Change Date:	9/11/2002 2:38:17 PM	Last State Changer:	RICK WOOD
Close Date:			
One Line Description:	Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW		
NUTRK ID:	CR 01-3595		
Child Number:	1		
References:	CR 01-2278 RCE 01-069 GOOD CATCH		
Update:			
Import Memo Field:			
CAP Admin:	(None)	Site:	Point Beach
OLD_ACTION_NUM:			
Cartridge and Frame:			

NOTES/COMMENTS

Note created during 'Return' transition by JAMES MASTERLARK (7/30/2002 3 51:37 PM)
The risk ranking for AFW components has been completed. The data is being eveluated to determine potential modifications or other changes (such as procedure changes) that could reduce risk. Additional time is needed due to support for NRC inspections. I request an extension of one month (8/30/2002) to finish this evaluation.

Note created during 'Return' transition by JAMES MASTERLARK (9/10/2002 10.36:27 AM)
The risk significant systems (Service Water, Aux Feed Water, SI, Electrical) models have been upated and incorporated into the PRA model Part of the review of these systems included the performance of a Failure Modes and Effects Analysis (FMEA) which reviews Human Actions involved in procedures and has the capability to identify procedure weaknesses. Phase 2 of this update deals with the balance of the systems and fault trees contained within the Internal Events Level 1 PRA model. Phase 2 was approved on 8/7/2002. This item will be completed by the end of 2004. The project plan requires periodic updates -- status updates will also be documented in this corrective action as part of the tracking to completion.

The scope of this project is to perform the FMEA for the balance of the systems contained within the PRA model.

Recommend Due Date for this item to match the Phase 2 project (and NRC committment) 12/31/2004.

ATTACHMENTS AND PARENT/CHILD LINKS

ACE000314 Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW

CAP001415 Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW

Point Beach PRA Model Revision Summary

Revision 0

(Base model for IPE and IPEEE, data cutoff September 5, 1990)

- IPE Submitted June 1993
  - RAI received April 1994
  - SER received January 1995
- IPEEE Submitted June 1995
  - RAIs received April 1996 and March 1998
  - SER received September 1999

Revision 1

(PSA-93, data cutoff December 31, 1993)

- Added Alternate Shutdown (App. R) Buses B08 and B09
- Instrument Bus Modifications (static transfer switches)
- Full flow test lines added to ECCS
- Initial SI suction changed from BAST to RWST
- Removed failure of AFW if Operator fails to control flow on loss of Instrument Air (valves now left throttled)
- Data updates to reflect overhaul of G05 and replacement of MSIV operators

Revision 2

(PSA-96, data cutoff June 30 1996)

- Plant-specific data re-developed using information from September 6, 1990, through June 30, 1996
- Post-trip success criteria for Service Water was changed from 2 pumps to 3 pumps due to a re-analysis of service water requirements
- Added two new diesel generators, G03 and G04, and associated 4160 V switchgear for Train B power - included capability for alternate feeds from all four DGs

Revision 3.00 – 10/12/2001

(data cutoff December 31, 1999)

- transition to top logic structure for primary model
- added provision for a multitude of alternate electrical feed lineups
- developed a complete Unit 2 model
- Updated:
  - Initiating Events
  - Event Trees / Top Logic
  - Data Analysis
  - HRA (partial)
  - Service Water
  - Auxiliary Feedwater
  - ECCS (SI / RHR / Accumulators)

- Electrical Distribution
- Applications:
  - Risk-informed ISI
  - Initial SAMA Analysis

Revision 3.01 – 02/28/2002

- Implemented modification to MDAFW pumps for N2 backup supply to mini-recirc valves
- Application:
  - Safety Monitor version 3.0a model rollout

Revision 3.02 – 05/09/2002

- Implemented modification to TDAFW pumps for accumulator backup supply to mini-recirc valves
- Changed DC logic to disallow use of the maintenance battery and chargers if they are already aligned to another bus
- Application:
  - Revised SAMA Analysis

Revision 3.03 – 06/03/2002

- Implemented corrections to a few TM, generic, and plant specific failure probability values (still based on original Revision 3.00 data analysis)
- Set CCW-SYS-PR-LOWER to 0.0 to eliminate failure of CCW from a waste gas heat exchanger leak based on information provided by Mechanical Analysis Group
- Applications:
  - Safety Monitor models updated
  - Maintenance Rule performance criteria verified
  - Training materials for Revision 3 results produced

Revision 3.04 – 08/22/2002

- Connected missing link on page 24 position 2,1 of AFM tree
- Fixed external links in AFM and AFW trees for SW south header (had been linked to SW discharge gate – PBF 1626 2002-18)
- Added BOIL top to TOP1 and TOP2 trees to work around Safety Monitor Reports problem.
- Applications:
  - Safety Monitor Models updated

Revision 3.05 – 09/12/2002

- Removed close failure for check valve AF-00117 from trees AFM and AFW - internals were removed per MR-02-09.
- Applications:
  - Safety Monitor Models updated

Project Approvals:

Project Manager: James Masterlark Date: 7/22/2002

PRA Lead: Rick Wood Date: 7/24/2002

Engineering Manager: Norm Hoefert Date: 8/6/02

Engineering Director: Lori Armstrong Date: 8/7/02

a/10/02

Project Title:

PRA Update Project – Phase 2

Purpose:

The purpose of this project is to update/upgrade the Probabilistic Risk Assessment (PRA) due to physical (modifications) and administrative (operational procedures) changes at Point Beach. Phase 1 of this project updated the most risk significant systems and updated the data analysis. This portion of the project updates the balance of the Fault Trees. Notebooks documenting the PRA model based upon the current configuration of the plant will be developed. Upon the completion of this project, updates to the PRA models and documents will be switched to a real-time basis. This project will also take advantage of the unique capabilities of PRA to review plant design coupled with operational procedures to identify any significant design deficiencies or vulnerabilities.

Project Background:

The PRA is a probabilistic evaluation of plant design and operation used to provide insights into design configurations and operational methodologies. The PRA and its associated Risk Models is used as a basis for many Risk Informed applications at the site. These applications include:

- On-line risk monitoring using Safety Monitor
- System risk importance rankings for Maintenance Rule
- Risk evaluations of planned modifications
- Evaluation and risk significance for plant transients and /events
- Support of the NRC performance review program
- NRC Approved Risk Informed Programs such as ISI

Since this analysis is used to make risk informed decisions, it is important that the information is kept as close to the actual plant configuration as reasonably possible. In addition, it is important to update the PRA with changes to availability and reliability data which can change over time due to operational methodologies, maintenance practices and aging.

Project Format:

The project is structured so that each system fault tree can be incorporated into the controlled model as completed and reviewed. There are 5 basic steps to complete to update each system model:

FMEA/Drawings: The portion of the update reviews the current plant design through review of drawings, DBD, procedures, operator interviews and walk-downs. From this review a Failure Modes and Effects Analysis is performed and a simplified system drawing showing failure modes is developed.

Fault Tree Development: In this section, the existing fault tree is updated or a new fault tree is created to match the data contained in the FMEA. In addition, basic events are added and/or modified in the BED and Parameter Files.

Notebook: The balance of the notebook is developed. This includes the evaluation for Basic Event Mapping, Indirect Effects and other reviews needed to support Safety Monior. A review of initiator impacts is also reviewed and documented. As part of the project, the FMEA Table and Fault Tree may need to be updated.

Testing/Validation: The fault tree is quantified to verify that it is producing accurate cutsets. The fault tree is then integrated into the top logic model and tested. Finally, a second review of the model and notebook is performed.

Incorporation: The notebook is finished and sent into EDMS. The data from the notebook is used to update other notebooks that may be affected. The data from the notebook will be used to update Safety Monitor data tables. And finally, Safety Monitor will be updated with the revised model.

Deliverables:

The following deliverables will be provided (updated) based upon plant configuration changes, administrative changes, and plant specific operational data which have occurred since 1996.

- Update to the Fault Trees
  - Instrument Air
  - Component Cooling Water
  - Main Feed Water
  - Fuel Oil
  - Charging
  - Fire Protection
  - HVAC
  - RPS
  - ESFAS
  - AMSAC
  - Main Steam
  - Atmospheric Steam Dumps
  - Primary Relief
  - Feed and Bleed (HRA)
  - PORV Re-closure
  - MISC Human Error Events (HRA)
- Update to the affected system PRA Notebooks
- Update to Safety Monitor as each system is completed

Success Indicators:

Project milestones will be used as success indicators for the project. These indicators will measure the success of completing the primary phases of the project in time to provide useful

results to the plant. (See Schedule for Milestones). A monthly update report will be submitted to the PRA Lead and Programs Engineer manager to monitor the status of the project. This update will be submitted within 7 days of the end of the month.

Responsibilities:

- Model Updates, Notebook Updates and Safety Monitor Model updates will be the responsibility of the PRA group with Scientech contracted support. Project Manager will be James Masterlark and the PRA Lead (Rick Wood) will have overall responsibility for budget and PRA resources

Resources:

PRA Group

James Masterlark (Project Lead, System Model Development, Reviewer)
200 hours (2002), 400 hours (2003), 350 hours (2004)

Paul Knoespel (System Model Development, Reviewer – 2.5 hr/week)
100 hours (2002), 200 hours (2003), 150 hours (2004)

Ed Coen (Thermal Hydraulic Evaluations)
50 hours (2002), 100 hours (2003), 50 hours (2004)

George Baldwin (Human Reliability Analysis)
80 hours (2002), 200 hours (2003), 100 hours (2004)

Contractor Support

Contractor support is based on budgeting for 2002 and 2003 and an assumed budget for 2004. Cost is based upon a PRA engineer at $90 per hour + travel at once per month from an engineer familiar with methods. Estimates may be off if a higher cost PRA engineer or training is required.

Scientech – Char Greene (System Model Development - Full Time)
1000 hours (2002), 1100 hours (2003), 900 hours (2004)

Budget:

Contractor support -	$115K (2002), 115K (2003), 100K (2004)
PSA Group -	430 hours (2002), 900 hours (2003), 650 hours (2004)

Schedule:

- Instrument Air (8/31/2002)
- Component Cooling Water (10/31/2002)
- Main Feed Water (12/31/2002)
- Fuel Oil (1/31/2003)
- Charging (3/31/2002)
- Fire Protection (4/30/2003)
- RPS (6/30/30/2003)
- ESFAS (8/31/2003)
- AMSAC (10/31/2003)
- HVAC (2/28/2004)
- Main Steam (3/31/2004)
- Atmospheric Steam Dumps (4/15/2004)
- Primary Relief (4/30/2004)
- Feed and Bleed (HRA) (5/30/2004)
- PORV Re-closure (5/30/2004)
- MISC Human Error Events (HRA) (7/31/2004)

STATE CHANGE HISTORY

Initiate	Assign Work	Assign	Conduct Work	Work Complete	Review & Approval	Approved	Quality Check
by RICHARD FLESSNER	2/5/2002 3 19 06 PM Owner DUANE SCHOON	by TOM SHELEY	2/6/2002 1 24 00 PM Owner TERRY VANDENBOSCH	by TERRY VANDENBOSCH	4/20/2002 10 16 54 AM Owner DUANE SCHOON	by DUANE SCHOON	4/25/2002 8 56 10 PM Owner PBNP CAP Admin

Complete and Close	Done
by JULIE KREIL	5/1/2002 3.32:26 PM Owner (None)

SECTION 1

Activity Request Id: CA003694

Activity Type: Corrective Action **Submit Date:** 2/5/2002 3:19.06 PM

Site/Unit: Point Beach - Common

Activity Requested: Review the operator actions specified in AOP-5B to determine if they should be included in applicable EOPs to ensure timeliness of the actions, and initiate revisions as required

****
SEE UPDATE TPS
****

CATPR: N **Initiator:** FLESSNER, RICHARD

Initiator Department: EX Engineering Processes PB **Responsible Group Code:** PO PB Operations PB

Responsible Department: Plant **Activity Supervisor:** DUANE SCHOON

Activity Performer: TERRY VANDENBOSCH

SECTION 2

Priority: 3 **Due Date:** 6/5/2002

Mode Change Restraint: (None) **Management Exception From PI?:** N

QA/Nuclear Oversight?: N **Licensing Review?:** N

NRC Commitment?: N **NRC Commitment Date:**

SECTION 3

Activity Completed: 1/18/2002 12.52PM - LARRY PETERSON:
Due date extended as requested and approved by F. Cayia in prior update. Retruned to R flessner for completion.

1/18/2002 12:54PM - LARRY PETERSON:
Reassigned to R. Flessner for completion following extension

4/20/2002 10:16AM - TERRY VANDENBOSCH:
Pete Hammil and Rick Inman conducted a review of the EOPs in response to CA003694. The approach taken was to compare actions from AOP-5B, Loss of Instrument Air, to all the actions of the EOPs, ECAs, and CSPs. The first approach was to assume the loss of instrument air was due to an electrical failure and recovery time was within 15 minutes. The second approach assumed a loss of instrument air throughout the scenario.

Assuming instrument air is restored within 15 minutes had basically no affect on actions taken within the EOP set No additional enhancements were recommended for the plant or procedures.

Assuming a loss of instrument air for the duration of the accident presents several problems for mitigating the accident. In general the loss of instrument air in containment or the common failure in the air compressor room in the common header limit our capabilities to depressurize the RCS during a small break LOCA or a SGTR Our first method of pressure reduction is normal spray which is assumed available for 30 minutes. Our backup is aux spray and then the PORVs. The PORVs have a nitrogen backup however it is not valved in at power due to appendix R concerns. The aux spray valve design is to open with a 200 psig differential pressure, however, recent ARs pointed out that this may not be the case.

The other two items identified on a total loss of instrument air for the duration of the accident are the inability to control RHR flow when on piggy back recirc. This poses a problem with increased radiation levels in the PAB and the dose to operate the manual valves identified in the EOP RNO columns. The other item is the drain valves for the RHR cubicles during a LOCA outside of the containment. This presents the possibility of destroying both RHR pumps due to water in the cubicles.

Each of these three identified weaknesses in the EOP set could be addressed in the following ways:

PORVs - Aux spray could be taken credit for with appropriate valve repair or relocate the nitrogen bottles outside the containment allowing them to be valved in during an accident.

RHR flow control valves - A dose assessment should be conducted and if the local valves would not be accessible during an accident either a nitrogen backup or air accumulator should be provided.

RHR cubicle drains - The valve operators could be changed or a nitrogen backup. This issue may not be a high risk probability.

CORRECTIVE ACTIONS:

1. PORVs - Following discussions with engineering and the risk assessment group this concern for the EOPs is beyond design basis and would require three events at once to become a concern. RCPs would have to be secured to eliminate use of normal spray, Instrument air would be lost to prevent PORV operation and a tube rupture would be required to be occurring If these three were in progress the EOPs direct the operator to ECA 3.3 SGTR WITHOUT PRESSURIZER PRESSURE CONTROL, which would address this condition. For the Small Break LOCA at greater than 140 gpm adequate subcooling would be obtained and the last SI pump would be secured Pressure would be via the charging pumps as pressure drops to the point where charging pump capacity would equal break flow with the pressurizer solid No further action is required for the EOPs or engineering

2. RHR flow control valves - Engineering performed an evaluation of the flow during recirc operation with the flow control valves failed open. This would not cause runout of the SI pumps so throttling capability is not required but is desirable. During the event if the valves are not accessible due to radiation during the event they will not be required to be operated. No further action is required for the EOPs or engineering

3 RHR pump cubicle drain valves - This item was discussed with engineering and risk assessment For a break to occur in the RHR cubicle we are beyond design basis. Having a loss of instrument air with loss of containment sump recirc is of low risk. Restoration of instrument air would be accomplished well within the time that it would take to fill the RHR pump cubicles and valve gallery. No further action is required for the EOPs or engineering

Based on the evaluations this corrective action can be closed with no further action

4/25/2002 8.56PM - DUANE SCHOON
Closed

4/27/2002 8:22AM - TOM SHELEY:
Update for Terry Vandenbosch·

SEP
REVIEWS

INITIAL REVIEW OF THE SEPS:

When the initial concern was identified in November prior to the implementation of the temp change to the EOPs were made the SEPs came into question It was determined by the EOP procedure group at the time that no immediate changes were required to be made to the SEPs This was based on the likely hood of a failure that would cause the loss of instrument air in conjunction with a LOCA on a shutdown unit to drive you to the SEPs. Also factored in was both units were at power and a temporary change would not be needed with the corrective actions already in place (ie temp info tags, temp changes to EOPs) Time would be allowed to make any changes, if required, in the unlikely event a dual unit shutdown would occur. The SEPs are designed for emergencies when a unit is in a normal shutdown mode

Further discussions took place in December prior to the enhancement to the EOP foldout page. We determined that the situation identified in the EOPs would not be of concern since instrument air is reestablished prior to the steps directing the operators to control feed flow to maintain level in the steam generators.

LOSS OF INSTRUMENT AIR REVIEWS·

As a follow-up the SEPs were reviewed for potential impacts a loss of instrument air may have on components credited in the SEPs. The following items were identified and determined to not require any procedure changes:

SEP-1, Degraded RHR System Capability, - Does not have any actions requiring AFW flow reduction. The RHR flow control and temperature control valves fail open however the intent of the procedure is to establish RHR cooling. This would provide maximum cooling which would direct the operator to return to procedure and step in affect on step 24.

SEP-1.1, Alternate Core Cooling, - This procedure is entered from SEP-1 and SEP-3. In the review of the scenarios a transition would not be made to this procedure on a loss of instrument air for SEP-1. To transition from SEP-3 to this procedure the RCS would have to be in mid loop operation per step 3. Once in SEP-1.1 the steam generators are not credited thus no similar concerns for throttling AFW flow. Another item that was identified in SEP-1.1 actions on a loss of IA was the loss of letdown. Per the procedure flow path this would satisfy all actions because the actions required are to maintain pressurizer level greater than 20%. Additional steps were added on 4/11/02 due to the concern for loss of instrument air. These steps reestablished instrument to allow operation of the PORVS.

SEP-2.1, Shutdown LOCA With RHR Aligned for Low Head Injection, - Again the RHR flow control valves and temperature control valves were of concern. With them failing in the open direction this will lower temperature and maintain core cooling Step 25 is a similar step to the EOPs which directs the operator to control steam generator level between a 29% and 65% Prior to this step at step 22 instrument air is reestablished So the potential for the recirc valve failure is not the case. Step 14 checks RCS hot leg temperature stable, this step is looking at an increasing RCS temperature where dumping steam is required and feed flow would be required to be established

SEP-2.2, Shutdown LOCA With RHR Aligned For Decay Heat Removal, - This procedure has the same response as SEP-2.1 only different step numbers

SEP-2.3, Cold Shutdown LOCA, - Step 22 reestablishes IA The steam generators are not credited for this event so maintaining level is not a concern.

SEP-3, Loss Of All AC Power To A Shutdown Unit, - At step 8 it directs the operators

specifically to operate AFW pumps as necessary to maintain level. No other concerns associated with the loss of instrument air were identified. As an enhancement the IA compressors could be added to the equipment start list on step 43.

SUMMARY: No changes are required to address a loss of instrument air

5/1/2002 3:32PM - JULIE KREIL:
This issue was reviewed indepth Conclusion is that no additional enhancements are recommended for the plant or procedures. No further action is required for the EOPs or engineering CLOSED CA003694 to completion of Requested Activity.

SECTION 4

QA Supervisor:	(None)	Licensing Supervisor:	(None)

SECTION 5

Project:	CAP Activities & Actions		
State:	Done	Active/Inactive:	Inactive
Owner:	(None)	AR Type:	Daughter
Submitter:	RICHARD FLESSNER	Assigned Date:	2/6/2002
Last Modified Date:	5/1/2002 3.32:26 PM	Last Modifier:	JULIE KREIL
Last State Change Date:	5/1/2002 3.32.26 PM	Last State Changer:	JULIE KREIL
Close Date:	5/1/2002 3.32 26 PM		
One Line Description:	Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW		
NUTRK ID:	CR 01-3595		
Child Number:	1		
References:	CR 01-2278 RCE 01-069 GOOD CATCH		
Update:	Action out a ACE that is being classified as a ROOT CAUSE. Due dates and priority set out ACE 314. Contact the author of ACE 314 for any clarification TPS		
Import Memo Field:			
CAP Admin:	PBNP CAP Admin	Site:	Point Beach
OLD_ACTION_NUM:			
Cartridge and Frame:			

ATTACHMENTS AND PARENT/CHILD LINKS

ACE000314. Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW

CAP001415: Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW

A. PURPOSE

1. To provide operator guidance in response to abnormal operating conditions associated with the instrument air system, including the following:

   - Actions for recovery from a loss of instrument air
   - Actions to identify and isolate an instrument air leak
   - A list of effects on and mitigating actions for the various systems or components used in other AOPs, EOPs, and OPs during a concurrent loss of instrument air.

B. SYMPTOMS OR ENTRY CONDITIONS

1. The following are symptoms of an Instrument Air System malfunction. One symptom alone may not require entry into this procedure:

   a. Annunciator AIR SYSTEMS COMMON TROUBLE in alarm

      - C01A 1-8

   b. Annunciator INSTRUMENT AIR HEADER PRESSURE LOW in alarm

      - C01A 1-9

   c. Annunciator SERVICE AIR HEADER PRESSURE LOW in alarm

      - C01D 1-1

   d. Annunciator SERVICE AIR RUNNING COMPRESSOR TRIP in alarm

      - C01D 2-1

   e. Annunciator INST. AIR RUNNING COMPRESSOR TRIP in alarm

      - C01D 2-2

   f. Annunciator SERVICE AIR STANDBY COMPRESSOR START in alarm

      - C01D 3-1

   g. Annunciator INST. AIR STANDBY COMPRESSOR START in alarm

      - C01D 3-2

   h. Loud air leak noise in any area of the plant

2. The following are entry conditions for this procedure:

   a. Annunciator 1MS-2017 SG B MAIN STM STOP VALVE AIR PRESSURE LOW in alarm

      • 1C03 1D 2-9

   b. Annunciator 1MS-2018 SG A MAIN STM STOP VALVE AIR PRESSURE LOW in alarm

      • 1C03 1D 1-9

   c. Annunciator 2MS-2017 SG B MAIN STM STOP VALVE AIR PRESSURE LOW in alarm

      • 2C03 2D 2-3

   d. Annunciator 2MS-2018 SG A MAIN STM STOP VALVE AIR PRESSURE LOW in alarm

      • 2C03 2D 1-3

   e. North or South instrument air header pressure dropping rapidly or abnormally low

      • PI-3083A for South header
      • PI-3083B for South header
      • PI-3084A for North header
      • PI-3084B for North header

   f. Various air-operated valves fail to operate or operate sporadically

C. REFERENCES

1. P&ID M-209 Sheets 1 and 2, Service Air

2. P&ID M-209 Sheets 3 through 11, Instrument Air

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTES

- A loss of instrument air may affect the operability of various plant components. This procedure should be used in concurrence with other EOPs and AOPs as appropriate to address plant stabilization.
- Low instrument air pressure may result in air operated valves drifting shut. Manual action will be required to reopen the affected valves when instrument air pressure is restored.

1	Check Power Available To At Least One Air Compressor: o 1B32 for K2A o 2B42 for K2B o 1B04 for K3A o 2B04 AND 2Y06 Breaker 14 for K3B	IF power NOT available to any compressor, THEN perform the following: a. Trip the reactor(s). b. Stabilize plant using EOPs while continuing with this procedure.

NOTES

- The decision to secure any air compressor that is not operating properly should be based on the possible damage to the compressor and the need for that compressor due to plant conditions.
- If a compressor has tripped on undervoltage, the control switch must be placed in the off position to reset the UV relay before starting.

2	Check Instrument Air Compressors - AT LEAST ONE RUNNING o K2A o K2B	Perform the following: a. Start an instrument air compressor. b. Secure malfunctioning instrument air compressor, if necessary. c. IF air receiver is depressurized, THEN restart per Attachment BB.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTES

- If K3A or K3B tripped on overpressure, local reset is required.
- If K3B has tripped, the local operator aid procedure will be required to clear the inner stage pressure interlock.

3	Check Service Air Compressors - AT LEAST ONE RUNNING o K3A o K3B	Perform the following: a. Locally start a service air compressor. b. Secure malfunctioning service air compressor, if necessary. c. IF air receiver is depressurized, THEN restart per Attachment BB.
4	Check Instrument Air And Service Air Compressors - ANY RUNNING	Perform the following: a. Trip the reactor(s). b. Stabilize plant using EOPs while continuing with this procedure.
5	Check Instrument Air Pressure - ADEQUATE • Main steam stop valves are fully open, if required • Main feedwater flow control valves operating as required	Perform the following: a. Trip the reactor(s). b. Stabilize plant using EOPs while continuing with this procedure.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
6	Check Instrument Air Pressure - GREATER THAN 80 PSIG	Ensure all of the following: a. Both instrument air compressors running. • K2A • K2B b. Both service air compressors running. • K3A • K3B c. North and South header service air to instrument air backup valves open. • IA-3079 • IA-3014 d. North and South header air dryer bypass valves open. • IA-3094-S • IA-3000-S e. <u>IF</u> instrument air pressure stable <u>OR</u> rising, <u>THEN</u> go to <u>Step 7</u>. f. <u>IF</u> instrument air pressure trending lower, <u>THEN</u> go to <u>Step 11</u>.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

If an instrument air compressor trips on overpressure, it will auto restart at 85 psig trending lower.

7	Check Instrument Air Pressure - GREATER THAN 85 PSIG	Ensure all of the following: a. Both instrument air compressors running. • K2A • K2B b. Both service air compressors running. • K3A • K3B c. North and South header service air to instrument air backup valves open. • IA-3079 • IA-3014 d. IF instrument air pressure stable OR rising, THEN go to Step 8. e. IF instrument air pressure trending lower, THEN return to Step 6.
8	Check Instrument Air Pressure - GREATER THAN 90 PSIG	Perform the following: a. Ensure both instrument air compressors are running. • K2A • K2B b. IF instrument air pressure stable OR rising, THEN go to Step 9. c. IF instrument air pressure trending lower, THEN return to Step 7.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
9	Locally Check Instrument Air System - NORMAL	
	a. Check system parameters normal: • South header flow - LESS THAN 220 SCFM • FI-3081 • North header flow - LESS THAN 160 SCFM • FI-3082 • Compressor cycle times - NORMAL	a. Go to Step 11.
	b. System components operable or repairs to affected components have been initiated	b. Initiate repairs to affected components and monitor instrument air system operation.
10	Return To Procedure And Step In Effect	
11	Check Instrument Air System For Leakage: o All available compressors - RUNNING o Instrument air pressure - LESS THAN 80 PSIG o Local confirmation of instrument air system leakage	Go to Step 16.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
12	Check Air Headers Intact:	
	a. Locally check South header flow indicators o Header flow in air compressor room - LESS THAN 220 SCFM • FI-3081 o Header flow at Unit 1 turbine building, NW El. 8 ft - LESS THAN 45 SCFM • 1FI-3085 o Header flow at Unit 1 containment, PAB No.2 pipeway upper, El. 26 ft - LESS THAN 15 SCFM • 1FI-3087	a. Locally isolate instrument air leak while continuing with this procedure.
	b. Locally check North header flow indicators o Header flow in air compressor room - LESS THAN 160 SCFM • FI-3082 o Header flow at Unit 2 turbine building, SW El. 8 ft - LESS THAN 70 SCFM • 2FI-3085 o Header flow at Unit 2 containment PAB No.3 pipeway upper, El. 26 ft - LESS THAN 15 SCFM • 2FI-3087	b. Locally isolate instrument air leak while continuing with this procedure.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13	Check Components In Air Compressor Room - INTACT	Perform the following: a. Isolate leaking component(s). b. IF air dryer is leaking, THEN locally open associated bypass valve. o IA-3000-S for Z-39 o IA-3094-S for Z-31

NOTE

The header cross-connect valves are identified by red handles.

14	Check Pressure In At Least One Air Header - STABLE OR RISING	IF at least one service air compressor OR instrument air compressor aligned to each air header, THEN split North and South headers by closing cross-connect valves in air compressor room. • IA-5 • IA-11

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15	Check Air Header Pressure - STABLE OR RISING	
	a. South air header pressure - STABLE OR RISING	a. <u>IF</u> header can be isolated, <u>THEN</u> perform the following: 1) Shut manual inlet for service air backup valve, IA-3014. • IA-60 2) Check shut bypass valve for service air backup valve, IA-3014. • IA-62 3) Stop K2A.
	b. North air header pressure - STABLE OR RISING	b. <u>IF</u> header can be isolated, <u>THEN</u> perform the following: 1) Shut manual inlet for service air backup, IA-3079. • IA-6 2) Check shut bypass valve for service air backup valve, IA-3079. • IA-8 3) Stop K2B.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

Re-establishing instrument air to equipment may create operational changes throughout the plant.

16	Locally Check Instrument Air Header Pressures - AT LEAST ONE GREATER THAN 80 PSIG o North header • PI-3005 o South header • PI-6320	Go to Step 21.
17	Align Unaffected Equipment To Pressurized Header Using Installed IA Header Component Cross-Connects Per Attachment AA	
18	Monitor Plant Systems Status Per Attachments A Through Z	
19	Check Instrument Air System - NORMAL	
	a. Instrument Air System degradation identified and corrected	a. Repair as necessary.
	b. Check Instrument Air System alignment - NORMAL	b. Align Instrument Air System as necessary.
20	Return To Procedure And Step In Effect	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTES

- When instrument air is lost, all charging pumps except 2P2C will reduce to minimum speed.
- RCS cooldown may be necessary to prevent the pressurizer from going solid due to RCP seal injection without letdown.

21 Establish Minimum Charging Flow:

a. Check only one charging pump running

o P-2A
o P-2B
o P-2C

a. Perform the following:

1) IF more than one charging pump running, THEN stop all but one.

2) IF no charging pumps running, THEN start one charging pump.

b. Maintain RCP seal injection flow:

1) Ensure charging pump in manual at minimum

2) Shut charging line isolation valve

- CV-1298

2) Locally isolate charging line:

a) Ensure HCV-142 inlet valve shut.

- CV-384A

b) Ensure HCV-142 bypass valve shut.

- CV-323B

3) Ensure RCP seal injection flow - NORMAL

- Ensure labyrinth seal ΔP - GREATER THAN +20 INCHES

- PI-131
- PI-124

c. Ensure all charging pump controls set to manual and minimum

- P-2A
- P-2B
- P-2C

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

RCS normal letdown and excess letdown is not available following loss of instrument air.

22	Check VCT Level - GREATER THAN 8%	Open RWST to charging pump suction MOV. • CV-112B
23	Check LTOP Not Required: o RCS temperature - GREATER THAN 270°F o Reactor Vessel Head is off	Perform the following: a. Ensure LTOP in service. b. Stop running RCP(s). c. Maintain solid plant operation per Attachments A and C. d. Adjust RHR heat exchanger outlet isolation valves to control RCS temperature as necessary. • RH-716A • RH-716B e. Go to Step 27.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

Gagging open AFW mini-recirc valves will divert approximately 100 gpm which could limit minimum flow for SGTR or MSLB events.

NOTES

- Air back-up to air operated AFW mini-recirc valves will provide a minimum 2 hours of operation for 1AF-4002, and 2AF-4002. Within 2 hours the manual gag on each AFW pump mini-recirc valve must be used to provide minimum recirc flow.
- Nitrogen air back-up to air operated AFW mini-recirc valves will provide a minimum 90 minutes of operation for AF-4007 and AF-4014. Within 90 minutes the manual gag on each AFW pump mini-recirc valve must be used to provide minimum recirc flow.

24	Check AFW Pump Mini-recirc Valves - GAGGED OPEN • AF-4007 for P-38A • AF-4014 for P-38B • 1AF-4002 for 1P-29 • 2AF-4002 for 2P-29	IF minimum recirculation flow is required, THEN perform the following: • Within 90 minutes, manually gag each motor driven AFW pump mini-recirc valve. • Within 2 hours, manually gag each turbine driven AFW pump mini-recirc valve.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

Nitrogen back-up to air operated AFW flow control valves will provide a minimum 90 minutes of operation for AF-4012 and AF-4019.

25	Control Aux Feedwater Flow:	
	a. Check turbine-driven AFW pump running	a. Perform the following: 1) Start turbine-driven AFW pump. 2) IF turbine-driven AFW pump can NOT be started, THEN ensure motor-driven AFW pump running.
	b. Check motor-driven AFW pump flow - LESS THAN 240 GPM	b. Locally operate discharge control valve gag to control motor-driven AFW pump flow less than 240 gpm.
	c. Maintain SG level between 31% and 65%	

NOTE

Manual gag override is necessary to open the atmospheric steam dumps.

26	Control RCS Temperature:	
	a. Locally control atmospheric steam dumps using manual gag override • MS-2016 for S/G A • MS-2015 for S/G B	
	b. Maintain RCS Tavg less than or equal to 547°F	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
27	Check Plant Systems Status Per Attachments A Through Z • ATTACHMENT A, REACTOR COOLANT • ATTACHMENT B, CVCS IN CONTAINMENT • ATTACHMENT C, CVCS OUTSIDE CONTAINMENT • ATTACHMENT D, SAFETY INJECTION • ATTACHMENT E, RESIDUAL HEAT REMOVAL • ATTACHMENT F, SPENT FUEL POOL • ATTACHMENT G, CONTAINMENT SPRAY • ATTACHMENT H, COMPONENT COOLING • ATTACHMENT I, GAS STRIPPERS • ATTACHMENT J, RADWASTE STEAM AND CONDENSATE • ATTACHMENT K, BLOWDOWN EVAPORATOR • ATTACHMENT L, WASTE LIQUID • ATTACHMENT M, WASTE GAS • ATTACHMENT N, REACTOR MAKEUP WATER • ATTACHMENT O, BORIC ACID RECYCLE • ATTACHMENT P, PRIMARY SAMPLING • ATTACHMENT Q, CONTAINMENT • ATTACHMENT R, AUXILIARY FEED • ATTACHMENT S, MAIN STEAM/CROSSOVER STEAM DUMP • ATTACHMENT T, FEED AND CONDENSATE • ATTACHMENT U, MAIN TURBINE • ATTACHMENT V, CIRC WATER • ATTACHMENT W, SERVICE WATER • ATTACHMENT X, WATER TREATMENT • ATTACHMENT Y, RADIATION MONITORING • ATTACHMENT Z, CHLORINATION AND DECHLORINATION	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
28	Restore Instrument Air System Alignment To Normal:	
	a. Determine and correct cause of instrument air system failure	
	b. Check instrument air receiver pressure - GREATER THAN 30 PSIG	b. Refer to Attachment BB for air compressor startup to supply depressurized receiver.
	c. Start up instrument air system per DSS direction	
29	Return To Procedure And Step In Effect	

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 1 of 2)
REACTOR COOLANT

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
RC-431A	Pressurizer spray	Shut	Nitrogen backup for ~30 minutes
RC-431B	Pressurizer spray	Shut	Nitrogen backup for ~30 minutes
RC-430	PORV	Shut	Nitrogen backup when on LTOP
RC-431C	PORV	Shut	Nitrogen backup when on LTOP
RC-527	PRT vent	Shut	
RC-557	RMW to PRT	Shut	
RC-508	RMW to containment	Shut	
RC-538	PRT to gas analyzer	Shut	
RC-539	PRT to gas analyzer	Shut	

2. SYSTEM RESPONSE - POWER OPERATION OR HOT SHUTDOWN

a. RCS cooldown may be necessary to prevent the pressurizer from going solid due to RCP seal injection without letdown.

b. Pressurizer spray valve operation should be normal as long as nitrogen is available to the spray valves. Backup supply will provide nitrogen for approximately 30 minutes. Manually operate pressurizer heaters as necessary to maintain pressurizer liquid at saturation temperature.

c. Charging pump 2P2C is not affected by a loss of instrument air. If running, reduce speed to minimum and control as necessary.

d. Plant nitrogen can be manually aligned to charging pump varidrives to maintain pressure at the varidrives.

e. Pressurizer heater control is not affected.

f. PORVs are backed up by code safeties.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 2 of 2)
REACTOR COOLANT

3. SYSTEM RESPONSE - SOLID PLANT OPERATION (LTOP IN SERVICE)

a. Stop running RCPs.

b. Stop all but one charging pump. Charging pumps will go to minimum speed (except 2P2C which is not affected).

c. Adjust charging and seal injection flow from the operating charging pump as necessary to maintain desired RCS pressure. Charging adjustment may be required for any changes in RCS temperatures result of loss of air (RHR system).

d. Monitor VCT level. Auto switchover of charging pump suction may occur.

e. Open RC-596 as necessary to provide a drain path from the PRT to the RCDT. Since seal water return valve CV-313A fails shut, seal return relief valve CV-314 (setpoint 150 psig) will lift diverting seal return to the PRT.

f. OP-3C provides guidance for aligning PORVs RC-430 and RC-431C to nitrogen if required.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT B
(Page 1 of 1)
CVCS IN CONTAINMENT

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
CV-200A,B,C	Letdown orifices	Shut	
CV-296	Auxiliary spray	Shut	Flow at 200 psid
CV-133	RHR to letdown	Shut	
CV-386	RCP seal bypass	Shut	
CV-312	Excess letdown divert	Flow to VCT	
CV-1296	Aux charging line	Shut (manually isolated)	
CV-371A	Letdown containment isolation	Shut	
CV-313A	RCP seal return isolation	Shut	

2. SYSTEM RESPONSE

a. The letdown orifices will shut.

b. Excess letdown will not be available due to loss of CC water.

c. RC-596 should be opened as necessary to provide a drain path from the PRT to the RCDT. Since seal water return valve CV-313A fails shut, seal return relief valve CV-314 (setpoint 150 psig) will lift diverting seal return to the PRT.

d. The RCDT cannot be drained or pumped down, but RV-1712 will lift at 25 psig providing a flow path for seal return to containment sump "B".

e. High RCDT pressure may cause RCP standpipe high level alarms to be received due to reverse flow in the No. 2 seal leakoff line.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT C
(Page 1 of 2)
CVCS OUTSIDE CONTAINMENT

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
CV-371	Letdown containment isolation	Shut	
CV-135	Letdown pressure control	Open	
CV-145	Letdown divert	Flow to VCT	
CV-244	Deborator demin divert	Flow to VCT	
CV-112A	VCT divert	Flow to VCT	
GW-73A	Gas stripper bypass	Flow to VCT	
CV-110C	Blender to VCT	Shut	
CV-110B	Blender to charging pump	Shut	
CV-110A	Boric acid to blender	Open	
CV-111	Reactor makeup water to blender	Shut	
CV-142	Charging line control	Open	
HC-105	BAST "A" or "C" recirc	Shut	
HC-104	BAST "B" recirc	Shut	
CV-265	Seal backpressure control (Unit 1 only)	Shut	Manually isolated and bypassed

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT C
(Page 2 of 2)
CVCS OUTSIDE CONTAINMENT

2. SYSTEM RESPONSE - POWER OPERATION OR HOT SHUTDOWN

   a. Letdown is isolated.

   b. VCT auto makeup from the blender is unavailable. Alternate charging pump suction supply is manually established as necessary.

   c. One charging pump is operated at minimum speed to provide seal water to RCPs.

   d. A manual charging line valve must be throttled or shut to provide seal injection flow.

      - CV-384A
      - CV-384B

   e. Since seal water return valve CV-313A fails shut, seal return relief valve CV-314 (setpoint 150 psig) will lift diverting seal return to the PRT.

3. SYSTEM RESPONSE - SOLID PLANT OPERATION (LTOP IN SERVICE)

   a. Refer to "SYSTEM RESPONSE - POWER OPERATION OR HOT SHUTDOWN".

4. SYSTEM RESPONSE - RCS DRAINED (ON RHR)

   a. Operating charging pump should be stopped to prevent damage due to loss of NPSH.

   b. Alternate charging pump suction supply is manually established as necessary.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT D
(Page 1 of 1)
SAFETY INJECTION

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
SI-834A,B	SI accumulator vent /N2 supply	Shut	
SI-835A,B	SI accumulator fill	Shut	
SI-844A,B	SI accumulator drain to RCDT	Shut	
SI-957	High pressure N2 header vent relief	Shut	
SI-839A-D	SI test line valves	Shut	
SI-846	High pressure N2 to vent relief	Shut	
SI-825C	MOV-825 bypass AOV	Open	
SI-897A	Test line isolation	Open	
SI-897B	Test line isolation	Open	

2. SYSTEM RESPONSE

a. Test line valves SI-897A and SI-897B are fail open with IA isolated. This maintains a recirc flow path for SI pumps.

b. SI pumps should be manually stopped if running at shut-off head without a recirc flow path available.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT E
(Page 1 of 1)
RESIDUAL HEAT REMOVAL

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
RH-624	RHR HX outlet	Open	
RH-625	RHR HX outlet	Open	
RH-626	RHR HX bypass	Shut	

2. SYSTEM RESPONSE - POWER OPERATION OR HOT SHUTDOWN

   a. All valves fail as required for low head injection.

3. SYSTEM RESPONSE - SOLID PLANT OPERATION (ON RHR)

   a. RCS subcooling should be monitored. Temperature should be controlled by manual control of RHR flow using RH-716A and RH-716B (RH-624 and RH-625 outlet isolation valves).

   b. Check RCS pressure response and adjust as required per Attachment A.

4. SYSTEM RESPONSE - RCS DRAINED

   a. RHR pumps may require intermittent operation due to pump run out concerns.

   b. RHR flow should be adjusted with RH-716A and RH-716B (RH-624 and RH-625 outlet isolation valves) to minimize RHR pump cavitation.

   c. Reactor vessel level should be raised as necessary to reduce RHR pump cavitation.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT F
(Page 1 of 1)
SPENT FUEL POOL

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
N/A	SFP doors will depressurize		(below)

2. SYSTEM RESPONSE

a. Air to fuel transfer door seals is lost.

b. Fuel transfer canal will equalize level with SFP.

c. If air loss occurs during refueling when the reactor cavity is not flooded and the transfer tube gate valve is open, the fuel transfer tube gate valve should be shut immediately.

d. If fuel is suspended on a tool in the SFP with the fuel transfer canal not flooded, the element should be stowed as soon as possible in anticipation of SFP level drop.

e. If personnel are working in the fuel transfer canal, they should evacuate the area immediately.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT G
(Page 1 of 1)
CONTAINMENT SPRAY

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
SI-836A	Sodium hydroxide addition	Open	
SI-836B	Sodium hydroxide addition	Open	

2. SYSTEM RESPONSE

a. Check valves SI-847A and SI-847B should prevent backfill of sodium hydroxide tank from RWST. If level in sodium hydroxide tank is trending higher, manual isolation may be necessary with permission of DSS. Manual isolation will require assigned dedicated operator per OM-3.26, Use Of Dedicated Operators.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT H
(Page 1 of 1)
COMPONENT COOLING

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
CC-761A	RCP thermal barrier isolation	Open	
CC-761B	RCP thermal barrier isolation	Open	
CC-769	Excess letdown return	Shut	
CC-130	Nonregen HX cooling	Open	Manual gag override (see below)
CC-17	Surge tank vent	Shut	
CC-LW-63	Radwaste CCW supply	Shut	Unit 2 only
CC-LW-64	Radwaste CCW return	Shut	Unit 2 only

2. SYSTEM RESPONSE

a. CC-130 is manually gagged and red locked to limit fail open position to approximately 50% position to prevent run out of component cooling water pump.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT I
(Page 1 of 2)
GAS STRIPPERS

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
GS-GW-4A	"A" gas stripper feed pressure control	Open	
GS-GW-4B	"B" gas stripper feed pressure control	Open	
GS-GW-3A	"A" gas stripper level control	Shut	
GS-GW-3B	"B" gas stripper level control	Shut	
GS-GW-5A	Condenser HX-134A cooling flow control	Open	
GS-GW-5B	Condenser HX-134B cooling flow control	Open	
GS-GW-17A	"A" gas stripper gas outlet	Shut	
GS-GW-17B	"B" gas stripper gas outlet	Shut	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT I
(Page 2 of 2)
GAS STRIPPERS

2. SYSTEM RESPONSE

a. Letdown to gas strippers will be automatically isolated, placing the stripper valves to recirc mode with the feed pressure control valve failing open.

b. Component cooling water for the condenser is lost, however, radwaste steam fails shut also.

c. Gas stripper gas outlet valve (GW-17) fails shut preventing gas backfill from GW-2 as the stripper cools.

d. Gas stripper should maintain a positive pressure for greater than 30 minutes due to the residual heat from the preheater. If pressure begins to drop towards a vacuum, some of the following options are available:

1) The pneumatic operator for GW-17A and GW-17B has an extended shaft for manual operation as required to maintain a positive pressure each tower.

2) As a last resort, backfill with N2 via GS-61 (N2 purge valve).

e. Cryo compressors K-10A and K-10B must be secured due to loss of component cooling.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT J
(Page 1 of 1)
RADWASTE STEAM AND CONDENSATE

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
RS-SA-9	Radwaste steam Unit 2 supply	Shut	
RS-SA-10	Radwaste steam Unit 1 supply	Shut	
RS-SA-1	Radwaste steam pressure control	Shut	
RW-CA-2-1	Radwaste condensate vacuum drag isolation	Open	
RW-CA-2-2	Radwaste condensate vacuum drag isolation	Open	
RW-CA-3-1	Radwaste condensate pump discharge	Shut	
RW-CA-3-2	Radwaste condensate pump discharge	Shut	

2. SYSTEM RESPONSE

a. Radwaste steam valves fail shut. Either SA-9 or SA-10 will auto open when instrument air is recovered.

b. Condensate vacuum drag valves fail open to the main condenser.

c. Radwaste steam/condensate must be secured whenever condenser vacuum is lost.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT K
(Page 1 of 1)
BLOWDOWN EVAPORATOR

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
BE-LW-1	Waste feed to evaporator	Shut	
BE-LW-19	Blowdown surge tank level control	Shut	
BE-LW-8	Dist accum level control	Shut	
BE-LW-8A	Dist accum reject level control	Shut	
RS-SA-1	Radwaste steam	Shut	
RS-LW-3	Evaporator/reboiler level control	Shut	
SW-LW-61	SW to overhead condenser	Shut	
SW-LW-5	Overhead condenser pressure control	Open	No flow, LW-61 shut
BE-LW-15	Waste distillate discharge flow control	Shut	

2. SYSTEM RESPONSE

a. Evaporator is placed in a shutdown mode.

b. Long term operation will require opening vents and maintaining distillate accumulator full.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT L
(Page 1 of 1)
WASTE LIQUID

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
WG-1786	RCDT to vent header	Shut	
WG-1787	RCDT to vent header	Shut	
WG-1788	RCDT to gas analyzer	Shut	
WG-1789	RCDT to gas analyzer	Shut	
WL-1003A	P18 RCDT pump suction	Shut	
WL-1003B	P66 RCDT pump suction	Shut	
WL-4101	P-10A RHR pump drain to sump	Shut	
WL-4100	P-10B RHR pump drain to sump	Shut	

2. SYSTEM RESPONSE

a. RCDT pumps should be placed in pullout.

b. The RCDT cannot be drained or pumped down, but RV-1712 will lift at 25 psig providing a flow path for seal return to containment sump "B".

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT M
(Page 1 of 2)
WASTE GAS

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
WG-1036A	"A" GDT fill	Shut	
WG-1037A	"B" GDT fill	Shut	
WG-1038A	"C" GDT fill	Shut	
WG-1039A	"D" GDT fill	Shut	
WG-1036B	"A" GDT to gas analyzer	Shut	
WG-1037B	"B" GDT to gas analyzer	Shut	
WG-1038B	"C" GDT to gas analyzer	Shut	
WG-1039B	"D" GDT to gas analyzer	Shut	
WG-1629	"A" GDT to reuse	Shut	No reuse gases to HUTs
WG-1630	"B" GDT to reuse	Shut	No reuse gases to HUTs
WG-1631	"C" GDT to reuse	Shut	No reuse gases to HUTs
WG-1632	"D" GDT to reuse	Shut	No reuse gases to HUTs
WG-014	GDT discharge	Shut	
WG-1600A thru WG-1600U	Gas Analyzer AOVs	Shut	O2 sampling capability lost

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT M
(Page 2 of 2)
WASTE GAS

2. AFFECTED EQUIPMENT CONTINUED

Valve Number	Name	Fails	Notes
WG-1600X	Gas Analyzer AOV	Shut	
WG-1600V	Gas Analyzer AOV	Open	
WG-1600Y	Gas Analyzer AOV	Open	

3. SYSTEM RESPONSE

a. Pumpdown of holdup tanks should be stopped (reuse gas is lost). Pump has auto trip on low suction pressure.

b. Any gas decay tank discharges in progress will be stopped automatically. Follow-up with manual valve isolation as soon as practical.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT N
(Page 1 of 1)
REACTOR MAKEUP WATER

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
BS-1256B	RMW tank fill	Shut	
BS-1262A	"A" pump to Unit 2 blender	Open	Refer to Attachment C
BS-1262B	"B" pump to Unit 2 blender	Open	Refer to Attachment C
BS-1284A	"A" pump to Unit 1 blender	Open	Refer to Attachment C
BS-1284B	"B" pump to Unit 1 blender	Open	Refer to Attachment C

2. SYSTEM RESPONSE

a. If filling an RMW tank from a monitor tank, the monitor tank pump should be stopped (running at shutoff head with no recirc flow path).

b. RMW will be available to both Unit CVCS systems, however, manual valves must be used for makeup.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT O
(Page 1 of 1)
BORIC ACID RECYCLE

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
CV-9A & B	Gas stripper feed to evaporator	Shut	a
CV-10A & B	Gas stripper feed to HUTs	Shut	a
CV-11A & B	Feed inlet bypass boric acid evap	Shut	a
CV-4A & B	Gas stripper outlet to vent header	Open	

2. SYSTEM RESPONSE

a. Gas stripper feed pumps should be stopped (running at shutoff head).

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT P
(Page 1 of 1)
PRIMARY SAMPLING

1. AFFECTED EQUIPMENT - PRIMARY SAMPLING

Valve Number	Name	Fails	Notes
SC-966A	Pzr steam space	Shut	
SC-966B	Pzr liquid space	Shut	
SC-966C	RC hot leg	Shut	Failed fuel monitor is lost
SC-959	RHR loop sample	Shut	
SC-951	Pzr steam space	Shut	
SC-953	Pzr liquid space	Shut	
SC-955	RC hot leg	Shut	Failed fuel monitor is lost

2. SYSTEM RESPONSE - PRIMARY SAMPLING

a. Unable to sample the primary system until air is restored.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT Q
(Page 1 of 1)
CONTAINMENT

1. SYSTEM RESPONSE

   a. Air is lost to the purge supply and exhaust valve inflatable seal.

   b. Local pressure indication at the boot seal instrument air accumulator should be observed.

   c. For Unit 1 only, a temporary supply of N2 gas should be used to repressurize the seal for the outside valves due to the limited availability of the boot seal accumulators.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT R
(Page 1 of 1)
AUXILIARY FEED

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
AF-4007	P-38A aux feed minirecirc	Shut	Nitrogen backup for greater than 90 min. then use manual gag override
AF-4012	P-38A discharge pressure control	Open	Nitrogen backup for greater than 90min. then use manual gag override
AF-4014	P-38B aux feed minirecirc	Shut	Nitrogen backup for greater than 90 min. then use manual gag override
AF-4019	P-38B discharge pressure control	Open	Nitrogen backup for greater than 90m min. then use manual gag override
AF-4002	P-29 aux feed minirecirc	Shut	Air backup for greater than 2 hours then use manual gag override
MS-2090	P-29 aux feed SW cooling	Open	

2. SYSTEM RESPONSE

a. After 90 minutes with loss of instrument air the manual gag on each motor driven AFW pump mini recirc valve and after 2 hours the manual gag on the turbine driven AFW pump mini recirc valve must be used to provide minimum recirc flow if continuous flow through the pump can not be verified.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT S
(Page 1 of 2)
MAIN STEAM/CROSSOVER STEAM DUMP

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
MS-2018, MS-2017	Main steam stops	Shut	
MS-2016, MS-2015	Atmos steam dumps	Shut	Manual gag override
MS-2042, MS-2045	SGBD valves	Shut	
MS-2083, MS-2084	SG sample valves	Shut	
MS-2050 thru MS-2057	Condenser steam dumps	Shut	
MS-2074	Main steam to air ejector	Open	Main steam isolated
MS-2710	Gland steam regulator	Open	Main steam isolated
MS-2085 thru MS-2088	Main steam to MSRs	Shut	
MS-2748, MS-2379, MS-2380, MS-2383	Heating steam from plant steam	Shut	May require start of heating boiler
MS-2701 thru 2706 MS-2729 thru 2730	Turbine drains	Open	
MS-2745, MS-2746	Cylinder heating steam	Shut	
MS-2750, MS-2751	Turbine stop bypass	Shut	
OS-1-DV, OS-2-DV, OS-3-DV, OS-4-DV	Crossover steam dumps	Open*	Installed accumulators maintain pressure for 5 minutes
OS-5935, OS-5936 OS-5937	Drain bottle level	Open	
OS-5, OS-6, OS-7, OS-8	Reseat steam	Shut	

* These valves have failed in the closed position.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT S
(Page 2 of 2)
MAIN STEAM/CROSSOVER STEAM DUMP

2. SYSTEM RESPONSE

a. If the loss of instrument air only affects the crossover steam dump system, the power limitations associated with crossover steam dumps in OP-2A (normal power operations) apply and must be observed.

b. All steam is lost to the turbine halls (vacuum is lost).

c. Steam supply to steam driven aux feed pump is not affected.

d. Depending on duration of loss of air and time of year, heating boilers may be required to provide house heating steam.

1) Heating boiler condensate tank automatic makeup from CSTs (CV-4599) fails shut. Manual bypass will be required.

e. Heating steam can be provided by manual bypass of a main steam stop if air ejector steam supply (CV-2074 - fail open) and gland steam regulator (CV-2710) are manually isolated, and the low pressure drain trap header is shifted to the atmospheric blowoff tank. Main steam to heating steam would require manual control on the gag.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT T
(Page 1 of 1)
FEED AND CONDENSATE

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
CS-466, CS-476	Main feed regulator	Shut	Manual gag override
CS-480, CS-481	Main feed regulator bypass	Shut	Manual gag override
CS-2180, CS-2188	Main feed pump minirecirc	Open	Manual gag override
CS-2252	Condensate pump minirecirc	Open	Manual gag override
CS-2172, CS-2278	Seal supply to main feed pumps	Open	
CS-2125	Low flow makeup	Shut	Manual gag override
CS-2273	Low pressure heater bypass	Open	Manual gag override
FD-2525	Heater drain tank sparging	Open	Manual gag override
CS-2109, CS-2114	Hood spray	Shut	Manual bypass available

2. SYSTEM RESPONSE

a. One feed pump and condensate pump should be operated as necessary to cool the feedwater heater trains.

b. Steam generator feedwater is available from aux feed pumps. If needed for backup, manual gag override of feed regulator bypass may be used.

c. Hood spray bypass valves should be manually opened as necessary to provide cooling.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT U
(Page 1 of 1)
MAIN TURBINE

1. SYSTEM RESPONSE

   a. Turbine coastdown will be affected by loss of vacuum.

   b. Hood spray bypass valves should be manually opened as necessary to control exhaust hood temperatures.

   c. Main lube oil temperature will drop due to fail open of cooler service water temperature control valve.

   d. The manual engage lever must be used to place turbine on turning gear.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT V
(Page 1 of 1)
CIRC WATER

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
1CW-3593	Unit 1 traveling water screen wash header isolation	Shut	Use manual overide
2CW-3593	Unit 2 traveling water screen wash header isolation	Shut	Use manual overide
1CW-3507	Unit 1 Condensate Cooler Filter Bypass Valve	Fails As Is	
1CW-3506	Unit 1 Condensate Cooler Filter Blowdown Valve	Fails As Is	
2CW-3507	Unit 2 Condensate Cooler Filter Blowdown Valve	Fails As Is	
2CW-3506	Unit 2 Condensate Cooler Filter Blowdown Valve	Fails As Is	

2. SYSTEM RESPONSE

a. Forebay level indication fails low.

b. Screen wash pumps will not start in auto.

c. Any running screen wash pumps will be dead headed and any running screens will not have screen wash water.

d. Condensate cooler filter bypass and blowdown valves fail close on loss of power.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT W
(Page 1 of 1)
SERVICE WATER

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
SW-2854	MLO cooler SW outlet	Open	b
SW-2911	Zurn strainer blowdown	Shut	a
SW-2912	Zurn strainer blowdown	Shut	a
SW-LW-61	Service water to blowdown evaporator	Shut	
SW-LW-62	Service water from blowdown evaporator	Shut	
SW-12A	CC outlet temperature control	Open	Use manual valve
SW-12B	CC outlet temperature control	Open	Use manual valve
SW-12C	CC outlet temperature control	Open	Use manual valve
SW 12D	CC outlet temperature control	Open	Use manual valve

2. SYSTEM RESPONSE

a. Manual blowdown of Zurn strainer may be required due to loss of auto blowdown.

b. Gag override set to limit service water flow on loss of instrument air.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT X
(Page 1 of 1)
WATER TREATMENT

1. SYSTEM RESPONSE

a. Water treatment should be manually secured:

- Clarifier - Isolate inlet, backwash and desludge.
- Demineralizer - Shut inlet and outlet of each demineralizer.
- Pumps - Stop clearwell pumps and shut discharge valves.
  - Stop and isolate vacuum pumps.
  - Stop deaerator pumps.
- Regenerants - Isolate acid and caustic at the pumps.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT Y
(Page 1 of 1)
RADIATION MONITORING

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
RM-3200C	Containment sample RE-211 and 212 inlet	Shut	Stop P-707A
RM-3200B	Containment sample RE-211 and 212 inlet	Shut	Stop P-707A
RM-3200A	Containment sample RE-211 and 212 outlet	Shut	Stop P-707A
BE-LW-15	RE-218 overboard	Shut	
WL-018	RE-223 overboard	Shut	
WL-014	RE-214 overboard	Shut	

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT Z
(Page 1 of 2)
CHLORINATION AND DECHLORINATION

1. AFFECTED EQUIPMENT

Valve Number	Name	Fails	Notes
CD-6401A	P-168A, Chlorination pump discharge control	Shut	Stops P-168A
CD-6401B	P-168B, Chlorination pump discharge control	Shut	Stops P-168B
CD-6401C	P-169, Chlorination pump discharge control	Shut	Stops P-169
CD-6411	1P-30A/B Chlorination inlet line isolation	Shut	
CD-6412	2P-30A/B Chlorination inlet line isolation	Shut	
CD-6413	P-32A-C Chlorination inlet	Shut	
CD-6414	P-32D-F Chlorination inlet	Shut	
CD-6415	T-131 Sodium hypochloride tank out	Shut	
CD-6425A	P-170A Dechlorination pump discharge control	Shut	Stops P-170A
CD-6425B	P-170B Dechlorination pump discharge control	Shut	Stops P-170B
CD-6426	Dechlorination system bypass control	Shut	
CD-6427	Dechlorination system bypass control	Shut	
1CW-3595	Unit 1 intake chlorination	Shut	
2CW-3595	Unit 1 intake chlorination	Shut	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT Z
(Page 2 of 2)
CHLORINATION AND DECHLORINATION

2. SYSTEM RESPONSE

a. On loss of instrument air to only the chlorination system, the system will trip and will not be able to restart until instrument air is restored. Pump discharge valves fail close and are interlocked to the pumps which will cause them to trip and not start. The dechlorination system would continue to run.

b. Loss of instrument air to only the dechlorination system will cause the dechlorination pumps to trip and cause the chlorination pumps to trip on loss of dechlorination flow.

c. Level indication will be lost for the sodium hypochlorite tank and sodium bisulfite tank.

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT AA
(Page 1 of 2)
CRITICAL PRIORITY COMPONENTS WITH ALTERNATE HEADER IA SUPPLIES

1. AUX FEEDWATER PUMPS

Component	Loss of South Header Shut	Loss of South Header Open	Loss of North Header Shut	Loss of North Header Open
P-38A Aux FW Pump M-209 Sh 4	IA-63 AFP room above & east of P-38A	IA-239 AFP room above & btwn P-38A & 38B		
P-38B Aux FW Pump M-209 Sh 4			IA-240 AFP room above P-38B	IA-239 AFP room above & btwn P-38A & 38B
2P-29 Aux FW Pump M-209 Sh 4			IA-248 AFP room above P-38B	IA-249 AFP room above P-38B

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT AA
(Page 2 of 2)
CRITICAL PRIORITY COMPONENTS WITH ALTERNATE HEADER IA SUPPLIES

2. RHR FLOW / CHARGING PUMPS / CONTAINMENT

Component	Loss of South Header Shut	Loss of South Header Open	Loss of North Header Shut	Loss of North Header Open
U1 RHR Flow M-209 Sh 8	IA-29 PAB 8' above NE entrance to SI pumps	IA-243 PAB 8' above west of resin transfer cask		
U2 RHR Flow M-209 Sh 8			IA-236 PAB 8' above west of resin transfer cask	IA-243 PAB 8' above west of resin transfer cask
U2 Charging Pumps M-209 Sh 4 & 8			IA-234 PAB 8' above 1P-11B CCW pump	IA-27 PAB 8' high in overhead east of 2P-11A & 11B CCW pumps
U1 Cont. M-209 Sh 4 or 7	IA-28 PAB 26' east of blowdown evap control panel	IA-96 PAB 26' high above facade door west of monitor tanks OR IA-43 U2 rod drive room above & south of 2B02		
U2 Cont. M-209 Sh 7			IA-225 PAB 26' high above facade door west of monitor tanks	IA-96 PAB 26' high above facade door west of monitor tanks

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT BB
(Page 1 of 3)
AIR COMPRESSOR STARTUP TO SUPPLY DEPRESSURIZED RECEIVER

CAUTION

If compressor air receivers are less than 30 psig, these precautions must be taken to prevent desired compressors from starting under load.

BB1 Place K2A In Operation:

a. Check K2A total closure valve shut • IA-226	a. Perform the following: 1) Shut total closure valve operating air at receiver T33B. • IA-205 2) Uncap and open K2A total closure air line vents. • IA-218 • IA-219 3) Using adjustable wrench, shut K2A total closure valve. • IA-226 4) Shut and cap K2A total closure air line vents. • IA-218 • IA-219
b. Start K2A	
c. Using adjustable wrench, open K2A total closure valve • IA-226	
d. Check air receiver pressure greater than 30 psig	d. <u>WHEN</u> pressure greater than 30 psig, <u>THEN</u> ensure total closure operating air open at receiver T33B. • IA-205

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT BB
(Page 2 of 3)
AIR COMPRESSOR STARTUP TO SUPPLY DEPRESSURIZED RECEIVER

BB2	Place K2B In Operation:	
	a. Check K2B total closure valve shut • IA-229	a. Perform the following: 1) Shut total closure valve operating air at receiver T33C. • IA-214 2) Uncap and open K2B total closure air line vents. • IA-220 • IA-221 3) Using adjustable wrench, shut K2B total closure valve. • IA-229 4) Shut and cap K2B total closure air line vents. • IA-220 • IA-221
	b. Start K2B	
	c. Using adjustable wrench, open K2B total closure valve • IA-229	
	d. Verify total closure valve operating air open at receiver T33C • IA-214	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT BB
(Page 3 of 3)
AIR COMPRESSOR STARTUP TO SUPPLY DEPRESSURIZED RECEIVER

BB3 Place K3B In Operation:

a. Over-ride K3B service air compressor suction to shut

- SA-50

b. Over-ride K3B inner stage unloader to open

- SA-51

c. Start K3B

d. Over-ride K3B service air compressor suction to open

- SA-50

e. Over-ride K3B inner stage unloader to shut

- SA-51

CAUTION

No manual override is available for unloader control. It is not recommended to start K3A until receiver pressure is greater than 30 psig.

BB4 Place K3A In Operation:

a. Check air receiver pressure greater than 30 psig	a. WHEN pressure greater than 30 psig, THEN perform Step BB4.b.
b. Start K3A	

BB5 Return To , Step 28

-END-

A. PURPOSE

1. This procedure is used to evaluate and correct conditions that are causing, or could lead to an inadequate core cooling condition during residual heat removal system operation.

2. This procedure is applicable for RCS hot leg temperature less than or equal to 350°F.

B. SYMPTOMS OR ENTRY CONDITIONS

1. This procedure is entered from the following conditions:

   a. RHR system valves can not be aligned for decay heat removal.

   b. RHR adequate differential temperature can not be established.

   c. From SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY under the following conditions:

      - SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 3 when neither RHR pump can be started.

      - SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 11 when RHR cooling can not be reestablished prior to RCS temperature greater than 200°F.

      - SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 14 when one train of RHR can not be aligned.

      - SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 16 when neither RHR pump can be started.

      - SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 16 when RHR flow can not be established greater than 900 gpm.

      - SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 17 when RHR flow and discharge pressure can not be stabilized.

      - SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 20 when RHR cooling can not be reestablished prior to RCS temperature greater than 200°F.

      - SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 22 when RHR flow can not be established greater than 900 gpm.

      - SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 25 when RHR pump fails to start.

      - SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 26 when RHR pump discharge pressure less than 120 psig.

      - SEP-3.0 Unit 1, LOSS OF ALL AC POWER TO A SHUTDOWN UNIT, Step 3 when the RCS is in mid loop operation.

C. REFERENCES

1. Technical Specifications for Point Beach Nuclear Plant
2. Final Safety Analysis Report for Point Beach Nuclear Plant
3. As-built plant drawings
4. NRC INFORMATION NOTICE 95-35

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
1	Check RHR Flow - GREATER THAN 550 GPM	Stop running RHR pump. • 1P-10A • 1P-10B
2	Perform A Limited Plant Evacuation Of Containment	
3	Check Containment Closure Established	Establish closure per CL-1E, Containment CLosure Checklist.
4	Check RCS Pressure Boundary Intact	Go to Step 31.
5	Check Make-up Available To AT LEAST ONE SG	
	a. Check make up availability o AFW available OR o Condensate available per Attachment A, CONDENSATE LINEUP FOR ALTERNATE CORE COOLING OR o Service Water Available per Attachment B, SERVICE WATER LINEUP FOR ALTERNATE CORE COOLING	a. Go to Step 22.
6	Check Available SG(s) Hand-hole Covers -INSTALLED	Go to Step 22.
7	Check Available SG(s) Release Path o Steam generator atmospheric steam dump o 1MS-2016 for SG A o 1MS-2015 for SG B o Secondary side manway(s) removed	Go to Step 22.
8	Check Available SG(s) Tubes Filled	Go to Step 22.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

NOTE

The steam generator will remove decay heat when level remains above 30 inches

9	Establish Makeup To Maintain SG Level - GREATER THAN 400 INCHES	IF SG level can NOT be maintained greater than 30 INCHES, THEN Go to Step 22.
10	Check PZR Solid	
	a. Check PZR level - GREATER THAN 100 PERCENT	a. Go to Step 14.
11	Establish Charging Pump Discharge Flowpath:	Establish alternate charging discharge flowpath:
	a. Ensure reactor coolant loop A cold leg normal charging isolation valve - OPEN • 1CV-1298	1. Locally open auxiliary charging line isolation valve. • 1CV-323A
	b. Fully open charging flow control valve • 1HC-142	2. Open reactor coolant loop B auxiliary charging isolation valve. • 1CV-1296
		3. Manually shut or locally isolate charging line hand control valve. • 1CV-142
12	Establish Charging Flow	
	a. Start charging pumps as necessary for current plant conditions o 1P-2A o 1P-2B o 1P-2C	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
13	Establish Letdown Flow	
	a. Open Letdown Line Containment Isolation Valves • 1CV-371A • 1CV-371	
	b. Open RCS Loop B Cold Leg letdown isolation valve • 1RC-427	
	c. Adjust backpressure as necessary and open ALL letdown isolation valves • 1CV-200A • 1CV-200B • 1CV-200C	
14	Isolate RHR Core Cooling	
	a. Place RHR Pumps in Pull-Out • 1P-10A • 1P-10B	
	b. Ensure RHR Suction from RCS - SHUT • 1RH-700 • [illegible]-701	
	c. Ensure RHR Return to RCS - SHUT • 1RH-720	
	d. Ensure RHR Pump from RWST Suction- BOTH OPEN • 1SI-856A • 1SI-856B	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
15	Check Letdown Aligned To VCT	IF desired, THEN establish charging flow from RWST a. Ensure RWST charging pump suction - OPEN • 1CV-112B b. Ensure VCT outlet to charging pump suction - CLOSED • 1CV-112C
16	Start Charging Pumps As Necessary For Current Plant Conditions o 1P-2A o 1P-2B o 1P-2C	
17	Maintain PZR Level - GREATER THAN - 20%	Control charging and letdown as necessary.
18	Check RCS Pressure - GREATER THAN 75 PSIG	Raise RCS pressure to greater than 75 psig.
19	Check RHR System Availability Restored	Do NOT continue until RHR System availability has been restored.
20	Perform OP-7A, PLACING RESIDUAL HEAT REMOVAL SYSTEM IN OPERATION	
21	Return To SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 21	
22	Manually Initiate Containment Isolation	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
23	Establish Containment Cooling • Ensure available containment accident fans - RUNNING • 1W-1A1 • 1W-1B1 • 1W-1C1 • 1W-1D1 • Ensure accident fan emergency FCVs - OPEN • 1SW-2907 • 1SW-2908	
24	Check Steam Generators Available For Reflux Cooling • Steam generator tubes drained • Vent path available • Secondary makeup available • Steam generator level - GREATER THAN 400 INCHES	Go to Step 35.

NOTE

Reactor Vessel level should be maintained at its initial level to avoid raising system pressure.

25	Monitor Reflux Cooling a. Reactor vessel level between 10% and 90% o 1LI-447 o 1LI-447A b. Maintain steam generator level - GREATER THAN 400 INCHES c. Check RCS pressure - LESS THAN 400 PSIG	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
26	Check Core Cooling Capabilities a. Check injection path to RCS available o Charging OR o ANY train RHR from RWST OR o ANY train of SI	
27	Determine Desired Core Cooling Method a. Check fill and vent is desired method b. Go to Step 36	a. Go to Step 28.
28	Check RHR System Availability Restored	Do NOT continue until RHR System availability has been restored.
29	Perform OP-7A, PLACING RESIDUAL HEAT REMOVAL SYSTEM IN OPERATION	
30	Return To SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 21	
31	Manually Initiate Containment Isolation	
32	Establish Containment Cooling • Start available containment accident fans • 1W-1A1 • 1W-1B1 • 1W-1C1 • 1W-1D1 • Ensure accident fan emergency FCVs - OPEN • 1SW-2907 • 1SW-2908	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
33	Check RCS Cold Leg Opening - GREATER THAN 1 SQUARE INCH	Go to Step 35.
34	Check Adequate RCS Vent Path o Steam generator hot leg manway removed and hot leg nozzle dam NOT installed OR o Steam generator cold leg manway removed and NO hot leg nozzle dam is installed OR o Reactor vessel head raised greater than 1 inch above vessel flange OR o Pressurizer manway removed AND reactor shut down - GREATER THAN 110 HOURS OR o BOTH pressurizer code safeties removed AND reactor shut down - GREATER THAN 240 HOURS	Go to Step 66.
35	Check Refueling Cavity Flooded	Go to Step 37.
36	Check Refueling Cavity - LESS THAN 64 FEET.	Go to Step 74.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

CAUTION

Surge line flooding can occur if a vent path exist in the PZR. This will lower the time to core uncovery and adversely effect RVLIS indication.

NOTE

The RCS should not be filled above the level of the lowest RCS opening.

37 Maintain Reactor Vessel Level Greater Than 22% Using One Of The Available Means

o Charging flow

a. Go to Step 38

OR

o Train "A" SI pump

a. Go to Step 43

OR

o Train "B" SI pump

a. Go to Step 48

OR

o RHR flow from the RWST

a. Go to Step 53

OR

o Gravity drain

a. Go to Step 58

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
38	Establish Charging Flow a. Establish charging pump suction from the RWST 1) Ensure RWST charging pump suction - OPEN • 1CV-112B 2) Ensure VCT outlet valve - CLOSED • 1CV-112C b. Align charging pump discharge flowpath as necessary for current plant conditions c. Start available charging pumps as necessary o 1P-2A o 1P-2B o 1P-2C	Return to Step 36.
* 39	Maintain Reactor Vessel Level - GREATER THAN 22% • 1LI-447 • 1LI-447A	
40	Ensure PZR PORV Block Valves - OPEN • 1RC-515 • 1RC-516	
* 41	Maintain RCS Inventory a. Check PZR PORVs - BOTH SHUT • 1RC-430 • 1RC-431C	a. IF PZR pressure less than 415 psig, THEN manually shut PZR PORVs.
42	Go To Step 62	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
43	Establish SI Flow To The RCS Cold Legs a. Ensure RWST Outlet to SI Pump Suction - OPEN o 1SI-825A o 1SI-825B b. Ensure train "A" SI Pump Suction valve - OPEN • 1SI-896A c. Ensure train "A" SI pump discharge MOV - OPEN • 1SI-866A d. Ensure combined SI pump loop injection line isolation valves - OPEN • 1SI-878B • 1SI-878D e. Start train "A" SI pump. • 1P-15A	Return to Step 36.
44	Maintain Reactor Vessel Level - GREATER THAN 22% • 1LI-447 • 1LI-447A	
45	Ensure PZR PORV Block Valves - OPEN • 1RC-515 • 1RC-516	
46	Maintain RCS Inventory a. Check PZR PORVs - SHUT • 1RC-430 • 1RC-431C	a. IF PZR pressure less than 415 psig, THEN manually shut PZR PORVs.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
47	Go To Step 62	
48	Establish SI Flow To The Reactor Vessel a. Ensure RWST outlet to SI pumps - OPEN o 1SI-825A o 1SI-825B b. Ensure train "B" SI pump suction from RWST - OPEN • 1SI-896B c. Ensure core deluge injection line isolation valve- OPEN • 1SI-866B d. Ensure SI pump reactor vessel injection line isolation valves - OPEN • 1SI-878A • 1SI-878C e. Start train "B" SI pump. • 1P-15B	Return to Step 36.
49	Maintain Reactor Vessel Level - GREATER THAN 22% • 1LI-447 • 1LI-447A	
50	Ensure PZR PORV Block Valves - OPEN • 1RC-515 • 1RC-516	
51	Maintain RCS Inventory a. Check PZR PORVs - SHUT • 1RC-430 • 1RC-431C	a. IF PZR pressure less than 415 psig, THEN manually shut PZR PORVs.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
52	Go To Step 62	
53	Reset Containment Isolation	
54	Reestablish Instrument Air To Containment:	
	a. Start second instrument air compressor o K-2A o K-2B	
	b. Check instrument air header pressure - GREATER THAN 80 PSIG	b. Start service air compressors as necessary to establish instrument air header pressure greater than 80 psig. o K-3A o K-3B
	c. Open one and then open the other instrument air containment isolation valve • 1IA-3047 • 1IA-3048	c. IF no valve can be opened, THEN gag open one valve as follows: 1) Manually hold valve switch in open position. 2) Locally gag open valve.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
55	Establish RHR Flow To Reactor Vessel From RWST Using ANY Available RHR Pump	Return to Step 36.
	a. Ensure RWST outlet to RHR pump suction valves - OPEN • 1SI-856A • 1SI-856B	
	b. Ensure RHR heat exchanger flow control valve - AT LEAST ONE FULL OPEN o 1RH-624 o 1RH-625	
	c. Ensure RHR return to RCS - OPEN • 1RH-720	c. Open ONE low head SI core deluge isolation valve. o 1SI-852A o 1SI-852B
	d. Start one RHR pump o 1P-10A o 1P-10B	
	e. Ensure PZR PORV Block Valves - OPEN • 1RC-515 • 1RC-516	
	f. Ensure PZR PORVs - OPEN • 1RC-430 • 1RC-431C	f. Ensure ALL available RCS vent paths - OPEN

****
* 56 Maintain Reactor Vessel Level - *
* GREATER THAN 22% *
* *
* • 1LI-447 *
* • 1LI-447A *
****

57 Go To Step 62

58 Reset Containment Isolation

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
59	Reestablish Instrument Air To Containment:	
	a. Start second instrument air compressor o K-2A o K-2B	
	b. Check instrument air header pressure - GREATER THAN 80 PSIG	b. Start service air compressors as necessary to establish instrument air header pressure greater than 80 psig. o K-3A o K-3B
	c. Open one and then open the other instrument air containment isolation valve • 1IA-3047 • 1IA-3048	c. <u>IF</u> no valve can be opened, <u>THEN</u> gag open one valve as follows: 1) Manually hold valve switch in open position. 2) Locally gag open valve.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
60	Establish Gravity Drain From RWST To Reactor Vessel a. Ensure RHR from RWST suction valves- OPEN • 1SI-856A • 1SI-856B b. Ensure RHR heat exchanger flow control or bypass valve - OPEN o 1RH-624 o 1RH-625 o 1RH-626 c. Ensure return to RCS isolation valve - OPEN o 1RH-720 o 1SI-852A o 1SI-852B d. Ensure PZR PORV block valves - OPEN • 1RC-515 • 1RC-516 e. Ensure PZR PORVs - OPEN • 1RC-430 • 1RC-431C	Return to Step 36. e. Ensure ALL available RCS vent paths - OPEN.

```
*************************************************************************
* 61   Maintain Reactor Vessel Level -                                  *
*      GREATER THAN 22%                                                 *
*                                                                       *
*      • 1LI-447                                                        *
*      • 1LI-447A                                                       *
*************************************************************************

*************************************************************************
* 62   Monitor RCS Temperature                                          *
*                                                                       *
*      • Return to step 37 if it is                                     *
*        desirable to initiate an alternate                             *
*        source of makeup to control RCS                                *
*        temperature                                                    *
*************************************************************************
```

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
63	Check RHR System Availability Restored	Do NOT continue until RHR System availability has been restored.
64	Perform OP-7A, PLACING RESIDUAL HEAT REMOVAL SYSTEM IN OPERATION	
65	Return To SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 21	
66	Reset Containment Isolation	
67	Reestablish Instrument Air To Containment:	
	a. Start second instrument air compressor o K-2A o K-2B	
	b. Check instrument air header pressure - GREATER THAN 80 PSIG	b. Start service air compressors as necessary to establish instrument air header pressure greater than 80 psig. o K-3A o K-3B
	c. Open one and then open the other instrument air containment isolation valve • 1IA-3047 • 1IA-3048	c. IF no valve can be opened, THEN gag open one valve as follows: 1) Manually hold valve switch in open position. 2) Locally gag open valve.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
68	Establish Reactor Vessel Injection From RWST	
	a. Ensure RWST outlet to SI pumps - OPEN o 1SI-825A o 1SI-825B	
	b. Ensure train "B" SI pump suction - OPEN • 1SI-896B	
	c. Ensure core deluge injection line isolation - OPEN • 1SI-866B	
	d. Ensure SI pump reactor vessel injection line isolation - OPEN o 1SI-878A o 1SI-878C	
	e. Start train "B" SI Pump • 1P-15B	e. Complete the following: 1) Locally open BOTH SI pump discharge cross-connect valves. • 1SI-829A • 1SI-829B 2) Ensure core deluge injection line isolation valve - OPEN. • 1SI-866B 3) Ensure train "A" SI pump suction valve - OPEN. • 1SI-896A 4) Start train "A" SI pump. • 1P-15A
	f. Ensure PZR PORV block valves - OPEN • 1RC-515 • 1RC-516	
	g. Ensure PZR PORVs - OPEN • 1RC-430 • 1RC-431C	g. Ensure ALL available RCS vent paths - OPEN.

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
69	Adjust train "B" SI pump discharge MOV to Establish At Least 500 GPM Flow (1FI-924) • 1SI-866B	
* 70	Monitor RCS Temperature	*
71	Check RHR System Availability Restored	Do NOT continue until RHR System availability has been restored.
72	Perform OP-7A, PLACING RESIDUAL HEAT REMOVAL SYSTEM IN OPERATION	
73	Return To SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 21	
74	Check Internals Removed	Go to step 78.
75	Check RHR System Availability Restored	Do NOT continue until RHR System availability has been restored.
76	Perform OP-7A, PLACING RESIDUAL HEAT REMOVAL SYSTEM IN OPERATION	
77	Return To SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 21	
78	Fill Cavity To Refueling Height a. Start available SI pump o 1P-15A o 1P-15B b. Adjust SI flow to cold leg to 300 gpm using SI pump discharge valves • 1SI-866A • 1SI-866B	
79	Check RHR System Availability Restored	Do NOT continue until RHR System availability has been restored.
80	Perform OP-7A, PLACING RESIDUAL HEAT REMOVAL SYSTEM IN OPERATION	

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
81	Return To SEP-1 Unit 1, DEGRADED RHR SYSTEM CAPABILITY, Step 21	

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 1 of 6)
CONDENSATE LINEUP FOR ALTERNATE CORE COOLING

A1 Verify SG Pressure Less Than 300 psig

A2 IF Hotwell Is Open, THEN Close Upper And Lower Condenser And Hotwell Manways Per RF-190, Condenser Hotwell Inspection Unit 1

A3 Perform Condensate System Valve Lineup

1CS-48	SC-1A Condenser Hotwell Local Sample	SHUT
1CS-49	SC-1A Condenser Hotwell Sample	SHUT
1CV-80	SC-1B Condenser Hotwell Local Sample	SHUT
1CS-81	SC-1B Condenser Hotwell Local Sample	SHUT
1CS-7	SC-1A/B Condenser Drain	SHUT
1CS-27	HX-48 Gland Steam Cond/HX-46A/B AE Cond Bypass	OPEN
1CS-32	P-25A/B Cond Pump CS-2252 Mini Recirc Flow Ctl Bypass	OPEN
1CS-2273	HX-20A/B LP FWH 4A/4B Bypass Control	OPEN
1CS-155	HX-21A/B HP FWH 5A/5B Bypass	OPEN

A4 Select Desired Train of Condensate Components For Availability

- Condensate pump
  - 1P-25A
  - 1P-25B
- Main feed pump
  - 1P-28A
  - 1P-28B
- Steam generator
  - 1HX-1A
  - 1HX-1B

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 2 of 6)
CONDENSATE LINEUP FOR ALTERNATE CORE COOLING

A5 Line-Up Selected Condensate Pump

o 1P-25A

1CS-1	P-25A Cond Pump Suction	OPEN
1CS-4	P-25A Cond Pump Suct Cs-1 Gld Seal Water Inlet	OPEN
1CS-29	Condensate Seal Water YS-2249 Gland Seal Inlet	OPEN
1CS-1C	P-25A Cond Pump Suction PX-2228A Isolation	SHUT
1CS-2	Chemical Addition Pot First Off Isolation	SHUT
1CS-1A	P-25A Cond Pump Suction PX-2228 Isolation	SHUT
1CS-1B	P-25A Cond Pump Suction PX-2164 Isolation	SHUT
1CS-9A	P-25A/B Cond Pump Seal Water Inlet Crossconnect	SHUT
1CS-9B	P-25A Cond Pump Seal Water Inlet Vent	SHUT
1CS-9	P-25A Cond Pump Seal Water Inlet	OPEN
1CS-8	P-25A Cond Pump Vent To Condenser	OPEN
1CS-11	P-25A Cond Pump Seal Water PI-2162 Root	OPEN
1CS-11B	P-25A Cond Pump Seal Water PX-2161 Isolation	SHUT
1CS-22	P-25A Cond Pump Discharge	SHUT
SW-440	HX-84A Cond Pump Motor Cooler Outlet	OPEN
SW-438	HX-84A Cond Pump Motor Cooler Inlet	OPEN

OR

o 1P-25B

1CS-5	P-25B Cond Pump Suction	OPEN
1CS-6	P-25B Cond Pump Suct CS-5 Gld Seal Water Inlet	OPEN
1CS-5D	P-25B Cond Pump Suction PX-2168A Isolation	SHUT
1CS-5C	P-25B Cond Pump Suction PX-2222A Isolation	SHUT
1CS-5A	P-25B Cond Pump Suction PX-2222 Isolation	SHUT
1CS-5B	P-25B Cond Pump Suction PX-2168 Isolation	SHUT
1CS-9A	P-25A/B Cond Pump Seal Water Inlet Crossconnect	SHUT
1CS-9C	P-25B Cond Pump Seal Water Inlet Vent	SHUT
1CS-10	P-25B Cond Pump Seal Water Inlet	OPEN
1CS-12	P-25B Cond Pump Seal Water PI-2166 Root	OPEN
1CS-12B	P-25B Cond Pump Seal Water PX-2165 Isolation	SHUT
1CS-33	P-25B Cond Pump Vent To Condenser	OPEN
1CS-17	P-25B Cond Pump Discharge	SHUT
SW-443	HX-84B Cond Pump Motor Cooler Outlet	OPEN
SW-441	HX-84B Cond Pump Motor Cooler Inlet	OPEN

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 3 of 6)
CONDENSATE LINEUP FOR ALTERNATE CORE COOLING

A6 Line-Up Select Main Feed Pump

o 1P-28A

1CS-51	P-28A SGFP Suction	OPEN
1CS-485	P-28A SGFP Suction PX-2193A First Off Isolation	SHUT
1CS-485A	P-28A SGFP Suction PX-2193A Second Off Isolation	SHUT
1CS-486	P-28A SGFP Suction PX-2193B Isolation	SHUT
1CS-57A	P-28A SGFP Suction Drain First Off Isolation	SHUT
1CS-57B	P-28A SGFP Suction Drain Second Off Isolation	SHUT
1CS-487	P-28A SGFP Discharge PT-2182 Test Connection	SHUT

OR

o 1P-28B

1CS-50	P-28B SGFP Suction	OPEN
1CS-482	P-28B SGFP Suction PX-2192A First Off Isolation	SHUT
1CS-482A	P-28B SGFP Suction PX-2192A Second Off Isolation	SHUT
1CS-483	P-28B SGFP Suction PX-2192B Isolation	SHUT
1CS-64A	P-28B SGFP Suction Drain First Off Isolation	SHUT
1CS-64B	P-28B SGFP Suction Drain Second Off Isolation	SHUT
1CS-60B	P-28B SGFP Recirc Line Drain 1ST Off Isolation	SHUT
1CS-60C	P-28B SGFP Recirc Line Drain 2ND Off Isolation	SHUT
1CS-484	P-28B SGFP Discharge PT-2261 Test Connection	SHUT

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 4 of 6)
CONDENSATE LINEUP FOR ALTERNATE CORE COOLING

A7 Line-Up Feed Reg Valves For Select Steam Generator

o 1HX-1A

1CS-149	HX-1A SG CS-466 Regulator Inlet	SHUT
1CS-150	HX-1A SG CS-149 Regulator Inlet Bypass	SHUT
1CS-153A	HX-1A SG CS-480 Regulator Bypass Line Drain	SHUT
1CS-480	HX-1A SG CS-466 FW Regulator Bypass Control	SHUT
1CS-153	HX-1A SG CS-480 Regulator Bypass Inlet	OPEN
1CS-154	HX-1A SG CS-480 Regulator Bypass Outlet	OPEN

OR

o 1HX-1B

1CS-147	HX-1B SG CS-476 Regulator Inlet	SHUT
1CS-148	HX-1B SG CS-147 Regulator Inlet Bypass	SHUT
1CS-144A	HX-1B SG CS-481 Regulator Bypass Line Drain	SHUT
1CS-481	HX-1B SG CS-476 FW Regulator Bypass Control	SHUT
1CS-144	HX-1B SG CS-481 Regulator Bypass Inlet	OPEN
1CS-143	HX-1B SG CS-481 Regulator Bypass Outlet	OPEN

A8 Establish Lube Oil To Selected Main Feed Pump

- 1P-28A
- 1P-28B

A9 Open Main Feed Pump Discharge AND Hold Switch In OPEN Position

- 1CS-2190
- 1CS-2189

A10 WHEN 1P-28A or 1P-28B SGFP Discharge Open. THEN Open Breaker

- 1B52-417M
- 1B52-417J

A11 Fill Hotwell Between 20" and 40" Using SC-1B Condenser Manual Fill

- 1CS-86

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 5 of 6)
CONDENSATE LINEUP FOR ALTERNATE CORE COOLING

CAUTION

PLACING CONTROL SWITCH TO NEUTRAL WILL AUTO START THE CONDENSATE PUMP.

A12 Establish Condensate Flow

a. Check selected condensate pump for proper oil level.

b. Verify service water established to condensate pump motor as indicated at sightglass for SW flow.

c. Station an operator at the discharge valve of the selected condensate pump.

- 1CS-22
- 1CS-17

d. Throttle open selected condensate pump discharge valve approximately three threads.

e. Start the selected condensate pump.

- 1P-25A
- 1P-25B

f. Open the condensate pump discharge valve fully.

- 1CS-22
- 1CS-17

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT A
(Page 6 of 6)
CONDENSATE LINEUP FOR ALTERNATE CORE COOLING

g. Establish condensate flow to selected steam generator.

1) Reset feedwater regulating valve bypass if necessary.

- 1CS-480
- 1CS-481

2) Throttle open feedwater regulating valve bypass to establish flow.

h. Maintain hotwell level.

1) Condenser hotwell low flow makup control valve.

- 1CS-2125

2) Condenser hotwell manual fill valve.

- 1CS-86

a) {North end condenser 8' elevation}

A13 Return To , Step 6

-END-

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT B
(Page 1 of 4)
SERVICE WATER LINEUP FOR ALTERNATE CORE COOLING

B1 Verify SG Pressure Less Than 300 psig

B2 Select Auxiliary Feed Pump For Flow Path

o 1P-29

- Go to Step B3 (1P-29).

OR

o P-38A

- Go to Step B5 (P-38A).

OR

o P-38B

- Go to Step B7 (P-38B).

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT B
(Page 2 of 4)
SERVICE WATER LINEUP FOR ALTERNATE CORE COOLING

B3 Establish Service Water Through 1P-29

a. Shut 1P-29 AFP Suction

- 1AF-26

b. Open 1P-29 AFP Suction From Service Water

- 1AF-4006

c. Select steam generator

- 1HX-1A - 1HX-1B

d. Establish flow to selected steam generator

o 1HX-1A

1) Throttle open 1P-29 AFP Discharge HX-1A SG Inlet Isolation MOV

- 1AF-4001

OR

o 1HX-1B

1) Throttle open 1P-29 AFP Discharge HX-1B SG Inlet Isolation MOV

- 1AF-4000

B4 Return To , Step 6

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT B
(Page 3 of 4)
SERVICE WATER LINEUP FOR ALTERNATE CORE COOLING

B5 Establish Service Water Through P-38A

a. Shut P-38A AFP Suction

- AF-39

b. Open P-38A AFP Suction From Service Water

- AF-4009

c. Open P-38A AFP Discharge Control

- AF-4012

d. Select steam generator

- 1HX-1A - 1HX-1B

e. Establish flow to selected steam generator

o 1HX-1A

1) Throttle open P-38A AFP Discharge To 1HX-1A Steam Generator

- AF-4023

OR

o 1HX-1B

1) Unlock AND Open P-38A/B AFP Discharge Cross-connect

- AF-30

2) Unlock AND open P-38A/B AFP Discharge Cross-connect

- AF-43

3) Throttle open P-38B AFP Discharge To 1HX-1B Steam Generator

- AF-4021

B6 Return To , Step 6

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

ATTACHMENT B
(Page 4 of 4)
SERVICE WATER LINEUP FOR ALTERNATE CORE COOLING

B7 Establish Service Water Through P-38B

a. Shut P-38B AFP Suction

- AF-52

b. Open P-38B AFP Suction From Service Water

- AF-4016

c. Open P-38B AFP Discharge Control

- AF-4019

d. Select steam generator

- 1HX-1A - 1HX-1B

e. Establish flow to selected steam generator

o 1HX-1A

1) Unlock AND open P-38A/B AFP Discharge Cross-connect

- AF-43

2) Unlock AND open P-38A/B AFP Discharge Cross-connect

- AF-30

3) Throttle open P-38A AFP Discharge To 1HX-1A Steam Generator

- AF-4023

OR

o 1HX-1B

1) Throttle open P-38B AFP Discharge To 1HX-1B Steam Generator

- AF-4021

B8 Return To , Step 6

-END-

STATE CHANGE HISTORY

Initiate → by RICHARD FLESSNER

Assign Work 2/5/2002 3:26 02 PM Owner RICK WOOD

Assign → by RICK WOOD

Conduct Work 2/15/2002 10 41:47 AM Owner JAMES MASTERLARK

Work Complete → by JAMES MASTERLARK

Review & Approval 6/4/2002 4·50 46 PM Owner RICK WOOD

Approved → by RICK WOOD

Quality Check 6/5/2002 4.32 12 PM Owner PBNP CAP Admin

Complete and Close → by MARYBETH ARNOLD

Done 6/11/2002 7:10.11 AM Owner (None)

SECTION 1

Activity Request Id:	CA003695		
Activity Type:	Corrective Action	**Submit Date:**	2/5/2002 3:26:02 PM
Site/Unit:	Point Beach - Common		
Activity Requested:	Formally provide Operations and Training with an updated list of high-nsk human error events based on the PRA model.		
CATPR:	N	**Initiator:**	FLESSNER, RICHARD
Initiator Department:	EX Engineering Processes PB	**Responsible Group Code:**	EPP Engineering Programs PRA PB
Responsible Department:	Engineering	**Activity Supervisor:**	RICK WOOD
Activity Performer:	JAMES MASTERLARK		

SECTION 2

Priority:	3	**Due Date:**	6/5/2002
Mode Change Restraint:	(None)	**Management Exception From PI?:**	N
QA/Nuclear Oversight?:	N	**Licensing Review?:**	N
NRC Commitment?:	N	**NRC Commitment Date:**	

SECTION 3

Activity Completed:

1/18/2002 12:52PM - LARRY PETERSON:
Due date extended as requested and approved by F. Cayia in prior update. Retruned to R. flessner for completion

1/18/2002 12:54PM - LARRY PETERSON:
Reassigned to R. Flessner for completion following extension.

2/15/2002 10:41AM - RICK WOOD:
Please draft a memo to Operations and Training with the high risk human error events based on our latest model.

6/4/2002 4:50:46 PM - JAMES MASTERLARK:

NPM 2002-0293 has been submitted (effect date of 6/4/2002) to Operations Training. This memo identified the top 15 risk significant Human Actions necessary to mitigate accidents modeled in the PRA. Risk ranking was provided in both a Fussell-Vesely and Risk Achievement Worth (RAW) formats. This item can be closed.

6/11/2002 7:10:11 AM - MARYBETH ARNOLD:
CLOSED to the actions taken by Engineering as documented above. A copy of NPM 2002-0293 dated 06/04/02 is attached below (since verification did not show the memo yet in EDMS) Memo was addressed to Training and a copy sent to T. Vandenbosch in Operations. CLOSED.

SECTION 4

QA Supervisor:	(None)	**Licensing Supervisor:**	(None)

SECTION 5

Project:	CAP Activities & Actions		
State:	Done	**Active/Inactive:**	Inactive
Owner:	(None)	**AR Type:**	Daughter
Submitter:	RICHARD FLESSNER	**Assigned Date:**	2/15/2002
Last Modified Date:	6/11/2002 7:10:11 AM	**Last Modifier:**	MARYBETH ARNOLD
Last State Change Date:	6/11/2002 7:10:11 AM	**Last State Changer:**	MARYBETH ARNOLD
Close Date:	6/11/2002 7:10:11 AM		
One Line Description:	Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW		
NUTRK ID:	CR 01-3595		
Child Number:	1		
References:	CR 01-2278 RCE 01-069 GOOD CATCH NPM 2002-0293		
Update:			
Import Memo Field:			
CAP Admin:	PBNP CAP Admin	**Site:**	Point Beach
OLD_ACTION_NUM:			
Cartridge and Frame:			

ATTACHMENTS AND PARENT/CHILD LINKS

ACE000314: Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW

CAP001415: Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW

CE000316: PRA information would improve training (tracking)

NPM 2002-0293 doc (72704 bytes)

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INTERNAL CORRESPONDENCE

NPM 2002-0293

To: Randy Amundson

From: James Masterlark

Date: June 4th, 2002

Subject: Risk Ranking of Human Actions from the PBNP PRA

Copy To: Paul Knoespel Rick Wood Paul Smith Terry Vandenbosch

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The purpose of this memo is to transmit a risk ranking of human actions from the latest PRA update (Version 3.03). I am including 2 tables that rank the Human Actions from two perspectives: Fussell-Vesely (F-V) importance and risk achievement worth (RAW). Which of these rankings to use depends on the application.

F-V importance of a human action is the fraction or percent contribution to the total core damage frequency (CDF) attributable to the human action being performed incorrectly. It can also be looked upon as a measure of the maximum reduction in total CDF achievable based on the complete reduction in error probability of a human action, (i.e., error probability approaches 0). Therefore, F-V importance is a good measure to use when deciding which operator actions should have high quality procedures and enhanced (not necessarily more) training. The underlying assumption is that effective training and simplified procedures can reduce the error rate of the human action. Increasing the reliability of a human action with a low F-V importance will not result in a significant reduction in core damage risk. Therefore, it is not generally in the best interest of the plant to develop and implement enhanced training or procedures for a human action with a low F-V importance. Table 1 lists the top 15 human actions in order of highest to lowest F-V importance.

RAW is a measure of the increase in total CDF assuming the human action is never performed correctly (i.e., error probability is 1). This measure is not truly risk informed as it only relates to the consequences of the error without regard for the likelihood of occurrence (in reality it is a hybrid deterministic/probabilistic measure combining an assumed error, and the probabilistic result of the error). For example, a simple action to start a turbine driven pump from the Control Room will have a higher RAW than the pump due to the lower failure probability of the human action even though the consequence of the failures is the same (i.e., the pump doesn't work). This would lead one to believe that the action to start the pump is more important than the pump itself, and more resources should be spent training on the human action when in reality, the weak link is the pump. Human actions with a high error probability but a low RAW will have little or no impact on CDF if the error probability is reduced. Also, a human action with a high RAW but an error probability that is already low (less than about 1E-3) cannot, in most cases, be improved no matter how much the training or procedures are enhanced. However, a high RAW does indicate human actions for which training should not be reduced or procedures made more complicated. Table 2 lists the top 15 human actions in order of highest to lowest RAW.

REC'D JUN 11 2002

To obtain the most useful information from these two ranked lists, both should be examined in combination for specific type of insights they provide. Please contact me or anyone in the PRA Group if you have any questions on how to apply this information. We will be happy to meet with you to discuss it.

Prepared by: 6/4/2002
James Masterlark

Reviewed By: 6/4/02
Paul Knoespel

Table 1: HEPs Sorted by F-V

HEP Identifier	Description	Point Estimate	F-V	RAW
HEP-HHR-EOP13-23	High Head Recirculation	1.25E-2	1.71E-1	14.5
HEP-ODC-EOP-3-21	Failure to depressurize intact Steam Generator after a SGTR	2.00E-2	1.59E-1	8.8
HEP-RHR-EOP13-23	Low Head Recirculation	2.45E-2	1.49E-1	6.9
HEP-RCS-CSPH1-12	Operator Fails to establish Feed and Bleed (no SI signal)	2.36E-2	1.26E-1	6.2
—HEP-CST-LOW-	Failure to recognize need for alternate feed for AFW after draining CST	3.90E-4	1.18E-1	303.7
125-HEP-EOP10-08	Failure to re-establish a battery charger after an undervoltage	4.20E-3	9.83E-2	24.3
REC-OPEN-CV0112	Failure to manually open CV-112B: RWST to charging	1.00E-1	6.25E-2	1.6
HEP-ECA-EOP31-32	Failure to cool down and depressurize	7.70E-3	4.52E-2	6.8
AF—HEP-CST-FW–	Failure to establish Fire Water backup AFW after draining CST	1.1E-2	3.67E-2	4.3
HEP-MS—EOP-3-02	Failure to diagnose a SGTR event	4.75E-3	3.38E-2	8.1
AF—HEP-CST-SW–	Failure to establish Service Water to AFW after draining CST	4.6E-3	3.21E-2	7.9
AF—HEP-MDP-Flow	Failure to manually control flow on MDAFW pumps after a loss of IA and Nitrogen	4.4E-2	2.9E-2	1.6
138-HEP-STARTG05	Failure to manually start and align G05	1.3E-1	2.77E-2	1.2
AF—HEP-CST-SWMD	Failure to establish service water backup to AFW after draining CST	1.5E-2	2.17E-2	2.4
REC-MAN-OPENVLV	Failure to manually open IA supply to containment	1E-1	2.12E-2	1.2
HEP-IA-FO-04748	Failure to re-open 3047 or 3048 valve after maintenance	1E-3	2.06E-2	21.6

e 2: HEPs Sorted by RAW

HEP Identifier	Description	Point Estimate	F-V	RAW
AF—HEP-CST-LOW-	Failure to recognize need for alternate feed for AFW after draining CST	3.90E-4	1.18E-1	303.7
125-HEP-EOP10-08	Failure to re-establish a battery charger after an undervoltage	4.20E-3	9.83E-2	24.3
HEP-RP—AOP9B-63	Operator fails to manually trip with a Component Cooling Water or Service Water transient	1.1E-4	2.06E-3	19.7
HEP-HHR-EOP13-23	High Head Recirculation	1.25E-2	1.71E-1	14.5
HEP-ODC-EOP-3-21	Failure to depressurize intact Steam Generator after a SGTR	2.00E-2	1.59E-1	8.8
HEP-MS—EOP-3-02	Failure to diagnose a SGTR event	4.75E-3	3.38E-2	8.1
HEP-RHR-EOP13-23	Low Head Recirculation	2.45E-2	1.49E-1	6.9
HEP-ECA-EOP31-32	Failure to cool down and depressurize	7.70E-3	4.52E-2	6.8
HEP-RCS-CSPH1-12	Operator Fails to establish Feed and Bleed (no SI signal)	2.36E-2	1.26E-1	6.2
HEP-CCW-EOP13-03	Failure to manually start CCS pump	1.2E-4	5.12E-4	5.3
AF—HEP-CST-FW--	Failure to establish Fire Water backup AFW after draining CST	1.1E-2	3.67E-2	4.3
--HEP-CST-SWMD	Failure to establish service water backup to AFW after draining CST	1.5E-2	2.17E-2	2.4
HEP-ODA-EOP12-05	Failure to cooldown and depressurize after a small LOCA	2.7E-3	3.77E-3	2.4
HEP-IA—FO-START	Failure to manually restart IA or SA	6.9E-4	5.82E04	1.8

STATE CHANGE HISTORY

Initiate → by JULIE KREIL

Assign Work 3/14/2002 11:13:40 AM Owner RICK WOOD

Assign → by RICK WOOD

Conduct Work 3/25/2002 6 30:31 PM Owner RICK WOOD

Work Complete → by RICK WOOD

Review & Approval 3/25/2002 6 32:27 PM Owner RICK WOOD

Approved → by RICK WOOD

Quality Check 3/25/2002 6:34.07 PM Owner PBNP CAP Admin

Complete and Close → by MARYBETH ARNOLD

Done 4/25/2002 3 07.48 PM Owner (None)

SECTION 1

Activity Request Id:	CE000316		
Activity Type:	Condition Evaluation	**Submit Date:**	3/14/2002 11:13 40 AM
Site/Unit:	Point Beach - None		
Activity Requested:	Perform a Condition Evaluation, per CAP002507, in accordance with NP 5.3.1. 30 Day Due Date.		
CATPR:	N	**Initiator:**	HILL, CLAY
Initiator Department:	PO PB Operations PB	**Responsible Group Code:**	EPP Engineering Programs PRA PB
Responsible Department:	Engineering	**Activity Supervisor:**	RICK WOOD
Activity Performer:	RICK WOOD		

SECTION 2

Priority:	4	**Due Date:**	4/15/2002
Mode Change Restraint:	(None)	**Management Exception From PI?:**	N
QA/Nuclear Oversight?:	N	**Licensing Review?:**	N
NRC Commitment?:	N	**NRC Commitment Date:**	

SECTION 3

Condtn Eval:

1. Condition Assessment / Issue Summary - describe the present condition.
2. Potential Solutions - describe solution options.
3. Solution to Implement - identify chosen solution.

Activity Completed: 3/25/2002 6:32PM - RICK WOOD:
This action is already being tracked via CA003695 to formally provide Operations and Training with an updated list of high-risk human error events based on the PRA model. When the update is complete, the Human Error Probabilities will be formally provided to Training. The cause of the PRA update information not being supplied to Training is that the update is not yet complete. When the update is complete, other pertinent information, such as the risk ranking of systems, components, and procedure steps will be formally transferred to Training See also CA003704, which recommends that a formal method of transferring this information be placed in a PRA group procedure. It is expected that the PRA notebooks will be completed this summer and the information to Training to soon follow.

This item should be closed to CA003695 and CA003704. These items will ensure that the reported condition is rectified

4/25/2002 3.07PM - MARYBETH ARNOLD:
Evaluation of this Level D Betterment issue is complete. See CA003695 and CA003704 for further actions relative to this issue. CLOSED.

SECTION 4

QA Supervisor:	(None)	Licensing Supervisor:	(None)

SECTION 5

Project:	Condition Evaluation (CE)		
State:	Done	Active/Inactive:	Inactive
Owner:	(None)	AR Type:	Parent
Submitter:	JULIE KREIL	Assigned Date:	3/25/2002
Last Modified Date:	4/25/2002 3:07:48 PM	Last Modifier:	MARYBETH ARNOLD
Last State Change Date:	4/25/2002 3:07:48 PM	Last State Changer:	MARYBETH ARNOLD
Close Date:	4/25/2002 3:07:48 PM		
One Line Description:	PRA information would improve training (tracking)		
NUTRK ID:			
Child Number:	0		
References:			
Update:			
Import Memo Field:			
CAP Admin:	PBNP CAP Admin	Site:	Point Beach
OLD_ACTION_NUM:			
Cartridge and Frame:			

ATTACHMENTS AND PARENT/CHILD LINKS

Linked From CAP002507

CA003695: Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW

CA003704: Probabilistic Risk Assessment PRA For Auxiliary Feedwater System AFW

STATE CHANGE HISTORY

Initiate	AR Pre-Screen	Submit to Screening Team	AR Screening Que	Complete & Close	Done
by CLAY HILL	3/12/2002 2.00:40 PM Owner (None)	by JAMES SCHLEIF	3/13/2002 1:38 42 AM Owner SCOTT PFAFF	by MARYBETH ARNOLD	4/25/2002 3 08 48 PM Owner (None)

SECTION 1

Activity Request Id:	CAP002507		
Activity Type:	CAP	**Submit Date:**	3/12/2002 2:00:40 PM
One Line Description:	PRA information would improve training (tracking)		
Detailed Description:	3/12/2002 2:00PM - CLAY HILL: Currently, the training department uses 1996 PSA information for training input as to damage timing. An approved updated PSA would provide the operations training department with current data. The draft of the new PSA is being reviewed by training to see what differences there are from the 1996 PSA to the draft. This AR will track the issue. 3/14/2002 10:11AM - MARYBETH ARNOLD: COMMENT from 03/14/02 Managers' Meeting: PRA update is part of the PB Excellence Plan.		
Initiator:	HILL, CLAY	**Initiator Department:**	PO PB Operations PB
Date/Time of Discovery:	3/12/2002 1:52:07 PM	**Date/Time of Occurrence:**	3/12/2002 1:52:07 PM
Identified By:	Site-identified	**System:**	XX PB
Equipment # (1st):	(None)	**Equipment Type (1st):**	(None)
Equipment # (2nd):	(None)	**Equipment Type (2nd) :**	(None)
Equipment # (3rd):	(None)	**Equipment Type (3rd) :**	(None)
Site/Unit:	Point Beach - None		
Why did this occur?:	3/12/2002 2:00PM - CLAY HILL: Tracking issue only.		
Immediate Action Taken:	3/12/2002 2:00PM - CLAY HILL: PSA group aware of the issue. 3/13/2002 1:38AM - JAMES SCHLEIF: Issue identified and documented by this CAP.		
Recommendations:	3/13/2002 1:38AM - JAMES SCHLEIF: Accurate PSA information should be utilized in the basis for plant procedural guidance and in operator training materials. Evaluate whether an update to the current PSA is warranted.		
Notify Me During Eval?:	N	**SRO Review Required?:**	N

SECTION 2

Operability Status:	NA	**Compensatory Actions:**	N
Basis for Operability:	3/13/2002 1:38AM - JAMES SCHLEIF: Administrative issue related to PSA information		
Unplanned TSAC Entry:	N	**External Notification:**	N

SECTION 3

Screened?:	Y	Significance Level:	D
INPO OE Reqd?:	N	Potential MRFF?:	N
QA/Nuclear Oversight?:	N	Licensing Review?:	N
Good Catch/Well Doc'd?:	NA		

SECTION 4

Inappropriate Action:	5/31/2002 8:07:14 AM - KEVIN BENNETT: None: Betterment issue		
Process:	N/A - Not Applicable	Activity:	N/A - Not Applicable
Human Error Type:	N/A - Not Applicable	Human Perf Fail Mode:	N/A - Not Applicable
Equip Failure Mode:	(None)	Process Fail Mode:	N/A - Not Applicable
Org/Mgt Failure Mode:	N/A - Not Applicable	Group Causing Prob:	(None)
Hot Buttons:	Engineering		

SECTION 5

CAP Admin:	SCOTT PFAFF	Prescreener:	(None)
Project:	Corrective Action Process (CAP)		
State:	Done	Active/Inactive:	Inactive
Submitter:	CLAY HILL	Owner:	(None)
AR Type:	Parent	Last Modified Date:	5/31/2002 8:07:14 AM
Last Modifier:	KEVIN BENNETT	Last State Change Date:	4/25/2002 3:08:48 PM
Last State Changer:	MARYBETH ARNOLD	Close Date:	4/25/2002 3:08:48 PM
NUTRK ID:			
# of Children:	0		
References:			
Update:	Level D Betterment issue is CLOSED.		
Prescreen Comments:			
Import Memo Field:			
OPR Completed?:	N		
OLD_ACTION_NUM:			
sub_tsid:	0	original_project_id:	32
original_issue_id:	002507		
Site:	Point Beach		
Cartridge and Frame:			

ATTACHMENTS AND PARENT/CHILD LINKS

Linked To CE000316