Appendix C

GUIDANCE FOR SUPPLEMENTAL INSPECTION REPORTS

One of the objectives of Inspection Procedure (IP) 95001/95002 is to provide an assessment of the licensee's analysis and corrective actions associated with the issue(s) that prompted the supplemental inspection. The guidance contained in Inspection Manual Chapter (IMC) 0612 applies equally to the baseline and supplemental portions of the power reactor inspection program; however, given the nature of supplemental inspections, the type of documentation for supplemental inspections will be different than for baseline inspections. A supplemental inspection report will document the Nuclear Regulatory Commission's independent assessment of each inspection requirement and pertinent qualitative observations of the licensee's efforts to identify and address the root cause of the issue prompting the supplemental inspection. A separate inspection report will usually be generated for each supplemental inspection. All violations and findings must conform to the format guidance provided in IMC 0612. The independent review of the extent of condition and extent of cause called for in IP 95002 and performed using one or more procedure(s) chosen from Appendix B to IMC 2515 should be documented in addition to the other inspection requirements contained in IP 95002. Specific documentation requirements and report format for inspections conducted in accordance with IP 95003 will be provided by the team leader.

Listed below are some general principles that apply to documenting the results of the supplemental inspections performed in accordance with IP 95001/95002. These principles supplement the guidance contained elsewhere in IMC 0612.

1. The cover letter of the supplemental inspection report should conform to the guidance given for baseline inspection reports, but it should also contain a brief description of the inspection staff's overall conclusion regarding the effectiveness of the licensee's evaluation and corrective actions associated with the issue(s) that prompted the inspection.

2. A summary of issues for the supplemental inspection report should contain the inspection staff's overall assessment of the issue(s). The summary will include any specific findings associated with the licensee's evaluation and findings that emerged during the inspection.

3. The supplemental inspection report should contain a description of the inspection scope. This section should describe the purpose and objectives of the inspection and the issue(s) that prompted the inspection. This summary can be taken from a previous inspection report for an inspection-related issue, or it can be a summary of the details associated with a performance indicator that crossed a threshold. This section can also include a description of the licensee's preparation efforts for the inspection.

4. The supplemental inspection report should contain an assessment for each of the areas listed below, as applicable. For each area, state the inspection requirements

prescribed in section 9500X-02, “Inspection Requirements,” of IP 95001/95002. Provide a synopsis of the licensee’s assessment related to the inspection requirement, the inspection staff’s assessment of the licensee’s evaluation, and any additional actions taken by the inspector to assess the validity of the licensee’s evaluation.

a. Problem Identification

b. Root Cause, Extent-of-Condition, and Extent-of-Cause Evaluation

c. Corrective Actions

d. Independent Assessment of Extent-of-Condition and Extent-of-Cause (only for IP 95002 inspection reports)

e. Safety Culture Consideration (only for IP 95002 inspection reports)

f. Evaluation of IMC 0305 Criteria for Treatment of Old Design Issues

5. For all supplemental inspections conducted in accordance with IP 95001/95002, an assessment of the licensee’s evaluation and corrective actions associated with the issue(s) should be documented. Negative conclusions regarding aspects of the licensee’s evaluation and corrective actions should be supported by examples of performance deficiencies (i.e., observations or findings). Other conclusions should be supported by a brief statement describing their bases.

6. The supplemental inspection report should contain an exit meeting summary, a list of persons contacted, licensee documents reviewed during the inspection, and acronyms used in the inspection report.

7. The recommended signature authority for supplemental inspection reports is as follows:

   a. For an inspection performed in accordance with IP 95001/95002 that resulted in no findings, green findings, or severity level IV violations, the responsible branch chief will sign out the report.

   b. For an inspection performed in accordance with IP 95001/95002 that resulted in greater than green findings or greater than severity level IV violations, the responsible division director will sign out the report.

   c. For an inspection performed in accordance with IP 95003, the regional administrator will sign out the report.

8. Inspectors should follow the guidance in IMC 0306 to record supplemental inspection results in the RPS Plant Issues Matrix (PIM).

The sample supplemental inspection report is included as Attachment 1 of this Appendix. The supplemental inspection report is a representative sample inspection report and not an all-inclusive guide. It contains realistic findings. The sample report also contains notes that are italicized and boldfaced for emphasis, which are not to be considered part of the sample report. Some sections of the sample report contain alternative descriptions of assessments to illustrate how both positive and negative inspection results could be documented. This exhibit should be used as a sample supplemental inspection report for format and style. Inspection reports should use separate page numbering for the cover letter, report body (beginning with report cover page), and supplemental information. The font face and size should be Arial 11 for inspection reports.

ATTACHMENT 1

EXAMPLE IP 95001/95002 SUPPLEMENTAL INSPECTION REPORT

(Note: The guidance in this sample report supplements the guidance in IMC 0612. See IMC0305 for current guidance on cross-cutting areas, components, and aspects. Some report sections contain example documentation of both "positive" and "negative" assessments.)

Month dd, YYYY

Ms. Roberta Browning
Vice President
Greckenshire Power & Light
Dirojac Electric Station
10 Fourth Street
Fridge, North Dakota

SUBJECT: DIROJAC ELECTRIC STATION, UNIT 1 ***(list only the affected unit(s))***; NRC INSPECTION PROCEDURE 9500X SUPPLEMENTAL INSPECTION REPORT 05000ddd/YYYY###

Dear Ms. Browning:

On (*date inspection was completed*), the U.S. Nuclear Regulatory Commission (NRC) staff completed a supplemental inspection pursuant to Inspection Procedure *(95001, "Inspection for One or Two White Inputs in a Strategic Performance Area," **or** 95002, "Inspection for One Degraded Cornerstone or any Three White Inputs in a Strategic Performance Area,")* at your Dirojac Electric Station, Unit 1. The enclosed inspection report documents the inspection results, which were discussed at the exit meeting on *(date)* with *(name of principal manager who attended the final exit meeting)* and other members of your staff.

(Describe the criteria that were met for performing the supplemental inspection.) As required by the NRC Reactor Oversight Process Action Matrix, this supplemental inspection was performed because *(a finding(s) of (enter color) safety significance was identified **or** a performance indicator(s) crossed a threshold from green to (enter the applicable color) safety significance)* in the *(enter 1st, 2nd, 3rd or 4th)* quarter of YYYY. This issue was documented previously in NRC Inspection Report 05000ddd/2008002. The NRC staff was informed on *(date the NRC staff was informed)* of your staff's readiness for this inspection.

The objectives of this supplemental inspection were to provide assurance that: (1) the root causes and the contributing causes for the risk-significant issues were understood; (2) the extent of condition and extent of cause of the issues were identified; and (3) corrective actions were or will be sufficient to address and preclude repetition of the root and contributing causes. *(**For a 95002 inspection, add the following:** "This inspection also included an independent NRC review of the extent of condition and extent of cause for the (white finding) and an assessment of*

whether any safety culture component caused or significantly contributed to the (white finding).") The inspection consisted of examination of activities conducted under your license as they related to safety, compliance with the Commission's rules and regulations, and the conditions of your operating license.

(Provide a brief description of the inspectors' overall assessment of the licensee's root cause analysis, extent of condition and cause reviews, and corrective actions. This paragraph documents an example of a positive assessment.) The inspector(s) determined that your staff performed a comprehensive evaluation of the *(white)* finding. Your staff's evaluation identified the primary root cause of the issue to be poor control of vendor manuals, which resulted in maintenance workers improperly calibrating the emergency diesel generator (EDG) governor speed control unit. Your staff also identified that the vendor manual control issue was not limited to the EDGs and has taken corrective actions to ensure vendor manuals are current for all equipment within the scope of the maintenance rule. In addition, your staff intends to review the scope of quality assurance (QA) audits to determine whether additional resources need to be provided to the QA department to identify similar programmatic deficiencies.

(Note: If there were no findings, then add the following sentence.) Based on the results of this inspection, no findings of significance were identified.

(Note: If there was at least one NRC-identified, self-revealing, or licensee-identified green finding, then add the following paragraph. Follow IMC 0612 guidance for documenting other types of inspection issues in cover letters.) The attached report documents *(the number)* NRC-identified finding(s) having very low safety significance (i.e., green). The finding was determined to involve violations of NRC requirements. ***(Note: Do not elaborate on green findings. If applicable, add the following sentence.)*** The finding had a cross-cutting aspect in the area of *(Problem Identification and Resolution, Human Performance, or Safety Conscious Work Environment)* because *(use the wording from the cross-cutting aspect guidance in IMC 0305)*. ***(Note: Include the following sentence for licensee-identified violations.)*** Additionally, a licensee-identified violation which was determined to be of very low safety significance is listed in this report. Because of the very low safety significance and because it is entered into your corrective action program, the NRC staff is treating this finding as a non-cited violation (NCV) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region *(X)*; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Dirojac Electric Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system, Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

Jane A. Miller, Chief
Reactor Projects Branch #
Division of Reactor Projects

Docket No.: 50-ddd
License No.: NPF-01

Enclosure: Inspection Report 05000ddd/YYYY###
w/ Attachment: Supplemental Information

cc w/encl: ***(Note: Use normal distribution list.)***

Distribution w/encl: via e-mail ***(Note: Use normal NRC distribution list including the noted NRR/DIRS/IPAB contact(s) listed below.)***
A. Klett, NRR

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION (NRC)
REGION X

Docket No.: 50-ddd

License No.: NPF-01

Report No.: 05000ddd/YYYY###

Licensee: Greckenshire Power & Light

Facility: Dirojac Electric Station, Unit 1 (Dirojac)

Location: Fridge, North Dakota

Dates: Month dd, YYYY through Month dd, YYYY

Inspectors: J. Larkin, Senior Resident Inspector, Lead Inspector
J. Henry, Resident Inspector
J. Smith, Reactor Engineer
J. Boyle, Reactor Project Engineer

Approved by: Jane A. Miller, Chief
Reactor Projects Branch #
Division of Reactor Projects

(The report, which commences with this page, is an enclosure to the cover letter and starts as page 1. The word "Enclosure" should be inserted in the footer at the bottom of each page and flush to the right [not shown].)

TABLE OF CONTENTS *(if necessary)*

SUMMARY OF FINDINGS

Inspection Report (IR) 05000ddd/YYYY###; MM/DD/YYYY - MM/DD/YYYY; Dirojac Electric Station, Unit 1; Supplemental Inspection - Inspection Procedure (IP) 9500X

(Note: This paragraph assumes that a finding with a cross-cutting aspect was identified.) A senior resident inspector, a resident inspector, and two regional inspectors performed this inspection. The inspectors identified one finding having very low (green) safety significance. The inspectors determined the finding was a non-cited violation (NCV). The significance of most findings is indicated by their color (i.e., green, white, yellow, or red) using the NRC Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Cross-cutting aspects are determined using IMC 0305, "Operating Reactor Assessment Program." Findings for which the SDP does not apply may be green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

Cornerstone: Mitigating Systems

(Briefly describe the issue(s) that prompted the inspection, provide the inspectors' overall assessment of the licensee's performance with respect to the inspection requirements, and describe where the issue stands in the assessment process, with respect to IMC 0305.) The NRC staff performed this supplemental inspection in accordance with *(IP 9500X, "Inspection for One or Two White Inputs in a Strategic Performance Area," **or** IP 95002, "Inspection for One Degraded Cornerstone or any Three White Inputs in a Strategic Performance Area,")* to assess the licensee's evaluation associated with the inoperability of the Unit 1 Train A emergency diesel generator (EDG), EDG 1A, in December 2007. The NRC staff previously characterized this issue as having *(low to moderate)* safety significance *(white)*, as documented in NRC IR 05000ddd/2008002. During this supplemental inspection, the inspectors determined that the licensee performed a comprehensive evaluation of the licensee-identified EDG failure, which occurred during a routine technical specification (TS) surveillance requirement (SR) test. The licensee identified the primary root cause of the issue to be poor control of vendor manuals, which resulted in maintenance workers improperly calibrating the governor speed control unit. The vendor manual control issue was not limited to the EDGs, and the licensee has taken corrective actions to ensure vendor manuals are current for all equipment within the scope of the maintenance rule (title 10 of the *Code of Federal Regulations* (CFR), part 50, section 65 (10 CFR 50.65)). The licensee also intends to review the scope of quality assurance (QA) audits to determine if additional resources need to be provided to the QA department to identify similar programmatic deficiencies.

Given the licensee's acceptable performance in addressing the inoperable EDG, the *(white)* finding associated with this issue will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program." Inspectors will review the licensee's implementation of corrective actions during a future inspection.

OR

The NRC staff performed this supplemental inspection in accordance with *(IP 9500X, "Inspection for One or Two White Inputs in a Strategic Performance Area," **or** IP 95002, "Inspection for One Degraded Cornerstone or any Three White Inputs in a Strategic Performance Area,")* to assess the licensee's evaluation associated with the inoperability of the Unit 1 Train A emergency diesel generator (EDG), EDG 1A, in December 2007. The NRC staff

previously characterized this issue as having *(low to moderate)* safety significance *(white)*, as documented in NRC IR 05000ddd/2008002. During this supplemental inspection, the inspectors identified several significant deficiencies with the licensee's evaluation of the inoperable EDG. While the licensee's evaluation attributed the root cause of this issue to improper training of maintenance workers, the inspectors identified that the improper maintenance was instead the result of vendor manuals containing inadequate guidance for calibrating the EDG governor speed control unit. In addition, the inspectors determined that the vendor manual control issue does not appear to be limited to the EDGs because NRC staff has previously identified similar concerns regarding the control of vendor manuals. The inspectors determined that the licensee's corrective actions were inadequate because they focused on retraining the maintenance workers instead of addressing the issue of vendor manual control.

As a result of these concerns, the *(white)* issue associated with the inoperable EDG will not be closed at this time. In addition, the NRC staff identified an additional performance deficiency during the inspectors' review of the licensee's corrective actions.

Findings
(Note: Each finding is self-contained for PIM entry with respect to abbreviations.)

No findings of significance were identified.

OR

- Green. The NRC inspectors identified a violation which met the criteria of a non-cited violation (NCV) of Title 10 of the *Code of Federal Regulations* (CFR), Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to establish (1) measures that assured that the cause of a significant condition adverse to quality (SCAQ) was determined and (2) corrective actions to preclude repetition of the SCAQ. Specifically, the licensee failed to identify the root cause for the Unit 1 Train A emergency diesel generator (EDG 1A) failure and subsequently take corrective actions to preclude repetition of this failure. The licensee staff entered this issue into their corrective action program as condition report CR 2008-1234 and intends to perform an additional independent root cause evaluation. The licensee also established corrective actions to immediately perform extent of condition and extent of cause evaluations to address the issue of poor vendor manual control.

  The performance deficiency had more than minor safety significance because if left uncorrected, it would have the potential to lead to a more significant safety concern (i.e., inadequate condensate water availability during an accident). In addition, the finding correlated to example 3.I of IMC 0612, Appendix E. Therefore, the performance deficiency was a finding. Using IMC 0609, Appendix A, the inspectors determined that the finding had very low safety significance because there was no actual loss of safety function. The finding had a cross-cutting aspect in the operating experience (OE) component of the area of problem identification and resolution because OE was not implemented and institutionalized through changes to station processes, procedures, equipment, and training programs (P.2(b)). (Section 02.03.f)

REPORT DETAILS

4. OTHER ACTIVITIES

4OA4 Supplemental Inspection (9500X)

.01 Inspection Scope

(Describe the conditions that prompted the inspection and the inspection objectives.) The NRC staff performed this supplemental inspection in accordance with IP 9500X to assess the licensee's evaluation of a *(white)* finding, which affected the mitigating systems cornerstone in the reactor safety strategic performance area. The inspection objectives were to:

- provide assurance that the root and contributing causes of risk-significant issues were understood;
- provide assurance that the extent of condition and extent of cause of risk-significant issues were identified *(**For 95002 inspections, add:** and to independently assess the extent of condition and extent of cause of individual and collective risk-significant issues)*;
- ***(Insert the following statement only for 95002 inspections.)*** independently determine if safety culture components caused or significantly contributed to the risk significant issues; and
- provide assurance that the licensee's corrective actions for risk-significant issues were or will be sufficient to address the root and contributing causes and to preclude repetition.

(Describe the licensee's performance with respect to the Action Matrix and the issue(s) that resulted in the change in regulatory response. Provide references to previous IRs that document the issues.) The licensee entered the Regulatory Response Column of the NRC's Action Matrix in the first quarter of 2008 as a result of one inspection finding of *(low to moderate)* safety significance *(white)*. The finding was associated with the inoperability of EDG 1A. On December 1, 2007, EDG 1A failed to reach the required speed during a TS SR test. The finding was characterized as having *(white)* safety significance based on the results of a Phase 3 risk analysis performed by a region-based senior reactor analyst (SRA), as discussed in NRC IR 05000ddd/2008002. The failure of EDG 1A during the TS SR test was attributed to an improperly calibrated governor speed control unit, which occurred during maintenance performed in January 2006. Following 10 hours of troubleshooting, the EDG was restored to operable status.

(Briefly describe the licensee's actions since the issue was identified, including a description of the licensee's preparation for the inspection.) The licensee staff informed the NRC staff on *(enter date)* that they were ready for the supplemental inspection. In preparation for the inspection, the licensee performed a root cause evaluation (RCE), RCE-745, Revision 4, to identify weaknesses that existed in various organizations, which allowed for a risk-significant finding *(or degraded ROP cornerstone),* and to determine the organizational attributes that resulted in the *(white)* finding. The licensee also compiled a safety culture self-assessment report (SAR), SAR 08-0001.

(Briefly describe the inspectors' activities.) The inspectors reviewed the licensee's RCE in addition to other evaluations conducted in support and as a result of the RCE. The inspectors reviewed corrective actions that were taken or planned to address the identified causes. The inspectors also held discussions with licensee personnel to ensure that the root and contributing causes and the contribution of safety culture components were understood and corrective actions taken or planned were appropriate to address the causes and preclude repetition. *(**For a 95002 inspection, add:** The inspectors also independently assessed the extent of condition and extent of cause of the identified issues. In addition, the inspectors performed an assessment of whether any safety culture components caused or significantly contributed to the issue(s).)*

.02 Evaluation of the Inspection Requirements

02.01 Problem Identification

a. IP 9500X requires that the inspection staff determine that the licensee's evaluation of the issue documents who identified the issue (i.e., licensee-identified, self-revealing, or NRC-identified) and the conditions under which the issue was identified.

The licensee identified the inoperability of the EDG during a routine TS SR test. During the testing of EDG-1A on December 1, 2007, the EDG failed to reach the required speed, at which time the test was stopped, and the EDG was declared inoperable. The inspectors verified that this information was documented in the licensee's RCE.

(Note: If there was more than one issue, create sections 02.01.a.1 and 02.01.a.2, etc. for each issue. This guidance applies for every inspection requirement.)

b. IP 9500X requires that the inspection staff determine that the licensee's evaluation of the issue documents how long the issue existed and prior opportunities for identification.

The licensee's RCE documented that the EDG was likely inoperable since maintenance was last performed on the EDG in January 2006, which was when the governor speed control unit was last calibrated. The licensee determined that the improper calibration could have been identified prior to the December TS SR test during revisions of the maintenance procedure in September 2005 and May 2007 and when the governor speed control unit vendor updated the maintenance manual in August 2005. The inspectors determined that the licensee's evaluation was adequate with respect to identifying how long the issue existed and prior opportunities for identification.

c. IP 9500X requires that the inspection staff determine that the licensee's evaluation documents the plant specific risk consequences, as applicable, and compliance concerns associated with the issue(s) *(**For a 95002 inspection, add:** "both individually and collectively")*.

The NRC determined this issue was a *(white)* finding, as documented in IR 05000ddd/2008002, and the licensee's RCE also documented that the finding associated with this issue had *(white)* safety significance. In addition, RCE-745 documented the consequences of the issue, which included the following:

- unscheduled emergent maintenance;
- entry into a TS action statement;

- a *(white)* inspection finding from the NRC;
- increase in counted "unavailability" time for equipment maintenance rule and performance indicators; and
- change in core damage frequency of *($5x10^{-6}$)*/year.

The licensee also documented that the significance of the event was the removal of one of two safety system emergency alternating current power sources, decreased system availability, increase in core damage probability frequency, and additional maintenance rule out-of-service time. The inspectors concluded that the licensee appropriately documented the risk consequences and compliance concerns associated with the issue.

d. Findings

No findings of significance were identified.

02.02 Root Cause, Extent of Condition, and Extent of Cause Evaluation

a. IP 9500X requires that the inspection staff determine that the licensee evaluated the issue using a systematic methodology to identify the root and contributing causes.

The licensee used the following systematic methods to complete RCE-745:

- data gathering through interviews and document review;
- timeline construction;
- events and causal factor charting;
- barrier analysis;
- causal factors tree; and
- fault tree analysis.

The licensee used both a failure modes analysis and barrier analysis to evaluate human performance issues. The inspectors determined that the licensee evaluated the issue using a systematic methodology to identify root and contributing causes.

b. IP 9500X requires that the inspection staff determine that the licensee's RCE was conducted to a level of detail commensurate with the significance of the issue.

The licensee's RCE included an extensive timeline of events and an event and causal factor tree as discussed in the previous section. The licensee also identified that the vendor manual control issue was not limited to the EDG, and the issue applied to other safety-related equipment. The licensee's RCE documented the root cause of the issue to be the station's processes allowing for poor control of vendor manuals, which resulted in the maintenance workers improperly calibrating the governor speed control unit. The licensee determined that the contributing causes included (1) operating experience was not thoroughly evaluated and incorporated into procedures, and (2) management expectations regarding processing OE were not communicated. Based on the extensive

work performed for this root cause evaluation, the inspectors concluded that the root cause evaluation was conducted to a level of detail commensurate with the significance of the problem.

OR

The inspectors determined that the root cause evaluation was not conducted to a sufficient level of detail. Although the licensee correctly diagnosed the apparent cause of the EDG failure as being an improperly calibrated governor speed control unit, the licensee incorrectly identified the root cause as being a maintenance worker error. The inspectors determined that the worker errors were actually caused by out-of-date vendor manuals for the governor speed control units. The calibration procedure in the vendor manual was for a speed control unit that had been replaced with a new model two years ago. In addition, the inspectors noted that problems with control of vendor manuals for other equipment had previously been identified by the NRC as documented in IR 05000ddd/2007004; however, the licensee had failed to enter this concern into the corrective action program. This issue is further discussed in section 02.03.f of this report.

c. IP 9500X requires that the inspection staff determine that the licensee's RCE included a consideration of prior occurrences of the issue and knowledge of OE.

The licensee's RCE included an evaluation of internal and external OE. The licensee considered prior occurrences and OE. As a result of this review, the licensee determined that OE from vendors was not evaluated thoroughly, and the station's controls for verifying vendor OE were poor. The licensee also determined that a large amount of OE was sent out to plant personnel with no action or response required. The licensee concluded that the lack of a robust OE program allowed for closure of OE applicability reviews without consideration for generic implications and common causes.

Based on this review, the licensee was able to make numerous conclusions regarding weaknesses in its OE program. Some of the more pertinent conclusions included:

- There was no verification process for OE generically sent to plant personnel or for evaluating vendor OE;
- OE items failed to be evaluated for generic implications; and
- Equipment issues for risk-significant systems were not captured in the corrective action program and therefore could not be further evaluated for future internal OE searches.

In addition, the licensee performed a common cause analysis. This analysis evaluated recent failures of other equipment requiring similar calibration techniques. Based on the licensee's detailed evaluation and conclusions, the inspectors determined that the licensee's RCE included a consideration of prior occurrences of the problem and knowledge of prior OE.

d. IP 9500X requires that the inspection staff determine that the licensee's RCE addresses the extent of condition and extent of cause of the issue(s).

The licensee's evaluation considered the extent of condition associated with the lack of vendor manual control. The licensee determined that the issue of vendor manual control was not limited to the EDGs. NRC inspectors had previously identified problems with

vendor manual control when reviewing maintenance on the service water pumps. These concerns, which were previously documented in IR 05000ddd/2007004, were captured in the licensee's extent of condition evaluation. In addition, the licensee's RCE documented a previous maintenance error performed on the residual heat removal pumps due to an updated vendor manual specification not being translated into procedures.

The licensee's evaluation also considered the extent of cause associated with the lack of vendor manual control. The licensee staff determined that the issue of not incorporating OE into station procedures had the potential to exist in other station departments. RCE-745 documented the potential for the engineering design department's modifications to be impacted by incorrect inputs from outdated vendor manuals. In addition, the RCE documented the licensee's conclusion that the plant's fire protection engineering department relies heavily on the fire detection and suppression equipment's updated vendor manuals for maintaining such equipment.

The inspectors concluded that the licensee's RCE addressed the extent of condition and the extent of cause of the issue.

OR

The inspectors determined that the extent of condition and the extent of cause analyses associated with the lack of vendor manual control were inadequate because the licensee failed to recognize the primary root cause of the issue, as discussed in section 02.02.b. As a result, the licensee's extent of condition analysis failed to consider other equipment potentially affected by the issue. The licensee's evaluation focused on work performed by the maintenance worker instead of work affected by out-of-date vendor manuals. NRC inspectors had previously identified problems with vendor manual control when reviewing maintenance on the service water pumps. These concerns were previously documented in IR 05000ddd/2007004; however, the licensee failed to capture this observation in their extent of condition evaluation. In addition, the licensee's extent of cause analysis failed to consider how other departments and processes could be affected by the issue. The licensee's evaluation instead focused on the human performance aspects of the maintenance worker's calibration error. This issue is further discussed in section 02.03.f of this report.

e. IP 95001 requires that the inspection staff determine that the licensee's root cause, extent of condition, and extent of cause evaluations appropriately considered the safety culture components as described in IMC 0305. ***(Note: IP 95002 does not require this step.)***

The licensee found a weakness in the cross-cutting area of *(Problem Identification and Resolution)*, specifically in the component of *(Operating Experience).* The licensee found that plant personnel were not adequately using OE in the form of vendor recommendations to support plant safety. Specifically, various departments at the plant were not implementing OE to station procedures and training programs. The licensee identified that plant personnel were not implementing and institutionalizing OE through changes to station processes, procedures, equipment, and training programs. This weakness correlates to the *(P.2(b))* cross-cutting aspect described in IMC 0305, dated (*enter revision date*).

Because the licensee recognized a safety culture aspect was associated with the issue, the licensee conducted collective reviews of the past two safety culture assessments and

the problem identification and resolution self-assessment. This effort resulted in the licensee creating SAR 08-0001. This report contained additional corrective actions and effectiveness reviews associated with safety culture issues at Dirojac. The inspectors determined that the licensee's RCE included a proper consideration of whether a weakness in any safety culture component was a root cause or a significant contributing cause of the issue.

OR

The licensee's RCE did not have an adequate consideration of safety culture components since the licensee failed to identify the root and contributing causes of the issue. The licensee's corrective actions for this issue include re-performing the root cause, extent of condition, and extent of cause evaluations and reconsidering the safety culture components based on the revised analyses. This issue is further described in section 02.03.f of this report.

f. Findings

No findings of significance were identified.

02.03 Corrective Actions

a. IP 9500X requires that the inspection staff determine that (1) the licensee specified appropriate corrective actions for each root and/or contributing cause, or (2) an evaluation that states no actions are necessary is adequate.

The licensee took immediate corrective actions to restore the EDG's operability by recalibrating the governor speed control unit and contacted the EDG vendor to ensure that the latest technical information was available and implemented. The corrective actions for the root and contributing causes listed in RCE-745 appear to be appropriate. To address the issue of poor vendor manual control, the licensee established a program to re-verify that all safety-significant vendor information is current by contacting each of the associated vendors. To address the contributing causes, the licensee updated the procedure for processing OE to include thorough reviews of vendor communications, accountability measures to ensure that the appropriate staff receives and evaluates OE, and verification processes to ensure that vendor OE is translated into procedures. The inspectors determined that the proposed corrective actions are appropriate and addressed each root and contributing cause.

OR

The licensee took immediate corrective actions to restore the EDG's operability by recalibrating the governor speed control unit. However, because the licensee did not identify the primary root cause for the EDG failure, effective corrective actions to preclude repetition were not established. The inspectors determined that the failure to determine the root cause of the EDG failure and establish corrective actions to preclude repetition is a performance deficiency and is discussed in section 02.03.f of this report.

b. IP 9500X requires that the inspection staff determine that the licensee prioritized corrective actions with consideration of risk significance and regulatory compliance.

The licensee's immediate corrective actions restored the EDG to operable status within the TS-allowed outage time. After restoring the affected EDG, the other EDG was tested

to ensure that it would perform its intended functions when required. The inspectors witnessed this testing and observed that the EDG successfully passed the surveillance test.

The licensee's corrective actions to address the root and contributing causes were prioritized in accordance with Dirojac procedure DCAP-200, "Corrective Action." The corrective actions were either prioritized as high, medium, or low. In accordance with DCAP-200, this prioritization considered licensing and regulatory performance and nuclear safety. The licensee's plan to verify vendor information was implemented according to the risk significance of the equipment. The inspectors reviewed the licensee's plans for accomplishing this activity and noted that the risk significance of the equipment was being appropriately considered. Based upon the guidance in DCAP-200 and the prioritization of the corrective actions in accordance with this procedure, the inspectors determined that the corrective actions were prioritized with consideration of the risk significance and regulatory compliance.

c. IP 9500X requires that the inspection staff determine that the licensee established a schedule for implementing and completing the corrective actions.

The licensee established due dates for the corrective actions in accordance with DCAP-200's requirements for timeliness. Some of the due dates were captured in RCE-745 and SAR 08-0001; however, many of the due dates for the action items were contained throughout the licensee's corrective action program in various condition reports. As a result of addressing an inspector's request, the licensee staff compiled and provided a table to the inspectors which showed each corrective action item milestone and its corresponding completion date; however, this table was not captured in RCE-745. As a result of the inspectors questioning why the table was not in RCE-745, the licensee staff revised the RCE to explicitly contain the schedule as shown in the table. The inspectors determined that a schedule had been established for implementing and completing the corrective actions.

d. IP 9500X requires that the inspection staff determine that the licensee developed quantitative and/or qualitative measures of success for determining the effectiveness of the corrective actions to preclude repetition.

As documented in RCE-745, the licensee established measures for determining the effectiveness of the corrective actions. These measures included the following:

- semi-annual quality assurance audits to assess the adequacy of the corrective actions associated with updating vendor manuals and adjusting equipment as needed;
- semi-annual safety culture assessments;
- enhanced monitoring of the EDGs to ensure that any additional failures are given appropriate management attention; and
- quarterly QA audits of the OE program to assess the adequacy of the corrective actions associated with evaluating and implementing vendor OE.

The licensee staff entered these corrective action items into their corrective action program to ensure that these effectiveness reviews and enhanced monitoring were performed. The inspectors determined that quantitative and qualitative measures of

success had been developed for determining the effectiveness of the corrective actions to preclude repetition.

e. IP 9500X requires that the inspection staff determine that the licensee's planned or taken corrective actions adequately address a Notice of Violation (NOV) that was the basis for the supplemental inspection, if applicable.

(***10 CFR 2.201, "Notice of violation," states, in part, that an NOV may require that the licensee submit, within 20 days of the date of the notice, a written explanation in reply, if the NRC believes that the licensee has not already addressed all the issues contained in the NOV, including: (1) corrective steps which have been taken by the licensee and the results achieved; (2) corrective steps which will be taken; and (3) the date when full compliance will be achieved. The notice may also require the licensee to state the reasons for the violation. If an NOV was issued to the licensee and the licensee provided a written response to the NRC, verify that the licensee's response addressed the three items mentioned above.***)

The NRC staff did not issue an NOV to the licensee; therefore, this inspection requirement was not applicable.

OR

The NRC issued an NOV to the licensee on *(enter date)*. The licensee provided the NRC a written response to the NOV on *(enter date)*. The licensee's response described: (1) corrective steps which have been taken and the results achieved; (2) corrective steps which will be taken; (3) the date when full compliance will be achieved; and (4) the reasons for the violation. During this inspection, the inspectors confirmed that the licensee's RCE and planned and taken corrective actions addressed the NOV. The licensee restored *(or plans to restore)* full compliance on *(enter date)* by *(enter corrective action which restored or will restore compliance)*.

OR

The NRC issued an NOV to the licensee on *(enter date)*. The licensee provided the NRC a written response to the NOV on *(enter date)*. The licensee's response described: (1) corrective steps which have been taken and the results achieved; (2) corrective steps which will be taken; (3) the date when full compliance will be achieved; and (4) the reasons for the violation. During this inspection, the inspectors identified that because the licensee failed to identify the root cause of the violation, the licensee's RCE and corrective actions were inadequate for addressing the NOV. Although the EDG was restored to compliance (operable status) in accordance with the TS, the licensee has not addressed the issue of vendor manual control. The licensee entered this issue into their corrective action program as CR 2008-1234 with a due date of October 5, 2008. The licensee's planned corrective actions to address this issue are discussed in section 02.03.f of this report.

f. <u>Findings</u>

No findings of significance were identified.

OR

Introduction: The inspectors identified a violation which met the criteria of an NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to establish (1) measures that assured the cause of the EDG failure (a SCAQ) was determined and (2) corrective actions to preclude repetition of the failure. As a result of this failure, additional equipment with improper calibration was identified.

Description: During this supplemental inspection, the inspectors assessed the licensee's evaluation associated with the inoperability of EDG 1A, which occurred on December 1, 2007. EDG 1A failed to reach the required speed during a TS SR test. The finding was characterized as *(white)* based on the results of a Phase 3 risk analysis performed by a region-based SRA, as discussed in detail in NRC IR 05000ddd/2008002. The failure of EDG 1A during the SR test was attributed to an improperly calibrated governor speed control unit, which occurred during maintenance performed in January 2006.

Although the licensee correctly diagnosed the apparent cause of the EDG failure as being an improperly calibrated governor speed control unit, the licensee incorrectly identified the root cause as being a maintenance worker error. The inspectors determined that the worker errors were actually caused by out-of-date vendor manuals for the governor speed control units. The calibration procedure in the vendor manual was for a speed control unit that had been replaced with an updated model two years ago. In addition, the inspectors noted that problems with vendor manual control for other equipment had previously been identified by the NRC as documented in IR 05000ddd/2007004; however, the licensee had failed to enter this concern into the corrective action program.

The licensee classified the EDG failure as being a SCAQ in accordance with Appendix 1 of the station's corrective action procedure, DCAP-200. Section 3.1.2 of DCAP-200 requires the licensee to establish (1) measures to assure that the cause of a SCAQ was determined and (2) corrective actions to preclude repetition of the SCAQ. The licensee's RCE failed to determine the cause of the EDG failure. In addition, the licensee's corrective actions consisted of retraining the maintenance worker and did not address the issue of vendor manual control. Therefore, the licensee failed to adequately implement DCAP-200.

The inspectors asked the licensee to provide verification that other equipment within the scope of the maintenance rule was also calibrated in accordance with updated vendor manual specifications. While responding to this request, the licensee found that the condensate storage tank level instrumentation was improperly calibrated. This error resulted in an inadequate water level to be deemed acceptable by operations staff because the actual water level was below the required limit specified in the licensee's updated safety analysis report. The licensee's engineering staff performed calculations to demonstrate the reduced water level met, although with significantly less margin, the accident analysis requirements. The licensee's corrective actions for this issue included calibrating the CST level instrumentation, generating CR 2008-1234 to document this issue and to re-perform the RCE using an independent contractor, and establishing a program to re-verify that all safety-significant vendor information is current by contacting each of the associated vendors.

Analysis: The licensee failed to establish (1) measures that assured that the cause of the EDG failure (a SCAQ) was determined and (2) corrective actions to preclude repetition of the EDG failure. The licensee's failure was a performance deficiency because it resulted in the licensee not meeting a requirement, and the cause was reasonably within the licensee's ability to foresee, correct, and prevent. The inspectors

reviewed this performance deficiency in accordance with the guidance in IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," and Appendix E, "Examples of minor issues," dated *(enter revision date)*, to determine if it had more than minor safety significance. The inspectors concluded that the performance deficiency had more than minor safety significance because if left uncorrected, it would have the potential to lead to a more significant safety concern (i.e., inadequate condensate water availability during an accident). In addition, the finding correlated to example 3.I of IMC 0612, Appendix E. Therefore, the performance deficiency was a finding.

The inspectors used the Phase 1 worksheet of IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," to determine the finding's significance. The inspectors determined that the issue had very low safety significance (green) because the finding did not result in an actual loss of safety function. The inspectors also determined the finding had a cross-cutting aspect in the OE component of the area of problem identification and resolution because the licensee was not implementing and institutionalizing OE (in the form of vendor notifications and manual updates) through changes to station processes, procedures, equipment, and training programs (P.2(b)).

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," states, in part, that in the case of significant conditions adverse to quality, the measures established to assure that the conditions are promptly identified and corrected shall assure that the cause of the condition is determined and corrective action is taken to preclude repetition. Contrary to this regulation, the licensee failed to take measures to assure that the cause of the EDG 1A failure (a SCAQ) was determined and that the corrective actions would preclude repetition. The licensee captured this finding in their corrective action program as CR 2008-1234. Because the finding has very low safety significance and was entered into the licensee's corrective action program, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy.
NCV 05000ddd/YYYY###-01, Inadequate Corrective Measures

02.04 Independent Assessment of Extent of Condition and Extent of Cause ***(Note: this section applies only to IP 95002 inspection reports)***

a. Inspection Scope

IP 95002 requires that the inspection staff perform a focused inspection to independently assess the validity of the licensee's conclusions regarding the extent of condition and extent of cause of the issue(s). The objective of this requirement is to independently sample performance, as necessary, within the key attributes of the cornerstone(s) that are related to the subject issue(s) to ensure that the licensee's evaluation regarding the extent of condition and extent of cause is sufficiently comprehensive.

The inspectors conducted independent extent of condition and extent of cause reviews of the issues associated with the *(yellow)* finding. The *(yellow)* finding ultimately revealed significant and broad organizational issues associated with the station's management, leadership, and performance monitoring of the engineering and maintenance organizations. The inspection staff's independent review focused on the primary root causes associated with the yellow finding in addition to the licensee's identified contributing causes that involved more specific aspects of the broader root causes.

The inspection staff assessed whether the licensee's extent of condition and extent of cause evaluations sufficiently identified and bounded all engineering and maintenance

organizational issues. The staff also assessed whether the licensee's extent of condition and extent of cause evaluations sufficiently determined the actual extent of similar organizational issues that potentially existed in other station departments, programs, and processes.

In conducting this independent review, the inspection staff interviewed station management and personnel, reviewed program and process documentation, and reviewed existing station program monitoring and improvement efforts, including review of corrective action documents. Based on the root and contributing causes identified by the licensee, the inspection staff focused the review on the following attributes of the programs and processes:

- program and process expectations that clearly delineated station management and personnel roles and responsibilities;
- program and process performance monitoring efforts, which included performance gap analyses;
- program and process improvement efforts, which included effective use of the OE and existing station improvement plans; and
- change-management implementation for past programs and processes, including organizational and staffing restructuring completed at the station.

b. Assessment

The inspection staff determined that the licensee conducted a comprehensive extent of condition and extent of cause review that sufficiently identified most relevant areas. The staff did not identify any substantive extent of condition and extent of cause issues that the licensee was not aware of and had not already identified with corrective action plans in place. However, the team's independent extent of condition and extent of cause review did determine existing organizational weaknesses that extended beyond engineering and maintenance issues and should have been captured in the station's extent of condition and extent of cause reviews for the *(yellow finding)*. Based on the weaknesses identified by the team, the scope of the team's independent review was expanded to provide further assurance that the station had adequately identified the extent of organizational issues that potentially were present in existing station programs and processes.

The team's review and assessment of the extent of organizational issues determined that the following station programs and processes exhibited organizational and change management weaknesses similar to those identified by the station in the root cause analysis for the *(yellow finding)* and degraded *(Mitigating Systems)* cornerstone:

- The inspectors determined that the operations department had had similar organizational challenges since 2004 with respect to management oversight and establishing program expectations and standards. The operations department has not effectively resolved abnormal operating procedure usage issues, which have existed at the site since early 2001 and program improvement efforts have not been fully effective in resolving the issues. The inspectors confirmed that the licensee had sufficient existing corrective actions planned or implemented to address these issues.

- The inspectors determined that the OE program had weaknesses related to procedural guidance and performance improvement monitoring tools. Specifically, the OE procedural guidance contained vulnerabilities in that potentially significant and valuable OE items relied on one individual to determine station applicability. Additionally, the OE program did not have sufficient performance monitoring tools to clearly monitor the effectiveness of program implementation. While the station's extent of condition and extent of cause review did not evaluate or capture this issue, inspectors determined that existing condition reports had identified corrective actions to address the concerns.

c. Findings

No findings of significance were identified.

02.05 Safety Culture Consideration ***(Note: This section applies only to IP 95002 inspection reports)***

a. Inspection Scope

IP 95002 requires that the inspection staff perform a focused inspection to independently determine that the licensee's RCE appropriately considered whether any safety culture component caused or significantly contributed to any risk significant issue.

The inspection staff reviewed condition reports and procedures and conducted interviews with licensee personnel to determine if the licensee properly considered whether any safety culture component caused or contributed to the issue(s).

b. Assessment

As part of the root cause evaluation for the issue, the licensee evaluated the identified root and contributing causes against the safety culture components that could have contributed to the issues. The licensee's root cause evaluation included a discussion of the 13 safety culture components descried in Regulatory Issue Summary 2006-013, "Information on the Changes Made to the Reactor Oversight Process to More Fully Address Safety Culture," (ADAMS Accession No. ML061880341) as they applied to the *(yellow finding/PI)* affecting the *(Mitigating Systems)* cornerstone. The licensee determined that weaknesses in decision making and organizational change management were the most prevalent safety culture attributes. The licensee also considered the results of a safety culture assessment and safety conscious work environment (SCWE) survey, which were conducted in 2007, in the consideration of safety culture components.

The inspection staff independently confirmed that a number of other safety culture components that contributed to the issue(s) were also identified in the RCE. These additional safety culture components included weaknesses in the corrective action program and accountability. For each of the identified prevalent and contributing safety culture components, the inspection staff confirmed that the licensee established corrective actions to address the issues. During the course of interviews with licensee personnel, the inspectors asked interviewees questions related to SCWE to determine if licensee staff were reluctant to raise safety concerns or if retaliation existed for raising safety concerns. The inspectors did not identify concerns related to SCWE.

c. Findings

No findings of significance were identified.

02.06 Evaluation of IMC 0305 Criteria for Treatment of Old Design Issues

(Note: This part of the inspection is to be implemented when the licensee has requested credit for self identification and when insufficient information was previously available to allow an NRC staff determination of the issue. See IP 95001/95002 and IMC 0305 for additional guidance. For IP 95001 inspection reports, this section would be numbered 02.04.)

The licensee did not request credit for self-identification of an old design issue; therefore, the risk-significant issue was not evaluated against the IMC 0305 criteria for treatment of an old design issue.

4OA6 Exit Meeting

On *(date of exit meeting)*, the inspector(s) presented the inspection results to *(name, and title, of principal manager who attended the final exit meeting)* and other members of his/her staff, who acknowledged the findings. The inspectors asked the licensee if any of the material examined during the inspection should be considered proprietary. The licensee did not identify any proprietary information.

ATTACHMENT: SUPPLEMENTAL INFORMATION (***Note: Use IMC 0612, Exhibit 3 for guidance on documenting the following supplemental information: Key Points of Contact; List of Items Opened, Closed, and Discussed; List of Documents Reviewed; and List of Acronyms.)***

ATTACHMENT 2

Revision History for Appendix C to IMC 0612

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	02/02/09 CN 09-004	This appendix did not have a revision history table prior to this revision. This revision incorporates an example supplemental inspection report and updates the previous documentation guidance. This revision also closes ROP Feedback Forms 95001-849 and 0612C-1154.	No	N/A	ML083530785