

Enclosure 3
NRC Handouts
of the May 2, 2012
ROP Public Meeting

Whitepaper for Drill and Exercise Performance Indicator Criteria Revision

Purpose

This whitepaper is being presented to discuss the basis of the NEI 99-02 emergency preparedness (EP) performance indicator (PI) guidance for Drill and Exercise Performance (DEP) and its relationship to EP 10 CFR 50 regulatory compliance in effort to address a discussion of the implementation of the final emergency preparedness rule and related guidance documents that occurred during a public meeting held from Tuesday, February 14 thru Thursday, February 16, 2012, in Arlington Texas.

Background

NSIR senior management and staff engaged in a discussion with industry and NEI representatives concerning the DEP PI. The discussion centered on what constituted a successful DEP PI notification opportunity and the 10 CFR 50.47(b)(5) and Appendix E section IV.D.3 requirements regarding capability to notify responsible offsite authorities within 15 minutes of declaring an emergency. An industry representative suggested that the current DEP PI criterion for notification be revised to one that aligns better with the regulatory requirement. The suggestion to revise the DEP PI definition was supported by senior NSIR office management.

The reactor oversight program (ROP) PI reporting was established, in part, to improve the efficiency of inspection resources by establishing a quantifiable performance reporting process that contained thresholds that equated to levels of licensee performance that indicated a need for greater NRC oversight. Commission paper SECY-99-007 described PI performance thresholds corresponding to levels of performance ranging from, requiring no additional regulatory oversight (the "Licensee Response Band" above the Green/White threshold) to, increased oversight (the "Increased Regulatory Response Band" below the Green/White threshold) to, specific NRC actions (the "Required Regulatory Response Band" below the White/Yellow threshold) to, unacceptable loss of safety margin (below the Yellow/Red threshold).

Objective performance evaluation thresholds are intended to be used to help determine the level of regulatory engagement appropriate to licensee performance in each cornerstone area. Furthermore, based on past experience it is expected that a limited number of risk-significant events will continue to occur with little or no indication of declining performance. Follow up inspections will be conducted to ensure that the cause of the event is well understood and licensee corrective actions are adequate to prevent recurrence.

MC 308 Attachment 1 "Technical Basis for Performance Indicators," describes the Green band as acceptable performance in which cornerstone objectives are fully met; nominal risk with nominal deviation from expected performance. Performance problems would not be of sufficient significance to escalate NRC engagement. Licensees would have maximum flexibility to "manage" corrective action initiatives. The threshold for this band is performance outside the normal range of industry historical performance and risk. Said slightly different, a licensee that is able to reach at least one ORO for the purpose of emergency notification within 15 minutes 90% of the time or better would likely not need additional NRC inspection oversight. This threshold is not intended to imply that any licensee that is successful in notifying at least one ORO within 15 minutes 90% of the time is in compliance with the 10 CFR 50.47(b)(5) and Appendix E section IV.D.3 as demonstrated by licensees having a DEP PI in the green band yet still receiving an inspection finding.

Discussion

A recent revision to the EP SDP significance examples for lost or degraded notification capability and to inspection procedure 71114.01 “Exercise Evaluation” to add additional inspection detail addressing offsite notification expectations has created questions and exposed a misunderstanding regarding the basis and intended use of EP DEP PIs and their relationship to regulatory compliance.

Regulatory Requirements

10 CFR 50.47(b)(5) and 10 CFR Part 50 Appendix E §IV.D.1 and D.3 address the regulatory requirements for making the offsite notification to State and local response organizations (offsite response organizations) of an emergency declaration. These regulations state:

§ 50.47(b)(5) Procedures have been established for notification, by the licensee, of State and local response organizations the content of initial and follow-up messages to response organizations and the public has been established

§ IV.D.1. Administrative and physical means for notifying local, State, and Federal officials and agencies and agreements reached with these officials and agencies for the prompt notification of the public and for public evacuation or other protective measures, should they become necessary, shall be described. This description shall include identification of the appropriate officials, by title and agency, of the State and local government agencies within the EPZs.

2. * * * * *

3. A licensee shall have the capability to notify responsible State and local governmental agencies within 15 minutes after declaring an emergency. . . .

Guidance

Regulatory Guide 1.101 endorses the guidance in NUREG-0654 / FEMA REP-1, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” as an acceptable method of meeting the regulations in 10 CFR 50.47 and, to a lesser extent, the requirements of Appendix E. In the absence of an approved alternative, the NRC staff will use the guidance in NUREG-0654 to evaluate a licensee’s compliance with the Commission’s EP regulations.

NUREG-0654 section II Evaluation Criterion E.3 states:

The licensee in conjunction with the offsite response organization shall establish the content of the initial emergency messages to be sent from the plant. These measures shall contain information about the class of emergency, whether a release is taking place, potentially affected population and areas, and whether protective measures may be necessary. [emphasis added]

NEI 99-02 “Regulatory Assessment Performance Indicator Guideline,” states:

“Compliance of EP programs with regulation is assessed through observation of response to simulated emergencies and through routine inspection of onsite programs. Demonstration exercises involving onsite and offsite programs, form the key observational tool used to support, on a continuing basis, the reasonable assurance finding that adequate protective measures can and will be taken in the event of a radiological emergency. This is especially true for the most risk significant facets of the EP program. This being the case, the PIs for onsite EP draw significantly from performance during simulated

emergencies and actual declared emergencies, but are supplemented by direct NRC inspection and inspection of licensee self assessment. NRC assessment of the adequacy of offsite EP will rely (as it does currently) on regular FEMA evaluations.” [emphasis added]

NEI 99-02 does not describe the PIs as a substitute or surrogate for meeting the regulatory requirements of 10 CFR 50.

The DEP PI monitors licensee timely and accurate performance in classification of emergencies, notification of offsite authorities and development of protective action recommendations (PARs). A successful notification opportunity is defined as one that offsite notification is initiated within 15 minutes of an emergency declaration; notification is considered to be initiated when contact is made with the first agency to transmit the initial notification information.

10 CFR 50 Appendix E § IV.D.1 requires the licensee to notify the State and local authorities within 15 minutes. The staff believes that until the content of the notification is relayed to all State and local officials, the licensee has not satisfied this requirement. Although the language of the rule does not explicitly state “all State and local authorities,” it does describe State and local authorities in the plural

On occasion, NRC inspectors have observed that licensee exercise controllers terminate their evaluation of the notification process at the point that initial contact is made with the first offsite authority and do not continue to observe the process to determine whether the notification demonstrated the licensee’s capability to make the notification as required by regulation.

Proposed Action

This white paper proposes the need to revise the DEP successful notification acceptance criteria to better align with regulation.

NRC INSPECTION MANUAL

IPAB

MANUAL CHAPTER 0608

PERFORMANCE INDICATOR PROGRAM

0608-01 PURPOSE

This Inspection Manual Chapter (IMC) provides guidance on the implementation of the ~~operating~~ Reactor Oversight Process (ROP) Performance Indicator (PI) Program. ~~It includes guidance on the process for modifying existing PIs and for developing additional PIs for use in the oversight process.~~

0608-02 OBJECTIVES

02.01 To provide policy and guidance regarding implementation of the ROP PI Program, including ~~data~~ the submission, ~~and~~ verification of PI data, and the posting of PI data and frequently asked questions (FAQs) on ~~the internal and external NRC w~~Web sites.

02.02 To establish a formal process for responding to questions related to the interpretation of PI reporting guidance.

~~02.03 To establish a formal process and~~ for developing and implementing changes to the PI Program, including creating new PIs and ~~making~~ changes to existing PIs ~~or thresholds.~~

0608-03 APPLICABILITY

This IMC applies to all operating commercial nuclear power reactors.

0608-04 DEFINITIONS

04.01 Extended Shutdown. For the purposes of the PI Program, ~~an extended shutdown is a condition in which a nuclear power~~ reactor has been subcritical for at least six months.

~~04.02 Feedback Form Exhibit 1 of IMC 0801, "Reactor Oversight Process Feedback Program." A form contained in IMC 0801, "Program Feedback," used by NRC staff to submit a request to the Performance Assessment Branch (IPAB) of the Office of Nuclear Reactor Regulation (NRR) for clarification of the PI guidance document NEI 99-02.~~

04.02 Frequently Asked Question (FAQ). An ROP PI FAQ is ~~A~~ a question or a requested change from an external stakeholder regarding the PI Program or its implementation. An FAQ is submitted to the ROP Working Group (WG) in accordance with NEI 99-02. ~~All FAQs — except those — submitted to the NRC by external stakeholders will be available on the external NRC's internal and external w~~Web sites and will be discussed in public meetings. ~~The external NRC w~~Web sites ~~is~~are periodically updated to include draft FAQs (i.e., FAQs for which the responses have not yet been approved), tentatively approved FAQs, and FAQs that have been approved for use, and archived FAQs. ~~FAQs can be viewed by cornerstone, PI, posting date, or identification number.~~

04.03 NEI 99-02. The current revision of Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment [PI] Guideline," is a document published by NEI that contains guidance for calculating and reporting PI data. NEI 99-02 is jointly produced by the U.S. Nuclear Regulatory Commission (NRC) and NEI.

04.04 Performance Indicators. PIs are objective data regarding licensee performance in the ROP cornerstones of safety and security.

04.05 PI Discrepancy. A PI discrepancy is a difference between what was supposed to be reported in accordance with the current NRC-accepted version of NEI 99-02 and what was reported by a licensee in its PI data submittal.

04.06 ROP Feedback Form. An ROP feedback form (FBF) is Exhibit 1 of IMC 0801, "[ROP] Feedback Program."

04.07 ROP Working Group. The ROP WG is an assembly ~~group composed~~ of NRC staff and ~~licensee~~ commercial nuclear power industry representatives who meet ~~typically once every month~~ periodically in an ~~open~~ public meeting to discuss FAQs and other issues related to ~~the ROP PI~~ Programs.

04.08 White Paper. A white paper is a document that contains proposed changes to NEI 99-02 or the PI Program and is presented to the ROP WG.

~~04.05 Self Assessment An annual report to the Commission on the Reactor Oversight Process.~~

~~04.065 Extended Shutdown For the purposes of the PI Program, a plant is considered to be in extended shutdown when the reactor has been subcritical for at least six months.~~

0608-05 RESPONSIBILITIES AND AUTHORITIES

05.01 Director, Office of Nuclear Reactor Regulation (NRR).

- a. provides overall policy direction for the PI Program
- b. directs the oversight, development, ~~and~~ implementation, and the effectiveness of policies, ~~programs~~ processes, and procedures for the PI Program ~~and oversight of program effectiveness and implementation.~~

05.02 Director, Division of Inspection and Regional Support (DIRS).

- a. manages and oversees PI Program development, ~~and~~ implementation, and effectiveness within NRR ~~and oversees program implementation and effectiveness.~~

- b. makes the final decision on an FAQ resolution when the ROP WG cannot reach alignment

05.03 Chief, Performance Assessment Branch (IPAB).

- a. develops policy, programs, and procedures for implementation of the PI Program
- b. receives and posts PI data and FAQs on ~~the internal and external web~~NRC Web sites
- c. manages and implements the process for responding to questions related to interpretation of PI reporting guidance and develops and implements changes to the PI Program, including creating new PIs and making changes to existing PIs or thresholds
- d. assesses PI Program effectiveness and implementation

05.04 Regional Administrator (RA). The RA Mmanages regional implementation of the PI Program in accordance with the requirements of this IMC, Management Directive (MD) 8.13, “[ROP],” Inspection Procedure (IP) 71150, “Discrepant or Unreported [PI] Data,” and IP 71151, “[PI] Verification.”

06.01 ROP Framework. The ROP is built upon a framework directly linked to the ~~Agency's-NRC's~~ mission. That framework includes cornerstones of safety and security that focus on the licensee's ability to (1) limit the frequency of initiating events; (2) ensure the availability, reliability, and capability of mitigating systems; (3) ensure the integrity of the fuel cladding, reactor coolant system (RCS), and containment; (4) ensure the adequacy of the emergency preparedness functions; (5) protect the public from exposure to radioactive material releases; (6) protect nuclear plant workers from exposure to radiation; and (7) ~~provide assurance that licensee's security system and material control and accounting program can protect against the design basis threat of radiological sabotage and the theft or loss of radiological materials. The ROP cornerstones are more fully described in IMC 0308, "[ROP] Basis Document."~~~~provide assurance that the physical protection system can protect against the design basis threat of radiological sabotage.~~

Within each cornerstone, a broad sample of data on which to assess licensee performance in risk-significant areas is gathered from PI data submitted by licensees and from the NRC's risk-informed baseline inspections. The PIs are not intended to provide complete coverage of every aspect of plant design and operation, but they are intended to be indicative of performance within the related cornerstone.

Data submitted by each licensee are used to calculate PI values. These values are then compared to objective thresholds to determine the performance band associated with those values. The **performance** bands are color-coded. Plant data for a PI that falls within the "green" band indicate licensee performance is within the nominal, expected range. The "white" band indicates that performance is outside of the nominal, expected range and can be characterized as of low to moderate safety significance, but performance remains acceptable. Performance in the "yellow" band indicates a more significant decline in performance and can be characterized as being of substantial significance. Performance is considered acceptable, but a reduction in safety margin exists. Performance in the "red" band indicates a very significant decline in performance. Changes can be characterized as being of high safety significance. Performance may be acceptable with a significant reduction in safety margin or may be unacceptable.

06.02 PIs. ~~IMC 0308, Attachment 1, "Technical Basis for [PIs]," and IMC 0308, Attachment 6, "Basis Document for Security Cornerstone of the [ROP]," describe the PIs; their objectives, thresholds, and bases; and ROP cornerstone attributes covered by the PIs. NEI 99-02 describes the PIs, how they are calculated, and how and when to report PIs to the NRC. NRC Regulatory Issue Summary (RIS) 2000-08, "Voluntary Submission of [PI] Data," Revision 1, informs stakeholders that the NRC accepts NEI 99-02 for use in reporting PI data.~~

PIs are a means of obtaining information related to ~~the-licsee~~ performance in certain ~~key-attributes in-of~~ each ~~of-the~~ cornerstone ~~areas~~. They provide indication of problems that, if uncorrected, may increase the probability and/or the consequences of an off-normal event. Because not all aspects of licensee performance can be monitored by

PIs, safety and security significant areas not covered by PIs ~~will be~~ assessed through inspection using the ROP Inspection Program.

The ROP cornerstones and the current suite of PIs that monitor performance in some of the cornerstones' attributes in ~~For the Reactor Safety Strategic Performance Area, the objectives of the cornerstones and PIs~~ are as follows.

1. ~~Initiating Events Cornerstone:—tThis cornerstone is intended to limit the frequency of those events that upset plant stability and challenge critical safety functions during power operations. Such events include a reactor trip due to a turbine trip, loss of feedwater, loss of off-site power, and other reactor transients. The following indicators are provided in this cornerstone:~~
 - ~~IE01: Unplanned sScrams (automatic and manual) per 7,000 eCritical hHours~~
 - ~~IE03: Unplanned pPower eChanges per 7,000 eCritical hHours~~
 - ~~IE04: Unplanned Scrams with Complications~~

2. ~~Mitigating Systems Cornerstone:—tThis cornerstone is intended to ensure the availability, reliability, and capability of systems that mitigate initiating events to prevent reactor accidents. Mitigating systems include those associated with safety injection, residual heat removal, and their support systems, such as emergency AC power. The following indicators are provided in this cornerstone:~~
 - ~~MS05: Safety System Functional Failures (SSFFs) this PI monitors the readiness of the most importanta variety of risk significant systems to perform their safety function(s).~~
 - ~~Mitigating System Performance Index (MSPI). The MSPIis PI is calculated separately for each of the following five systems for each reactor type:~~
 - ~~Boiling Water Reactors:~~
 - ~~eMS06: Emergency AC pPower sSystems~~
 - ~~hMS07: High pPressure iInjection sSystems. For pressurized water reactors (PWRs), the high pressure safety injection system is monitored. For boiling water reactors (BWRs), the high pressure coolant injection system (e.g., high pressure coolant injection, high pressure core spray, and/or feedwater coolant injection) is monitored.~~
 - ~~MS08: Heat Removal Systems. For PWRs, the auxiliary feedwater system is monitored. For BWRs, the heat removal systems monitored can include the reactor core isolation cooling and/or isolation condenser systems.~~
 - ~~rMS09: Residual hHeat rRemoval sSystems (or the equivalent function)~~
 - ~~eMS10: Cooling wWater sSupport sSystems (for the above systems)~~
 - ~~Pressurized Water Reactors:~~
 - ~~—emergency AC power systems~~
 - ~~—high pressure safety injection systems~~
 - ~~—auxiliary feedwater systems~~

- ~~• residual heat removal systems (or the equivalent function)~~
- ~~• cooling water support systems for the above systems~~

3. ~~Barrier Integrity Cornerstone:—tThis cornerstone is intended to ensure the integrity of the physical barriers designed to protect the public from radionuclide releases caused by accidents. These barriers are the fuel cladding, reactor coolant system boundary, and containment. The following indicators are provided in this cornerstone:~~

- ~~• BI01: Reactor Coolant System (RCS) Specific Activity~~
- ~~• BI02: RCS Identified (or tTotal) Leakage Rate~~

4. ~~Emergency Preparedness Cornerstone.—tThis cornerstone is intended to ensure that actions taken in accordance with the emergency plan provide adequate protection of public health and safety during a radiological emergency. The cornerstone does not include off site actions, which are covered by the Federal Emergency Management Agency (FEMA). The following indicators are provided in this cornerstone:~~

- ~~• EP01: Drill/Exercise Performance~~
- ~~• EP02: Emergency Response Organization Drill Participation~~
- ~~• EP03: Alert and Notification System Reliability~~

~~b. The cornerstones and PIs in For the Radiation Safety sStrategic pPerformance aArea, the cornerstones and PIs are as follows:~~

15. ~~Occupational Radiation Safety Cornerstone.—tThis cornerstone is intended to ensure adequate protection of worker health and safety from exposure to radiation and radioactive materials during routine civilian nuclear reactor operations. The following indicator is provided in this cornerstone:~~

- ~~• OR01: Occupational Exposure Control Effectiveness~~

26. ~~Public Radiation Safety Cornerstone.—tThis cornerstone is intended to ensure adequate protection of public health and safety from exposure to radiation and radioactive materials released into the public domain as a result of routine civilian nuclear reactor operations. These releases include routine gaseous and liquid radioactive effluent discharges, the inadvertent release of solid contaminated materials, and the offsite transport of radioactive materials and wastes. The following indicator is provided in this cornerstone:~~

- ~~• PR01: Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences~~

~~c. The cornerstone and PI in For the sSafeguards sStrategic pPerformance aArea, the cornerstone and Ps are as follows:~~

17. ~~Physical ProtectionSecurity Cornerstone:—tThis cornerstone is intended to provide assurance that the physical protection system can protect against~~

~~the design basis threat of radiological sabotage. The threat could come from either external or internal sources. licensee's security system and material control and accounting program use a defense-in-depth approach and can protect against the design basis threat of radiological sabotage from external and internal threats, and the theft or loss of radiological materials. Although the NRC is actively overseeing the Physical Protection Security Cornerstone, the Commission has decided that the related performance indicator PI, inspection, and assessment information will not be publicly available.~~

- PP01: Protected Area Security Equipment Performance Index

07.01 Reporting of PI Data. Reporting of PI data to the NRC is a voluntary program initiative in which all licensees of operating commercial nuclear power reactor plants participate. The Office of Management and Budget (OMB) clearance for PI reporting is OMB No. 3150-0195. The introductory section of NEI 99-02 contains the guidance and due dates for reporting PI data. To submit PI data, licensees send a delimited text file to the NRC at Pidata.Resource@nrc.gov or pidata@nrc.gov. Hard copy submissions, in accordance with Title 10 of the Code of Federal Regulations, (10 CFR), Section 50.4, CFR 50.4 "Written Communications," are not required, except in the event that the email submission is unsuccessful. The data submittal deadline is 21 calendar days after the last day of the calendar quarter for which the data are applicable (i.e., the deadlines are January 21st, April 21st, July 21st, and October 21st). If a submittal date falls on a weekend or federal holiday, the next federal working day becomes the official due date. The NRC will send each licensee a return email to confirm and authenticate receipt of the data within 2 business days of receipt of the PI data. Licensees have four business days from receipt of the NRC's email to report any transmission problems to the NRC.

07.02 Posting PI Data to NRC Web Sites. Once After the PI data are confirmed received by the NRGIPAB staff, they are entered into the NRC's Reactor Programs System (RPS) database to calculate the indicator values and generate NRC Web site files. Within three five 3 business days after from receipt of the licensee's data submittal deadline (which is twenty one days after the end of a calendar year quarter) transmissions, the NRC will post the data, the indicator values, and associated graphs on the NRC's internal wWeb site. The IPAB staff will notify the NRC regional offices will be notified when the PIs are available on the NRC's internal wWeb site. This is to allow them regions an opportunity to become familiar with so they can review the PIs and to identify any obvious inconsistencies prior to public release. Within 10 business days after days of receipt of the licensee's data transmittal submittal deadline, the NRC will then place the PIs on the NRC's external wWeb site to make them available to external stakeholders. IMC 0306, "Information Technology Support for the," additional information.

07.023 PI Data Submission for Plants in an Extended Shutdowns. An operating commercial nuclear power plants with significant performance or equipment problems may be shut down for an extended period of time for a variety of reasons. Licensees may voluntarily or involuntarily shut down the plant due to significantly degraded performance, major equipment failures, or a significant plant event. In these cases, For these sites, the NRC may make the decision to place the plant under apply the process described in Inspection Manual Chapter IMC 0350, "Oversight of Reactor Facilities in a Shutdown Condition Due to Significant Performance and/or Operational concerns:," or the NRC may apply the guidance in IMC 0351, "Implementation of The Reactor Oversight Process [ROP] at Reactor Facilities in an Extended Shutdown Condition for Reasons Other Than Significant Performance Problems." Plants Because some PIs are heavily influenced by the operational status of the reactor (e.g., the number of hours a reactor has been critical), these PIs may no longer provide valid indications of performance during an extended shutdown. A licensee with a plant in an extended shutdown should report PIs for that plant in accordance with the guidance provided in

the current ~~version~~ revision of NEI 99-02. PIs that are invalid because the plant is in an extended shutdown will be displayed as “not applicable” on NRC Web sites.

0608-08 PI VERIFICATION

08.01 Inspection Verification. PI data are voluntarily submitted by licensees to the NRC; however, information provided to the NRC by a licensee must be complete and accurate in all material respects. Because ~~of the importance of PIs data are in the ROP as a~~ sources of information ~~regarding performance~~ upon which ~~agency~~ NRC assessment and oversight actions will be based, ~~PI data must be reported accurately~~ the failure to report PI data completely and accurately can impede the regulatory process and therefore have traditional enforcement implications. ~~Inspection Procedure (IP) 71151, “Performance Indicator Verification,” shall be conducted to review licensees’ PI data collection and reporting activities for adherence to pertinent guidance. It is expected that~~ The NRC expects licensees ~~will to~~ make reasonable, good faith efforts to comply with the guidance in NEI 99-02. This includes taking appropriate and timely action to identify and report performance issues captured by the indicators. It may be necessary for inspectors to exercise some judgment on the adequacy of licensee actions to make a reasonable, good faith effort to comply with the guidance. ~~Discrepancies with the performance indicator data collection and reporting or with the actual data should be documented in accordance with IP 71151 and the requirements of Inspection Manual Chapter IMC 0612, “Power Reactor Inspection Reports.” Enforcement action will be taken for inaccurate PI reporting in accordance with the “General Statement of Policy and Procedure for NRC Enforcement Actions.”~~

08.02 Discrepant or Unreported PIs. Instances of PI discrepancies and unreported PIs should be documented in accordance with IP 71151 and IMC 0612, “Power Reactor Inspection Reports.” Enforcement action will be taken for incomplete or inaccurate PI reporting in accordance with the NRC Enforcement Policy. ~~In the event~~ if the NRC determines that ~~major~~ PI discrepancies exist ~~in the PI data submitted by a licensee~~ that causes ~~the Agency~~ NRC staff to lose confidence in the licensee’s ability to collect and report PI data accurately, the affected PI(s) will be classified as discrepant on the NRC Web sites, and the staff will perform ~~. Examples of situations in which a PI would be considered to be discrepant may include but are not limited to the following: (1) recurring errors in the reported data; (2) recurring instances of incorrect interpretations of NEI 99-02; or (3) inadequate documentation of PI data.~~

~~When PI data have been determined to be discrepant or is are not being reported by the licensee, IP- 71150, “Discrepant or Unreported Performance Indicator Data,” will be conducted. Factors to consider when deciding to perform IP 71150 include whether the licensee is correcting the PI data errors, the effectiveness of those corrective actions, the repetitiveness of the errors, and any trends in the quality of PI data reporting that the NRC may be aware of. The decision to perform IP 71150 should be discussed (and could be made) during the plant performance reviews described in IMC 0305, “Operating Reactor Assessment Program.” IP- 71150 provides guidance for collecting PI data and inspecting for the performance of selected inspection activities~~ cornerstone attributes to compensate for the discrepant or unreported PI data. Regional

management should coordinate activities in this area with ~~NRR/DIRS/PAAB~~. The selected inspections will be performed in addition to the baseline inspection. Once the licensee has corrected the root cause(s) of the discrepant or unreported data and the NRC has verified that the licensee can collect and report PI data accurately, oversight of PI reporting in accordance with IP- 71151 will resume.

08.03 Extended Shutdowns. When a plant has been in an extended shutdown, some PIs may not provide a meaningful indication of plant performance in the **areas cornerstone attributes** they are intended to monitor (i.e., **the PIs become invalid or not applicable**). In these situations, the guidance provided in IP- 71150 should be followed to obtain sufficient performance information via the inspection program **when possible** until the plant has restarted and ~~sufficient PI data has been collected~~**the PIs become valid**.

0608-09 ~~QUESTIONS AND FEEDBACK AND DIFFERENCES IN INTERPRETATION~~

~~The NRC has received many questions and comments regarding the PIs over the years. The staff expects that changes to existing PIs and thresholds as well as the development of new PIs will occur. Therefore, the NRC has established a formal process to address questions and feedback from internal and external stakeholders, make changes to existing PIs and thresholds based on lessons learned, and develop new PIs and associated thresholds. This formal process is provided in Exhibit 1, "PI Process For Addressing Feedback and Questions." The process consists of the following fivefour major components: input, evaluation, resolution (not requiring a change), Resolution (requiring a change), and closure.~~

~~The remainder of this IMC describes the formal process. Exhibit 1 (flowchart) may be referred to at any point hereafter to gain an understanding of the four phases of the formal process. The section numbers of this IMC are included at corresponding points in the flowchart to provide easy reference to the write-up of the respective section.~~

~~The NRC receives feedback and suggestions from various stakeholders about the PI program. For example, an NRC inspector may submit an ROP FBF that recommends modifying a PI to address possible unintended consequences; an ROP survey respondent may request the NRC to change a PI threshold; or a lessons learned task force may suggest a new PI. In the spirit of continuous improvement, NRC staff evaluates this feedback to determine if enhancements to the PI Program are warranted.~~

~~Various stakeholders also submit questions regarding the interpretation of NEI 99-02. For example, a licensee and an inspector may disagree over the interpretation of NEI 99-02 and therefore seek clarification from the ROP WG. In these cases, NRC staff engages with the internal and external stakeholders to interpret the guidance and determine if clarifications or changes thereto are warranted.~~

~~This section describes a process to address such questions and feedback from internal and external stakeholders. The section numbers of this IMC are included at corresponding points in the flowchart to provide easy reference to the write-up of the~~

~~respective section.~~ Attachment 2 of this IMC also summarizes this process using a flowchart. This section describes actions taken for differences in interpretation of NEI 99-02 guidance, the FAQ process, general feedback about the PI Program, and close-out activities.

Some questions and issues (e.g., those involving other NRC regulatory documents or programs) fall outside the scope of this process, even though the issue may affect PI data values. For example, questions about a plant's design or licensing basis, interpretation of Technical Specifications, or reporting requirements should be directed to other NRC technical leads or processes (e.g., the Task Interface Agreement process). An NRC's Division of Operating Reactor Licensing project manager can assist with referrals to other NRC technical leads or processes.

09.01 Differences in Interpretation of NEI 99-02. If an NRC inspector and a licensee have differing views about the interpretation of NEI 99-02 and approved FAQs that could involve a potential PI discrepancy, the issue may need to be resolved at the ROP WG meetings. An NRC inspector (or any NRC employee) should initiate the process by contacting the PI Program Lead in NRR/DIRS. The inspector should be prepared to provide the PI Program Lead with a description of the circumstances, the guidance in question, and necessary background information.

NRC staff may also submit an ROP FBF to receive a more formal response (i.e., the FBF resolution would have IPAB BC concurrence). ROP FBFs involving differing interpretations of NEI 99-02 should indicate "IP 71151" in the IP/IMC section of the ROP FBF because it involves an NEI document rather than an IMC or IP for which the ROP feedback process was originally designed. The FBF should indicate the PI guidance in question, document that the FBF is being submitted because of differing interpretations of NEI 99-02, and list specific guidance references (e.g., NEI 99-02 page numbers and lines). Additional guidance is provided in IP 71151 and in IMC 0801.

When the PI Program Lead receives an inquiry from an inspector seeking clarification of NEI 99-02 guidance, the PI Program Lead, with assistance from other NRC technical leads if necessary, and after consultation with the IPAB BC, will provide the inspector its initial interpretation based on the information provided by the inspector. NRC staff should first seek alignment to the extent possible. NRC staff should consider the clarity and the intent of the guidance. The staff may refer to other NRC documents to inform its position (e.g., IMC 0308, Attachment 1 and ROP-related SECY papers).

After the PI Program Lead provides the NRC inspector with the initial NRC interpretation, the inspector should then discuss the interpretation with the licensee. If the inspector and licensee continue to have differing views, and the licensee does not submit an FAQ in a timely manner or at all, then the inspector should follow the guidance in IP 71151 for a PI discrepancy (i.e., consider enforcement action). If the licensee submits an FAQ, the inspector should follow the guidance in IP 71151 for inspection results and documentation, and the staff will follow the FAQ process described in the next section of this IMC.

09.02 FAQ Process. NEI 99-02, Appendix E, establishes the FAQ process to resolve differing interpretations of NEI 99-02, address unique situations for which NEI 99-02 is not clear, and incorporate changes into NEI 99-02 after completion of the white paper process, which is described in Section 09.03 of this IMC. The typical FAQ process is described as follows.

- a. Introduced. The industry introduces FAQs at an ROP WG meeting. If the FAQ involves plant-specific security information, the ROP WG meeting will acknowledge the status of the FAQ; however, a separate non-public meeting will be conducted to resolve the FAQ. For FAQs involving differing interpretations of NEI 99-02, the NRC resident inspector should plan to call into the ROP WG meeting to discuss her or his views on the issue.

The NRC or industry may also submit a generic FAQ (i.e., an FAQ that applies to multiple licensees) to the ROP WG. A generic FAQ may incorporate decisions made from the white paper process.

At this point, the FAQ is called a “draft FAQ.” NEI typically provides the NRC with the document containing the draft FAQs. This document is posted on the NRC’s public Web site unless it contains plant-specific security information.

- b. Discussed. After a draft FAQ is introduced to the ROP WG, the WG will review and discuss the FAQ to acquire understanding of assumptions and facts. The NRC may also clarify the resident inspector’s position about the FAQ, if necessary. These discussions may span over multiple ROP WG meetings. The content of draft FAQs may be updated based on these discussions.
- c. Tentative Resolution. The ROP WG will develop a resolution to the FAQ, which will be considered tentative. NRC staff will update the draft FAQ with a section titled, “Tentative NRC Response,” which will document the NRC’s tentative position and a proposed effective date.

The tentatively approved FAQ will remain tentative for a waiting period – normally until the next regularly scheduled meeting – to allow a final opportunity for all stakeholders to review the proposed FAQ resolution and provide any input. Stakeholders should forward any feedback that impacts the resolution of the issue to the assigned lead reviewer on the FAQ for resolution prior to the next scheduled ROP WG meeting. The schedule for upcoming public meetings is posted on the NRC’s public Web site.

After stakeholders have had an opportunity to comment on a tentative resolution, the ROP WG will determine whether the resolution can be considered final and approved. If consensus on a resolution cannot be attained by typically the third ROP WG meeting after the FAQ is introduced, the NRR/DIRS Division Director will determine the resolution, which will become the final approved resolution.

- d. Approved. After a final resolution and effective date are determined, NRC staff will update the draft FAQ with a section titled, “Final NRC Response,” that contains the basis for the NRC’s resolution and an effective date, if necessary. The NRC will then publish the final FAQ on its public Web site to characterize the FAQ as an “approved FAQ,” unless the FAQ contains plant-specific security information. Approved FAQs are treated as extensions of NEI 99-02 and become effective as of the effective date specified in the NRC’s final response or as specified by NEI 99-02. The NRC will notify internal stakeholders, as necessary. NEI is responsible for notifying industry stakeholders of the FAQ status.
- e. Withdrawn. The ROP WG may also decide to withdraw a draft FAQ; however, the basis for the withdrawal and the status of the NRC deliberations should be documented in the NRC’s response to the withdrawn FAQ for knowledge-transfer purposes.
- f. Archived. After the approved FAQs are incorporated into the next revision of NEI 99-02, as applicable, the NRC will move the approved FAQs into the “archived FAQ” list on the NRC’s public Web site. Withdrawn FAQs are also captured in the archived FAQ list.

09.03 General Feedback about the PI Program. Anyone may provide feedback about the PI Program. Such feedback can include clarifications of current guidance or suggested significant changes to the PI Program (e.g., a new PI or a change to an existing PI). When the NRC receives feedback about the PI Program, it evaluates the feedback to determine whether it has merit and should be discussed at the ROP WG meetings. This section describes how various stakeholders typically generate feedback about the PI program and how the feedback is evaluated.

- a. Sources of Feedback. NRC staff can generate questions and feedback using a variety of methods (e.g., ROP FBFs, surveys, self-assessment results, task force recommendations, and sharing lessons learned through day-to-day interactions). If NRC staff has specific suggestions for a new PI or for clarifying or modifying an existing PI and associated guidance, the staff should submit an ROP FBF. The ROP FBF should indicate “IMC 0308, Attachment 1” or “IMC 0308, Attachment 6” (if security-related) in the IP/IMC section of the ROP FBF. The staff may also provide such feedback in ROP surveys of internal stakeholders. IPAB staff should consider generating an ROP FBF to capture feedback coming from other internal sources of information such as task force recommendations, Agency Action Review Meeting results, or ROP surveys.

The industry may generate white papers for proposed changes to NEI 99-02 that have generic implications. Other stakeholders (e.g., the public, state/local governments, etc.) can provide questions and feedback about the PI Program to the NRC’s Office of Public Affairs (OPA). Methods for contacting OPA are listed on the NRC’s public Web site. Stakeholders may also ask questions during the public ROP WG meetings and provide feedback about the PI Program in ROP

surveys of external stakeholders. IPAB staff will generate an ROP FBF if the feedback warrants more detailed consideration for program enhancements.

After IPAB staff receives suggestions to develop a new PI or to modify an existing PI, the staff will evaluate the feedback to determine if it is possible or has merit. The staff may involve NRC regional office staff and other technical staff as necessary. For feedback from non-industry stakeholders, IPAB staff or technical leads in other NRC offices in coordination with IPAB staff will generate a white paper to introduce the feedback at an ROP WG meeting if the staff believes the feedback has merit. IPAB or other technical staff may also discuss the issue with industry stakeholders at the ROP WG meetings before deciding if the feedback has merit.

b. White Paper Process. Stakeholders should introduce proposed generic changes to the PI Program to the ROP WG via a draft white paper. White papers should contain the following information, the extent of which can vary depending on the complexity of the issue.

- a description of the issue or circumstances that initiated the proposal
- the proposal and its basis
- the guidance that would be affected (e.g., NEI 99-02 sections, pages, and lines)
- implementation considerations (e.g., impact on information technology support or infrastructure or an update to the OMB clearance for reporting PIs)

The ROP WG should determine whether the white paper is proposing a clarification or minor change to the guidance or if it is proposing a more significant change (e.g., a new PI or a change in threshold values). Section 09.03.c should be implemented for white papers that potentially involve significant changes to the PI Program.

The outcome of the ROP WG deliberations and the basis for that outcome shall be documented in a final revision of the white paper, which shall then be entered into the NRC's Agencywide Documents Access and Management System (ADAMS). If the ROP WG decides to not implement the white paper proposal, the white paper shall be closed out in accordance with Section 09.04 of this IMC. If the ROP WG decides to implement the white paper proposal, the ROP WG (typically the industry) will develop an FAQ to incorporate the changes into NEI 99-02.

A listing of white papers is available on the NRC's public Web site. A white paper does not constitute a final decision or NRC-approved guidance for PI reporting; rather, an approved FAQ, which incorporates the outcome of the white paper process into NEI 99-02, constitutes approved guidance for PI reporting.

c. Significant Changes to the PI Program. This section establishes guidance for considering and making significant changes to the PI program, such as a new PI or a modification of an existing PI. The process described in this section can be modified as needed. Some activities (e.g., informing NRC management, seeking stakeholder feedback, evaluating policy implications, and determining the impact of the change on OMB Clearance No. 3150-0195) should be performed as needed or on an ongoing basis. Because commercial nuclear power plant licensees voluntarily report PI data to the NRC, continual interaction with the ROP WG is needed throughout this process.

1. Identification of Potential Significant Changes to PI Program. Various circumstances (e.g., Commission direction or results of ROP realignment analyses, ROP self-assessment activities performed in accordance with IMC 0307, “[ROP] Self-Assessment Program,” or task group reports) can shape and influence ongoing efforts to improve the PI Program and/or ROP oversight. As circumstances warrant, efforts to identify potential changes or improvements may take the form of a simple analysis or a more detailed, systematic evaluation (such as an ROP realignment exercise). Therefore, a number of approaches to the analysis could have merit given the unique confluence of circumstances that give rise to the inquiry.

If an assessment reveals a gap in oversight of an ROP cornerstone, or if an existing PI is ineffective, consistently generates many FAQs, or has the potential to be misleading or create unintended consequences, the development of a new PI or the significant modification of an existing PI may be a viable option to ensure oversight of ROP cornerstone attributes is appropriate.

Significant changes to an existing PI can include a change to its thresholds. Thresholds may need to be adjusted based on lessons learned from experience with individual PIs. Such adjustments are not intended to continually raise licensee performance expectations, but rather they are intended to ensure that the initial thresholds, some of which were established without the benefit of actual industry performance data, are performing as intended. A significant change to an existing PI may also be necessary for plants with unique design features that create challenges for adhering to NEI 99-02.

2. Documentation of Proposed Significant Changes. Proposed significant changes to the PI program should be documented in a white paper. Section 09.03.b describes the basic content of a white paper. The following information should be included for a proposed new or modified PI, as applicable and to the extent practicable.

- purpose of the proposed new or modified PI
- definition of the proposed new or modified PI
- the reporting elements for the proposed new or modified PI

- calculations for the proposed new or modified PI
- thresholds for the proposed new or modified PI

The draft white paper should be modified and refined as additional information and feedback become available throughout the process.

3. Evaluation of Proposed Significant Changes. In 2010, the ROP WG developed a list of traits or characteristics that should be considered to guide the development of a new PI to the extent practicable (ADAMS Accession Nos. ML101180467, ML101530479, and ML101800474). These traits include considerations used for selecting the initial set of PIs that was established in SECY-99-007 and later documented in IMC 0308, Attachment 1. These traits can also be considered for the development of significant changes to an existing PI.

The following traits should be considered for developing a new PI or a significant change to an existing PI to the extent practicable.

- capable of being objectively measured
- allows for the establishment of a risk-informed threshold to guide NRC and licensee actions
- provides a reasonable sample of performance in the area being measured
- represents a valid indication of performance in the area being measured
- represents a verifiable (auditable) indication of performance in the area being measured
- encourages appropriate NRC and licensee actions
- provides sufficient time for the NRC and licensees to correct declining performance prior to posing undue risk to public health and safety
- adheres to the overall objectives of the ROP (i.e., risk-informed, objective, predictable, and understandable)

The ROP WG should consider whether the proposed change to the PI program will provide information that is not currently being collected. The ROP WG should also consider whether the proposed new or modified PI warrants changes to the ROP Inspection Program or other aspects of the PI Program to eliminate unnecessary overlap or to ensure adequate coverage of ROP cornerstone attributes.

4. Stakeholder Feedback. After a stakeholder has developed a proposed concept for a new or modified PI and begun the evaluation process, the stakeholder should discuss the proposal with the ROP WG to acquire other stakeholder feedback to inform the evaluation. The ROP WG may form a sub-group that includes technical experts or representatives of the affected licensees.

The ROP WG may decide to use available industry performance information to evaluate the proposal against the traits described in the previous section. If historical data are available, they may be collected and used in this effort. If such data are not readily available, the ROP WG may decide to use the best information available or hypothetical data. An expert panel can also be assembled to identify appropriate thresholds.

5. Recommendation to NRR/DIRS Division Director. After evaluation of stakeholder feedback, NRC staff should provide a recommendation to the NRR/DIRS Division Director on whether to proceed with pursuing the PI change. Developing new PIs or making significant changes to existing PIs can require significant resources or may have policy implications. After consideration of the safety insights that could be gleaned from the proposed PI change and associated implications, the NRR/DIRS Division Director will inform IPAB staff of whether the proposed change is feasible.

For PI changes that the DIRS Division Director determines are not feasible, NRC staff will suspend consideration of the proposed changes and will close the issue in accordance Section 09.02.c of this IMC.

6. Benchmarking. Upon approval from the DIRS Division Director to proceed with evaluating the proposed change, the ROP WG will develop a pilot test or a tabletop exercise, as necessary, to further evaluate the change against the traits listed in Section 09.03.c.3 and determine the efficacy of the PI. The pilot should be conducted using a representative sample of plants to collect data. These plants would continue to provide data in accordance with the current revision of NEI 99-02. The pilot should be used to further inform the characteristics of the proposed change, such as its thresholds.

When the pilot or the tabletop exercise has been completed, the results and lessons learned will be used to update the white paper evaluation. The NRC will then provide an opportunity for the industry, public, and other stakeholders to provide feedback. This feedback will be evaluated by the staff and may be used to modify the proposal.

7. Final Recommendation. After the pilot is conducted and stakeholders provide feedback, the staff will make its final recommendation to the NRR/DIRS Division Director as to whether to proceed with the proposal. Upon the NRR/DIRS Division Director's decision, the staff will proceed with the following step.
8. Implementation. If it is determined that the proposal will not be implemented, the staff should close out the issue in accordance with Section 09.04. If the proposal will be implemented, the following steps shall be taken, as necessary.

- The ROP WG will generate a generic FAQ to incorporate the change into NEI 99-02. Refer to Section 09.02 of this IMC.
- NRC staff will issue a RIS to inform stakeholders of the PI change and its reporting criteria.
- NRC staff will revise OMB Clearance No. 3150-0195. Revising the OMB clearance could take approximately nine months to complete. Early consideration should be given to the potential need for revising the OMB clearance to ensure it will not adversely impact final PI implementation.
- NRC staff will update ROP documents affected by the change (e.g., Attachments 1 or 6 of IMC 0308, IMC 0608, IP 71150, or IP 71151).
- NRC staff will update its Web sites to incorporate the change.
- NRC staff will develop training for its inspectors.

09.04. Closure. NRC staff will respond to the originator of questions or feedback, if contact information is available, after the issue is resolved. The format and timing of the NRC's response will depend on how the feedback was received and its complexity. ~~Once an issue has been resolved the originator of the question or feedback will receive a response in a timely manner.~~ If the question or feedback was generated ~~by a NRC feedback form using the ROP FBF process, then~~ the lead reviewer will notify the originator of the final response in accordance with the guidance established in IMC 0801. If the question or feedback was generated ~~by an FAQ using the FAQ process, then~~ the ROP WG will adhere to ~~the current~~ guidance ~~in NEI 99-02, Appendix E,~~ for documenting and ~~posting~~ publishing the final resolution to the NRC's public Web site. If the question or feedback was generated by a public stakeholder, ~~then~~ the NRC will respond in written correspondence.

NRC staff should determine whether any ROP documents (e.g., IMC 0308, Attachments 1 or 6; IP 71150; or IP 71151) and its Web sites should be updated as a result of clarifications of or changes that are made to the PI Program. This will help ensure that the basis for the changes is communicated clearly and captured for knowledge-transfer purposes. NRC staff should also verify that the next revision of NEI 99-02 correctly captures the decisions made since the last revision to ensure that RIS 2000-08, Revision 1, remains adequate. NRC staff should ensure that the ROP WG meeting summaries document the results of the staff's reviews of NEI 99-02 revisions. If the issue involved a proposed significant change to the PI Program that was not implemented, the staff shall update IMC 0308, Attachment 1, Table 1, "PI Program Aspects Considered but Not Used."

The ROP WG meeting summaries, including handouts that do not contain plant-specific security-related information, are made publicly available in ADAMS.

0608-10 ~~PI~~ REFERENCES

CFR

IMC 0305, “Operating Reactor Assessment Program”

IMC 0307, “[ROP] Self-Assessment Program”

IMC 0308, “[ROP] Basis Document”

IMC 0308, Attachment 1, “Technical Basis for [PIs]”

IMC 0308, Attachment 6, “Basis Document for Security Cornerstone of the Reactor Oversight Process”

IMC 0350, “Oversight of Reactor Facilities in a Shutdown Condition Due to Significant Performance and/or Operational Concerns”

IMC 0351, “Implementation of the [ROP] at Reactor Facilities in an Extended Shutdown Condition for Reasons Other Than Significant Performance Problems”

IMC 0612, Appendix B, “Issue Screening”

IMC 0801, “[ROP] Feedback Program”

IP 71150, “Discrepant or Unreported [PI] Data”

IP 71151, “[PI] Verification”

~~Management Directive MD- 8.13, “Reactor Oversight Process [ROP]”~~

NEI 99-02, “Regulatory Assessment [PI] Guideline”

NRC Enforcement Policy

OMB Clearance No. 3150-0195, “Voluntary Reporting of [PIs]” (ML12020A281)

RIS 2000-08, Revision 1, “Voluntary Submission of [PI] Data”

SECY-99-007, “Recommendations For Reactor Oversight Process [ROP] Improvements”

~~—SECY 99-007A, “Recommendations For Reactor Oversight Process Improvements (Follow-up to SECY 99-007)”~~

~~—~~

~~—SECY-00-049, “Results Of The Revised Reactor Oversight Process Pilot Program”~~

~~—~~

~~—Temporary Instruction 2515/144, “Performance Indicator Data Collecting and Reporting Process Review”~~

~~—~~

~~—Inspection Procedure 71151, “Performance Indicator Verification”~~

~~— Inspection Procedure 71150, “Discrepant or Unreported Performance Indicator Data”~~

~~— NEI 99-02, “Regulatory Assessment Performance Guideline,” (Current Revision 4)~~

~~— Regulatory Information Summary 99-06, “Voluntary Submission Of Performance Indicator Data” (collecting and reporting historical data)~~

~~— Regulatory Information Summary 2000-08, “Voluntary Submission Of Performance Indicator Data” (collecting and reporting data reflecting plant performance during full implementation of revised reactor oversight process)~~

~~— General Statement of Policy and Procedure for NRC Enforcement Actions~~

~~— Manual Chapter 0350, “Oversight of Reactor Facilities in a Shutdown Condition Due to Significant Performance and/or Operational Concerns”~~

~~— Public wWeb site for access to For Frequently Asked QuestionsFAQs:~~

~~— http://www.nrc.gov/reactors/operating/oversight/program_documents.html#pi~~

~~— Internal ROP Web site: <http://nrr10.nrc.gov/rop-digital-city/index.html>~~

~~— External ROP eb site: <http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html>~~

END

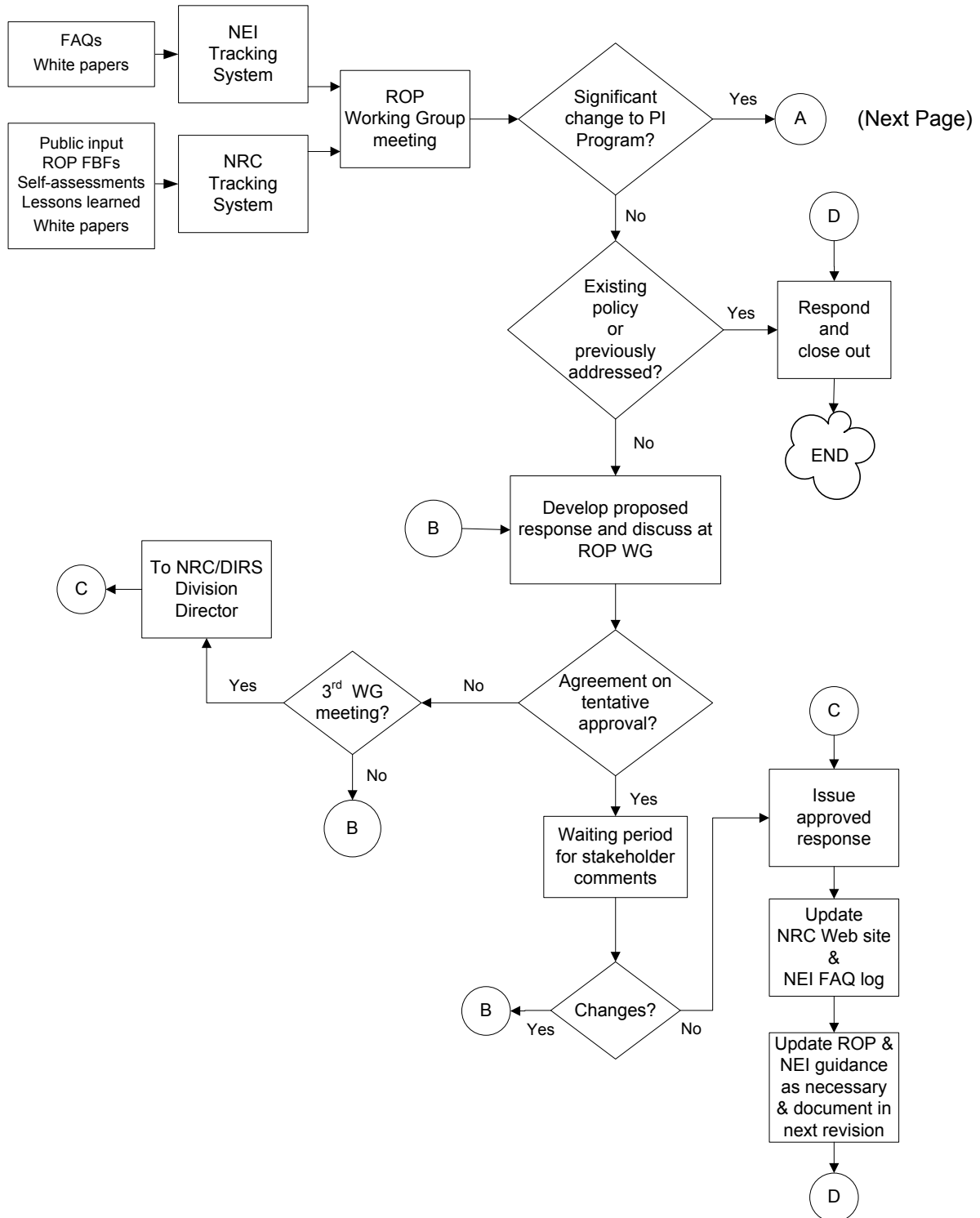
ATTACHMENT 1

Revision History for IMC 0608

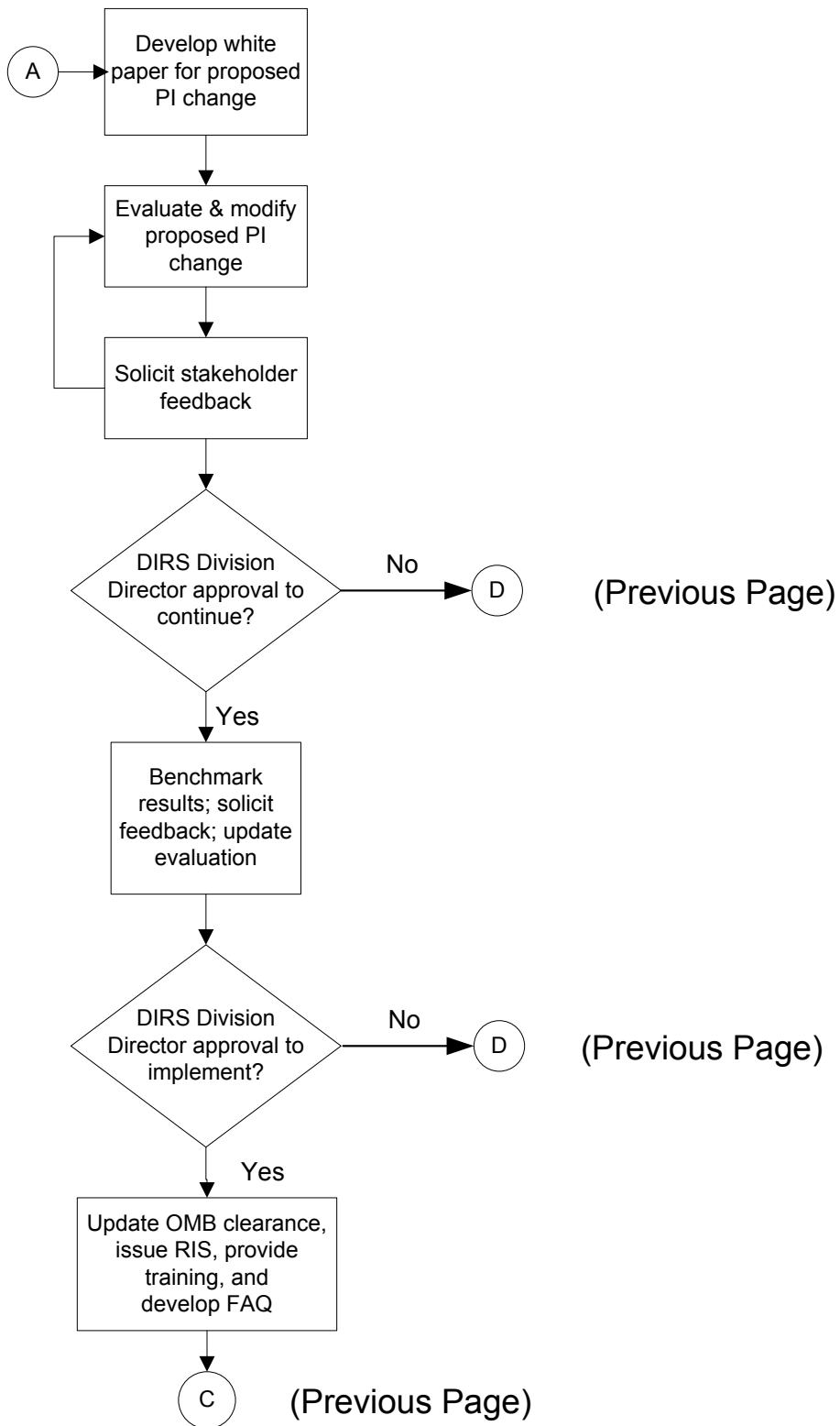
Commitment Tracking Number	Issue Date	Description of Change	Training Completion Date	Comment Resolution Accession Number
N/A	04/21/01 CN 01-012 ML1011270423	IMC 0608 issued.		
N/A	04/16/02 CN 02-017 ML1021190669	Revised to document exclusion of T/2 fault exposure time in SSU PIs, add guidance on how to resolve technical issues that are not covered by the PI program, and add guidance for when a licensee disagrees with HQ's resolution of a feedback form.		
N/A	12/01/04 CN 04-027 ML043560102	Revised to delete information related to the Physical Protection Cornerstone to ensure that potentially useful information is not provided to a possible adversary.		
N/A	02/27/07 CN 07-007 ML070360605	Delete SSU, add MSPI; update flow charts; add definitions	N/A	N/A
N/A	XX/XX/XX CN 12-xxx MLxxxxxxxx	Significant rewrite of questions and feedback section and flowchart. New guidance was added on the white paper process and considerations for developing new PIs. Some background information was removed because it was redundant to and contradicted with IMC 0308. Clarified other portions of guidance. Incorporates ROP FBF 0608-1622.	N/A	MLxxxxxxxx

ATTACHMENT 2

FLOWCHART FOR ADDRESSING QUESTIONS AND FEEDBACK RELATED TO ROP PERFORMANCE INDICATORS



FLOWCHART FOR ADDRESSING QUESTIONS AND FEEDBACK RELATED TO ROP PERFORMANCE INDICATORS (CONTINUED)



**NRC Comments on
FAQ 12-01 (~~Proposed~~) re. Columbia DG3 Failure
For May 2, 2012 ROP WG Meeting**

Plant: Columbia Generating Station (CGS)

Date of Event: February 28, 2010

Submittal Date: March 6, 2012

Licensee Contact: Richard Wolfgramm

Tel/email: (509) 377-4174

rpwolfgramm@energy-northwest.com

NRC Contact: Jeremy Groom

Tel/email: (509) 377-2112

jeremy.groom@nrc.gov

Performance Indicator: MS06

Site-Specific FAQ (Appendix D)? Yes or No: Yes

FAQ requested to become effective when approved.

Question Section

NEI 99-02 Guidance needing interpretation (include page and line citation):

The guidance in question is on page F-26, lines 3 through 15, of NEI 99-02, Rev 6.

- 3 EDG failure to start: A failure to start includes those failures up to the point the EDG has
- 4 achieved required speed and voltage. (Exclude post maintenance tests, unless the cause of failure
- 5 was independent of the maintenance performed.)
- 6
- 7 EDG failure to load/run: Given that it has successfully started, a failure of the EDG output
- 8 breaker to close, **to successfully load sequence and to run/operate for one hour to perform its**
- 9 **monitored functions**. This failure mode is treated as a demand failure for calculation purposes.
- 10 (Exclude post maintenance tests, unless the cause of failure was independent of the maintenance
- 11 performed.)
- 12
- 13 EDG failure to run: Given that it has successfully started and loaded and run for an hour, a failure
- 14 of an EDG to run/operate. (Exclude post maintenance tests, unless the cause of failure was
- 15 independent of the maintenance performed.)

Event or circumstances requiring guidance interpretation:

On February 28, 2010, CGS was testing an Emergency Diesel Generator (EDG). Refer to figure 1 for Load and Current trace of the subject event. The EDG successfully started, the EDG output breaker successfully closed (T = 0 minutes), the EDG successfully load sequenced up to fully loaded (T = 21 minutes), after 45 minutes the EDG experienced unexpected load oscillations of 350 kw (T = 66 minutes), after 17 minutes the load was lowered (T = 83 minutes) and the 350 kw oscillations were observed to continue another 16 minutes of operation until the EDG was unloaded (T = 99 minutes) and shut down.

When the EDG was shutdown, plant staff made a log entry stating, "After running DG3 **fully loaded over an hour** per SOP-DG3-START, observed ... Swings from 300 to 320 amps, Swings from 2200 to 2500 KW ...". Root cause investigation later identified that the governor actuator had failed 45 minutes after reaching full load (T = 66 minutes). At that point the EDG was no longer capable of performing its monitored function. The MSPI Basis Document identifies that the monitored function is to provide 4160 VAC emergency power to safety related Division 3 HPCS equipment and has a mission time of 24 hours. The frequency and magnitude of load oscillations were such that the DG could not have provided power to required safety related loads for 24 hours. To be clear, the EDG did run for more than an hour after breaker closure, but only 45 minutes after reaching full load at which point it was no longer capable of

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performing its monitored function. This was interpreted as an “EDG Failure to Load/Run” based on the guidance in effect at the time and was reported as such.

On October 26, 2011, FAQ Number 487 was issued with an effective date of January 1, 2012, meaning that licensees will begin applying the FAQ resolution to 1Q2012 data reported to NRC in April 2012. The FAQ clarified that the one hour time limit for differentiating between an “EDG Failure to Load/Run” and an “EDG Failure to Run” is after the EDG output breaker successfully closed. The FAQ resolution was needed because the definitions of “EDG Failure to Start”, “EDG Failure to Load/Run”, and “EDG Failure to Run” were confusing and contradictory. Information Systems Laboratories, Inc, performed a review for the NRC of EDG and Fuel Oil Transfer Pump failures to support the changes to the EDG failure definitions. In the report, it specifies that the key differences between NEI 99-02, Rev 6, and the proposed changes includes changes to the load/run failure definition from the failure to successfully load sequence and run/operate for one hour to the failure to run for one hour after breaker has received a signal to close and clarification of run failure to not require the EDG to be fully loaded. The primary objective of the failure definition changes is to sharpen the transition points between the three failure modes.

If licensee and NRC resident/region do not agree on the facts and circumstances explain:

CGS and the CGS NRC Senior Resident Inspector (SRI) do not agree that CGS properly reported the February 28, 2010 EDG failure. NEI 99-02 defines “EDG failure to load/run”. In part, it states: “Given that it has successfully started, a failure of the EDG output breaker to close, to successfully load sequence and to run/operate for **one hour** to perform its monitored functions.” The intent of this FAQ is to clarify that based on the guidance available at the time the start time for the “one hour” period begins once the EDG has completed its load sequence and is loaded (at T=21 and not at T=0 (as per figure 1)). Based on the response to FAQ Number 487, CGS understands that as of 1/1/2012 the “one hour” period begins at output breaker closure (T=0 per figure 1).

RESIDENT INSPECTOR POSITION

The inspectors disagree with the licensee’s position that NEI 99-02, Revision 6, in effect at the time the February 28, 2010 diesel failure, would require this issue to be reported as an “EDG failure to load run”. For the February 28, 2010 diesel failure at Columbia Generating Station, please consider the following sequence of events:

Time on 2/28/10	Event	Elapsed Time following DG Output Breaker Closure
1:40 AM	Division 3 Diesel Generator (DG-3) is Started for testing	N/A
1:57 AM	DG-3 Field is Flashed	N/A
2:16 AM	DG-3 Output Breaker is Shut (some load is immediately placed on the component)	T=0
2:37 AM	DG-3 is fully loaded	T + 21 minutes
3:22 AM	DG-3 first exhibits load oscillations	T + 66 minutes
3:55 AM	DG-3 is unloaded	T + 99 minutes
4:36 AM	DG-3 is secured	T + 140 minutes

Based on the timeline associated with the February 28, 2010 diesel failure, the resident inspectors believe that evaluation under the existing guidance at the time of the issue (NEI 99-02, Revision 6) should have determined that this particular diesel failure is an “EDG failure to run”. The two key points

**NRC Comments on
FAQ 12-01 (~~Proposed~~) re. Columbia DG3 Failure
For May 2, 2012 ROP WG Meeting**

for determining the type of failure should be the time the diesel generator output breaker is closed and the time the monitored function is lost.

The inspectors believe that the 1 hour clock that distinguishes the differences between “failure to load run” and a “failure to run” begins at the time the diesel output breaker is shut (in this case, 2:16 AM). Assigning T=0 at breaker closure as opposed to T=21 when full load is reached is more appropriate in this case because the slow loading sequence used during this particular procedure is not representative of how the component performs its monitored function. The inspectors believe that the definition of failure to load run which includes the phrase “the generator successfully load sequenced” is meant to describe how the equipment would respond in an accident condition (short duration load sequence) rather than the 21 minute slow loading that was performed as part of the standard operating procedure.

NEI 99-02 states that only failures that occur when a component fails to run/operate for one hour to perform its monitored functions should be considered “EDG failure to load/run”. Specifically, NEI 99-02, Revision 6, Page F-26, Lines 7-9 states:

EDG failure to load/run: Given that it has successfully started, a failure of the EDG output breaker to close, to successfully load sequence and to run/operate for one hour to perform its monitored functions.

Given this definition, the question becomes “could DG-3 have successfully started, the output breaker closed, the generator successfully load sequenced and the component operated to provide its monitored function for one hour?”

Per the Columbia Generating Station MSPI Basis document, the monitored function of DG-3 is to provide 4160V emergency power to safety related Division 3 high pressure core spray (HPCS) equipment. The diesel run performed on February 28, 2010 does not directly test if DG-3 is capable of providing its monitored function (i.e. power is not provided to HPCS components and the generator is not load sequenced). However, the test that occurred on February 28, 2010 did reveal that if called upon, the engine would start, the diesel output breaker would shut and the engine would load and run for greater than one hour. The failure mechanism (foreign material in the governor) is independent of load and the slow loading sequence used during this particular procedure does not in any way demonstrate the diesel’s ability to perform its monitored function. What is important is that the generator can supply power to the 4160V bus SM-4 which the component demonstrated the moment the output breaker was closed.

Additionally, Energy Northwest’s position that the 1-hour clock starts when the diesel is fully loaded is not consistent with the failure definitions described in NEI 99-02, Revision 6. Specifically, if anything but diesel generator output breaker closure starts the 1-hour clock, then the load/run period would lengthen to something greater than 1-hour. In the case of the February 28, 2010 event, loading of the diesel took approximately 21 minutes, therefore the load/run period would be lengthened to 1 hour and 21 minutes. This is contrary to the NEI 99-02, Revision 6 definition of “EDG failure to load run” which includes only those failures to run/operate for one hour.

Regardless of the time the 1 hour clock started, the resident inspectors believe that this failure should be considered as an “EDG failure to run”. Plant data revealed that at 3:22 AM, DG-3 began to exhibit degraded performance but still provided an average (based on 1 minute average) of >2547 KW which is sufficient to meet all post-accident loads. The diesel engine was allowed to continue to operate until about 3:42 AM when the control room operators logged that after running DG-3 fully loaded for **over an**

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hour (emphasis added), the component exhibited load swings of 200-300 KW. The component was secured due to the degraded performance shortly after the operators logged the issue with DG-3. Since the component continued to operate after observing the degraded performance, it is not clear if the monitored function was immediately lost or if the component would have continued to operate for its required mission time. To date, the licensee has not performed an engineering evaluation of the degraded condition to determine at what point the monitored function was lost. The inspectors believe that a strong case can be made that a run failure should be assigned based on NEI 99-02, Revision 6, Page F-28, Lines 28-31

For a running component that is secured from operation due to observed degraded performance, but prior to failure, then a run failure shall be assumed unless evaluation of the condition shows that the component would have continued to operate for the mission time starting from the time the component was secured.

INSPECTOR'S PROPOSED ALTERNATE RESOLUTION

On February 28, 2010, the DG-3 at Columbia Generating Station started, loaded and ran for greater than one hour and would have been able to perform its monitored function of supplying power to HPCS equipment. After 66 minutes of operation, the engine first exhibited degraded performance. After 86 minutes of operations, the operators determined (as indicated in the control room log) that performance had degraded to the point that there was no longer reasonable assurance the monitored function could still be provided and the engine was secured. Per the guidance in NEI 99-02, Revision 6, as stated above, this failure should be classified as an "EDG failure to run".

Potentially relevant existing FAQ numbers
FAQ Number 487

Response Section

Proposed Resolution of FAQ

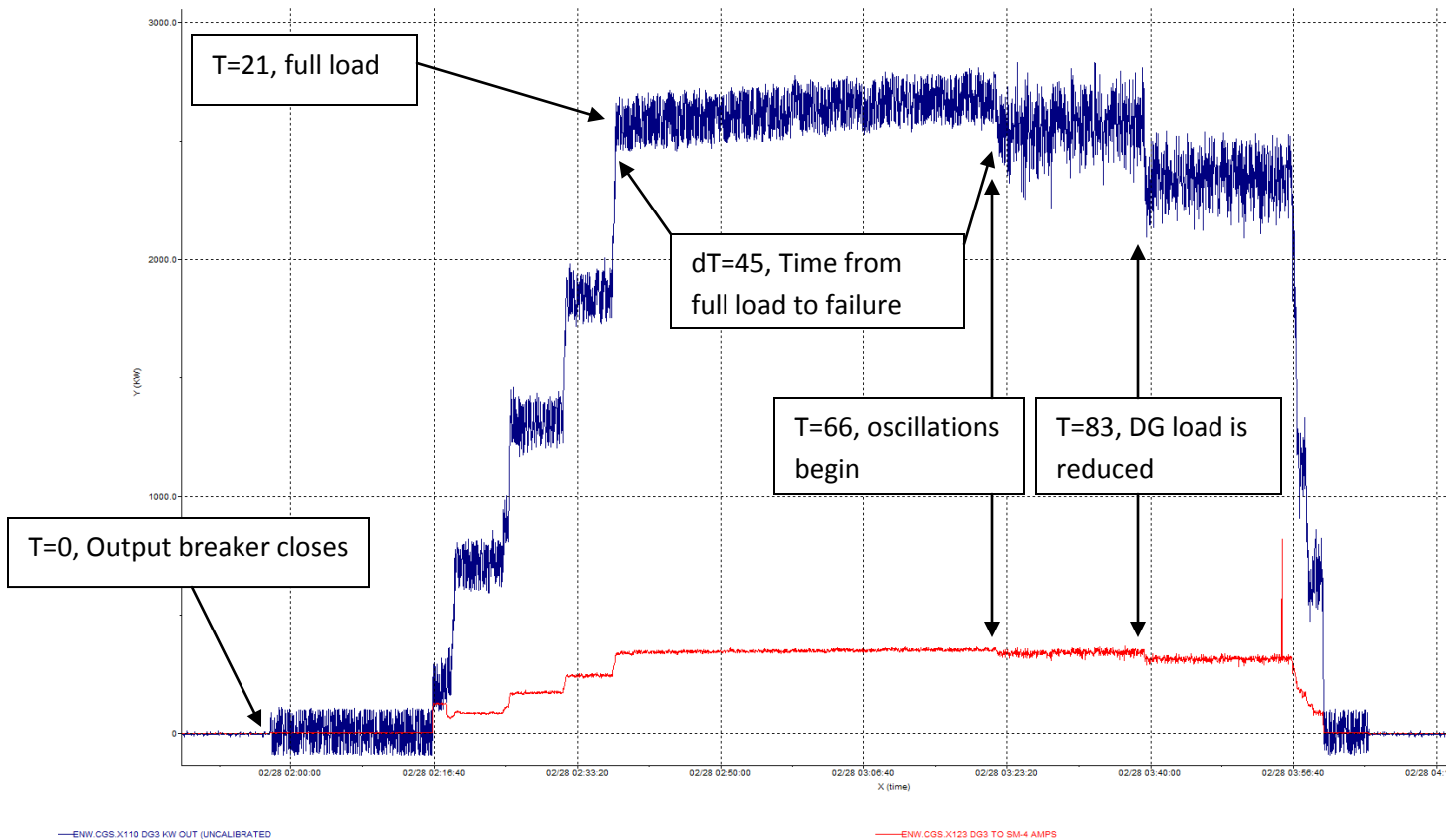
Based on the guidance available at the time of the event (Feb 2010), the one hour time period referred to in the definition of "EDG failure to load/run" begins once the EDG has successfully load sequenced to fully loaded conditions. Based on the response to FAQ Number 487, given the same event today (after 1/1/2012), the "one hour" time period begins at output breaker closure.

If appropriate, provide proposed rewording of guidance for inclusion in next revision.

None. Proposed wording included under FAQ 487 is clear and it is already our intent to comply with it.

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Figure 1, Load and current profile during DG3 Operation on 2/28/10



NRC Tentative Response:

NEI 99-02, Revision 6, page F-26, lines 7-9, states, “*EDG failure to load/run*: Given that it has successfully started, a failure of the EDG output breaker to close, to successfully load sequence and to run/operate for one hour to perform its monitored functions.” NEI 99-02, Revision 6, page F-26, lines 13-15, states, “*EDG failure to run*: Given that it has successfully started and loaded and run for an hour, a failure of an EDG to run/operate.” The footnote on page 3 of Revision 6 of NEI 99-02 states, “Changes to data collection rules or practices required by the current revision of this document will not be applied retroactively to previously submitted data. Previously submitted data will not require correction or amendment provided it was collected and reported consistent with the NEI 99-02 revision and FAQ guidance in effect at the time of submittal.”

FAQ 11-08, which improved and clarified the EDG failure characterizations, became effective starting with 1Q2012 PI data (after the EDG failure in question at Columbia). Despite the FAQ approval and effective date and the ambiguity of the NEI 99-02 phrasing in effect at the time of the EDG failure, it was the intent of the Revision 6

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guidance in effect at the time of the EDG failure in question (i.e., the guidance in effect before approval of FAQ 11-08) to consider this EDG failure as a failure-to-run. The basis for this decision is described as follows.

The “to successfully load sequence and to run/operate for one hour” wording in the EDG failure-to-load/run definition does not convey the intent that the EDG should not be considered running or operating during load sequencing. For example, the guidance does not use the word “then” to denote any intent that the EDG had to be “fully” loaded prior to being able to consider it running and operating. In addition, NEI 99-02 does not state that the EDG has to be fully loaded in order to start the 1-hour period. The EDG had load on it right after the breaker closed; therefore, the NRC considers the EDG to have been “loaded” at this point.

In addition, NEI 99-02 does not define what it means for an EDG to be fully loaded, nor does it require that an EDG be “fully loaded.” It does not state whether fully loaded means that the EDG was operated at its design basis loading values, at its maximum load for the current application or test run, or operated at the vendor-specified continuous load rating. Given the ambiguity associated with what it means for an EDG to be “fully loaded,” NRC staff does not consider “fully loaded” to be a condition in which to start the 1-hour time clock.

Because the EDG definitions guidance in NEI 99-02 prior to FAQ 11-08 needed improvement and clarification, the NRC staff evaluated this issue based on the characteristics of the EDG failure (i.e., the functional response of the EDG and the failure mechanism), the intent of the NEI 99-02 guidance at the time of the failure, and applying reasonable decision-making given the guidance in effect at the time of the failure. The oscillations were caused by foreign material in the governor – a condition which had existed for several years and which did not impact prior breaker closure and sequencing operations. Figure 1 in this FAQ shows that the oscillations did not occur during the breaker closure or the load sequencing or gradual loading action. Rather, the oscillations occurred 66 minutes after breaker closure and 45 minutes after the full load (for purposes of the test run) was achieved, which is indicative of a challenge to the EDG’s ability to continue to run for its mission time. Even though the foreign material existed in the governor for several years, the EDG had started and load sequenced several times without failure. Therefore, this failure appears to have been exacerbated by the running of the EDG.

The licensee requested that the FAQ resolution clarify that based on the guidance available at the time of the EDG failure, the start time for the “one hour” period begins

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once the EDG has completed its load sequence and is loaded (at T=21 and not at T=0 (as per Figure 1)). The licensee's proposed resolution would contradict the FAQ 11-08 resolution and could result licensees reclassifying past EDG failures in a non-conservative manner, which would be unacceptable to the NRC. FAQ 11-08 reflects the intent of the guidance in effect at the time of this failure.

Because Figure 1 data is more reflective of an EDG failure-to-run for its mission time rather than a loading failure and the intent of NEI 99-02 at the time of the failure was clarified via FAQ 11-08, the EDG failure at Columbia should have been reported as a failure-to-run. The staff would have reached the same decision prior to the existence of FAQ 11-08 if the issue had been raised at the time; therefore, this decision does not contradict the footnote on page 3 of NEI 99-02.