

KEWAUNEE NUCLEAR POWER PLANT
SAFETY SYSTEM DESIGN AND PERFORMANCE CAPABILITY INSPECTION
BASELINE INSPECTION PLAN

Inspection Report # 305/2000012 (DRS)

Inspection to be Conducted from July 10 to 28, 2000

The service water system has been selected for review during the Safety System Design and Performance Capability Inspection (SSDI) scheduled for July 10 through 28, 2000. A list of the documents initially requested to support this inspection are attached to this plan.

Inspection Objectives

This inspection fulfills the baseline inspection program requirements for the biennial review of the design of a selected safety system. The inspection objective is to verify that the design bases have been correctly implemented for risk-significant systems to ensure that the systems can be relied upon to meet their functional requirements.

Inspection Schedule:

Inspection Preparation: June 26 - 30, 2000

First On-site Inspection Week: July 10 - 14, 2000

Entrance Meeting: July 10, 2000 -- 2:00 PM

In-office Week: July 17 - 21, 2000

Second On-site Inspection Week: July 24 - 28, 2000

Final Debriefing: July 28, 2000 -- 10:00 AM

Exit Meeting: Tentatively set for July 28, 2000 -- 10:00 AM
(The exit may be rescheduled for August 9, 2000 if additional inspection time is needed.)

Preparation of Inspection Report:

- Inspector report inputs are due by COB August 4, 2000
- Draft Completed: August 14, 2000
- Management Review and Approval Completed (target): September 1, 2000

The Inspection Report Must Be Issued Before September 11, 2000 (45 days from exit meeting)

Plant Status During the Inspection:

The Kewaunee Plant is expected to be at maximum power during the inspection. Due to the plugging of steam generator tubes, maximum plant power for the Kewaunee Plant is limited to 94 %.

Assigned Inspectors:

Al Walker, Team Leader

Doris Chyu, Inspector

Mike Herlihy, Inspector

Mel Holmberg, Inspector

Gerry O'Dwyer, Inspector

Larry Scholl , Inspector

Applicable Inspection Procedures

IP 71111-21 "Safety System Design and Performance Capability"
IP 71152 "Identification and Resolution of Problems" (reference)

Prepared By: _____
Team Leader

Approved By: _____
DRS Branch Chief

Reviewed By: _____
DRP Branch Chief

INSPECTION PLAN DETAILS

I Specific Inspection Activities

Inspection Objectives

- Complete each inspection activity specified in Tables 02.02.a and 02.02.c for the system and component attributes chosen during the preparation week.
- Verify, by walkdown or other means, that system installed configuration will support system function under design conditions.
- Verify that component configurations have been maintained to be consistent with design assumptions.
- Verify that operation and system alignments are consistent with design and licensing basis assumptions
- Verify that design bases and design assumptions have been appropriately translated into design calculations and procedures.
- Verify that acceptance criteria for tested parameters are supported by calculations or other engineering documents to ensure that design and licensing bases are met.
- Verify that individual tests and/or analyses validate integrated system operation under accident/event conditions.
- Verify that the licensee is identifying design issues at an appropriate threshold and entering them in the corrective action program.
- As it relates to design issues, select a sample of problems in the selected system(s) and other risk-significant systems documented by the licensee, and verify effectiveness of corrective actions.

System Selection (02.01a)

The service water system was selected for emphasis during this inspection based upon the following:

- performing a mitigating system function;
- having a high safety significant maintenance rule function;
- having a high system Fussel-Vessly ratio and high component risk achievement worths in the probabilistic risk assessment;
- not having received recent NRC review and

Component Selection (02.01.b)

During the preparation week, at least two major system components will be selected by the team for review during the inspection. These components will be selected based on:

- having high risk achievement worths in the probabilistic risk assessment;
- having a high safety significant maintenance rule function;

- having unusual or unique environmental requirements, seismic requirements, or other characteristics that might not be demonstrated by testing or
- representative of a number of other system components.

Information Collection (02.01.c)

As part of the inspection preparation, the team leader has contacted the licensee, informed them of the system chosen, and arranged for necessary information to be conveyed to the inspection team. A list of the information requested from the licensee is attached to this plan. If during the preparation week additional information is determined to be necessary, this will be conveyed to the licensee as expeditiously as possible.

Preparation (02.01)

A team meeting will be held on Monday of the preparation week and the team leader will distribute information provided by the licensee, as well as other pertinent inspection information. Additionally, during this meeting, the team leader will go over inspection logistics and answer team questions.

Over the next two days, each inspector, including the team leader shall review the provided documentation, working with other team members as necessary, to obtain sufficient familiarity with the service water system such that the system flow-paths, actuation signals, and interlocks can be readily identified. The inspectors should also know the functional requirements for the active components and operator actions required to support the systems' safety functions.

Inspection (02.02 and 02.03)

Successful completion of this inspection procedure requires that each inspection activity be built upon the previous activities and upon a full understanding of how the system should operate. Inspection of broad-based attributes, such as those described in the inspection procedure and delineated below, cannot be accomplished by a single inspector working independently of the rest of the team. Therefore, the team is being broadly divided into two areas: electrical/ I&C (inspectors Doris Chyu and Larry Scholl) and mechanical/structural (inspectors Mike Herlihy, Mel Homberg, and Gerry O'Dwyer). Within these divisions, the intent is to ensure that all inspection attributes are met without duplication of effort.

II RITS and Time Charge Information

The inspection module calls for 420 (\pm 60) hours of direct inspection effort. Between 10 to 15% (42 to 63 hours) of this is required to be spent in evaluating problem identification and resolution (the last two bullets). The direct inspection hours do not include time spent in travel, entrance or exit meetings, debriefing the residents, checking on e-mail, or keeping track of hours to correctly credit them. However, it does include time spent in team meetings and in preparing for team meetings. All time is to be charged to IP "7111121" with an IPE of "BI." This includes time spent on problem identification and resolution.

Since there are five inspectors (not counting the contractor), the hours will be monitored and controlled so that the maximum hours are not exceeded unless additional hours are

needed to complete the inspection. Activities other than direct inspection will occur, especially during the in-office week, the team leader has requested authorization of 10 hours of overtime for each on-site inspection week for each inspector. The overtime is to only be used to meet inspection requirements and must be claimed on RITS. If it appears that the scope of the inspection cannot be met within the allotted hours, the team leader will immediately inform RIII management and obtain authorization for additional hours.

III Findings

At present, the significance determination process (SDP) for the Kewaunee Plant has not been developed. Any findings resulting from the inspection will be reviewed using the generic SDP found in Manual Chapter (MC) 0609. Green findings will be documented in the inspection report. Findings that appear to be "other than green" shall be immediately discussed with the licensee and the senior reactor analyst, to ensure that the Kewaunee Plant PRA information is correctly considered. If a color cannot be immediately be determined, the issue will be described as an "unresolved item," pending final development of the Kewaunee Plant SDP. Enforcement action for green or non-SDP issues will be handled in accordance with the Enforcement Policy.

IV Documentation

Detailed design inspections normally result in a number of questions being raised. These questions are to be given to the licensee verbally - or, if written, the licensee must copy the information and the inspector must retain the written document. As part of the daily interfaces with the licensee, the team lead will go over the status of outstanding questions. Therefore, the team members need to keep the team lead apprized of any concerns with timeliness or quality of responses to questions. Lack of response to questions will not be accepted as a reason for any delay in providing an input unless the team lead has been informed prior to the exit and the issue is one that will necessitate a writeup in the report. Any document requests generated on the day of the exit or afterwards must be approved by the team leader, must pertain to areas already inspected, and must be for the purpose of ensuring an accurate document list entry.

The report will be prepared in accordance with the guidance in MC 0610*. Input will primarily consist of a list of the documents reviewed, unless a finding (put through at least Phase I of the SDP), a violation, or extenuating circumstances exist. Issues, which the inspector determines that meet the criteria for report writeups, will be discussed with the team leader prior to preparing an input. Inputs are to be e-mailed to the team leader within 5 working days (10 calendar days) of the exit. Because of the limitations placed on writing detailed input, all documents reviewed shall be included in the document list. Corrective action documents generated as a result of the inspector's questions shall be called out separately from corrective action documents that were in the licensee's system prior to the inspection.

V Interface and Coordination Meetings

Meetings with the Licensee

An entrance meeting is scheduled for 2:00 PM on July 10, 2000, the first day of the on-site inspection. The exit meeting is tentatively scheduled for 10:00 AM on July 28, 2000, the last day of the on-site inspection. The exit meeting may be re-scheduled for 2:00 PM on August 9, 2000, if additional time to complete the inspection is required. A short debriefing will be held on July 14, 2000, to discuss the results of the first week of inspection and a final detailed debriefing will be held on Thursday afternoon July 27, 2000, to discuss the inspection results with licensee personnel.

Daily morning debriefings with licensee personnel will start on Wednesday, July 11, 2000, and will continue during the on-site inspection weeks. These daily meetings will normally be between the team leader and licensee personnel with team member attendance only on an as-needed basis. Team members are expected to attend the final debriefing 2000, to discuss individual inspection findings in detail.

Team Meetings

Team meetings will be held daily starting at 4:00 PM each day. The meetings will focus on the activities completed each day, the findings or concerns noted, and what remains to be done to accomplish the inspection objectives. The meetings should be no more than one and a half hours in length. The intent is to allow each inspector, including the team leader, 15 minutes to discuss the day's activities, with 15 minutes for any administrative or logistics issues. Inspectors should be prepared for these meetings. An extensive team meeting will be held on July 27, 2000, to discuss the team's findings and determine the items that should be discussed at the exit. This meeting will probably run somewhat longer than the usual daily team meetings.

Initial Document Request

I. Information Requested Expeditiously

The following information is requested to be provided as soon as possible. This is necessary to facilitate the team selection of items to be reviewed during the inspection so that sufficient time is available for the licensee to provide copies. All items requested apply only to the previously discussed chosen system(s).

- List of analyses that either affect or take credit for operation of the system(s)
- List of modifications performed since plant startup, including a short summary of the modification purpose
- List of setpoint changes performed, as far back as retrievable
- List of open temporary modifications
- List of corrective action documents, both open and closed, as far back as electronically retrievable
- List of any engineering-related operator "work-arounds"
- List of operability evaluations as far back as retrievable
- List of correspondence to or from the NRC relating to commitments or analyses
- List of calculations
- List of procedures (operating, surveillance, maintenance & annunciator response)

Attachment # two

II. Information Requested by Team Lead Prep Week

The following information should be available to the NRC either by mail or by a one-day site visit.

- Fault trees for each system
- Piping and instrument drawings (1/2 size) for the selected systems
- Valve drawings (1/2 size)
- Functional block diagrams (1/2 size)
- Electrical schematics (1/2 size)
- Emergency operating procedures (EOP) (reduced size)
- EOP support procedures for the selected systems
- Abnormal operating procedures
- Copies of specific analyses and calculations chosen from above lists
- Copies of specific procedures chosen from above lists
- System description, if available

Attachment # three

III Information Requested to be Available on First Day of Inspection

We request that the following information be available to the team once it arrives onsite. Some documents, such as the UFSAR or TS, do not need to be solely available to the team (i.e., they can be located in a reference library) as long as the team has ready access to them.

- Remaining calculations and analyses not previously provided
- Copies of modifications (verify installation work packages are retrievable), temporary modifications, setpoint changes, operability evaluations, work-around evaluations and plans for resolution and corrective action documents, selected from the initial lists
- Copies of any self-assessments and associated PIFs generated in preparation for the inspection
- Copy of the pre-operational tests, including documents showing resolution of deficiencies
- Updated Final Safety Analysis Report
- Technical Specifications
- Procedures
- IPE/PRA report
- Vendor manuals
- Equipment qualification binders
- General set of plant drawings
- Relay circuitry diagrams
- Other detailed circuitry diagrams, as applicable
- Design Basis Documents, if available
- Procurement documents for major components in each system (verify retrievable)
- Relevant operating experience information (such as vendor letters or utility experience)

.reviewed work out to 105 ± 15 hours per inspector over 3 weeks - or between 30 and 40 hours of direct inspection effort each week (i.e. basically full time). Because it's recognized that a