NEI Reactor Oversight Process Task Force Whitepaper -
Proposal to ~~Replace~~ Swap the ANS PI with an ERFER PI

Introduction

This Reactor Oversight Process (ROP) Whitepaper proposes to ~~replace~~ swap the Alert and Notification System (ANS) performance indicator (PI) with an Emergency Response Facility and Equipment Readiness (ERFER) PI. The proposed change is driven by the growing number of sites replacing their offsite siren system with one that uses the Integrated Public Alert and Warning System (IPAWS)[1]/-Wireless Emergency Alert (WEA) System as the primary method to accomplish prompt public alerting and notification during a radiological emergency. If adopted, this change would affect the guidance in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," and the PI databases maintained by the U.S. Nuclear Regulatory Commission (NRC) and the Institute of Nuclear Power Operations (INPO).~~—~~

Additionally, a change to add a corresponding emergency action level (EAL) to NEI 99-01, Revision 7 (Proposed), is recommended as well as a revision to 10 CFR 50.72 notification requirements for emergency response facility readiness. Each of these will be addressed in more detail via the change management process applicable to each.

NEI 99-02 Section Affected

The change proposed by this whitepaper affects the entirety of the NEI 99-02 section entitled, "Alert and Notification System Reliability," which is presented on pages 60 through 64 of Revision 7.[2] The guidance in this section would be replaced with the guidance shown below, under "Proposed Changes to NEI 99-02." The associated elements in the ~~NRC and INPO PI databases~~associated reporting databases would also need to be changed such that licensees could report data for the new ERFER PI.

Discussion

~~Until recently, each~~Most nuclear power plant licensee had provisions to collect and report data for the ANS PI described in NEI 99-02. This indicator monitors the reliability of sirens as the ~~offsite~~ primary means of ANS, a critical link for alerting and notifying the public of the need to take protective actions. It provides the percentage of the sirens that are capable of performing their safety function based on regularly scheduled tests; however, sites have begun replacing offsite siren systems with ~~the~~ IPAWS/-WEA as the primary method to accomplish prompt public alert and notification~~ing~~ during a radiological emergency. For a site that has replaced an offsite siren system with IPAWS/–WEA, the ANS PI is moot for performance assessment purposes (i.e., there is no siren data to report).~~—~~

[1] Information about IPAWS can be found here.
[2] Refer to ADAMS Accession Number ML13261A116.

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~~Looking further back, t~~Note that the NRC staff had addressed the topic of replacing the ANS PI with "an emergency response facility (ERF) readiness PI" in Enclosure 5, "Emergency Preparedness Area,"[3] of SECY-19-0067, "Recommendations for Enhancing the Reactor Oversight Process,"[4] dated June 28, 2019. In addition to eliminating the impact from IPAWS adoption, the staff noted that replacing the ANS PI with an ERF readiness PI would "permit licensees to utilize the ROP EP PIs to satisfy the requirements of 10 CFR 50.54(t)(1)(ii) to extend the 12-month review frequency to a 24-month review frequency of a licensee's EP program." The Commission has not yet voted on SECY-19-0067.This SECY has been rescinded pending further review .

Because several sites have recently transitioned their primary ~~prompt public alerting~~ANS method from offsite sirens to IPAWS/-WEA, the NRC and INPO are currently ~~exploring~~ utilizing data-entry "work-arounds" for sites that are not reporting ANS PI data. The work-arounds are needed to enable the INPO PI data collection system (IRIS) to produce a PI data file the NRC's data system can accept when the ANS PI data is not reported. NEI and NRC staff believe~~s~~ that the resources necessary to make the changes at NRC and INPO could be better used by modifying the data systems to support the use of the ERFER PI.

Given the events discussed above, the NRC staff has suggested that it may be appropriate to seek Commission approval ~~on~~ to ~~the narrow question of moving forward with an ERFER PI to replace the ANS PI~~swap the ANS-PI with an ERFER-PI. NEI supports that approach.

Proposed Change to NEI 99-02

The proposed change to NEI 99-02 is presented below, beginning on the next page; this guidance would replace the existing ANS PI guidance.

The approach used for ROP ERFER PI is the same as that used for the ERFER PI described in the ~~NRC-endorsed~~ NEI White Paper, "Implementing a 24-Month Frequency for Emergency Preparedness Program Reviews~~,~~."[5] Endorsed in Revision 6 of Regulatory Guide (RG) 1.101, "Emergency Response Planning and Preparedness for Nuclear Power Reactors" issued June 2021.[6] ~~As stated in Enclosure 5 of SECY-19-0067, this makes "Efficient use of the ROP (as revised) to extend the review frequency in Title 10 of the Code of Federal Regulations (10 CFR) 50.54(t) from 12 months to 24 months." Both PIs are~~This PI is focused on the Technical Support Center (TSC)~~, Operational Support Center (OSC)~~ and Emergency Operations Facility (EOF) only. All of the other emergency response facilities, while a key contributor to effective implementation of the emergency plan, do not meet the intent of this PI.

~~[3] Refer to ADAMS Accession Number ML19070A045.~~
~~[4] Refer to ADAMS Accession Number ML19070A050.~~
[5] Refer to ADAMS Accession Number ML19344C419.
[6] Refer to ADAMS Accession Number ML21111A090.

~~out-of-service time for emergency response facilities and equipment needed by a licensee to perform Risk Significant Planning Standard (RSPS) functions, and whether a compensatory measure was implemented. The selected out-of-service times are appropriate for the intended use of each PI:~~

- ~~24 hours for requiring an accelerated independent EP program review~~
- ~~168 hours for an ERFER PI White status~~

~~To promote understanding of the relationship between the ROP ERFER PI and the NEI White Paper ERFER PI, it is proposed to include text in the Clarifying Notes section of the ROP ERFER PI specifically indicating that use of the ROP ERFER PI with a different out-of-service time – 24 hours instead of 168 hours – would permit a licensee to utilize the ROP ERFER PI to satisfy the requirements of 10 CFR 50.54(t)(1)(ii). The 24-hour threshold is contained in the ERFER PI described in the NEI White Paper. It should be noted that the White Paper already addresses the use of the ROP Drill and Exercise Performance (DEP) indicator and the Emergency Response Organization (ERO) PI as indicators to support the implementation of a 24-month review frequency.~~

The threshold for the ERFER-PI was set at ≥ 1 per quarter based on professional judgment that a facility or equipment condition involving a prolonged loss of a RSPS function or response action with no Compensatory Measure(s) implemented represents performance outside an expected range of nominal performance.~~The threshold for the ROP ERFER PI was set at ≥ 1 per quarter based on professional judgment that the inability to perform an RSPS function for greater than 168 hours represents performance outside an expected range of nominal utility performance.~~

The anticipated path forward to implementation of the ERFER PI includes these actions:

(1) Gain alignment between the industry and the NRC on the ERFER PI described in this ROP White Paper.

(2) NEI to submit a ROP whitepaper/FAQ to formally seek the necessary change to NEI 99-02.

(3) Public meeting engagement to agree on the resolution of the ROP whitepaper/FAQ, ~~including an implementation schedule; and~~

~~(3)~~(4) NRC to develop and submit a SECY to obtain Commission approval in accordance with Management Directive (MD) 8.13, "Reactor Oversight Process."

(4) NRC and INPO to modify their data systems to accommodate the new ERFER PI, and~~.~~

(5) Licensees to implement the whitepaper/FAQ, as approved by the Commission, at a schedule agreeable to the industry and the NRC (to be determined).

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Emergency Response Facility and Equipment Readiness

Purpose

The Emergency Response Facility and Equipment Readiness (ERFER) performance indicator measures licensee performance in maintaining the emergency response facilities and equipment of greater importance to the protection of public health and safety. It reflects the ability of the licensee to perform the surveillance, testing, inventory, and preventative and corrective maintenance activities that contribute to the availability of emergency response facilities and equipment necessary to implement Risk Significant Planning Standard (RSPS) functions and response actions.~~effectiveness in maintaining the emergency response facilities and equipment of greater importance to the effective implementation of licensee emergency plans for the protection of public health and safety from the consequences of a radiological event.~~

Indicator Definition

The Technical Support Center (TSC)~~, Operational Support Center (OSC),~~ or Emergency Operations Facility (EOF) is nonfunctional, or equipment necessary to implement the emergency plan is not available or functional, such that an RSPS function or response action could not be performed for greater than ~~24~~168 continuous hours from the Time of Discovery (TOD) and no Compensatory Measure(s) was implemented. ~~The number of occurrences during a quarter that a Risk Significant Planning Standard (RSPS) function could not be performed, or was significantly inhibited, for greater than 168 continuous hours due to an issue with an emergency response facility or piece ofapplicable emergency response equipment.~~

Data Reporting Elements

The following data are required to calculate this indicator:

The number of instances that the TSC~~, OSC,~~ or EOF is nonfunctional, or equipment necessary to implement the emergency plan is not available or functional, such that an RSPS function or response action could not be performed for greater than ~~24~~168 hours from the ~~Time of Discovery (~~TOD~~)~~ and no Compensatory Measure(s) was implemented.~~The number of occurrences that an issue with an emergency response facility or piece ofapplicable emergency response equipment prevented, or significantly inhibited, the performance of an RSPS function for greater than 168 hours continuous hours and no Compensatory Measure was implemented.~~

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Calculation

Count the number of instances that the TSC~~, OSC,~~ or EOF is nonfunctional, or equipment necessary to implement the emergency plan is not available or functional, such that an RSPS function or response action could not be performed for greater than ~~24~~168 hours from the ~~Time of Discovery~~TOD and no Compensatory Measure(s) was implemented. ~~The site value for this indicator is calculated as follows:~~

~~Count the number occurrences where: (See Clarifying Notes below.)~~

1. ~~An issue with an emergency response facility or piece of~~applicable ~~emergency response equipment prevented, or significantly inhibited, the performance of an RSPS function, AND~~
2. ~~The period during which the issue existed was greater than~~ at least ~~168 hours from the Time of Discovery, AND~~
3. ~~A Compensatory Measure was not implemented within 48 hours from the Time of Discovery during the 168 hour period.~~

Definition of Terms

The definition of the terms "Risk Significant Planning Standard function," "Time of Discovery," and "Compensatory Measure" are those described in NRC Inspection Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process."[7]

Clarifying Notes

The ERFER ~~indicator~~ PI reflects the ability of a licensee to perform the surveillance, testing, inventory, and preventative and corrective maintenance activities that contribute to the availability of the facilities and equipment necessary to accomplish RSPS functions.

Consistent with the Performance Indicator Definition, a facility or equipment issue must be impactful enough to prevent the performance of an RSPS function (e.g., an action necessary to implement an RSPS function cannot be performed); a degraded capability to perform a function should not be counted. A Compensatory Measure need not meet the same design or operating requirements as the methods normally used to perform an RSPS function or response action; however, its effectiveness should be sufficient to ensure that the supported function or action would be accomplished during an actual emergency, albeit in a possibly degraded manner.

To be counted towards the performance indicator, the occurrence of a given facility or equipment issue must exceed ~~168 24~~168 hours during one continuous period (i.e., continuous hours) in one quarter. The starting point of the issue should be determined in accordance with the "Time of Discovery" guidance in NRC Inspection Manual Chapter 0609, Appendix B. Further, if an equipment issue affects performance of an RSPS function or response action at multiple facilities (e.g., loss of common computer or communications system) but the impact started at different times depending on the facility, then the performance indicator assessment should use the longest out-of-service time.

If the licensee reports a lost RSPS function or response action under this performance indicator but later determines that the capability was not lost (e.g., through a subsequent engineering analysis), then the performance indicator data should be revised accordingly. This analysis shall be documented in the licensee's corrective action program and is subject to inspection.

[7] See Inspection Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process", Issue Date September 22, 2015, (ADAMS ML15128A462), Section 2.0, Definitions, Abbreviations, and Acronyms.

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Each instance of a TSC or EOF being unavailable for ≥ 12-hours from TOD should be documented in the licensee's corrective action program if this unavailability is unplanned regardless if a Compensatory Measure is implemented. Excessive unplanned unavailability occurrences (i.e., ≥ 4 occurrences/facility over a 4-quarter period) are subject to inspection. Note that if a licensee chooses to implement an EAL related to TSC or EOF unavailability, then the number of classified events over this period can suffice to track this concern.

NOTE: ~~At a licensee's discretion, the ERFER PI described in this section may be used as a PI to satisfy the requirements of 10 CFR 50.54(t)(1)(ii) to extend the 12-month review frequency of a licensee's EP program to 24-months. To do this, the licensee would:~~

- *~~Substitute/replace the ERFER PI described in NEI White Paper, "Implementing a 24-Month Frequency for Emergency Preparedness Program Reviews," dated November 2019 (ML19344C419) with the ERFER PI described in this section, AND~~*
- *~~Change the out-of-service time of the PI being used to satisfy the requirements of 10 CFR 50.54(t)(1)(ii) from 168 hours to 24 hours (i.e., 24 hours is for the 10 CFR 50.54(t)(1)(ii) PI only). The out-of-service time of the ROP ERFER PI remains 168 hours.~~ A licensee that desires to use the ROP to justify a 24-month review frequency, per 10 CFR 50.54(t)(1)(ii) can do so as long as the licensee reviews the effectiveness of the interface between offsite response agencies and the onsite emergency response organization on ~~an~~ a 12-month (365-day) frequency.*

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Data Example

Threshold

- White ≥ 1/quarter
- Yellow ≥ 3/quarter~~N/A~~
- Red N/A