

<b>ACDM</b>	TITLE	NUMBER:
	5AWI 6.1.6, REV. 0 - DESIGN CHANGE REVIEW AND APPROVAL	1997-0018

Prepared By: <u>J. Daley</u>	Effective Date: <u>10-20-97</u>  O.C. Review Date: <u>10-20-97</u>
Reviewed By: <u>JE Halbritter</u>	
Approved By: <u>J. Jensen</u> PLANT MANAGER	

Summary of Changes/Revision

1.0 Section 6.3 - to read as follows:

Insert below heading 6.3 Approval the following note:

<b>NOTE:</b>	The Plant Manager with concurrence of the Operation Committee may allow design change implementation to proceed prior to final implementation approval if the installation activities do NOT affect the safe operation of the plant and appropriate HOLDS are placed on operation.
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2.0 Section 6.3.7 - to read as follows:

Remove "NOTE" which is in the middle of paragraph 6.3.7.

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Prepared By: <u>J. Daley</u>	Effective Date: <u>10-20-97</u>  O.C. Review Date: <u>10-20-97</u>
Reviewed By: <u>J.E. Haldsmith</u>	
Approved By: <u>J. Hansen</u> PLANT MANAGER	

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<b>5AWI</b>	TITLE: <b>DESIGN CHANGE REVIEW AND APPROVAL</b>	NUMBER: <b>5AWI 6.1.6</b>
		REV: <b>0</b>

Prepared By: <u><i>Thomas Valenti</i></u>	Effective Date: <u>10-15-96</u>
Quality Review By: <u><i>KT Albrecht</i></u>	Approved By: <u><i>M. J. ...</i></u> PLANT MANAGER

**1.0 PURPOSE**

The intent of this instruction is to provide PINGP specific guidance for the review and approval of a Design Change Package. This Instruction provides Prairie Island specific requirements and guidance for implementation of N1ACD 2.2, Nuclear Plant Modification.

**2.0 CONTENTS**

Section	Title	Page
6.1	General .....	2
6.2	Specific Reviews .....	3
6.3	Approval .....	4
6.4	Licensing Status/Resolution .....	6
6.5	Required Records .....	7

**List of Figures**

FIGURE 1 - FORM PINGP 1216 PLANT SPECIFIC REVIEW AND APPROVAL FORM .....	8
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**List of Tables**

TABLE 1 - PRAIRIE ISLAND SPECIFIC REVIEWS .....	9
TABLE 2 - SOURCE DOCUMENT INDEX .....	12
TABLE 3 - SIGNIFICANT CHANGES FROM THE PREVIOUS REVISION .....	13

**3.0 APPLICABILITY**

This Instruction **SHALL** apply to all design changes.

**4.0 DEFINITIONS**

<b>NOTE:</b>	Definitions may also be found under PI Documents on the Site Information System.
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**4.1 Part, Design Change**

Used to break a large design change project into manageable smaller parts. A numeric suffix designation is added to the number, i.e., Part 1 for Unit 1 and Part 2 for Unit 2. In the Site Information System Computer, the format is: 96RC01-P2. The same review and approval that was done on the original package is required for the Parts.

<b>5AWI</b>	TITLE:	NUMBER:
	<b>DESIGN CHANGE REVIEW AND APPROVAL</b>	<b>5AWI 6.1.6</b> REV: 0

**4.2 Revision, Design Change**

The act of revising a change to the approved design change scope. A numeric suffix designation is added to the number. In the Site Information System Computer the format is: 96SG01-R1. When the revision changes the scope or intent of the original design change, then the revised package obtains the same reviews as the original package.

**5.0 RESPONSIBILITIES**

- 5.1 General Superintendent Engineering (NGS and Plant)
- 5.2 Plant Sponsor
- 5.3 Project Engineer
- 5.4 Design Engineering Coordinator

**6.0 REQUIREMENTS AND RECOMMENDATIONS**

**6.1 General**

- 6.1.1 This AWI establishes the process for preparation of the design change package for the review and approval process.
- 6.1.2 The Project Engineer assembles and maintains the Design Change Package (DCP). The DCP is updated from time to time as the design change progresses through various stages (approval, implementation, turnover and closeout). 5AWI 6.1.2 lists the various items associated with the DCP which should be completed or updated for each stage.
- 6.1.3 Each DCP or DCP part should stand alone. As such, each **SHALL** contain the following for the reviews and approval cycle:
  - a. PINGP 1210, Design Change Package Index
  - b. PINGP 1212, Design Change Team Members
  - c. PINGP 1213, Design Input Applicability Checklist
  - d. PINGP 1214, Project Description/Safety Assessment



<b>5AWI</b>	TITLE: <b>DESIGN CHANGE REVIEW AND APPROVAL</b>	NUMBER: <b>5AWI 6.1.6</b>
		REV: <b>0</b>

- e. PINGP 1215, Implementation Plan (if not included as part of the project description)
- f. PINGP 1216, Plant Specific Review and Approval Form

- 6.1.4 The review and approval process for parts is identical to that for any other plant design change review package. Each part **SHALL** be accompanied by PINGP 1216, Figure 1.
- 6.1.5 The review and approval process for revisions are identical to that of the revised portion or portions of the original plant design change review package.
- 6.1.6 If at any time after approval by the Gen Supt. Engr., the Project Engineer determines that some previously unreviewed aspect of the design may require safety review, the Project Engineer **SHALL** resubmit the project, along with a safety screen for the unreviewed aspect of the design.

## 6.2 Specific Reviews

- 6.2.1 In any of the following review, if items of inaccuracy, incompleteness, or inadequacy are identified, then the comments are provided to the Project Engineer for resolution and inclusion into the design change package.
- 6.2.2 Specific review of the package are completed by appropriately qualified personnel designated by plant directives, instructions, or procedures or determined necessary by the Gen Supt Engr.
  - a. The above reviews include but not limited to:
    1. Design Control Review
    2. Design Basis Review
    3. PRA Analysis
    4. Fire Protection
    5. Environmental Qualification
    6. HELB Review
    7. ALARA radiation exposure considerations
    8. Section XI (ISI/.IST)
    9. Software Control
    10. Nuclear Analysis
    11. Security Review
    12. Training Review
    13. Other Organizations
    14. Other

<b>5AWI</b>	TITLE:	NUMBER:
	<b>DESIGN CHANGE REVIEW AND APPROVAL</b>	<b>5AWI 6.1.6</b> REV: 0

- b. The Project Engineer provides copies of appropriate plant design change documents to reviewers. (This may be achieved online by using the E-mail system.)
- c. Completion of plant specific reviews are documented in PINGP 1216, Figure 1.
- d. The Gen Supt Engr may assign additional specific reviews.

**6.3 Approval**

**6.3.1** When the specific reviews have been completed and the DCP Part or revision is ready for approval, the Project Engineer and the Plant Sponsor sign PINGP 1216, part B, items 1a and 1b.

These signatures attest that the technical and operational aspects of the plant design change comply with applicable requirements and are adequate, and that the package is ready for approval by the General Supt Engr.

**6.3.2** The Gen Supt Engr reviews the package to determine if it is complete and adequate and also determines if a safety review by Operations Committee is required.

- a. A safety review is required if the design change:
  - 1. Affects directly or indirectly a safety-related function of a Q-listed component, system, or structure.
  - 2. Is inconsistent with a description, table, figure, or analysis contained in the USAR, ISFSI SAR or a pending USAR submittal.
  - 3. Conflicts with the design bases, reduces the safety margin of, or involves a change of the Technical Specifications.
  - 4. Involves a possible unreviewed safety question.
- b. The Gen Supt Engr may require any Design Change package to contain a safety review and be reviewed by the Operations Committee, even if none of the above criteria are met.

**6.3.3** If an Operations Committee review is not required, the Gen Supt Engr approves or disapproves the plant design change described in the review package.



<b>5AWI</b>	TITLE: <b>DESIGN CHANGE REVIEW AND APPROVAL</b>	NUMBER: <b>5AWI 6.1.6</b>
		REV: <b>0</b>

**6.3.4** If an Operations Committee review is required, the Project Engineer submits the package to the Operations Committee and discusses the plant design change at a committee meeting.

**6.3.5** The Operations Committee reviews the package, provides comments, and recommends approval or rejection.

The Project Engineer documents all Committee recommendations and incorporates them into the Design Change Package or resolves them with the OC as appropriate.

**6.3.6** Documentation of Operations Committee review of each package, part or revision, if required, are included in Part B of Form PINGP 1216.

- a. Decisions for revisions are documented as they apply to the entire plant design change review package.
- b. The Operations Committee ensures that the package is correct and complete. If it is not, it is returned to the Project Engineer with recommended changes.
- c. The Operations Committee evaluates the package to determine if an unreviewed safety question is presented.
- d. The Operations Committee evaluates the package to determine if a change to the Tech Specs is involved.
- e. The Operations Committee may request a periodic update of plant design change status. The Committee establishes the updating schedule at the time of initial review and documents this in the OC minutes.

**6.3.7** Gen Supt Engr **SHALL** approve the package on PINGP 1216 prior to any installation that would alter or affect existing systems, structures, or components.

<b>NOTE:</b>	Proceeding with work prior to project approval presents the risk of possible rework or project cancellation at a later date.
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Prefabrication or other work which obviously does not affect existing items (e.g., erecting scaffolding, staging materials, training) may proceed prior to approval.

<b>5AWI</b>	TITLE: <b>DESIGN CHANGE REVIEW AND APPROVAL</b>	NUMBER: <b>5AWI 6.1.6</b>
		REV: <b>0</b>

6.3.8 After the Operation Committee and/or licensing reviews are addressed, the Gen Supt Engr approves the package on PINGP 1216 and the form is routed to the Design Engineering Coordinator for logging of the design change status.

#### 6.4 Licensing Status/Resolution

6.4.1 If a plant design change involves a change in a Tech Specs or an unreviewed safety question, it is not implemented until authorized by the NRC except under the following:

- a. Items for which NRC authorization is expected may be installed during outages prior to receipt of authorization, provided appropriate holds are placed on operation or reliance upon the affected system, structure or component.
- b. Items for which existing Tech Specs wording allows changes to be made with later submittal of Tech Specs changes.

6.4.2 If the Operations Committee has determined that the design change requires NRC authorization, a submittal, including a safety evaluation, is prepared for the NRC in accordance with the 10CFR50.59(c)/10CFR72.48.

6.4.3 Operations Committee and Safety Audit Committee (SAC) reviews are obtained prior to submittal to the NRC. This is documented in Part B of PINGP 1216.

- a. To implement this process, the Project Engineer contacts the Licensing & Management Issues Department (Site Licensing) as described in **Generations Policy 6.4** and requests that NRC approval be obtained.
- b. Site Licensing will provide the Project Engineer with a tracking number for licensing issues. The Project Engineer **SHALL** log this number in the Design Change record log, PINGP 1217.
- c. The Project Engineer assists Site Licensing, as necessary, in preparation of the submittal.
- d. The Project Engineer attends the Operations Committee meetings as required to facilitate the review.



<b>5AWI</b>	<b>TITLE:</b> <b>DESIGN CHANGE REVIEW AND APPROVAL</b>	<b>NUMBER:</b> <b>5AWI 6.1.6</b>
		<b>REV: 0</b>

- e. If a plant design change is found to constitute a change to a NRC submittal:
  - 1. The plant design change is reviewed by the Safety Audit Committee. The purpose of this review is to verify that the change does not constitute an unreviewed safety question. SAC review may be a prerequisite for operation of the plant design change.
  - 2. Following implementation, the plant design change is reported to the NRC in accordance with 10CFR50.59(b)/10CFR72.48 by Site Licensing.

**6.5 Required Records**

The following Records Management System Records **SHALL** be collected, stored and maintained per the requirements of 5AWI 3.4.0 for the period indicated:

- 6.5.1** Plant Specific Review & Approval Form                      Life of Plant
- 6.5.2** Specific Review Reports    Life of Plant

5AWI	TITLE: <b>DESIGN CHANGE REVIEW AND APPROVAL</b>	NUMBER: <b>5AWI 6.1.6</b>
		REV: <b>0</b>

**FIGURE 1 - FORM PINGP 1216 PLANT SPECIFIC REVIEW AND APPROVAL FORM**

**EXAMPLE ONLY  
USE CURRENT REVISION**

PINGP 1216, Rev. 0  
Document Type: 8.160  
Retention: Life of Plant

Design Change # \_\_\_\_\_

Part \_\_\_\_\_ of \_\_\_\_\_ Rev. \_\_\_\_\_

Title: \_\_\_\_\_ Unit \_\_\_\_\_

**PLANT SPECIFIC REVIEW & APPROVAL FORM  
WITH ROUTING  
5AWI 6.1.6**

**PART A PLANT SPECIFIC REVIEWS**

*Reviewers Return to Project Engineer:* \_\_\_\_\_ *By:* \_\_\_\_\_

↪ ROUTE TO THE FOLLOWING ASSIGNEES:

Check if Req'd	Assigned to:	Signature / Date	Report Attach?	# of pages
<input checked="" type="checkbox"/>	1. Design Control Review	NGS Dept. _____ / _____	Y / N	_____
<input checked="" type="checkbox"/>	2. Design Basis Review	NGS Dept. _____ / _____	Y / N	_____
<input checked="" type="checkbox"/>	3. PRA Review	PRA Group _____ / _____	Y / N	_____
<input checked="" type="checkbox"/>	4. Fire Protection Review	F.P. Engr. _____ / _____	Y / N	_____
<input checked="" type="checkbox"/>	5. Environment (Seismic/EQ)	EQ Engr. _____ / _____	Y / N	_____
<input type="checkbox"/>	6. HELB Review	EQ Engr. _____ / _____	Y / N	_____
<input type="checkbox"/>	7. ALARA Review	Rad Prot. _____ / _____	Y / N	_____
<input type="checkbox"/>	8. Section XI (ISI/IST)	Sect XI Engr. _____ / _____	Y / N	_____
<input type="checkbox"/>	9. Software Control	Mngr PI IT _____ / _____	Y / N	_____
<input type="checkbox"/>	10. NAD Fuel Resources	NAD _____ / _____	Y / N	_____
<input type="checkbox"/>	11. Security Review	S. Engr. _____ / _____	Y / N	_____
<input type="checkbox"/>	12. Other Organization	PINGP 1212 _____ / _____	Y / N	_____
<input type="checkbox"/>	13. _____	_____ / _____	Y / N	_____
<input type="checkbox"/>	14. _____	_____ / _____	Y / N	_____

**PART B APPROVAL**

1. Engineering approval to Implement Design Change
  - a. Project Engineer \_\_\_\_\_ Date \_\_\_\_\_
  - b. Plant Sponsor \_\_\_\_\_ Date \_\_\_\_\_
2. Management approval to Implement Design Change:
  - a. Safety Review Required? (If yes, Operations Committee will address "b" below)  YES  NO
  - b. Operations Committee Review: Date \_\_\_\_\_ Meeting # \_\_\_\_\_
    - 1) License Amendment or Unreviewed Safety Question (ref. 10CFR 50.59 and 72.48)?  YES  NO
    - 2) USAR or ISFSI SAR Change? (If yes, SAC review is required)  YES  NO
    - 3) SAC Review Required by Operations Committee? (If Yes, complete "c.1" below)  YES  NO
  - c. SAC and regulatory review dates
    - 1) SAC review completed: Date \_\_\_\_\_
    - 2) Amendment request transmitted: Date \_\_\_\_\_
    - 3) Authorization letter received: Date \_\_\_\_\_
  - d. General Superintendent Engineering \_\_\_\_\_ Date \_\_\_\_\_
3. Route to Design Engineering Coordinator \_\_\_\_\_ Date \_\_\_\_\_



<b>5AWI</b>	TITLE: <b>DESIGN CHANGE REVIEW AND APPROVAL</b>	NUMBER: <b>5AWI 6.1.6</b>
		REV: <b>0</b>

**TABLE 1 – PRAIRIE ISLAND SPECIFIC REVIEWS**

1. **Design Control Review** – Reference Engineering Section Work Instructions SWI ENG-16 “Design Basis & Design Control Review.” This review addresses design issues relative to the five engineering disciplines listed below:
  - a. Electrical Design
  - b. Mechanical Design
  - c. Instrumentation, Control and Setpoint Design
  - d. Civil/Structural Design
  - e. Nuclear Design
2. **Design Basis Documents (DBD)** – Reference Engineering Section Work Instructions SWI ENG-5 “Revising Design Basis Documents;” SWI ENG-16 “Design Basis & Design Control Review.”
3. **Probable Risk Assessment (PRA)** – Management and Licensing Issues. The Project Engineer **SHALL** contact the PRA group of all design changes to determine if the proposed design change affects the existing Prairie Island PRA. Reference Figure 1 in 5AWI 6.1.1, “Design Inputs.”
4. **Fire Protection Review** – Required if the design change could present a hazard not considered in the fire hazard analysis, the change could interfere with installed fire protection equipment. The change would modify existing fire protection equipment or the fire protection system could require a new design change because of the change. The review is conducted by the Project Engineer and approved by the Fire Protection Engineer using PINGP 1196. See 5AWI 3.13.1 (Fire Protection Review). Reference Engineering Manual Sections 2.28, “Fire Protection” and 3.2.3.1, “Fire Protection” (currently Operations Manual D52).
5. **Environmental Qualification Review** – If a plant design change affects components included in the Equipment Masterlist requiring environmental qualification, it receives an environmental qualification review. Reference Engineering Manual Sections 2.4.1, “Environmental Equipment Qualifications” and 3.4.1, “Environmental Qualifications (currently in Operations Manual H8);” and Administrative Work Instruction 5AWI 3.22.0, “Environmental Qualification” and 5AWI 3.22.1, “Potential Deficiencies in Environmental Qualification of Equipment.”
6. **HELB Review** – Reference Engineering Manual section 2.2.9, “High Energy Line Breaks.”

<b>5AWI</b>	TITLE: <b>DESIGN CHANGE REVIEW AND APPROVAL</b>	NUMBER: <b>5AWI 6.1.6</b>
		REV: <b>0</b>

**TABLE 1 - PRAIRIE ISLAND SPECIFIC REVIEWS [CONTINUED]**

7. **ALARA Review** – Required for plant design changes which involve work in the radiological controlled area or have potential for affecting personnel radiation exposure. The generation of radwaste associated with the plant design change is also reviewed. The review is conducted by the Project Engineer and approved by the ALARA coordinator. Reference Engineering Manual Sections 2.4.5, "ALARA" and 3.4.5, "ALARA".
8. **SECTION XI (ISI/IST) Review** – Reference Engineering Manual section 2.4.4, "Inservice Inspection/Testing (ISI/IST)."
9. **Software Control Review** – This review is required when the design change is introducing or modifying any digital equipment that relies on software to perform its function. Reference Administrative Work Instruction 5AWI 3.19.3, "Software Quality Assurance Requirements" and Engineering Manual 1.2.6, "Verification and Control of Computer Programs."
10. **Fuel Resources NAD** – Assess the impact of the design change on core reload safety analysis. The Project Engineer **SHALL** contact fuel resources if deemed necessary during the collection of design inputs.
11. **Security Review** – Assess the impact of the design change on Security Safeguards Information; Reference 5AWI 5.2.0, "Safeguards Information."
12. **Other Organizations** – This review may be required when a Design Change is modifying Architecture Engineering firms or vendor's design specifications on components or systems.
13. **Other Reviews** – Any reviews deemed necessary by the Project Engineer, Project Sponsor, or the Gen Supt Engr. The following list identifies some possible reviews:
  - a. **Pressure Vessel/Check Valve Review** – Reviews by the engineer responsible for the Pressure Vessel/Check Valve program is required if any changes are made to this equipment or the way it is used. This review is also required if any new check valves or pressure vessels are being added.



<b>5AWI</b>	TITLE: <b>DESIGN CHANGE REVIEW AND APPROVAL</b>	NUMBER: <b>5AWI 6.1.6</b>
		REV: <b>0</b>

**TABLE 1 – PRAIRIE ISLAND SPECIFIC REVIEWS [CONTINUED]**

- b. **MOV Program Review** – Reference Engineering Manual section 2.2.5, “Valves” and 3.2.2.1, “Valve Design” (currently in Operations Manual sections D70 and H5). The MOV Coordinator should review any design change which affects any MOV functional or performance requirement such as:
  - 1) System Conditions (including maximum DP).
  - 2) Cabling, MCC voltage, thermal overloads.
  - 3) Physical changes to MOV operator or valve.
  - 4) Environmental conditions for valve operator or associated cabling.
  - 5) Seismic loading or other transient loads (Mark I).
- c. **Category I Vent Zone Boundary Review** – Required for design changes that affect Category I Ventilation Systems or is planning to modify or add penetration in Cat I Vent or boundary walls, floors, or ceilings.
- d. **SBO – Stations Blackout (SBO) Review** – Required for plant design changes which affect components in the following SBO safe shutdown systems.
- e. **Human Factors Review** – Required for projects that modify the Control Room or operator man-machine interfaces throughout the plant. Reference Engineering Manual section 2.4.8, “Human Factors Engineering” and 3.4.6, “Human Factors Standards” (currently in Operations Manual H3).
- f. **Performance Engineer Review** – Required for design changes modifying systems or components that may impact the thermal performance of the plant.
- g. **Maintenance Rule Review** – Required for design changes that bring equipment into the Maintenance Rule scope or takes equipment out of the Maintenance Rule scope. Reference 5AWI 3.2.1 and Operations Manual H24.
- h. **Check Valves or Air Operated Valves** – Required for design changes installing or modifying check valves or air operated valves.

<b>5AWI</b>	<b>TITLE:</b> <b>DESIGN CHANGE REVIEW AND APPROVAL</b>	<b>NUMBER:</b> <b>5AWI 6.1.6</b>
		<b>REV: 0</b>

**TABLE 2 - SOURCE DOCUMENT INDEX**

<u>AWI Section</u>	<u>Source</u>	<u>Source Section(s)</u>
All	N1ACD 2.2	6.10.1
All	NGS Design Change Manual	13.0



<b>5AWI</b>	<b>TITLE:</b>	<b>NUMBER:</b>
	<b>DESIGN CHANGE REVIEW AND APPROVAL</b>	<b>5AWI 6.1.6</b>
		<b>REV: 0</b>

**TABLE 3 - SIGNIFICANT CHANGES FROM THE PREVIOUS REVISION**

<u>Section</u>	<u>Change</u>
All	This is a new Instruction. Previously handled per N1AWI 5.1x series of Instructions.