NP 7.2.1

PLANT MODIFICATIONS

DOCUMENT TYPE: Administrative

REVISION: 10

EFFECTIVE DATE: June 12, 2002

APPROVAL AUTHORITY: Department Manager

PROCEDURE OWNER (title): N/A

OWNER GROUP: Design Engineering

A/195

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1.0 PURPOSE

NOTE: Since modifications have been initiated at various times and take various amounts of time to process (design, review, approve, etc.), implementation of revisions to this procedure and its associated forms (PBF-1584, PBF-1585, PBF-1605 and PBF-1606) will be phased in as follows:

- **Modifications shall be processed in accordance with the procedure revision and using the forms revisions in effect at the time the modification's design process commenced. Processing in accordance with later revisions of this procedure or its forms is at the discretion of the Design Supervisor.**

1.1 This procedure provides:

1.1.1 The requirements for plant modifications and minor plant changes to systems, structures and components at Point Beach.

1.1.2 The requirements for implementation of plant modifications and minor plant changes.

1.1.3 The requirements for maintaining configuration control for plant modifications.

1.2 Requirements for design control are specified in NP 7.2.2, Design Control.

1.3 The methodology for evaluating and classifying plant changes is provided in NP 7.2.6, Engineering Change Process.

1.4 Additional guidance for use of this procedure is provided in Attachment 1 to this procedure, Commentary.

2.0 DISCUSSION

2.1 **Plant Modification** - A physical change to PBNP systems, structures, and components that have been determined to be a design change, based on the classification criteria of NP 7.2.6.

2.2 **Emergency Plant Modification** – A Plant Modification which requires rapid action in order to (1) respond to significant plant or personnel safety issues or (2) avoid a unit shutdown or outage extension. Emergency approvals may **NOT** be granted if the modification requires a change to the Technical Specifications or the operating license, or includes an unreviewed safety question as defined in 10 CFR 50.59.

2.3 **Modification Coordinator** - The individual assigned to track and monitor Plant Design Changes.

2.4 **Modification Engineer** - Individual assigned overall responsibility for design and implementation of the plant modification.

2.5 **Design Supervisor** - The Design Engineering Supervisor responsible for the plant modification.

2.6 **Modification Package** - A documentation package controlling plant modifications to PBNP systems, structures or components. Modification packages contain or reference all documentation for the plant modification.

2.7 **Controlled Plant Equipment (CPE)** - Structures, systems, and components that are important to safe plant operation, which require more stringent design and project controls for their modification. These include systems, structures, and components that:

- Are safety-related, or
- Whose functions impact the plant safety analysis,
- Whose misoperation or failure could initiate an event or Unit trip, or
- Other structures, systems, and components that are subject to special consideration based upon management discretion (e.g., considerations given to licensing basis, Augmented QA, the Maintenance Rule, personnel safety, availability, commercial risk, etc.).

2.8 **Minor Plant Change** - A design change to PBNP systems, structures and components that have been determined to be a Minor Plant Change based on criteria of NP 7.2.6.

2.9 **Installation Group** - The PB department assigned responsibility for installation of the Plant Design Change.

3.0 RESPONSIBILITIES

3.1 Use of the modification process, and compliance with the requirements specified in this procedure, are the responsibility of the Design Engineering Manager.

3.2 The modification process, as delineated in this procedure, involves an integrated effort for design initiation, creation, implementation, acceptance and closeout that can affect every organization at PBNP. Responsibilities will be determined on a case by case basis for each modification as appropriate.

3.3 The responsibility for determining the involvement required by various groups during the modification process rests with the Modification Engineer for the specific modification, with concurrence of the Design Supervisor.

3.4 Additional information regarding responsibilities are contained throughout this procedure and in Attachment 2 to this procedure.

4.0 PROCEDURE

NOTE: If any changes to the project scope or priority are made, the requester should be notified.

For expedited plant modifications (e.g., emergent work identified during outage) some project controls (scheduling, work breakdown structure) may NOT be warranted.

4.1 Plant Modification Authorization

Plant modifications are authorized in accordance with NP 7.1.6 to ensure that the modification is necessary and that the best technical options are utilized. Budgetary Authorization is required via the appropriate budgetary review process to design and install the modification. Minor plant changes may be authorized by the Design Engineering Manager or the System Engineering Manager if funding is available in authorized budgets. (Reference NP 12 2.1)

4.2 Emergency Modification Authorization and Initiation

An Emergency Modification can be authorized to begin installation prior to issuing a complete design package provided the following minimum requirements have been completed:

4.2.1 Advanced approval to begin the installation as an Emergency Modification has been given by an Engineering Manager.

4.2.2 A Design Supervisor has initiated the modification via PBF-1605a with specific identification that the modification is an Emergency Modification (noting the Engineering Manager providing approval).

4.2.3 The specific work being authorized, along with any prerequisites and limitations or operating restrictions for the work being authorized (e.g., "Modification X can be installed as long as the system is Out-of-service, and reactor power is restricted to less than 10%. Proceeding above 10% power or placing the system back in service requires completion of the modification through acceptance.") shall be specified on PBF- 1605 by the Design Supervisor in the comments section.

4.2.4 A 10 CFR 50.59/72.48 Safety Evaluation or screening shall be approved for the scope of work authorized prior to any out of service being lifted to perform tests and design change acceptance.

4.2.5 The appropriate measures shall be identified to ensure operability of adjacent equipment is not affected. It is acceptable to impact other systems provided those impacts have been evaluated in an approved 10 CFR 50.59/72.48 evaluation. Of particular concern are structural or seismic components that perform functions for other systems which are required to be in service. These components must not be modified prior to completion of a 10 CFR 50.59/72.48 evaluation. (e.g., floors, walls, common supports, etc.)

4.2.6 The Design Supervisor shall indicate release for installation of the emergency modification by signing the "Release for Installation" section of PBF-1605. Annotation of any additional restrictions can be inserted in the Comments section.

4.3 Initiation

4.3.1 Plant modifications or minor plant changes are initiated by Engineering.

4.3.2 Complete the Initiation Section of Form PBF-1605a, Plant Change Initiation. Attach EWR or other basis document which summarizes the scope of the design change and provides the authorization.

4.3.3 Provide information to the Modification Coordinator for record creation in the Plant Modification Index, including unique plant modification number, brief modification or minor plant change description, and any other pertinent information.

4.3.4 Sign and date the change determination section of Form PBF-1605a.

4.3.5 Forward Form PBF-1605a and other documentation to the Design Supervisor for determination of applicable design controls and project controls.

4.4 The Design Supervisor shall perform the following:

4.4.1 Ensure the safety and QA classification and other information specified on the Plant Modification (Form PBF-1605a) is appropriate for the design change.

Sign and date the change determination section of Form PBF-1605a.

NOTE: The purpose of Paragraph 4.4.2 is to maintain a consistent format and approach for plant modifications at PBNP. This step requires considerable judgment on the part of the Design Supervisor. It is important that the guidance in Attachment 1 of this procedure be used carefully. Formal QA controls shall be specified for all plant modifications where an impact on quality or nuclear safety may be involved.

NOTE: The Engineering Advisory Committee (EAC) should be consulted for resolution of conflicts or questions relating to the Plant Modification urgency, scope, or project/design controls. The EAC represents Engineering and a cross section of production groups and acts as an advisor to the Design Supervisor in this capacity.

4.4.2 Using the guidance in Attachment 1 of this procedure, document applicable design controls, project controls and design documents that will be required for the plant modification or minor plant change on Form PBF-1605. For all plant modifications or minor plant changes, the following documentation is required:

- Plant Change Initiation (Form PBF-1605a)
- Plant Modification (Form PBF-1605)
- Design Documentation (Form PBF-1585, or equivalent)
- Documentation Update Checklist (Form PBF-1606)

4.4.3 Using the guidance of Attachment 1 of this procedure, determine if a conceptual design is required for the modification. Conceptual designs are not required for minor plant changes. Conceptual designs are important in that they ensure buy-in from the appropriate plant groups on optimization of the plant modification prior to performing detailed design to preclude engineering rework.

4.4.4 Sign and date the Design Supervisor section of Form PBF-1605.

4.4.5 Assign Modification Engineer for the modification, and forward Form PBF-1605 and other documents to the assigned Modification Engineer.

4.5 The Modification Engineer shall perform the following:

4.5.1 Provide input to the Modification Coordinator to update the Plant Modification Index as appropriate during the design, implementation, and closeout of the modification or minor plant change.

4.5.2 The EWR or other applicable NUTRK (t-Track) entries shall be updated with the plant modification number.

4.5.3 Define the Conceptual Scope. Initially, this definition needs only as much detail as necessary to estimate resources and establish the Modification Team.

4.5.4 Estimate resources for the modification. As a minimum, this should include estimates of the engineering time required, equipment and materials, installation costs and impact on other support groups such as training, rad protection, and operations. To the extent practical, engineering time should be estimated by discipline. A project number (WBS Number) should be specified.

4.5.5 Establish a Modification Team by contacting the group head of each applicable group and requesting an individual to be assigned to the Modification team. When the Project Team members are identified, an initial kick-off meeting will be held. Roles and responsibilities of each team member will be discussed, using Attachment 2 of this procedure as a guide. The team membership and responsibilities of each team member will be documented and kept updated. See Attachment 2, Modification Team Responsibilities, for additional guidance.

a. The minimum members of the Modification Team are as follows:

- Radiation Protection (if RCA or potentially contaminated)
- Fire Protection
- Installing Organization

If any of these groups do **NOT** need to be on the Modification Team, that group shall state the reason and sign on the Modification Team Section of Form PBF-1605.

b. Additional team members are determined based on the scope of the modification and its potential impact. When plant equipment is modified or replaced, Operations, Maintenance and System Engineering shall be contacted to determine if participation is warranted. Security shall be contacted for all modifications to determine their participation.

c. In addition, the impact on training should be considered for all plant groups.

d. Obtain Design Supervisor concurrence for Project Team members.

4.5.6 If appropriate, break up the plant modification into design packages. See Attachment 1, Commentary.

4.5.7 Plant Modification or Minor Plant Change Cancellation

If at any time it is determined that the design change is **NOT** economically or technically justifiable, the initiator should be consulted and the plant modification or minor plant change will be canceled by the Modification Engineer as follows:

a. Notify all team members of the cancellation and ensure concurrence.

b. Document the basis for the cancellation. The cancellation, and the basis for the cancellation, shall be documented on the Plant Modification Cancellation, Form PBF-1641.

c. Ensure all approved documents (e.g., calculations) are removed from the plant document control system, so that they do **NOT** become part of the plant design or licensing basis.

d. Obtain cancellation approval using the same method as the original modification or minor plant change authorization. Form PBF-1641 will be signed/dated by the Modification Engineer, then approved by the Design Supervisor and Design Engineering Manager.

e. Forward PBF 1641 and all plant modification or minor plant change documentation and associated documents (calculations, drawings), both approved and in progress, to Nuclear Information Management, who will microfilm the modification or minor plant change package.

f. Provide copy of Form PBF-1641 to the Modification Coordinator for updating of the Plant Modification Index to indicate that the modification or minor plant change has been canceled.

4.6 The Modification Team members shall complete the following:

NOTE: Any changes in the project which affect the expected overall cost, scope, or installation schedule shall be reviewed by the Design Supervisor. Modification Engineer shall assure that such changes are also reviewed by the same bodies that granted original approval per NP 12.2.1.

4.6.1 Develop the project schedule for the plant modification or minor plant change design (design tasks, procurement, design reviews, and modification release) and update as necessary. With project team, develop work breakdown structure with tasks, task inter-relationships, and task assignments.

4.6.2 Identify design inputs to be used for the plant modification or minor plant change. Design inputs shall be considered early in the design to ensure that all appropriate inputs are used throughout the design. Document design inputs in accordance with NP 7.2.2, using Form PBF-1584, Design Input Checklist for all design changes that are QA, Augmented QA, or Safety Related.

4.6.3 Prepare a conceptual design package, if required.

a. The conceptual design should include the primary elements of the design, including as applicable:

- Design inputs, in accordance with NP 7.2.2, using Form PBF-1584 if required.
- Equipment descriptions and layouts that identify the location of all major equipment along with the route of major piping and electrical cables.
- P&ID's, schematics, and electrical one-line diagrams (or mark-ups)
- Identify all long lead time equipment and materials
- System and equipment operation
- Plant modes and restrictions for modification installation and testing
- Alternatives considered, and rationale for selected design
- Analyses required
- Preliminary Installation schedule

b. The Modification Engineer shall document a brief conceptual design description, and sign and date the Plant Modification (Form PBF-1605).

NOTE: It is recommended that identification of necessary document updates (per Step 4.6.5.e) be initiated during the conceptual design phase, with input from the affected groups.

c. Obtain group and Design Supervisor approval of the conceptual design package on Form PBF-1605 prior to proceeding with final design. See Attachment 1, Commentary, for additional guidance.

4.6.4 During the design process, the following tasks will be performed as required. These tasks can be performed in any sequence.

a. Identify the installation group, support groups, and sequence. This should include identification of resource requirements and a commitment of resources.

b. Update the modification or minor plant change schedule and notify Production Planning and any affected groups of schedule changes.

c. Perform all necessary interfacing with the Production Planning Group and the Outage Planning Committee to assure the project is appropriately planned. (Reference NP 10 2.1, NP 10 2.2, and NP 10 2 3)

d. Determine the organizational responsibilities for contracted designs. This shall include the methodology for written design information transmittals, applicable QA programs, and overall review requirements. Document on PBF-1585, or equivalent. (Reference NP 7.2 6)

4.6.5 Develop final design in accordance with NP 7.2.2 and the design controls specified on Form PBF-1605.

a. Design Input Checklist, Form PBF-1584, (if required)

The Design Input Checklist shall be prepared as follows:

1. Each of the items listed in the Design Input Checklist shall be checked as "YES" (design input is applicable) or "NO" (design input is **NOT** applicable.

2. Any item is checked "YES" it shall be addressed as an attachment to the form or within the modification package (Design Documentation, Form PBF-1585, or equivalent). Some items in the Design Input Checklist have specific instructions or additional documentation to be provided if checked "YES."

3. When completed, the Design Input Checklist shall be signed and dated by the preparer.

b. Procurement of Material

1. The technical and quality requirements for equipment and material required shall be included or referenced in the modification or minor plant change package for procurement.

2.An y required specifications shall support the modification installation schedule, including time required for bid evaluations and fabrication lead times.

3.An y required stand-alone procurement specifications are developed in accordance with NP 9.2.1. Specifications prepared in accordance with NP 9.2.1 will **NOT** be included in the modification package, but will be referenced.

4.The Pl ant Material Management System database should be reviewed for stocked material that should be used if possible.

5.Specifica tions may be provided within the modification package (design documentation) or other referenced documents in the modification package (e.g., Bill of Material). Examples of these specifications include piping (A106, Grade B, Schedule 40, safety-related), structural steel (A36, Grade B, L2x2x1/4, safety-related).

6.The modifi cation package shall document any justifications for use of alternate parts or materials. NP 9.3.2 and 9.3.4 provide guidance on these evaluations.

c. Calculations/Analyses

1.Calcul ations are prepared in accordance with NP 7.2.4.

2.Calculati ons provide the bases and requirements for the design change.

3.Calculations will **NOT** be included in the modification package, but will be referenced, and the calculation results will be translated to design requirements in the modification package.

d. Drawings

1.DCN' s are prepared and controlled in accordance with NP 1.4.3.

2.The D CN's provide installation details for plant design changes.

3.DCN' s will **NOT** be included in the modification package, but will be referenced on PBF-1606.

e. Document Update Checklist, Form PBF-1606

NOTE: It is recommended that identification of necessary document updates (per Step 4.6.5.e) be initiated as early as possible in the design phase, with input from the affected groups.

NOTE: Items identified on the Document Update Checklist may be extended (i.e.; closeout vs. acceptance) based on Design Supervisor concurrence in an emergent situation.

The document update checklist is used to identify all design output documents (calculations, specifications, sketches and drawings) that are to be placed in the plant document files due to the plant modification or minor plant change, as well as documents that must be updated as a result of the modification or minor plant change (procedures, permanent plant drawings).

1.Documents listed on the Do cument Update Checklist shall be classified as "N/A" (**NOT** applicable), "Release" (required to be approved prior to release for installation) ,"Acceptance" (required to be updated prior to acceptance), or "Closeout" (required to be updated prior to closeout of the modification or minor plant change).

2.Eac h document requiring updating shall be listed on the last page of Form PBF-1606, with the completion of the document updates tracked with the following information:

- Section (of Form PBF-1606)
- Document number (e.g., Bechtel drawing M-81) and change number, if applicable (e.g. DCN #, FCR #)
- Whether document update required for release, acceptance, or closeout

3.Document up dates which are **NOT** required at modification release, must be identified on this form.

4.Due to the im portance of timely document updates at acceptance and closeout, draft document updates (e.g., DBD, Component Instruction Manuals) should be prepared during the design phase prior to release for construction to the extent possible.

f. Design Documentation, Form PBF-1585

This form documents the overall design change methodology for the modification or minor plant change, and should provide a summary of the modification, as well as its bases and outputs.

1.The following sections are required for completion of Form PBF-1585:

- Design Purpose (purpose of the plant modification or minor plant change and the solution it is to provide).
- Scope (scope of the modification or minor plant change).
- Design Inputs (input used in the design, and all items checked "YES" on the Design Input Checklist). If all information is included on the Design Input Checklist, the checklist can be referenced on PBF-1585.
- Design Description (description of the plant modification or minor plant change and how it provides the solution described in the purpose).
- Analyses (analyses performed to qualify the design).
- Design Output Documents (documents developed as part of the design change package, such as calculations, specifications, and drawings).
- Installation Requirements (design requirements that must be utilized during installation, such as tolerances and welding/NDE requirements).
- Testing Requirements/Criteria
  Identify all testing required to verify the critical design parameters, and the acceptance criteria for these tests. Testing will typically involve three phases:

  (1) Post Installation Testing - Component level verification of the installation such as continuity checks, leak tests, and rotational verifications.

  (2) Design Change Functional Testing - Those tests required to verify the design features perform as intended, such as valve strokes, alarm verification, and interlock verification.

(3) Integrated Plant Functional Test - Testing which verified that all interfaces with existing plant equipment and systems operate as intended and all critical performance parameters are achieved. This testing may require specific plant operational modes to adequately test all conditions.

Testing phases may be combined depending on the specifics of the design change and the plant conditions.

2. Alternate f ormats can be used rather than Form PBF-1585, provided that the same information is provided.

g. Other engineering and licensing documents shall be completed in accordance with the applicable procedure, and attached or referenced in the plant modification or minor plant change. Examples include:

- 10 CFR 50.59/72.48 screening/safety evaluation for modification
- R/R/M forms (Form PBF-1554) if the modification or minor plant change is to ASME Section XI equipment as applicable. (ref. NP 7.2.5)
- FPER Checklists
- Drawing Change Notices
- FSAR Updates
- DBD markups

4.6.6 Training and PRA group Notification

a. Modification Engineer shall notify Training and PRA group that a modification is in progress and forward draft design documentation to Training and PRA group.

b. Training shall create a TWR and forward number to Modification Engineer and determine if further Training involvement is required.

c. Modification Engineer shall record TWR number on PBF-1605 and sign and date.

NOTE: The independent technical review and final design reviews may be performed in parallel, at the discretion of the Design Supervisor. The preferred sequence is to complete the Independent Technical Review prior to the Final Design Reviews.

4.6.7 Design Independent Technical Review

a. If design verification is required (as specified on Form PBF-1605), perform Part b below. If design verification is **NOT** required, perform Part c below.

b. If the modification or minor plant change package requires design verification, complete the Design Verification Notice (Form PBF-1583). This is an ANSI N45.2.11 design verification and shall be performed in accordance with NP 7.2.2.

1.The De sign Supervisor shall select the independent verifier.

2.The desi gn verification shall include an independent review of all modification or minor plant change package documents. Approved input documents (calculations) do **NOT** require separate verification, but shall as a minimum ensure that the calculations are approved, and the results of the calculations are correctly incorporated in the final design.

3.As part of the d esign verification, the verifier shall review the Design Input Checklist. This review shall consist of concurrence with items that are **NOT** applicable, along with concurrence on the documentation prepared for the items checked "YES." When this review is completed, the verifier shall sign and date the Design Input Checklist.

4.The Document Up date Checklist shall be reviewed by the verifier as part of the design verification. This review shall consist of concurrence with the document updates listed and whether they are required for acceptance or closeout.

5.F ollowing design verification and resolution of all comments to the satisfaction of the preparer and verifier, the preparer and verifier shall sign and date Form PBF-1583.

c. For plant modifications or minor plant changes **NOT** requiring ANSI N45.2.11 design verification, an independent technical review is still required. This technical review will use the same methodology as the design verification described in Part b above, but completion of Form PBF-1583 and signing the Design Input Checklist (PBF-1584) is **NOT** required.

4.6.8 Final Design Reviews

Final design reviews shall be performed as follows:

(a) The Modification Engineer shall identify the final design review groups on Form PBF-1605, Plant Design Change Checklist. At a minimum, groups with team members shall have a final design review.

(b) Review groups shall review the modification package or minor plant change (additional guidance for content of the reviews is contained in Attachment 2) for any discrepancies and proper interfaces within their area of responsibility.

(c) The reviewers are responsible for notification of any co-workers within their group who may require knowledge of the design.

(d) The review group is typically reviewing the modification or minor plant change for usability from the perspective of the group.

(e) For the installation group, a constructability walkdown should be performed in conjunction with the review.

(f) Review groups shall review the Document Update Checklist (Form PBF-1606) to verify that all affected group and related procedures are identified and listed.

(g) After review and comments, the reviewers shall route the design package to the Modification Engineer to resolve any comments.

(h) The Modification Engineer or the Project Manager shall coordinate comment resolution with all review groups and the independent technical reviewer and obtain reviewer signatures.

NOTE: Sections 4.7 and 4.8 may be done concurrently.

NOTE: If a license amendment is necessary NRC approval is required prior to clearing any related out of service for testing.

4.7 If a 10 CFR 50.59/72.48 safety evaluation is required, the Modification Engineer shall obtain PBNP Managers Supervisory Staff (MSS) approval of the safety evaluation. The 10 CFR 50.59/72.48 screening or safety evaluation shall be approved prior to plant modification release for installation.

4.8 Installation Documents

Installation Work Plans (IWPs) or WO Work Plans shall be developed to control the installation of the modification. All design engineering and licensing requirements shall be incorporated into these work-directing documents. Minor plant changes should utilize WO Work Plans. No installation documents are necessary for document-only changes.

4.8.1 Installation Work Plans

If an IWP is required, use NP 1.1.4, Use and Adherence of Procedures and Work Plans, Review and Approval, to determine its procedure classification. Then using the guidance of DG-G02, Guideline for the Preparation of Installation Work Plans for PBNP Modifications, and, if applicable, NP 1.1.4, write an Installation Work Plan.

4.8.2 WO Work Plans

If the requirement for an IWP has been waived by the Design Supervisor, a work plan in accordance with NP 8.2.12, Guidance for WO Work Plans, will still be necessary.

4.9 Affected procedures (i.e., IWPs or other procedures, voluntary entry into Technical Specification Action Conditions , etc.) and other documents affecting nuclear safety, shall be approved by MSS prior to implementation.

4.10 Independent Review of Installation Documents

Design Supervisor will have an independent review performed to ensure that all design engineering and licensing requirements are appropriately incorporated into the work-directing documents. This review will be documented by signing the Plant Design Change Checklist (Form PBF-1605). Items to be reviewed include, but are **NOT** limited to:

4.10.1 Work document agreement with final design and 10 CFR 50.59/72.48 screening/safety evaluation.

4.10.2 Appropriate Post Modification Testing, along with acceptance criteria, has been specified.

4.10.3 Materials are consistent with those specified in the design documents and evaluated in the 10 CFR 50.59/72.48 screening/safety evaluation; and special or additional inspection/testing requirements identified in IWP, or WO Work Plan.

4.10.4 Applicable plant conditions including intermediate configurations during installation (safety evaluation may only be valid for specific plant conditions). Adequate detail shall be included to ensure all aspects of the 10 CFR 50.59/72.48 screening/safety evaluation are addressed.

4.10.5 Applicable codes (e.g., B31.1 vs. Section XI, year of codes/standards).

4.10.6 Design Approval / Release for Installation

Following all reviews and independent verification, The Design Supervisor verifies to the extent necessary, that the proposed design is safe and addresses all technical and administrative issues. This review should confirm the quality, accuracy, and constructability of the design, as well as barriers to success. The Design Supervisor also reviews the assembled modification package to verify that all required reviews and approvals have been obtained. The Design Supervisor shall approve the modification or minor plant change design package by signing the Design Verification Form PBF-1583, if applicable.

The Design Supervisors shall release the plant modification or minor plant change for installation. This is an administrative release which verifies that there is an approved design, approved 10 CFR 50.59/72.48 screening/safety evaluation, and approved work document (IWP or WO Work Plan), and that the modification is ready for installation. Once satisfied that this is the case, the Design Supervisor will sign the modification or minor plant change as released for installation on the Plant Design Change Checklist (Form PBF-1605).

4.10.7 Design Changes Following Approval

a. After approval of the plant modification or minor plant change design, changes to the design will be addressed by the ECR process per NP 7.2.3.

b. If additional document updates are identified after design approval, the additional documents shall be added to the Document Update Checklist (Form PBF-1606) by the Modification Engineer, and the appropriate change mechanism initiated for the respective document. ECR's to PBF-1606 are not required.

4.11 Modification Materials

The Modification Engineer shall interface with Nuclear Supply Services to ensure modification material is delivered and QA-released to support the installation schedule.

4.12 Modification Engineer shall perform the following:

4.12.1 After modification package release, a copy of the modification or minor plant change package shall be provided to Nuclear Information Management for filing. This copy does **NOT** need to contain the design documents (ECRs, sketches) that are already controlled by Nuclear Information Management.

4.12.2 The Modification Engineer shall forward any necessary design documents to the installation group.

4.12.3 The Modification Engineer shall forward a copy of the package to appropriate training group representatives.

4.13 Plant Modification Or Minor Plant Change Installation

Documentation of modification or minor plant change installation, testing, and acceptance are contained in the work documents (IWPs and/or WO Work Plans), and are **NOT** duplicated here.

4.13.1 The plant modification or minor plant change shall be installed, tested, and placed in service in accordance with the approved IWP and/or WO Work Plan.

4.13.2 If the modification or minor plant change can **NOT** be installed as designed, design changes shall be processed per NP 7.2.3.

4.13.3 Pre-acceptance

After installation is complete, and prior to post-modification testing, the Modification Engineer shall:

- assure that ID tags are installed on all affected equipment.
- ECRs should be approved at this time.

4.13.4 Post-modification Testing

The package shall be forwarded to the group responsible for post-modification testing. The testing is conducted in accordance with the IWP, WO Work Plan, or applicable special test procedures (PBTP, etc.).

NOTE: Conditional Acceptance may be used to accept portions of the tested system, structure or component.

4.13.5 Modification Acceptance

a. After successful completion of all post-modification testing, the Modification Engineer shall:

- Assure that all required document updates required for acceptance are completed, as indicated on Form PBF-1606.
- Approved Drawing Change Notices (DCN's) shall be posted to the Control Room, Work Control Center, and I&C documents that are required for the plant modification (Priority One). These documents will include as a minimum the P&IDs, Elementaries, Logic Diagrams, and Master Data Book. It will also include the I&C controlled set of reactor protection and engineered safeguards elementaries.
- Assure that all ECRs have been approved.
- Assure that all affected procedures are complete or placed on a hold status.
- If a license amendment or prior NRC approval was previously identified, assure that all applicable license changes have been approved by the NRC and the modification has incorporated the appropriate license requirements.

b. After successful completion of all post-modification testing, the user group will be requested to formally accept the modified system, structure or component for operation. The modified system, structure or component may **NOT** be operated until this acceptance occurs. The acceptance shall be documented in the IWP or WO Work Plan. The Modification Engineer shall sign and date the Acceptance block on PBF 1605 when all acceptance requirements have been met.

4.14 Project Closeout

4.14.1 After modification installation is complete, the installation group forwards the completed IWP or WO Work Plan to the Modification Engineer.

4.14.2 Unused material shall be dispositioned (returned to stock or scrapped).

4.14.3 The Modification Engineer, with the project team, completes all required document updates required for closeout as indicated on the Document Update Checklist (Form PBF-1606). The document updates should be performed in order of priority based on how they impact the operation and maintenance of the plant.

a. When the documents are updated, this will be documented by signing the last page of PBF-1606. Each document will have a separate signature, along with other applicable information (e.g., DCN numbers).

b. The plant modification can **NOT** be closed until all document updates are completed, on hold, or submitted as applicable. Reference to the applicable tracking document shall be documented on PBF-1606.

4.14.4 The Modification Engineer has 90 days to complete all document updates required for plant modification or minor plant change closeout. If all updates cannot be completed in this time, the Modification Engineer shall request an extension from the Design Supervisor in writing. Any subsequent extensions shall be approved by the Design Engineering Manager. A copy of the extension approval shall be filed with the plant modification or minor plant change. The original goes to the Modification Coordinator for Plant Modification Index updating. The Modification Coordinator then returns it to the Modification Engineer for inclusion with the modification package.

4.14.5 After all required updates are complete or submitted as appropriate, the Modification Engineer and the Design Supervisor sign Form PBF-1605, and the plant modification or minor plant change is considered closed at this point. The Modification Engineer then forwards the modification package or minor plant change to PBNP Nuclear Information Management via PBF-0054 for retention.

4.15 Project Filing and Microfilming

Nuclear Information Management shall perform the following:

- File the completed modification or minor plant change package in the plant modification file.
- Microfilm the completed modification package, if appropriate in accordance with NIM requirements.

5.0 REFERENCES

5.1 NP 1.1.4, Use and Adherence of Procedures and Work Plans

5.2 NP 1.3.1, Records Management Program

5.3 NP 1.4.1, Working Drawing/Construction Sketch System

5.4 NP 1.7.7, Safeguards Information

5.5 NP 7.1.1, Requests for Engineering Services

5.6 NP 7.1.6, Engineering Advisory Committee

5.7 NP 7.2.2, Design Control

5.8 NP 7.2.3, Engineering Change Requests

5.9 NP 7.2.4, Calculation Preparation, Review, and Approval

5.10 NP 7.2.5, Repair/Replacement Program

5.11 NP 7.2.6, Engineering Change Process

5.12 NP 7.7.10, Q-List Nuclear Safety Classification for Structures, Systems, and Components.

5.13 NP 8.2.12, Guidance for WO Work Plans

5.14 NP 9.2.1, Specification Preparation, Review, and Approval

5.15 NP 9.3.2, Commercial Grade Dedication of New and Replacement Items

5.16 NP 9.3.4, Procurement Evaluations

5.17 NP 10.2.1, Outage Planning, Scheduling and Management

5.18 NP 10.2.2, Scheduling, Planning and Implementing On-Line Work

5.19 NP 10.2.3, Forced Outage Scheduling

5.20 NP 10.2.4, Work Order Processing

5.21 NP 10.3.1, Authorization of Changes, Tests, and Experiments (10 CFR 50.59 and 72.48 Reviews)

5.22 NP 12.2.1, Project Management Process

5.23 Design and Installation Guideline DG-G02, Guideline for the Preparation of Installation Work Plans for PBNP Modifications

5.24 PBF-1583, Design Verification Notice

5.25 PBF-1584, Design Input Checklist

5.26 PBF-1585, Design Documentation

5.27 PBF-1602, Engineering Work Request Initiation Form

5.28 PBF-1605, Plant Design Change Checklist

5.29 PBF-1605a, Plant Change Initiation Form

5.30 PBF-1606, Document Update Checklist

5.31 PBF-1641, Plant Modification Cancellation

5.32 ANSI N45.2.11-1974, Quality Assurance Requirements for the Design of Nuclear Power Plants

6.0 BASES

B-1 1R 83-20, 1R 83-21

7.0 ATTACHMENTS

7.1 Attachment 1, Commentary

7.2 Attachment 2, Project Team Responsibilities

ATTACHMENT 1
COMMENTARY

The purpose of this Commentary is to provide additional guidance and explanations in the use of NP 7.2.1. This section will also explain clarifications to the requirements of this procedure. The Commentary is set up so that the paragraphs are numbered the same as the paragraphs they pertain to in the procedure section. Since **NOT** all paragraphs will have commentary, the numbering of the Commentary may **NOT** be sequential.

1.0 SCOPE

All plant modifications or minor plant changes should first be evaluated by NP 7.2.6 to determine the proper method for implementing the change. This evaluation will result in specifying the method and procedure to be used. NP 7.2.1 provides the requirements for the design and implementation of changes to plant systems, structures, and components.

2.0 PROCEDURE

2.1 Initiator

Design changes may be initiated in a number of ways, including an EWR, a Work Order, a licensing commitment, or an Action Request. Plant modifications must be authorized by EAC and appropriate budget review committees prior to initiation. Minor Plant Changes usually are initiated as the result of a Work Order. The typical flow would be to have such a request (initiated by Operations or Maintenance) assigned to Engineering. The request would be categorized in accordance with NP 7.2.6, and, if appropriate, processed in accordance with this procedure. Engineering typically initiates the design change per this section of this procedure. The initiator will need to adequately describe the scope of the change and the priority.

ATTACHMENT 1
COMMENTARY

2.2 Design Supervisor

The Design Supervisor scopes out the project and determines appropriate design controls and project controls. The Design Supervisor also assigns a Modification Engineer.

2.2.1 In this section of the Plant Modification (Form PBF-1605), the Design Supervisor determines appropriate design controls and project controls for the plant modification or minor plant change. Full design controls should be used in all cases where the aspect of the design directly affects nuclear safety. This is required by ANSI N45.2.11-1974. Where the direct effect on nuclear safety does NOT exist, judgment is required on the part of the Design Supervisor.

Design Input Checklist (Form PBF-1584) This form is mandatory for all QA, Augmented QA, or Safety Related changes. This form may be utilized for other changes dependent on complexity. This form is a compilation of lessons learned from past events and near-misses at Point Beach and throughout the industry. In all cases, the Modification Engineer shall review the checklist to verify appropriate inputs are considered.

Document Update Checklist (Form PBF-1606) This form is mandatory for all modification, or minor plant change packages and commercial facility changes requiring document updates. The form is a checklist to assure that all document updates have been identified and track their completion.

Design Verification Notice (Form PBF-1583) This form satisfies the PBNP commitment to perform an ANSI N45.2.11 design verification for all design changes that affect nuclear safety. The requirement for determining if completion of this form is required is primarily based on whether the design change affects nuclear safety. Beyond that, the Design Supervisor must consider the sensitivity of the project to plant operations and likelihood that an error could indirectly impact nuclear safety. For example, a modification or minor plant change of the turbine controls would NOT affect nuclear safety in its strictest definition, but judgment would probably dictate that such a sensitive change warrants additional level of review due to its very large impact on plant operations and its indirect effect on nuclear safety. Note that if this item is NOT required, an independent technical review is still required, although it would NOT be a full ANSI N45.2.11 level design verification.

Drawing Change Notice (DCN's) Are prepared for all drawings that will be posted by the modification or minor plant change. (See NP 1.4.3) The DCN's will be prepared, reviewed and approved prior to modification or minor plant change release for installation. The DCN's will be entered into the system as "Design Change in Progress", and will be posted against the drawings in the Controlled Satellite Files. Changes to the DCN's will be controlled via ECR's.

Sketches may be utilized for construction details which WILL NOT be incorporated in the permanent plant drawing system. (Ref. NP 1.4.1)

ATTACHMENT 1
COMMENTARY

Engineering Change Requests (ECRs) Engineering Change Requests provide the controlled process for initiation, preliminary resolution, and final resolution of changes to an approved design. If an ANSI N45.2.11 design is performed, ECRs are required because that is the method by which an approved design can be revised. If "Design Change In Progress" DCN's are utilized for any modification or minor plant change, ECRs are used as the method to revise those DCN's.

Calculations When numerical manipulations are necessary to document the basis for a design, a calculation will generally be required. When the numerical manipulation is performed as a basis to conclude that a proposed design is safe where it affects QA-scope systems, structures or components it shall be done with a formal QA calculation. However, where the numerical manipulation does **NOT** affect nuclear safety, judgment by the Design Supervisor is necessary, and application of the calculation procedure may **NOT** be required. In these cases, the manipulation will still be documented in the design documentation for the plant modification or minor plant change.

Specifications Specifications provide the technical and quality requirements for engineered equipment and materials. The Design Supervisor shall determine whether specifications are required. If it is determined that specifications are **NOT** required, the Modification Engineer may choose to issue specifications anyway, based on individual need or preference. Generally, if the item or services being procured affects nuclear safety, a formal specification will be used.

Design Documentation Design documentation is required for all plant modifications or minor plant changes, and provides a consistent method of documenting design activities in accordance with NP 7.2.2, Design Control. The design documentation encompasses the documentation of the entire design process, from selection of design inputs to final installation, testing and acceptance. It should be used in all cases, unless the Design Supervisor permits use of an equivalent method/form. In this case, the reason shall be noted on the Plant Design Change Checklist (Form PBF-1605).

ATTACHMENT 1
COMMENTARY

Modification Team A team is used to varying degrees on virtually all plant modifications. In this particular step, the Design Supervisor is making a decision as to whether the particular package requires the establishment of a formal project team. Generally, a formal project team should be used for all plant modifications. The Design Supervisor should consider how many groups are impacted, the complexity of the installation, and the overall risk to the plant. The Modification Engineer / Design Supervisor and project team members should work to optimize the level of participation needed by each group. The following groups will normally be considered:

- Operations or another user group
- Maintenance group (MTN, I&C, etc.)
- Site Engineering (Systems/Programs)
- Installation group (MTN, I&C, CE)
- RP (participation required for modifications in a radiologically controlled area)
- Training
- Site QA
- NSA group, if nuclear safety impacts exist
- Any other affected group, such as ISI if the project will likely impact ASME Section XI boundaries.
- Plant security group for security modifications or plant modifications which may impact security

Fire Protection/Appendix R Review This review is required for all modifications. This review is to ensure the proposed plant modification is within the current Appendix R program, and that all fire protection/Appendix R commitments are evaluated and documented. (B-1)

Impact Project Number The Design Supervisor shall indicate the budgetary project that will fund the plant modification, including installation and materials. The Design Supervisor will typically specify one of the small modification accounts, unless it is expected to surpass $50,000 in which case a separate budgetary project will be assigned. The Design Supervisor will consider the overall impact of the cost of this project on the integrated plant modification schedule when choosing the project to use for funding.

ATTACHMENT 1
COMMENTARY

Detailed Project Schedule A modification schedule is typically required for all modifications, but the level of detail depends on the scope and complexity of the modification. The Design Supervisor considers the complexity of the project, the consequences of **NOT** meeting the expected deliverable of the project, and the relative experience of the Modification Engineer in determining the schedule level required. If the combination of these aspects of project risk appear significant, the Design Supervisor should require a detailed project schedule. In these cases, the Design Supervisor should specify project segments or milestones to be included in the schedule.

IWP Required An Installation Work Plan (IWP) is generally used for plant modification packages due to their unique nature. The purpose of an IWP is to provide a solid level of overall coordination of the installation of the plant modification. A WO Work Plan is typically used for Minor Plant Changes. The Design Supervisor shall determine whether an IWP is required. In doing so, the risks discussed above shall be considered. If an IWP is waived, a WO Work Plan will still be required.

2.2.2 **Conceptual Design Package** The purpose of the conceptual design package is to assure that the user groups have agreed to the concept of the modification prior to performing detailed design. The danger in skipping this step is that the user groups may **NOT** see a modification package until it is ready for issuance. Even when a project team is assembled, there is still considerable risk of engineering rework if the concept of the project is **NOT** debated until after the details have been performed. The Design Supervisor decision on whether to require a conceptual design package should be based on applicability of the following:

- Are there multiple solutions to the problem?
- Does the modification involve significant design or analysis?
- Does the modification involve multiple engineering disciplines?
- Is the installation in restricted or congested areas?
- Are multiple construction techniques applicable?
- Is maintenance/operation-intensive equipment being added?
- Has the same modification been implemented at the other unit?

2.2.3 Plant modifications may be broken up into multiple design packages (*A, *B, *C, etc.). Design packages shall be treated and documented as stand-alone projects. Each design package shall contain all appropriate design controls, inputs and outputs, references, etc. Typical reasons for breaking up a plant modification to design packages might be to separate support aspects or to accommodate installing the project in strategic "pieces."

Copies of Page 1 of PBF-1605a of the parent modification may be used for the individual design packages.

ATTACHMENT 1
COMMENTARY

2.2.4 If required on the Plant Design Change Checklist (Form PBF-1605), the Modification Engineer and the assigned project team will prepare a conceptual design package. The conceptual design will be documented on the plant modification form. At a minimum, the conceptual package will summarize the scope of the modification, the proposed design, and the expected cost and schedule. It will include marked-up P&IDs, one-line diagrams, elementary wiring diagrams, logic diagrams, new equipment descriptions, general arrangements, modified equipment layouts, or any other appropriate documents to define the concept and scope of the modification. The conceptual package will then be routed to the group manager of each group participating on the project team, and any other person designated by the Design Supervisor and/or the Modification Engineer. Review group approval of the conceptual design is documenting agreement with the conceptual design and authorizing final design to proceed accordingly. The Modification Engineer will resolve all comments to the mutual satisfaction of the team and the individual providing the comments. Final design shall **NOT** proceed until the conceptual design is agreed to by all applicable groups.

The licensing aspects of the modification must be considered throughout the design process. Modifications that require a Technical Specification change must have NRC review and approval prior to implementation. This must be considered during the design process, along with lead times for NRC submittals and review/approval periods.

For complex modifications, the modification conceptual design and licensing considerations should be presented to MSS for information and concurrence.

2.2.5 These design reviews are for the purpose of ensuring the overall design is acceptable from the operability and maintainability aspect and does **NOT** conflict with operating procedures or criteria committed to the NRC. It does **NOT** constitute a technical review.

Review the final design and recommended document updates (Form PBF-1606). Identify and include any special group needs (training, spare parts, etc.) as comments.

ATTACHMENT 1
COMMENTARY

2.2.6 All design change packages will receive an independent technical review. This review will be documented on the Plant Design Change Checklist (PBF-1605) and the Design Input Checklist (Form PBF-1584), if applicable. If a design verification is also required (based on Design Supervisor design controls specified on Form PBF-1605), the technical reviewer shall also complete a Design Verification Notice (Form PBF-1583) per NP 7.2.2.

In this step, the Design Supervisor is performing the ANSI required design approval for design changes that require it.

- Has the design control process been followed, including all design and administrative controls?
- Is there evidence that a good challenge has been presented to the modification package by qualified reviewers?
- Have all reasonable modes of failure been identified and addressed in the design?
- Has an appropriate level of post-modification testing been specified in the design, as well as the acceptance criteria?

The ANSI N45.2.11 design approval is documented on Form PBF-1583 and is controlled under NP 7.2.2.

2.2.7 In this step, the Design Supervisor is performing the final administrative release of the modification package or minor plant change.

The release for installation is required for all plant modifications or minor plant changes. This release is approval to turn the project over for installation. The Design Supervisor shall consider the following in releasing a plant modification or minor plant change:

- Is the design ready for installation at this time?
- Does the IWP/WO Work Plan adequately address the design, licensing, training and testing requirements?

ATTACHMENT 1
COMMENTARY

2.2.8 If, during installation, changes are determined to be necessary, they shall be processed as follows. The affected work shall stop until approvals for such changes have been received. Documentation shall be updated to reflect the approved changes.

a. Change to any modification or minor plant change where the proposed change is a change in scope, concept, or intent. These changes shall be resubmitted with a new plant modification or minor plant change.

b. Changes to modifications or minor plant changes that do **NOT** change the scope, concept, or intent. These changes shall be approved by use of an Engineering Change Request (ECR). Each ECR shall be listed in the installation section of the IWP and on the Document Update Checklist (Form PBF-1606).

2.2.9 Acceptance of modifications shall be performed as follows:

a. Acceptance of the modification is the responsibility of the user group(s) who will operate or use the modification. Acceptance requirements are found in the IWP/WO Work Plan and Modification Request Checklist (Form PBF-1606).

b. If the modification is **NOT** acceptable, the Modification Engineer and the user group(s) shall come to agreement as to what the particular problem is and how it will be resolved. The Modification Engineer will be responsible to assure that all necessary changes are completed prior to final acceptance.

c. Acceptance shall signify that installation and testing is complete and adequate for operation, required training has been completed, and necessary documentation updates have been completed. Modification acceptance shall be obtained prior to placing the system into service for operation (other than for testing).

d. Some modifications will undergo acceptance in two steps, (1) Conditional acceptance, signifying the modification is installed and ready for testing or partially installed, and (2) Final acceptance, after all post-modification testing is successfully completed and the system is ready to be placed in service.

2.2.10 The plant modification is considered closed out at the point when the document updates are complete, or submitted, as appropriate. Once the Modification Engineer has submitted all of the updates, the plant modification should be updated in the Plant Modification Index as closed.

ATTACHMENT 2
MODIFICATION TEAM RESPONSIBILITIES

SCOPE

The purpose of this attachment is to provide guidance to the individual modification team members as to their respective responsibilities on each modification. These will be the minimum duties expected of each member, and as the design group meets, or as the design process progresses, more duties may be assigned. It is expected that each modification team member will take full responsibility for accomplishing their assigned duties.

GENERIC RESPONSIBILITIES

The following are the generic responsibilities of the design team groups:

Installation Group: (Ref. CE AM-4)

- Installation input on modification, including constructability.
- Review of IWP, design documents, drawings, etc., from an installation point of view.
- Interface with PBNP planners to assure installation time is appropriate.
- Complete appropriate "modification release" paperwork.
- Coordinates with other groups for getting contractor site access, permits, etc.
- Liaison Engineer takes over for Modification Engineer at time of installation. Modification Engineer must be available as needed.
- Modification installation schedule.
- Verification and final check that all necessary installation documents are in the IWP/WO Work Plan.
- Verifies installation is complete using IWP/WO Work Plans and drawings.

Radiation Protection (RP): (RP approval is required for modifications in a radiologically controlled area)

- Evaluate various ways of doing modification for purposes of ALARA in regard to installation sequencing and design selections.
- Evaluate chemicals on the control side with regard to hazardous waste.
- Design input in RP areas, i.e., Drumming area.
- Keep RP group current on the modification so that others can work with the modification team in the event of an absence.
- Managing and sampling of hazardous waste, i.e., asbestos, chemicals, to reduce cost of doing the modification.
- Contamination and waste generation control on the control side to reduce modification cost.
- Assist in giving contractors access to the control side.
- RP procedure updates.

ATTACHMENT 2
MODIFICATION TEAM RESPONSIBILITIES

Maintenance (MTN): (Refer to PBF-7049)

- Determine spares with Modification Engineer.
- Review of IWP, design documents, drawings, etc., from an installation and maintainability point of view.
- Up-front design input and walkdowns.
- New procedures and procedure updates for group (RMPs, ICPs, etc.).
- Assist in component selection.
- Testing of modification.
- Modification installation (including scheduling, supervision, and overall ownership of the installation).
- Updates of technical manuals.
- Obtain permits for field issue.
- Represent the group with input (central point of contact), including commitment of resources via consulting with planners.
- Review/establish maintenance requirements on modified equipment.
- Assure installation package contains appropriate documents (TSAC, PMT, etc.).
- Identify and assist in performing MTN/I&C document updates.

Operations (OPS): (Refer to PBF-7048)

- Addresses operability of the modified system, as well as installation input into modification design, installation and testing. Must canvas appropriate Operations personnel, so that the group's desire associated with the modification are represented, **NOT** just that of a particular crew or individual.
- Provide OPS input to the Modification Engineer.
- Keep OPS crew or appropriate personnel current on the modification so that others can work with the modification team in the event of an absence.
- Make necessary preparations to facilitate the modification installation in the event of an absence.
- Provide IWP input to the Modification Engineer concerning any OPS steps, such as system/plant preparations, contingency actions, tagout boundaries, how to drain the system, system recovery steps, return to service testing, etc.
- Ensure the Control Room staff is briefed as necessary several days prior to the modification installation. This is to ensure the required plant/system preparations, and any contingency actions are understood, and can be met.
- Participate in modification team meetings.
- Carry out any modification-specific OPS group responsibilities that may be assigned by the modification team.
- Identification and performing of OPS procedure updates.
- Control Room drawings: Ensure DCN's are submitted for the new configuration of the system to be posted to the Control Room, Work Control Center, and I&C drawings.
- Input as to CHAMPS descriptions, number, etc.

ATTACHMENT 2
MODIFICATION TEAM RESPONSIBILITIES

Quality Assurance (QA): [B-1]

- Ensure proper scope of the modification.
- Monitor the execution/installation of the modification to ensure that quality requirements are satisfied.
- Provide reviews of modification-related documents to ensure that quality requirements are adequately addressed, and that governing procedures are complied with.

SITE DESIGN ENGINEERING:

- Evaluate change for all modes of equipment operation to verify compatibility.
- System tie-in: Identify on the affected P&IDs where tie-ins are located. OPS is responsible for valve line-ups to isolate affected component.
- Tag outs: Identify the affected piece of equipment, and the date it needs to be tagged out. OPS to prepare tag series and hang the tags. Let OPS know scope of work.
- New equipment purchases: Provide user groups with CHAMPS ID, equipment description, and maintenance manual. User groups are responsible for generation of equipment call-ups, and selection/procurement of spare parts. CHAMPS personnel are responsible for the initiation of the label request forms.
- Seismic verification: Prior to procurement of seismically qualified equipment, provide cable routing and equipment mounting details, along with seismic verification walkdown requests, to the seismic capability engineers.
- Procedures: Assure listed on Document Update Checklist, and pursue with responsible group.
- RWP: Identification of the scope and location of work on the control side. Installation group is responsible for identifying the craft requirements. RP to prepare the RWP.
- Hydrostatic testing: Provide system temperature, pressure, and elevation information. Modification Engineer, with OPS to prepare the test paperwork, identify test rig tie-ins location, and valve line-up.
- Job schedule: Submit WO that describes the work scope, and identify desired installation date. Planner to schedule a preliminary installation window. Planner to notify Modification Engineer as to the date of the window, the names of the craft personnel, and the installation supervisor.
- Determine post-modification testing required, and provide acceptance criteria.
- Verify appropriate solution is selected and design requirements are met.

NUCLEAR SUPPLY SERVICES:

- Facilitate the Procurement of all material as requested.

ATTACHMENT 2
MODIFICATION TEAM RESPONSIBILITIES

TRAINING:

- Assign trainer to modification as appropriate, to interface for training department.
- Coordinate with the Modification Engineer in providing proper modification descriptions to be used for developing training materials.
- Ensure modification is incorporated into training curriculum for continuing and initial training materials as appropriate.
- Ensure modification is entered into NUTRK or appropriate Training group database and assigned a TWR (training work request) or equivalent for any action item within the training group.
- Review installation documents and identify any training hold points/acceptance training required.
- Coordinate with the Modification Engineer to determine simulator impacts or if special parts are needed.
- Determine if vendor training is required.

SYSTEM/COMPONENT ENGINEERING:

- Involved in the selection of equipment/vendors which affect components for which they are responsible.
- System and component engineer to be involved in the review of the Installation Work Plans regarding those sections directly involved with the mechanical field installation.
- Component engineer to be involved in the review of specifications written for acquiring equipment for those items that they are the component engineer.
- System and component engineer to be involved in recommendations, review, and acceptance of the final design.
- Component engineer to be involved in the review and recommendation of what is to be established for future Modification Engineer maintenance, and any specific component maintenance programs.
- Validate that an acceptable solution is presented that meets all system and operational needs.

PROGRAMS ENGINEERING:

- Participate and scope equipment for applicable programs (EQ, Seismic, Q List, NDE, etc)

ATTACHMENT 2
MODIFICATION TEAM RESPONSIBILITIES

PROBABILISTIC RISK ASSESSMENT (PRA) GROUP:

- Determine if the modification affects a Risk-Significant structure, system, or component (SSC) as defined in the Maintenance Rule program or if it affects a SSC included in the PRA model. Also determine if the modification adds a new feature that, if included in the PRA model, could result in a risk reduction.
- Provide input to the design as appropriate to ensure that reliability of the SSC function is not adversely affect.
- Prepare any changes to the PRA model made necessary by the modification.
- Evaluate the risk impact of the installation plan for the modification and provide input for contingency plans, etc., to minimize the risk as appropriate.

Point Beach Nuclear Plant **PLANT DESIGN CHANGE CHECKLIST**	**PLANT MODIFICATION/MINOR PLANT CHANGE NO.:** _____

Title: _____

DESIGN SUPERVISOR

Design Controls and Project Controls: (Ref. NP 7.2.1, Commentary, for completion of this section.)

Check Applicable Design Controls:		Clarifications/Basis:
☐	Design Input Checklist (PBF-1584)	_____
☒	DUC (PBF-1606)	_____
☐	Design Verification Notice (PBF-1583)	_____
☐	Calculations	_____
☒	Design Documentation (PBF-1585), or equivalent	_____
☐	Design Change In Progress DCN's	_____
☐	Engineering Change Requests	_____
☐	Specifications	_____
☐	_____	_____
☐	_____	_____

Check Applicable Project Controls:		Clarifications/Basis:
☐	Modification Team Required (indicate minimum groups to request)	_____
☐	Conceptual Design Package Required	_____
☐	Budget Design Project (Impact) Number	_____
☐	Detailed Project Schedule	_____
☐	IWP Required	_____

Assigned Modification Engineer: _____

Design Supervisor: _____ Date: _____

Point Beach Nuclear Plant **PLANT DESIGN CHANGE CHECKLIST**	**PLANT MODIFICATION/MINOR PLANT CHANGE NO.:** _____

CONCEPTUAL DESCRIPTION/REFERENCE INFORMATION (IF APPLICABLE)

GROUP HEAD CONCEPTUAL DESIGN REVIEW AND ACCEPTANCE [Check here if not required: ☐]

Review conceptual design. Attach comments on NPBU Document Review Comment Sheet (PBF-1622 or equivalent)

Group	Acceptance Signature	Date	Comments
Radiation Protection			☐ None ☐ Attached
Fire Protection			☐ None ☐ Attached
Installing Organization			☐ None ☐ Attached
			☐ None ☐ Attached
			☐ None ☐ Attached
			☐ None ☐ Attached
			☐ None ☐ Attached
Design Supervisor			☐ None ☐ Attached

Point Beach Nuclear Plant **PLANT DESIGN CHANGE CHECKLIST**	**PLANT MODIFICATION/MINOR PLANT CHANGE NO.:** _____

TRAINING AND PRA GROUP NOTIFICATION

Training and PRA group notified of modification. TWR#: _____

Modification Engineer: _____ Date: _____

FINAL DESIGN REVIEWS

Review final design. Attach comments on Document Review Comment Sheet (PBF-1622 or equivalent)

Group	Acceptance Signature	Date	Comments
Radiation Protection			☐ None ☐ Attached
Fire Protection Engineer			☐ None ☐ Attached
Installing Organization			☐ None ☐ Attached
			☐ None ☐ Attached
			☐ None ☐ Attached
			☐ None ☐ Attached
			☐ None ☐ Attached
Tech. Review			☐ None ☐ Attached

INDEPENDENT REVIEW OF INSTALLATION DOCUMENTS (IWP or Work Order Plan) List all IWP's and WO's used for installation

IWP's/WO#(s) _____

All design and licensing requirements have been incorporated in the installation and testing document(s).

Reviewer: _____ Date: _____

RELEASE FOR INSTALLATION

All design controls have been properly implemented and the project has been appropriately reviewed. All necessary documents are approved. This design is released for installation. Comments regarding release of this design are noted below:

Design Supervisor: _____ Date: _____

COMMENTS _____

Point Beach Nuclear Plant **PLANT DESIGN CHANGE CHECKLIST**	**PLANT MODIFICATION/MINOR PLANT CHANGE NO.:** _____

ACCEPTANCE

Plant modification is installed, tested, and all documents required for acceptance are complete.

Modification Engineer: _____ Date: _____

CLOSEOUT

Plant modification is complete, including submittal of all document updates in the Document Update Checklist (PBF-1606). Reference change tracking numbers on PBF-1606 where appropriate (DCN numbers, FCR numbers, etc.).

Modification Engineer: _____ Date: _____

Design Supervisor: _____ Date: _____

NUCLEAR INFORMATION MANAGEMENT

Microfilm the entire modification package.

Point Beach Nuclear Plant **PLANT CHANGE INITIATION**	**PLANT MODIFICATION/MINOR PLANT CHANGE NO.:** _____ **WO#** _____

INITIATION

Title: _____

☐ QA ☐ AQ ☐ Non-QA ☐ SR ☐ Non-SR Unit 1 ☐ Unit 2 ☐ Common ☐

CHAMPS System Code: _____ EWR: _____ CR: _____

Project Objectives: _____

_____

Proposed Scope: _____

_____

_____

Initiated By: _____ Date: _____

CHANGE DETERMINATION

	YES	NO	
Is the change Temporary?	_____	_____	If **YES** go to NP 7.3.1 Temp Mod
Is this a Setpoint Only change?	_____	_____	If **YES** go to NP 7.3.8 Setpoints
Is this an Equivalent change?	_____	_____	If **YES** go to NP 9.3.3 SPEED
Document change only?	_____	_____	If **YES** determine if previously evaluated
Does previous evaluation encompass change?	_____	_____	If **YES** proceed with document changes
Commercial Facility Change?	_____	_____	If **YES**, determine if document updates are required.
For Commercial Facility Change Only: Document Updates?	_____	_____	If **YES** contact design supervisor. If **NO** proceed outside of Engineering process controls. Document below.
Is this small scope?	_____	_____	If **YES** perform Minor Plant Change If **NO**, it is a Plant Modification. Go to EAC for review and approval (NP 7.2.1)

If it is determined that this is not a Plant Change or Modification, document and/or attach justification. Also, attach document update checklist if necessary.

ENGINEERING CHANGE PROCESS TO USE:

_____

_____

_____ _____

Prepared By: Date Engineering Group Lead: Date

Temporary Modification - See NP 7.3.1.

A generally non-recurring physical change to operational plant systems, components, or equipment that exists for a short duration.

Equivalent Change - See NP 9.3.3.

A hardware change that results in the installation of an item, not identical to the original item, that does not result in a change to those bounded technical requirements that 1) ensure performance of design bases functions, or 2) ensure compliance with the plant licensing basis of either the item(s) or applicable interfaces.

Commercial Facility Change - See NP 7.2.6. Must answer NO to the following:

1. Does the change impact licensing basis?
2. Will it impact the Electrical Distribution System?
3. Will the change affect HVAC or air systems within the Plant?
4. Does the change interface with existing fire suppression/detection systems or introduce any new combustibles?
5. Will the change impact Emergency Planning?
6. Have a seismic interaction with Plant Equipment?
7. Will the change benefit from the Design Change Process?

DOCUMENT UPDATE CHECKLIST	Plant Modification/Minor Plant Change No. _____ Work Order No.:_____

DOCUMENTATION UPDATE SHEET AND CLOSEOUT CHECKLIST

N/A	Release	Required For Acceptance (Completion)	Closeout (Submittal)	
				A. TRAINING 1. Copy Submitted to Training (Design Description)
				2. TWR Generated (TWR # _____) Ref. SIMGL C1.1
				3. Simulator Changes Initiated (SDR # _____)
				4. Plant Status Update/Just In Time Training
				B. FINAL DESIGN ORGANIZATION 1. Drawings a. Design Change In Progress DCN's Initiated
				b. Construction sketches Issued
				c. Revised Drawings Issued for Priority 1 and 2 Control Room Drawings - Logics, P&IDs, 499 series elementaries.
				d. Revised Drawings Issued for Work Control Center Drawings - P&IDs
				e. Revised Drawings Issued for I&C Drawings - Reactor Protection and Safeguards Elementaries.
				f. Master Data Book - Control Room, Work Control Center, and Local Panel - PBF-2093
				g. DCN's released for incorporation
				h. Sketches Voided - PBF-1592
				2. Specifications (Conformed at Closeout, ref NP 9.2.1)
				3. Component Instruction Manuals (for issue, revision, deletion) - PBF-1586
				4. Cable and Raceway Data Schedule Revisions - PBF-0091
				5. Environmental Qualification Documentation Updates - Ref. NP 7.7.1
				6. Seismic Qualification Updates NP 7.7.2
				7. Calculations or engineering evaluations added/deleted / revised - PBF-1608
				8. DBD Revisions - PBF-1653
				9. PSA Models and Documentation - PBF-1626
				10. EPIX Update - report Equipment changes/additions to the EPIX Coordinator.

DOCUMENT UPDATE CHECKLIST	Plant Modification/Minor Plant Change No. _____ Work Order No.:_____

DOCUMENTATION UPDATE SHEET AND CLOSEOUT CHECKLIST

N/A	Release	Required For Acceptance (Completion)	Closeout (Submittal)	
				C. LICENSING (Conformed at Acceptance) 1. Technical Specification - change; specify section(s) affected and change request number.
				2. Tech Spec Basis/Technical Requirements Manual
				3. FSAR - change; NP 5.2.6. Report major changes to the containment aluminum inventory list with FSAR update.
				4. FPER - FHAR - SSAR Revisions - NP 5.2.11
				a. Safe Shutdown Analysis Management System Revisions - NP 7.2.9
				5. Offsite Dose Calculation Manual (ODCM)
				6. Radiological Effluent Control Manual (RECM)
				7. Emergency Plan and EPIPs
				8. Notification to Security for Security plan update
				9. Report major changes to radwaste treatment systems with annual FSAR update per RECM 1.6.3
				D. CHAMPS DATABASE 1. Equipment Identification - additions assigned from CHAMPS
				2. Permanent Labeling - labels on new equipment; PBF-9900
				3. Temporary Labeling - labels on new equipment; PBF-2074
				4. Equipment Record - update to CHAMPS coordinator specify change(s); PBF-9922
				5. Spare parts stocking and scrapping inputs into CHAMPS; PBF-9925, PBF-1023
				6. Unused material removed from modification bin.
				E. OPERATIONS 1. Abnormal Operating, Normal Operating, System Operating, and Refueling Procedures - PBF-0026a
				2. Operating Instructions and Checklists - PBF-0026a
				3. Alarm Response and RMS Alarm Setpoint and Response Books - PBF-0026a
				4. Testing - TS, IT, ORT, other - PBF-0026a
				5. EOPs, ECAs, CSPs, SAMG's - PBF-0026a
				6. Periodic Surveillances - PBF-9920
				7. Fire Protection Procedures - PBF-0026a
				8. EOP Setpoints, EOP Instrument Uncertainty Calculations - PBF-8001
				9. Tank Level Book - PBF-0026a

DOCUMENT UPDATE CHECKLIST	Plant Modification/Minor Plant Change No. _____ Work Order No.:_____

DOCUMENTATION UPDATE SHEET AND CLOSEOUT CHECKLIST

N/A	Release	Required For Acceptance (Completion)	Closeout (Submittal)	
				F. MAINTENANCE/I&C 1. Maintenance Procedures/Instructions - PBF-0026a
				2. ICPs - PBF-0026a
				3. Setpoint Document - PBF-8001
				4. Preventative Maintenance - initiate/revise CHAMPS callups; PBF-9921/9920
				5. Ensure station batteries' load profile changes are incorporated into the appropriate discharge test RMPs.
				6. Lubrication Manual (NP 7.3.11)
				G. SECURITY 1. Security Procedures
				H. ENGINEERING/MISC. 1. ISI Program
				2. IST Program
				3. Miscellaneous HX ECT/Cleaning program
				4. Reactor Engineering Instructions - change; specify section(s) affected.
				5. Reactor Engineering Procedures - change; specify section(s) affected.
				6. Software Control - specify system affected and software change request number.
				7. Component maintenance programs.
				8. Governing calculations and models (e.g., SW model, DC loading, EDG loading, piping analysis, structural loading, etc.).
				9. Design Guidelines (ref. NP 7.1.2)
				I. OTHER (CHEM, HP, ETC.) 1. Other (Misc. Procedures, etc.)
				J. ECRs 1. ECR Final Resolution completed and approved by Design Supervisor.
				2. ECR Implementation completed.

Section	Specific Updates Required	Prior to Release	Prior to Acceptance	Prior to Closeout	Change No. (if Applicable) /By/ Date
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Point Beach Nuclear Plant

DESIGN DOCUMENTATION

Title of Document _____

Document Number _____ Rev. _____ Date _____

Design Scope and Purpose:

Design Inputs:

Design Description and Analyses:

Design Output Documents:

Installation Requirements:

Testing Requirements/Acceptance Criteria: