ENCLOSURE 3

Meeting Handouts

Meeting Summary of the December 2009 Reactor Oversight Process (ROP) Meeting Handouts

December 29, 2009

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NRC Staff White Paper

A Comparison of International and US Nuclear Industry Performance Indicators to the Current ROP Performance Indicator Program

Purpose

The purpose of this paper is to evaluate international and US nuclear industry performance indicators[1] and consider the potential applicability of those performance indicators (PIs) to the Reactor Oversight Process (ROP) Performance Indicator Program.

Approach

The staff performed a comparison of the ROP safety cornerstones to the international nuclear industry safety cornerstones. This high level comparison shows the general commonalities and differences between the two cornerstone philosophies.

The staff reviewed the international cornerstones to help identify a set of PIs that could potentially be applicable to the ROP.

The international performance indicators were combined with current US industry practices minus the current set of PIs covered by the ROP PI Program. This combined group of indicators was rank ordered based on the key indicator attributes as discussed below. A simple scale ranging from 1 - 4 was used where 1 is considered most desirable. Each attribute was equally weighted and summed. The concept of assigning weighting factors to each attribute was discussed and could potentially be implemented in a future revision to this document. The indicators with the lower total scores represent the best candidate performance indicator. Note that the PI scoring criteria is currently an initial estimation based on qualitative information.

Current ROP Indicators

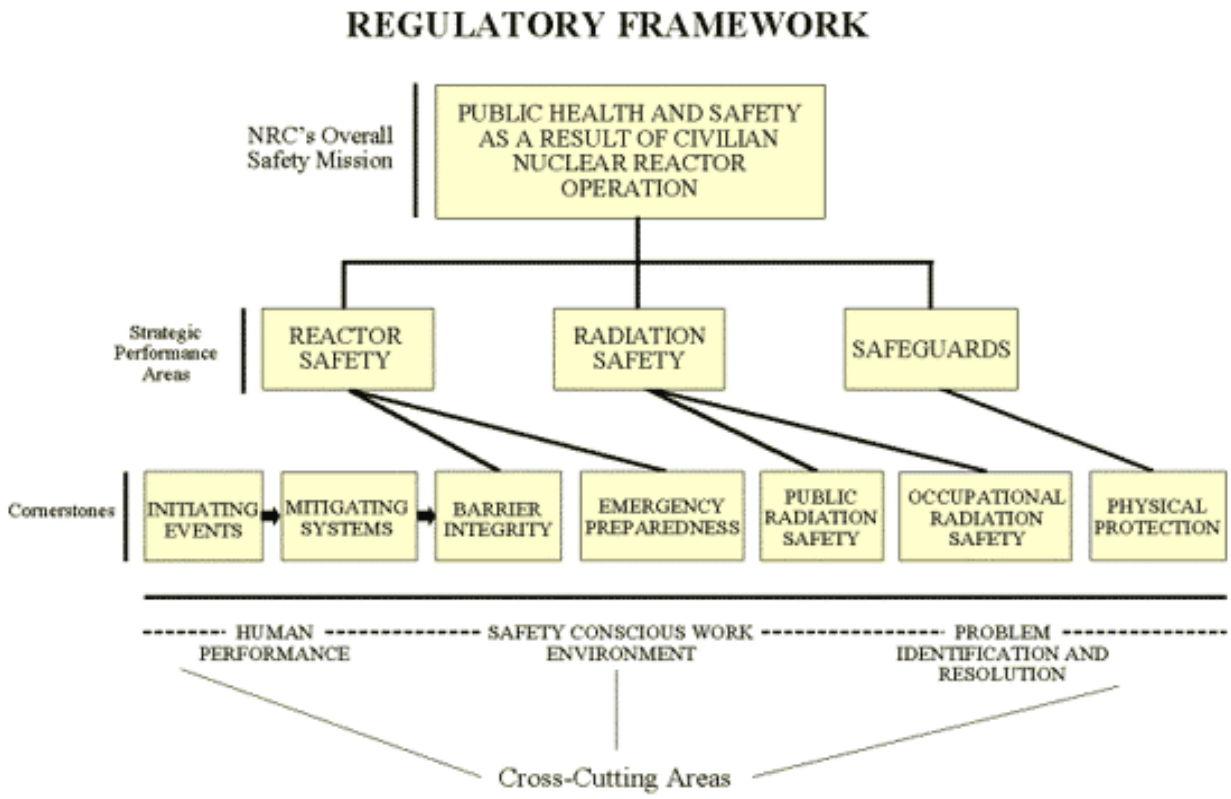
Table 1 shows the current set of U.S ROP Indicators.

These indicators historically have been grouped by cornerstones that reflect the essential safety aspects of facility operation.

[1] US nuclear industry performance indicators refer to performance indicators that are tracked by the US nuclear industry and are not part of the ROP Performance Indicator Program

Table 1: U.S. ROP Indicators

Cornerstone	Indicator	Description
Initiating Events	IE01	Unplanned Scrams
	IE03	Unplanned Power Changes
	IE04	Unplanned Scrams with Complications
Mitigating Systems	MS05	Safety System Functional failures
	MS06	MSPI – Emergency AS Power Systems
	MS07	MSPI – High Pressure Injection Systems
	MS08	MSPI – Heat Removal Systems
	MS09	MSPI – Residual Heat Removal Systems
	MS10	MSPI – Cooling Water Systems
Barriers	BI01	RCS Specific Activity
	BI02	RCS Identified Leak Rate
Emergency Preparedness	EP01	Drill/Exercise Performance
	EP02	ERO Drill Participation
	EP03	Alert and Notification System Reliability
Occupational Radiation Safety	OR01	Occupational Exposure Control Effectiveness (occurrences during previous 4 quarters)
Public Radiation Safety	PR01	Radiological Effluent Technical Specification (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrence (occurrences during previous 4 quarters)
Physical Protection	PP01	Protected Area Security Equipment Performance



In addition to the cornerstones, the reactor oversight program features three "cross-cutting" elements so named because they affect and are therefore part of each of the cornerstones:

Human performance – performance characteristics that pertain to personnel, resources, or organization

Problem Identification and Resolution – performance characteristics that pertain to identification, evaluation, or corrective action

Safety-conscious work environment – management's attention to safety and workers' ability to raise safety issues

For the purposes of this paper, these three cross-cutting areas are addressed generically address under the category of safety conscious work environment or safety culture discussed later in this paper.

International Practices

A review of international practices was performed based primarily on the joint NEA Committee on the Safety of Nuclear Installations (CSNI) and the Committee on Nuclear Regulatory Activities (CNRA) report that resulted from the work performed by the CSNI/CNRA Task Group on Safety Performance Indicators during 2002-2005 (Reference 1). This report also used the concept of cornerstones. The seven cornerstones are shown in Table 2.

Table 2: Cornerstone Gap Analysis

International Cornerstone	Addressed by U.S. ROP	Comment
Reactor Safety	Yes	
Radiation Safety	Yes	
Industrial Safety	No	Includes Fire Safety and Occupational Safety. Occupational safety is not within scope of the NRC mission.
Global Plant Performance1	No	
Safety Management / Safety-related processes2	Limited – EP Only3	Limited coverage by current indicators.
Physical Protection/Security	Yes	
Investment4	No	Not within scope of the NRC charter

Notes

1. Addresses plant performance issues such as forced outage rate, unplanned capability loss, production loss due to failures, forced loss rate, capacity factor, etc.
2. See Safety Conscious Work Environment Discussion.
3. Emergency Planning is not considered a separate cornerstone in NEA/CNRA (2006). The Safety Management / Safety-related processes cornerstone includes: Human performance, compliance, operational preparedness, emergency preparedness, management of plant modifications, maintenance, self-assessment, operating experience, and backlog of safety issues. This cornerstone is similar to the elements addressed by the safety conscious work environment.
4. Addresses investments to plant maintenance and modifications.

Cornerstone Gap Analysis

As can be seen in Table 2, two high level differences appear to exist between the International cornerstones and those addressed by the ROP. These include the fire safety portion of the industry safety cornerstone and the broad area of safety management (i.e., safety conscious work environment).

WANO Performance Indicators

The World Association of Nuclear Operators (WANO) performance indicators were also considered in this evaluation. WANO is an organization formed in 1989 to improve safety at every nuclear power plant in the world. WANO monitors 11 performance indicators to enable members to exchange information and assess the performance of their plants. Eight of these indicators are actively used by the U.S. industry. The WANO indicators are shown in Table 3.

Table 3: WANO Indicators

	International Cornerstone	Comment
1	Collective Radiation Exposure	Effectiveness of personnel radiation exposure controls. (Man-Sieverts per Unit)
2	Fuel Reliability	Progress in preventing defects in the metal cladding the surrounds fuel
3	Unplanned Automatic Scrams per 7,000 Hours Critical	Mean scram rate for approximately one year of operation
4	Forced Loss Rate	Percentage of energy generation during non-outage periods that a plant is not capable of supplying to the electrical grid because of unplanned energy losses
5	Unit Capability Factor	Percentage of maximum energy generation that a plant is capable of supplying to the electrical grid limited only by factors within control of plant management
6	Safety System Performance	Available of three important standby safety systems
7	Industrial Safety Accident Rate	Number of employee accidents that result in lost work time, restricted work, or fatalities
8	Chemistry Performance	Progress in controlling chemical parameters to retard deterioration of key plant materials and components
WANO Indicators not reported by US members:		
1	Grid-Related Loss Factor	Percentage of maximum energy generation that a plant could not supply due to gird issues not under plant management control
2	Contractor Industrial safety Accident rate	Number of contractor accidents that result in lost work time, restricted work, or fatalities per 200,000 work-hours

3.	Unplanned Capability Loss Factor	Percentage of maximum energy generation that a plant is not capable of supplying to the electrical grid because of unplanned energy losses, such as unplanned shutdown or outage extensions.

Safety Conscious Work Environment (Safety Culture)

For the purposes of this paper, a category title safety conscious work environment is used to address the three cross-cutting areas previously discussed.

A safety conscious work environment is a work environment that promotes trust, respect, and open communication. It should include a work environment where personnel feel free to raise safety and security concerns without fearing retaliation, as well as prompt and thorough identification, evaluation and resolution of those concerns. As a result of a public meeting (August 17, 2005) on the agency's initiative to enhance the ROP to more fully address safety culture, safety culture attributes, elements, potential inspection information, and potential measures were identified. The below table identifies the potential measures that were identified during this meeting. These measures are included as candidate indicates identified in Tables 5, 6 and 7.

Table 4: Safety Conscious work Environment Indicators

Safety Culture Element	ID	Potential Measure
Safety Policies	PM-01	Number of NRC allegations or issues raised to the licensee's alternative process for raising concerns related to repetitive equipment deficiencies and/or human performance problems
	PM-02	Number of production over safety concerns raised to the NRC allegation program or the licensee's alternative process
Accountability and Incentive Programs		None identified
Adequate Resources	PM-03	Percentage of personnel in ANSI 3.1 slots who have fulfilled their required qualifications
	PM-04	Percent of training staff who are contractors
	PM-05	Engineering backlog (e.g., FSAR updates, drawing updates)
	PM-06	Percentage of positions identified in ANSI 3.1 that are open
	PM-07	Deferred capital improvements
	PM-08	Preventative maintenance backlog
	PM-09	Corrective maintenance backlog
	PM-10	Percentage of plant modifications that have been disapproved or

Safety Culture Element	ID	Potential Measure
		deferred
	PM-11	Percentage of total maintenance that is repeat
	PM-12	Percentage of safety-related systems that contain temporary modifications
	PM-13	Average age and number of operator work arounds and control room deficiencies
	PM-14	Average age and number of control room indications out of service
	PM-15	Procedure change backlog
	PM-16	Average number of overtime hours per person by department
	PM-17	Annual number of approved deviations from the working hours guidance
	PM-18	Annual number of NRC allegations, AP, and CAP entries related to safety implication of excessive overtime
	PM-19	Annual number of significant conditions adverse to quality (SCAQs) and conditions adverse to quality (CAQs) with fatigue identified as one of the root or apparent causes
	PM-20	Annual number of self-declarations related to fatigue that are denied
	PM-21	Average age and number of open simulator discrepancies
Organization Change Management		None identified
Safety Conscious Work Environment (SCWE) Policies	PM-22	Frequency of SCWE assessments/surveys
	PM-23	Percentage of personnel who have received initial SCWE/AP training
	PM-24	Percentage of personnel who have received refresher SCWE/AP training per year
Willingness to Raise Concerns	PM-25	Annual number of NRC allegations of chilling effect
	PM-26	Annual total number of NRC allegations
Alternative Process (AP)	PM-27	Number or type of NRC allegations/number or type of AP concerns
	PM-28	Percentage of anonymous AP submittals
	PM-29	Number of AP decisions that are appealed and overturned
	PM-30	Annual number of NRC allegations regarding the effectiveness and confidentiality of the AP
	PM-31	Percentage of AP resolutions that meet timeliness goals

Safety Culture Element	ID	Potential Measure
Preventing and Detecting Retaliation	PM-32	Number of AP allegations of retaliation
	PM-33	Annual number of NRC allegations of retaliation
	PM-34	Annual number of substantiated retaliation issues in AP and from NRC
	PM-35	Trend of harassment, intimidation, retaliation, and discrimination (HIRD) concerns submitted to the AP and annual number of HIRD allegations received by the NRC
Internal and External Operating Experience	PM-36	Percentage of OE reports completed on time by department
	PM-37	Percentage of OE evaluations that result in safety improvements or corrective actions
	PM-38	Annual number of NRC findings and licensee event reports (LERs) attributed to inadequate responses to previous OE reviews
Self-Assessment Process	PM-39	Departmental/cross-functional self-assessment performed each year
	PM-40	Repeat findings in self-assessments
Problem Identification and Resolution	PM-41	PI&R NRC Inspection Findings
	PM-42	Inspections findings with PI&R cross-cutting aspects
	PM-43	Percentage of self-identified SCAQs and CAQs versus those that are self-revealing or identified by an external organization
	PM-44	Inspection finding with human performance cross-cutting aspects
	PM-45	Corrective action program backlog (by significance level), both evaluations and corrective actions
	PM-46	Number and significance of repeat events
	PM-47	Ratio of repeat corrective action issues to total issues
	PM-48	Percentage of anonymous CRs
Continuous Learning Environment	PM-21	Average age and number of open simulator discrepancies [Repeat]
	PM-49	Number of good practices and lessons learned identified from benchmarking activities that are internally communicated or selected for further action
	PM-50	Number of benchmarking trips by each organizational group
Work Control	PM-05	Engineering Backlogs (e.g., FSAR updates, drawing updates) [Repeat]
	PM-51	Average age and number of temporary modifications
	PM-12	Percentage of safety-related systems that contain temporary modifications [Repeat]
	PM-13	Average age and number of operator work-arounds and control

Safety Culture Element	ID	Potential Measure
		room deficiencies [Repeat]
	PM-08	Annual number of preventative maintenance deferrals (PM backlog) [Repeat]
	PM-52	Ratio of corrective maintenance versus preventative maintenance
	PM-53	Number of Generic Letter 91-18 degraded components not returned to design performance by the next outage
	PM-54	Annual number of maintenance rule systems in A1 category
	PM-55	Number of work planning and implementation deficiencies entered in to the CAP
	PM-56	Number of personnel contamination events
	PM-09	On-line corrective maintenance backlogs (CM Backlog) [Repeat]
	PM-57	On-line elective maintenance backlogs
	PM-58	Maintenance backlog involving systems that are risk-significant
	PM-59	Annual number of entries into technical specifications (e.g., number and trend of unplanned Limiting Conditions for Operations (LCO) entries)
	PM-60	Annual number of repeat equipment failures in maintenance rule systems
	PM-61	Annual amount of time spent in the increased (e.g., “Yellow”) risk category for on-line maintenance
	PM-62	Annual number of OSHA recordables and reportable (not used – outside of NRC scope)
Systematic Decision Making	PM-63	Annual number of NRC findings related to inadequate risk evaluations (e.g., 10 CFR 50.65 (a)(4))
	PM-64	Percentage of risk significant equipment that is assessed periodically (e.g., system heath reports)
	PM-65	Percent of pre-job briefs found unacceptable from quality assurance (QA) field observations
Conduct of Work	PM-66	Annual number of CRs attributed to inadequate procedures
	PM-67	Annual number of CRs that are associated with personnel not following procedures
	PM-68	Backlog of procedure changes
	PM-69	Human performance error rate
	PM-70	Number of CRs assessed at the SCAQ level involving human performance

Safety Culture Element	ID	Potential Measure
	PM-71	Annual number of inspection findings with human performance cross-cutting aspects
	PM-72	Annual number of LERs coded for human performance in NRC Human Factors Information System (HFIS) database
	PM-73	Annual number of licensee-identified instances of personnel unfit for duty
	PM-74	Percentage of pre-job briefs that generate CRs
	PM-75	Annual number of morning meetings that develop contingencies to deal with unplanned possibilities

Performance Indicator Gap Analysis

A list of all potential performance indicators was developed using international and US industry practices and input from NRC staff. These indicators are shown in Table 5, 6 and 7 which address Reactor Safety, Radiological Safety and Safety Culture, respectively. Note that the fire safety aspect of industrial safety is included under safety culture.

Table 5: Reactor Safety Indicators

Type	Indicator	Addressed	Comment
Events	RS-E01: Number of Reportable Events	No	Czech
	RS-E02: Number of Safety Related Events	No	Uses INES Scale – Czech, Finland
	RS-E03: Number of Safety-Related Events – Human factor related	No	Uses INES Scale – Czech, SCWE Public Meeting PM-72
	RS-E04: Number of Risk-significant events	No	Finland – number of events with CCDP> 1E-8
	RS-5: Unplanned scrams (with complications)	Yes	ROP – IE01, IE04, WANO, Belgium, Czech, Finland
	RS-E06: Unplanned scrams – Risk-informed	No	Similar to BRIIE
	RS-E07: Safety System Actuations	No	
	RS-E08: Unplanned Shutdown LCO Entries	No	US Industry
	RS-E09: Unplanned Power Changes	Yes	ROP-IE03 (Greater than 20% full power), Czech, Finland (production loss due to failure)

	RS-E10: Reactivity Addition	No	US Industry (Reactivity Management Events), UK (Rod Drop)
	RS-E11: Ratio of Thermal Cycles to total cycles available	No	Hungary
	RS-E12: Number of Shutdown Events	No	
Mitigating Systems	RS-S01: Safety System Availability	Yes	ROP MS05-MS10, WANO, Belgium, Czech, Finland
	RS-S02: Safety System Failures	Yes	ROP MS05-MS10, Czech, Finland
Barriers	RS-B01Fuel Reliability	Yes	ROP-BI01, WANO, Czech, Finland
	RS-B02: RCS/Pressure Boundary Leakage	Yes	ROP-BI02, Finland
	RS-B03: Drywell/Primary Containment tightness	No	Czech, Finland

Table 6: Radiological Safety Indicators

Type	Indicator	Addressed	Comment
Events	RA-E01: Exposure Events	Yes	ROP-OR01, US Industry (High Radiation Area Controls)
	RA-E02: Contamination Events	No	US Industry, SCWE Public Meeting PM-56, Czech
Dose	RA-D01: Occupational Collective Dose	No	WANO, Belgium, Czech, Finland
	RA-D02: Average 10 highest personal dose	No	Finland – provides indication of how close individual doses are to the dose limit.
	RA-D03: Unplanned Dose	No	US Industry
	RA-D04: Occurrences of Effluent Dose above limits	Yes	ROP-PR01
	RA-D05: Public Dose	No	Not used by any country
Volume	RA-V01: Liquid Release	No	Czech, Finland
	RA-V02: Airborne Release	No	Czech, Finland
	RA-V03: Solid Waste	No	US Industry (Radioactive Material Control – unclear if this is an event-based or volume-based indicator), Switzerland

Table 7: Safety Culture Indicators

Type	Indicator	Addressed	Comment
MANAGEMENT			
- Processes	SC-M01: Organization Failure Events	No	
	SC-M02: Document Configuration Control – Ratio of plant documents updated to number of documents identified as needing updating	No	Finland – Management Quality
	SC-M03: Deficiencies During Inspections	No	Hungary
	SC-M04: Number of Independent Internal Audits	No	Hungary
	SC-M05: Total number of condition reports	No	UK, SCWE Public Meeting PM-45
	SC-M06: Number of NRC allegations or issues raised to the licensee's alternative process for raising concerns related to repetitive equipment deficiencies and/or human performance problems		SCWE Public Meeting PM-01
	SC-M07: Number of production over safety concerns raised to the NRC allegation program or the licensee's alternative process		SCWE Public Meeting PM-02
	SC-M08: Deferred capital improvements	No	SCWE Public Meeting PM-07
	SC-M09: Frequency of SCWE assessments /surveys	No	SCWE Public Meeting PM-22
	SC-M10: Number of NRC findings and licensee event reports (LERs) attributed to inadequate responses to previous OE reviews	No	SCWE Public Meeting PM-38
	SC-M11: Departmental/cross-functional self-assessment performed each year/ Repeat findings in self-assessments	No	SCWE Public Meeting PM-39, PM-40
	SC-M12: PI&R NRC Inspection Findings	No	SCWE Public Meeting PM-41
	SC-M13: Inspections findings with	No	SCWE Public Meeting PM-42,

	PI&R cross-cutting aspects		PM-44
	SC-M14: Percentage of self-identified SCAQs and CAQs versus those that are self-revealing or identified by an external organization	No	SCWE Public Meeting PM-43
	SC-M15: Number and significance of repeat events	No	SCWE Public Meeting PM-46, PM-47
	SC-M16: Percentage of anonymous CRs	No	SCWE Public Meeting PM-48
	SC-M17: Number of good practices and lessons learned identified from benchmarking activities that are internally communicated or selected for further action	No	SCWE Public Meeting PM-49
	SC-M18: Number of morning meetings that develop contingencies to deal with unplanned possibilities	No	SCWE Public Meeting PM-75
	SC-M19: Forced Loss Rate	No	WANO
	SC-M20: Unit Capability Factor	No	WANO
	SC-M21: Industry Safety Accident Rate	No	WANO
	SC-M22: Chemistry Performance	No	WANO, Finland
- People	SC-M23: Site Human Performance Event-Free Days	No	US Industry, SCWE Public Meeting PM-69
	SC-M24a: Training Time/Work Time	No	Switzerland
	SC-M25: Open Positions by Area	No	US Industry
	SC-M26: Key Management Turnover	No	US Industry
	SC-M27: Percentage of personnel in ANSI 3.1 slots who have fulfilled their required qualifications	No	SCWE Public Meeting PM-03
	SC-M28: Percent of training staff who are contractors	No	SCWE Public Meeting PM-04
	SC-M29: Percentage of positions identified in ANSI 3.1 that are open	No	SCWE Public Meeting PM-06
	SC-M30: Average number of overtime hours per person by department	No	SCWE Public Meeting PM-16

	SC-M31: Deviations from the working hours guidance	No	SCWE Public Meeting PM-17, PM-18
	SC-M32: Number of significant conditions adverse to quality (SCAQs) and conditions adverse to quality (CAQs) with fatigue identified as one of the root or apparent causes	No	SCWE Public Meeting PM-19, PM-20
	SC-M33: Percentage of personnel who have received SCWE/AP training	No	SCWE Public Meeting PM-23, PM-24
	SC-M34: Number of NRC allegations and/or allegations of chilling effect	No	SCWE Public Meeting PM-25, PM-26, PM-27, PM-28, PM-29, PM-30, PM-32, PM-33
	SC-M35: Number of substantiated retaliation issues in AP and from NRC	No	SCWE Public Meeting PM-34, PM-35
	SC-M36: Number of CRs assessed at the SCAQ level involving human performance	No	SCWE Public Meeting PM-70
	SC-M37: Number of inspection findings with human performance cross-cutting aspects	No	SCWE Public Meeting PM-71
	SC-M38: Number of licensee-identified instances of personnel unfit for duty	No	SCWE Public Meeting PM-73
OPERATIONS – At-Power			
-Processes	SC-O01: Regulatory Compliance Events (T/S violations, deviations, etc.)	No	Czech
	SC-O02: Number of Fire Events	No	Hungary, UK, Finland
	SC-O03: Control Room Deficiencies	No	US Industry, UK, SCWE Public Meeting PM-13, SCWE Public Meeting PM-14
	SC-O04: Operator Workarounds	No	US Industry, UK – compensatory operator actions, SCWE Public Meeting PM-13
	SC-O05: Temporary Operating Instructions	No	UK
	SC-O06: Procedure change backlog	No	SCWE Public Meeting PM-15

	SC-O07: Average age and number of open simulator discrepancies	No	SCWE Public Meeting PM-21
	SC-O08: Percentage of OE reports completed on time by the Operation department	No	SCWE Public Meeting PM-36, PM-37
	SC-O09: Number of benchmarking trips by the Operations organizational	No	SCWE Public Meeting PM-50
	SC-O10: Number of entries into technical specifications (e.g., number and trend of unplanned Limiting Conditions for Operations (LCO) entries)	No	SCWE Public Meeting PM-59
	SC-O11: Percent of pre-job briefs found unacceptable from quality assurance (QA) field observations	No	SCWE Public Meeting PM-65, PM-74
	SC-O12: Number of CRs attributed to inadequate procedures	No	SCWE Public Meeting PM-66
	SC-O13: Backlog of procedure changes	No	SCWE Public Meeting PM-68
- People	SC-O14: Number of staff with RO/SRO license compared to the number required	No	Hungary – Operational preparedness
	SC-O15: Senior Reactor Initial Training	No	US Industry
	SC-O16: Non-licensed Operator Initial Training	No	US Industry
	SC-O17: Unsuccessful Regulatory Exams	No	Hungary
	SC-M24b: Training Time/Work Time	No	Switzerland
	SC-O18: Number of CRs that are associated with personnel not following procedures	No	SCWE Public Meeting PM-67
OPERATIONS Shutdown			
-Processes	SC-S01: Risk Level changes During Refueling Outages	No	US Industry
	SC-S02: Refueling Outage Scope Changes After Scope Freeze	No	US Industry
	SC-S03: Refueling Outage Milestone Missed	No	US Industry

	SC-S04: Refueling Outage Scope Completion	No	US Industry
MAINTENANCE			
-Processes	SC-T01: Ratio of Corrective to Preventive Repairs for T/S equipment.	No	Finland – assess the effectiveness of the maintenance strategy executed at the plant, SCWE Public Meeting PM-52
	SC-T02: Corrective Maintenance Backlog and Average Age	No	US Industry, SCWE Public Meeting PM-09
	SC-T03: Elective Maintenance Backlog and Average Age	No	US Industry
	SC-T04: Preventive Maintenance Deferred	No	US Industry, SCWE Public Meeting PM-08
	SC-T05: Preventive Maintenance Past Due	No	US Industry, SCWE Public Meeting PM-08
	SC-T06: Emergent Work On-line	No	US Industry
	SC-T07: Average T/S Failure Repair Time	No	Finland – assess the effectiveness of the maintenance strategy executed at the plant
	SC-T08: Common Cause T/S Failures	Yes	Finland – similar to safety system functional failure indicator.
	SC-T09: On-line Risk- Average and Instantaneous/number of Risk Peaks/Accumulated Risk	No	Switzerland, SCWE Public Meeting PM-61
	SC-T10: Aging	No	UK has a long-term indicator under evaluation
	SC-T11: Percentage of total maintenance that is repeat	No	SCWE Public Meeting PM-11
	SC-T12: Percentage of safety-related systems that contain temporary modifications	No	SCWE Public Meeting PM-12
	SC-T13: Percentage of OE reports completed on time by the Maintenance department	No	SCWE Public Meeting PM-36, PM-37
	SC-T14: Number of benchmarking trips by the Maintenance organizational group	No	SCWE Public Meeting PM-50
	SC-T15: Number of maintenance rule systems in A1 category	No	SCWE Public Meeting PM-54

	SC-T16: Number of work planning and implementation deficiencies entered in to the CAP	No	SCWE Public Meeting PM-55
	SC-T17: On-line elective maintenance backlogs	No	SCWE Public Meeting PM-57
	SC-T18: Maintenance backlog involving systems that are risk-significant	No	SCWE Public Meeting PM-58
	SC-T19: Number of repeat equipment failures in maintenance rule systems	No	SCWE Public Meeting PM-60
	SC-T20: Number of NRC findings related to inadequate risk evaluations (e.g., 10 CFR 50.65 (a)(4))	No	SCWE Public Meeting PM-63
	SC-T21: Percentage of risk significant equipment that is assessed periodically (e.g., system heath reports)	No	SCWE Public Meeting PM-64
- People	SC-M24c: Training Time/Work Time	No	Switzerland
ENGINEERING			
- Processes	SC-E01: Temporary Modifications (average age and number)	No	Hungary, SCWE Public Meeting PM-51
	SC-E02: Modification Backlog	No	
	SC-E03: Engineering backlog (e.g., FSAR updates, drawing updates)	No	Finland, SCWE Public Meeting PM-05
	SC-E04: Percentage of plant modifications that have been disapproved or deferred	No	SCWE Public Meeting PM-10
	SC-E05: Percentage of OE reports completed on time by the Engineering department	No	SCWE Public Meeting PM-36, PM-37
	SC-E06: Number of benchmarking trips by the Engineering organization	No	SCWE Public Meeting PM-50
	SC-E07: Number of Generic Letter 91-18 degraded components not returned to design performance by the next outage	No	SCWE Public Meeting PM-53
- People	SC-M24d: Training Time/Work Time	No	Switzerland
EP			

- Processes	SC-P01: Emergency Preparedness participation /Response	Yes	ROP-EP01 – EP03
- People	SC-M24e: Training Time/Work Time	No	Switzerland

Key Indicator Attributes

The key attributes that were used to rank the performance indicators are shown in Table 8. These attributes were identified by NRC staff as key elements of an effective indicator. A scale from 1 - 4 was used to score each identified indicator where 1 is considered most desirable and 4 least desirable. Each attribute was equally weighted and summed. The determination of each attribute score is based on judgment. The lowest score represents the best performance indicator.

Table 8: Key Attributes

Attribute	Description	Qualitative Measure (Scale 1 to 4)
Availability of Data/ Regulatory Burden	The degree of burden to the licensee for the collection and transmittal of the data necessary to support the proposed indicator	1 - No additional burden 4 - Significant burden
Monitoring Gap	The degree of value added to the NRC's ability to detect declining performance as the result of the proposed indicator. This value is primarily based on whether the proposed indicator addresses a significant performance area that is not addressed by current indicators or alternate monitoring programs. Indicators that address areas that have limited cornerstone coverage typically score better than those addressing cornerstones that are effectively covered.	1 - Significant performance area that is not addressed by current indicators 4 - Addressed by other programs Or not significant
Understandable	The degree the proposed indicator provides actionable information. Processed or focused information that identifies significant or localized issues is often more valuable then raw unprocessed data.	1 - Actionable information 4 - Raw unprocessed data
Lead/Lag	The predictive nature of the indicator. Indicators that address information that represents precursors to more significant events are considered to	1 - Precursor information that provides an indication of declining performance 4 - Backward looking.

Attribute	Description	Qualitative Measure (Scale 1 to 4)
	be leading in nature.	Captures performance issues that have occurred
Risk-Informed	The degree the proposed indicator uses risk-informed (PRA information) or risk-related (qualitative insights) information.	1 - Risk-informed 4 - No safety-significant differentiation
Complexity	The degree of guidance and/or rules that will be necessary to ensure consistent and accurate indication.	1 - Simple. Consistent reporting is likely across the industry 4 - Complex. Consistent reporting will likely be difficult

Results

The results are shown in Table 9 as a ranked-ordered list. Note that best score that can be obtained from the simple addition scheme with the 6 attributes is a "6" and the worst score is a "24." The best score shown in Table 9 is a "10."

Table 9: Ranked-Ordered List of Possible Indicators

ID	Indicator	Availability of Data / Regulatory Burden	Monitoring Gap	Under-standable	Lead/Lag	Risk Informed	Complexity	Total (lower number better)
SC-S01	Shutdown - Risk Changes	1	1	2	2	1	3	10
SC-O03	Control Room Deficiencies	1	1	2	2	3	2	11
SC-O04	Operator Workarounds	1	1	2	2	2	3	11
SC-T02	Maintenance - Corrective Maintenance Average Age	1	1	1	2	4	3	12
SC-T04	Maintenance - PMs Deferred	1	1	1	2	4	3	12
SC-T05	Maintenance - PMs Past Due	1	1	1	2	4	3	12
SC-T09	On-line Risk Changes	4	1	2	2	1	2	12
RA-V03	Radiological Waste	1	2	1	3	4	1	12
SC-M22	Chemistry Performance	1	3	2	2	4	1	13
SC-T01	Corrective to Preventive Maintenance	3	1	1	2	3	3	13
SC-M34	Events - Allegations/Allegations w/ Chilling Effect	3	2	1	2	3	2	13
RA-E01	Events - Reportable - Exposure Events	2	2	2	4	1	2	13

ID	Indicator	Availability of Data / Regulatory Burden	Monitoring Gap	Under-standable	Lead/Lag	Risk Informed	Complexity	Total (lower number better)
SC-T20	Maintenance - Number of Inadequate Risk Evaluations	3	1	2	2	2	3	13
SC-M26	Personnel - Key Management Turnover	1	2	2	2	3	3	13
RA-V02	Radiological Airborne Release	2	2	1	3	4	1	13
RA-V01	Radiological Liquid Release	2	2	1	3	4	1	13
SC-O14	RO/SRO Licensed to Required	4	1	1	2	3	2	13
SC-O17	Unsuccessful Regulatory Exams	3	3	1	2	3	1	13
RS-B03	Containment Tightness	2	3	2	3	3	1	14
RA-D01	Dose - Collective Occupational Dose	2	2	2	2	4	2	14
SC-M06	Events - NRC Allegations - Repetitive	2	2	2	3	3	2	14
RS-E10	Events - Reportable - Reactivity	1	2	2	4	3	2	14
RS-E04	Events - Reportable - Risk Significant	3	2	2	4	1	2	14
SC-T06	Maintenance - Emergent Work	1	2	2	2	3	4	14
SC-	Unit Capability Factor	1	3	1	4	4	1	14

ID	Indicator	Availability of Data / Regulatory Burden	Monitoring Gap	Under-standable	Lead/Lag	Risk Informed	Complexity	Total (lower number better)
M20								
RA-D02	Dose - Average 10 highest	2	2	2	2	4	3	15
RA-D03	Dose - Unplanned	1	2	3	2	4	3	15
RA-E02	Events - Contamination	1	2	2	3	4	3	15
SC-M01	Events - Organizational	3	1	3	2	2	4	15
SC-O02	Events - Reportable - Fire	2	2	2	4	3	2	15
RS-E12	Events - Reportable - Shutdown	2	2	2	4	3	2	15
SC-M19	Forced Loss Rate	1	4	1	4	4	1	15
SC-M04	Independent Audits	3	1	3	2	3	3	15
SC-M03	Inspection Deficiencies	2	3	2	3	3	2	15
SC-T03	Maintenance - Elective Backlog and Avg Age	1	2	2	3	4	3	15
SC-T19	Maintenance - Number of MR Repeat Failures	3	2	2	2	3	3	15
SC-E02	Modification Backlog	4	1	3	2	3	2	15

ID	Indicator	Availability of Data / Regulatory Burden	Monitoring Gap	Under-standable	Lead/Lag	Risk Informed	Complexity	Total (lower number better)
SC-M24a	Personnel - Training Time/Work Time	4	1	2	2	3	3	15
SC-O15	Senior Reactor Initial Training	1	2	3	3	3	3	15
SC-E01	Temporary Modifications	4	1	3	2	3	2	15
SC-O05	Temporary Operator Instructions	4	1	2	2	3	3	15
SC-O13	Backlog of Procedure Changes	4	2	2	2	3	3	16
SC-M10	Events - Inadequate OE Reviews	3	2	3	2	3	3	16
SC-O12	Events - Number of Inadequate Procedures	4	1	2	2	4	3	16
SC-M38	Events - Personnel Unfit for Duty	3	3	1	3	4	2	16
SC-O01	Events - Reportable - Regulatory Compliance	2	2	3	4	3	2	16
SC-M21	Industry Safety Accident Rate	3	4	1	3	4	1	16
SC-T07	Maintenance - Avg T/S Repair Time	4	1	3	2	3	3	16
SC-M23	Personnel - Human Performance Event-Free Days	1	3	3	2	4	3	16
SC-	Personnel - Open Positions by Area	1	2	3	2	4	4	16

ID	Indicator	Availability of Data / Regulatory Burden	Monitoring Gap	Under-standable	Lead/Lag	Risk Informed	Complexity	Total (lower number better)
M25								
SC-O06	Procedure Change Backlog	4	1	2	2	4	3	16
RS-E06	Unplanned Scrams - Risk Informed	3	3	3	4	1	2	16
SC-M11	Assessments - Cross-functional Self Assessments	3	3	3	2	3	3	17
SC-M09	Assessments - Frequency of SCWE Assessments	3	3	3	2	3	3	17
SC-E06	Benchmarking - Number of Trips by Engineering	3	3	3	2	3	3	17
SC-T14	Benchmarking - Number of Trips by Maintenance	3	3	3	2	3	3	17
SC-O09	Benchmarking - Number of Trips by Ops	3	3	3	2	3	3	17
SC-M32	Events - Adverse Fatigue-related	3	2	3	3	3	3	17
SC-M36	Events - Adverse Human Performance	3	2	3	3	3	3	17
SC-O18	Events - Personnel Not Following Procedures	3	2	2	3	4	3	17
RS-E01	Events - Reportable	1	3	4	4	4	1	17
RS-E03	Events - Reportable - Human-Factor Related	2	2	3	4	4	2	17

ID	Indicator	Availability of Data / Regulatory Burden	Monitoring Gap	Under-standable	Lead/Lag	Risk Informed	Complexity	Total (lower number better)
RS-E02	Events - Reportable - Safety Related	2	2	3	4	4	2	17
SC-M37	Findings - Human Performance Cross-cutting	2	3	2	4	4	2	17
SC-M13	Findings - PI&R Inspection Cross-cutting Findings	2	3	2	4	4	2	17
SC-M12	Findings - PI&R Inspection Findings	2	3	2	4	4	2	17
SC-T18	Maintenance - Risk-significant Maintenance Backlog	4	2	3	2	2	4	17
SC-O16	Non-Licensed Operator Initial Training	1	3	3	3	4	3	17
SC-M30	Personnel - Average Overtime Hours per Person	4	2	3	2	4	2	17
SC-M31	Personnel - Deviations from Work Hour Guidance	4	2	3	2	4	2	17
SC-O07	Simulator Discrepancies	4	2	2	2	4	3	17
SC-M17	Benchmarking - Good Practices / Lesson Learned Ided	4	3	3	2	3	3	18
SC-M16	Events - Percentage Anonymous Corrective Action	3	3	3	2	4	3	18
SC-M15	Events - Repeat Events	3	2	2	4	4	3	18
SC-	Events - Retaliation Issues	3	3	2	2	4	4	18

ID	Indicator	Availability of Data / Regulatory Burden	Monitoring Gap	Under-standable	Lead/Lag	Risk Informed	Complexity	Total (lower number better)
M35								
SC-O10	Events - Tech Spec Entries	3	3	3	3	4	2	18
SC-T08	Maintenance - Common Cause Failures	4	3	3	3	2	3	18
SC-E05	OE - Reports Completed On Time by Engineering	4	2	3	3	3	3	18
SC-T13	OE - Reports Completed On Time by Maintenance	4	2	3	3	3	3	18
SC-O08	OE - Reports Completed On Time by Ops	4	2	3	3	3	3	18
SC-M29	Personnel - Percentage of ANSI 3.1 Opened	4	3	2	2	4	3	18
SC-M27	Personnel - Percentage of ANSI 3.1 Qualified	4	3	2	2	4	3	18
SC-S03	Shutdown - Missed Outage Milestones	1	4	3	3	4	3	18
SC-S04	Shutdown - Outage Scope Completion	1	4	3	3	4	3	18
SC-S02	Shutdown - Scope Changes after Freeze	1	4	3	3	4	3	18
RS-E11	Thermal Cycles	4	2	2	3	4	3	18
SC-M02	Document Configuration Control	4	2	3	2	4	4	19

ID	Indicator	Availability of Data / Regulatory Burden	Monitoring Gap	Under-standable	Lead/Lag	Risk Informed	Complexity	Total (lower number better)
SC-M05	Events - All - Condition Reports	4	2	4	3	4	2	19
RS-E08	Events - Unplanned LCO Entries	1	4	3	4	4	3	19
SC-T10	Maintenance - Aging	4	2	3	3	4	3	19
SC-T15	Maintenance - Number of A1 Systems	3	4	4	2	3	3	19
SC-T16	Maintenance - Number of Work Planning Deficiencies	3	3	3	2	4	4	19
SC-T11	Maintenance - Percentage of Repeat Maintenance	4	2	3	3	4	3	19
SC-E07	Degraded Components Not Corrected by Next Outage	4	3	3	3	4	3	20
SC-E03	Engineering Backlog	4	2	3	3	4	4	20
SC-M07	Events - Production over Safety	3	2	3	4	4	4	20
SC-M33	Personnel - Received SCWE/AP Training	4	3	3	3	4	3	20
SC-M08	Deferred Capital Improvements	4	3	4	2	4	4	21
SC-E04	Deferred Plant Modifications	4	3	4	2	4	4	21
SC-	Events - Percentage Unacceptable	4	3	3	3	4	4	21

ID	Indicator	Availability of Data / Regulatory Burden	Monitoring Gap	Under-standable	Lead/Lag	Risk Informed	Complexity	Total (lower number better)
O11	Pre-job Briefs							
SC-M14	Events - Self-identified/Self-revealing-Externally ID	4	3	3	3	4	4	21
SC-T17	Maintenance - On-line Elective Maintenance Backlog	4	3	3	3	4	4	21
SC-T12	Maintenance - Percentage of Systems w/ Temp Mods	4	3	3	3	4	4	21
SC-M28	Personnel - Percentage contractors/employee Training Staff	4	3	3	3	4	4	21
SC-T21	Maintenance - Percentage Risk-Significant Periodically Assessed	4	4	4	3	3	4	22
RA-D04	Dose - Public	4	4	3	4	4	4	23
SC-M18	Morning Meetings - Contingencies	4	4	4	3	4	4	23

References

Nuclear Energy Agency (NEA). 2006. "Regulatory Uses of Safety Performance Indicators," Joint CSNI-CNRA Report , NEA/CNRA/R(2006)1, dated March 2006.

International Atomic Energy Agency (IAEA), 2000. "Operational safety performance indicators for nuclear power plants," IAEA-TECDOC-1141, May 2000.

Existing Guidance on Page E-3 Beginning at line 25

Withdrawal of FAQs

A licensee may withdraw a FAQ after it has been accepted by the joint ROP Working Group. Withdrawals must occur during an ROP Working Group monthly (approximately) meeting. However, the ROP Working Group should further discuss and decide if a guidance issue exists in NEI 99-02 that requires additional clarification. If additional clarification is needed then the original FAQ should be revised to become a generic FAQ.

Recommended Change

Withdrawal of FAQs

A licensee may withdraw a FAQ after it has been accepted by the joint ROP Working Group. Withdrawals must occur during an ROP Working Group monthly (approximately) meeting. However, the ROP Working Group should further discuss and decide if a guidance issue exists in NEI 99-02 that requires additional clarification. If additional clarification is needed then the original FAQ should be revised to become a generic FAQ. *In many cases, there are lessons learned from the resources expended by the ROP Working Group that should be captured. In those cases, the FAQ will be entered in the FAQ log as a generic FAQ. If there is disagreement between the staff and industry, both positions should be articulated in the FAQ. These withdrawn FAQs should be considered as historical and are not considered to be part of NEI 99-02. Although they do not establish precedence, they do offer insights into perspectives of both industry and NRC staff and, as such, can inform future decisions to submit an FAQ.~~They should not be used as precedence in future discussions~~.*

Temp No.	PI	Topic	Status	Plant / Co.
09-05	IE03	Outside Licensee Control	Withdrawn	ANO
09-06	EP01	Offsite Call Simulation	Discussed	DAEC
09-07	MSPI	Changes to Planned Unavailability Baseline	Tentative Approval	Generic
09-08	MSPI	PMT Failures when Available but not Operable	Final Approval	Generic
09-09	IE03	Unplanned Power Changes	Discussed	Generic
TBD	EP02	Common EOF Participation	Introduced	Generic

FAQ

Plant:	Duane Arnold Energy Center
Date of Event:	6/24/09
Submittal Date:	7/21/09
Licensee Contact:	Mike Davis, Bob Murrell
Tel/email:	319-851-7032/ michael.davis@nexteraenergy.com
	319-851-7900/ robert.murrell@nexteraenergy.com
NRC Contact:	Randy Baker Tel/email: 319-851-7210

Performance Indicator: **Drill and Exercise Performance**

Site-Specific FAQ (Appendix D)? No

FAQ requested to become effective when approved.

Question Section

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

NEI 99-02, Rev. 6 page 45, lines 43 – 46:

> *Performance statistics from operating shift simulator training evaluations may be included in this indicator only when the scope requires classification. Classification, PAR notifications and PARs may be included in this indicator if they are performed to the point of filling out the appropriate forms and demonstrating sufficient knowledge to perform the actual notification.*

NEI 99-02, Rev. 6 page 46, lines 17 – 19:

> *Simulation of notification to offsite agencies is allowed. It is not expected that State/local agencies be available to support all drills conducted by licensees. The drill should reasonably simulate the contact and the participants should demonstrate their ability to use the equipment.*

Event or circumstances requiring guidance interpretation:

In accordance with Duane Arnold Energy Center (DAEC) procedures for making offsite notifications of emergency events, the Shift Technical Advisor (Key Communicator) fills out the notification form, gains approval from the Shift Manager (Key Decision Maker/Emergency Director), and hands the form off to the Security Shift Supervisor (not filling an NRC Participation PI key position). The Security Shift Supervisor then contacts offsite authorities using a telephone system (one call notifies all county and state authorities).

During licensed operator continuing training simulator evaluations, Security personnel are sometimes not available to participate. In these cases, the simulator instructor/evaluator role-plays as the Security Shift Supervisor. When

this occurs, the instructor does not pick up the phone and simulate making a call to offsite authorities.

The NRC resident has challenged counting these as successful DEP opportunities because there is no demonstration of using the phone equipment.

NEI 99-02, Rev. 6 seems to differentiate the extent of demonstrating notification between operations simulator evaluations and drills. This is also discussed in a previous FAQ 202.

What extent of simulation is required to "demonstrate sufficient knowledge to perform actual notification"? Should "demonstration of their ability to use the equipment" be applied to operations simulator evaluations?

In the simulator evaluations in question, the simulator scenario was developed to have the instructor role-play as the Shift Security Supervisor and did not require any participant to demonstrate use of the phone if security personnel were not available. If these instances do not meet the intent for demonstrating sufficient knowledge of performing notifications and there were no errors made by the participants, should these opportunities be counted in the performance indicator as failures?

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

The NRC has concluded that the opportunities are failures due to not demonstrating the use of phone equipment.

Potentially relevant existing FAQ numbers

FAQ 202 dated 8/30/2000: Added the current wording on page 46 lines 17 – 19 to clarify how notification should be demonstrated during drills vs. operator simulator training.

FAQ 408 dated 2/23/2006: Addresses the question of how programmatic issues are dealt with in the DEP indicator. Issues that do not indicate actual performance are not counted as failures.

Response Section

Proposed Resolution of FAQ

During operator simulator training, personnel filling a non-key position for making a phone call to offsite agencies may not be available. In these instances where the Shift Manager (Emergency Director) and the Shift Communicator do not perform the notification phone call, it is acceptable to demonstrate the notification process up to the point of filling out the appropriate forms and providing the completed notification forms to a person role-playing as the phone-talker. By doing this, the key personnel are demonstrating knowledge of the notification process and simulating turnover to appropriate personnel assigned to complete

the phone call(s). Additional time may need to be added to the notification time in order to simulate use of the notification equipment.

For those drills or simulator training scenarios that, after the fact, are determined not to sufficiently demonstrate classification, declaration, or notification due to limited extent of play; they should not be counted for the DEP indicator going forward. They should not be counted as failed opportunities, since this does not reflect performance of the emergency response personnel, but a programmatic deficiency.

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

NEI 99-02, Rev. 6 page 45, lines 43 – 46:

Current wording is italicized, proposed additions are underlined.

Performance statistics from operating shift simulator training evaluations may be included in this indicator only when the scope requires classification. Classification, PAR notifications and PARs may be included in this indicator if they are performed to the point of filling out the appropriate forms and demonstrating sufficient knowledge to perform the actual notification. <u>It is recognized that key control room positions may not perform the actual communication with offsite agencies as part of the notification process. Personnel filling non-key positions for contacting offsite agencies (phone-talker) may not be available during simulator training. Therefore, "demonstrating sufficient knowledge" includes demonstrating knowledge of the notification process and interface with persons (actual or evaluator role-playing) assigned to contact offsite agencies using equipment (phone-talker). When assessing timeliness of notification in these cases, time should be added to the time taken to fill out the appropriate forms to account for the additional steps that would have been needed to use the equipment and make contact with the first agency. This added amount of time should be based on previous experience, time-motion analysis or other documented process.</u>

09-07

FREQUENTLY ASKED QUESTION

Plant: N/A
Date of Event: N/A
Submittal Date: October 15, 2009
Licensee Contact: Roy Linthicum
NRC Contact: John Thompson, 301 415-1011, john.thompson@nrc.gov

Performance Indicator: Mitigating System Performance Indicator

Site-Specific FAQ? NO

FAQ requested to become effective: NA

Question Section

NEI guidance needing interpretation/revision:

NEI 99-02, Revision 5, Appendix F, Section F.1.2.1:

To address the problem of having too frequent baseline revisions, the staff is proposing to clarify the definition of maintenance program philosophy and the addition of a requirement to ensure that changes in the UA baseline are consistent with the unavailability assumptions contained in the PRA.

Basis for Revising NEI 99-02, Appendix F, Section f 1.2.1

Section F1.2.2 states that, "The initial baseline planned unavailability is based on actual plant-specific values for the period 2002 through 2004. (Plant specific values of the most recent data are used so that the indicator accurately reflects deviation from expected planned maintenance.) These values are expected to change if the plant maintenance philosophy is substantially changed with respect to on-line maintenance or preventive maintenance. In these cases, the planned unavailability baseline value should be adjusted to reflect the current maintenance practices, including low frequency maintenance evolutions." The point of changing the planned unavailability values is to account for philosophy changes to the on-line maintenance or preventive maintenance program.

As this UA baseline definition includes all non-failure activities, the concept of making changes to the UA baseline tied solely to the maintenance program philosophy appears to have created inconsistencies in the implementation of maintenance program philosophy changes. It is the staff's expectation that the performance or condition of the SSCs is effectively controlled by preventive maintenance and testing programs (a maintenance rule expectation). These programs and condition monitoring activities should be periodically evaluated to ensure that the objective of preventing failures of SSCs through maintenance is appropriately balanced against the objective of minimizing unavailability of SSCs. Changes to the maintenance program philosophy refer to changes to the preventive maintenance and testing programs. This interpretation is consistent with the definition of Maintenance contained in Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." This guidance states: "For the purposes of the maintenance rule, maintenance activities are as described in the "Final Commission Policy Statement on Maintenance of Nuclear Power Plants. This definition is very broad and includes all activities associated with the

planning, scheduling, accomplishment, post-maintenance testing, and returning to service activities for surveillances and preventive and corrective maintenance." Other additions of unplanned unavailability, such as equipment modifications, except as discussed below, or responses to degraded conditions, are not considered to be a change in maintenance program philosophy. Changes to baseline unavailability for equipment modifications are allowed only if the modification is consistent with the assumptions in the PRA that were used to develop the MSPI Birnbaum values and are not already reflected in the MSPI UA baseline. That is, the unavailability values contained in the PRA include unavailability hours consistent with those needed for the proposed modification, and current maintenance and testing programs; and the hours in the MSPI UA baseline do not reflect this total unavailability. If the MSPI baseline is adjusted as a result of a modification, the MSPI baseline changes should be removed at the conclusion of the 3-year monitoring period that encompasses the modification.

The initial baseline planned unavailability is based on actual plant-specific values for the period 2002 through 2004 and may not be fully consistent with current practices. However, it is expected that changes to baseline unavailability will reflect the appropriate balancing of preventing failures of SSCs against the objective of minimizing unavailability of SSCs and, as such, the unavailability should not be increasing with time unless a maintenance program philosophy change has been implemented.

Event or circumstances requiring guidance interpretation:

Recommended Changes

Change Section F1.2.2 (lines 35 to 41) from:

The initial baseline planned unavailability is based on actual plant-specific values for the period 2002 through 2004. (Plant specific values of the most recent data are used so that the indicator accurately reflects deviation from expected planned maintenance. These values are expected to change if the plant maintenance philosophy is substantially changed with respect to on-line maintenance or preventive maintenance. In these cases, the planned unavailability baseline value should be adjusted to reflect the current maintenance practices, including low frequency maintenance evolutions.)

To:

The initial baseline planned unavailability is based on actual plant-specific values for the period 2002 through 2004. (Plant specific values of the most recent data are used so that the indicator accurately reflects deviation from expected planned maintenance. These values are expected to change if the plant maintenance philosophy is substantially changed with respect to on-line maintenance or preventive maintenance. In these cases, the planned unavailability baseline value should be adjusted to reflect the current maintenance practices, including low frequency maintenance evolutions.) Prior to implementation of an adjustment to the planned unavailability baseline value, the impact of the adjusted values on all MSPI PRA inputs should be assessed. A change to the PRA model and associated changes to the MSPI PRA inputs values is required prior to changing the baseline unavailability if:

$\Delta CDF > 1E\text{-}8$

Where:

$\Delta CDF_{baseline} = \sum(\Delta UA_i * Birnbaum_i)$

$\Delta UA_i = UA_{current} - UA_{baseline}$ for segment i

$UA_{current}$ = proposed unavailability (expressed as a probability) to be used as the new baseline

$UA_{baseline}$ = the base unavailability (expressed as a probability) for 2002 – 2004

$Birnbaum_i$ = Birnbaum value of segment i

The following changes are considered a "change in plant maintenance philosophy:"

- A change in frequency or scope of a current preventative maintenance activity or surveillance test.
- The addition of a new preventative maintenance activity or surveillance test.
- The occurrence of a periodic maintenance activity at a higher or lower frequency during a three year data window (e.g., a maintenance overhaul that occurs once every 24 months will occur twice 2/3 of the time and once 1/3 of the time). If the unavailability hours required for the additional maintenance activity is included in the PRA modeled unavailability, the baseline unavailability can be changed without further assessment.
- Planned maintenance activities that occur less than once every 3 years (e.g., 5 or 10 year overhauls). If the unavailability hours required for the additional maintenance activity is included in the PRA modeled unavailability, the baseline unavailability can be changed without further assessment.
- The performance of maintenance in response to a condition-based preventive maintenance activity.
- Performance of an on-line modification that has been determined to be consistent with the unavailability values contained in the PRA in that the PRA includes unavailability hours for the proposed modification, and current maintenance and testing programs; and the hours in the MSPI UA baseline do not reflect this total unavailability.

The following changes are not considered a "change in plant maintenance philosophy:"

- The performance of maintenance in response to a degraded condition (even when it is taken out of service to address the degraded condition) unless this action is in response to a condition-based preventive maintenance activity.
- Planned maintenance activity that exceeds its planned duration.
- The performance of an on-line modification that do not meet the change in plant maintenance philosophy online modification criterion.

Note: Condition-based maintenance consists of periodic preventive maintenance tasks or on-line monitoring of the health or condition of a component (e.g., vibration analysis, oil analysis, MOVAT) and predefined acceptance criteria where corrective action is to be taken on exceeding these criteria. Condition-based maintenance does not include discovery of a degraded condition as a result of actions that are outside of the maintenance programs.

FREQUENTLY ASKED QUESTION

Plant: N/A
Date of Event: N/A
Submittal Date: August 11, 2009
Licensee Contact: Ken Heffner, 919-546-5688, kmh@nei.org
NRC Contact: John Thompson, 301 415-1011, john.thompson@nrc.gov

Performance Indicator: Mitigating System Performance Indicator

Site-Specific FAQ? No

FAQ requested to become effective: April 1, 2010.

Question Section

An industry practice (used by some licensees for some equipment) is to consider equipment potentially "available," upon completion of maintenance but prior to the performance of the post maintenance test (PMT). This determination of availability is typically performed independent of operations personnel, and is made after the completion of the PMT. If the equipment passes its PMT, the status of the equipment between the completion of maintenance and the PMT is scored for MSPI purposes as "available." This approach creates the potential for inconsistency with the treatment of recovery actions to restore the monitored functions where explicit guidance is provided for recovery from testing and operational alignments but not from maintenance. The current guidance associated with the transition between unavailability to availability results in the potential for limited operator awareness, the potential for non-conservative treatment of equipment reliability and the potential for regulatory inconsistency.

NEI guidance needing interpretation/revision:

There is no explicit guidance in NEI 99-02 or NUMARC 93-01 on requirements for scoring the transition from an unavailable state to an available state. Although industry guidance for the recovery of testing or operational alignment could be considered a minimum set of requirements, as these requirements are related to the determination of equipment availability, it appears that application of this guidance to post-maintenance return to service is not a typical practice.

Basis for Revising NEI 99-02, Appendix F, Section f 1.2.1

Lack of Clear Guidance

Unlike operability, recovery of testing or operational alignment (NEI 99-02 Revision 6, Section 1.2.1), and treatment of test-related human errors (Industry White Paper), there is no explicit guidance in NEI 99-02 or NUMARC 93-01 on requirements for scoring the transition from an unavailable state to an available state. One significant difference between the test/operational alignment recovery, and post-maintenance return to service, is the extra failure potential that exists in the latter case, owing to the maintenance action's possible inefficacy. As a result, more requirements, not fewer, would need to be met in order to justify a conclusion of "availability." The present lack of

clear guidance results in the potential for scoring the transition from an unavailable state to an available state based on the use of a post-maintenance decision process in which availability is considered to commence on removal of clearance tags, independent of operations. Such a practice does not meet the staff's expectations.

Potential for Limited Operator Awareness

The industry's white paper on this subject dated December 10, 2008 states that most of the licensees contacted use a process in which operators determine "operability" while other personnel (usually system engineers) determine "availability." The paper further states that this determination is made several days or weeks after the SSC was declared operable. The paper also states that most (but not all) licensees do not credit the availability of a SSC, in this available/not operable state, in their online risk assessment.

A logical conclusion is that plant operations is largely decoupled from the process of determining the degree of credit that is taken for the mitigation capability of these monitored components. This decoupling increases the staff concern regarding the industry presumption that recovery of the equipment (if not readied for operation or aligned for auto-start) at the time it is considered transferred for the unavailable to available state is so likely that additional unavailability time does not need to be counted.

Potential for Degraded Equipment Reliability

There are two key considerations associated with equipment reliability during the "available" / not operable state: (1) transition point from unavailable to available, and (2) role of the post-maintenance test.

Transition Point from Unavailable to Available

Although this is not stated explicitly by industry, the staff believes that the transition point used by industry is the time at which the clearance tags are logged as being removed. However, as noted above, it is the staff's understanding that the removal of these tags does not necessarily mean that the equipment is aligned and fully functional. The equipment may require additional alignments in accordance with the appropriate operating instructions (e.g., system refilling and venting may be required) prior to being returned to service. In addition, the equipment controls may remain in pull-to-lock pending completion of equipment line-ups and the post-maintenance tests. If operators are aware that the equipment has not been tested, they are less likely to initiate manual recovery actions. The criterion for determining "availability" should be that restoration actions are virtually certain to succeed. This criterion corresponds to the criterion used for restoration following testing.

Post Maintenance Testing

Equipment adjustments or tuning may occur during the PMT. Such adjustments are unlikely to be reported as a PMT failure, but may improve the reliability of the equipment.

Calculated Unavailability

Industry has provided a white paper that demonstrates that the current industry approach is correct *given certain assumptions*. These assumptions are:

1. The transition point from an unavailable state to an available state represents a transition to a return to service condition where the system is aligned for operations, and operations is aware that it is aligned and that it will automatically start on a valid starting signal or can be promptly restored.

2. No equipment adjustments or tuning occur during the PMT.

Under these conditions, the calculations presented by industry appear correct.

Potential for Inconsistency in the ROP

The lack of guidance on determining the "available" / not operable state and the noted variability in this determination lead to inconsistency in the MSPI indicators, which can result in a reduction of public confidence.

Event or circumstances requiring guidance interpretation:

Section F.1.2.1. Actual Train Unavailability

The definition for "Train unavailable hours" states:

Page F-5 Lines 18 to 22

Train unavailable hours: The hours the train was not able to perform its monitored function while critical. Fault exposure hours are not included; unavailable hours are counted only for the time required to recover the train's monitored functions. In all cases, a train that is considered to be OPERABLE is also considered to be available. Unavailability must be by train; do not use average unavailability for each train because trains may have unequal risk weights.

Recommend changing to:

"The hours the train was not able to perform its monitored function while critical. Fault exposure hours are not included; unavailable hours are counted only for the time required to recover the train's monitored functions. In all cases, a train that is considered to be OPERABLE is also considered to be available. Trains that are not Operable must be returned to service in order to be considered available. Unavailability must be by train; do not use average unavailability for each train because trains may have unequal risk weights."

Return to Service: Return to service is the transition from unavailable to available. A train is "returned to service" when the following conditions are met: clearance tags have been removed, the train has been aligned and prepared for operation, (e.g., valve line-up complete, system filled and vented), further adjustment of associated equipment is not required or expected as the result of the unavailability period, and operators concur that the train is able to perform its expected functions. For standby equipment, automatic functions are aligned or can be promptly restored by an operator consistent with the requirements for crediting operator recovery stated later in this section.

Page F-6 Line 38 to F-7 Line 9

Under the heading "Credit for Operator Recovery Actions to Restore the Monitored Functions"

1. During testing or operational alignment:

"Unavailability of a monitored function during testing or operational alignment need not be included if the test or operational alignment configuration is automatically overridden by a valid starting

signal, or the function can be promptly restored either by an operator in the control room or by a designated operator stationed locally for that purpose, Restoration actions must be contained in a written procedure, must by uncomplicated (a single action or a few actions), must be capable of being restored in time to satisfy PRA success criteria, and must not require diagnosis or repair. Credit for …"

Change to

1. During testing, operational alignment or return to service:

"Unavailability of a monitored function during testing, operational alignment or return to service need not be included if the test or operational alignment configuration is automatically overridden by a valid starting signal, or the function can be promptly restored either by an operator in the control room or by a designated operator stationed locally for that purpose, Restoration actions must be contained in a written procedure, must by uncomplicated (a single action or a few actions), must be capable of being restored in time to satisfy PRA success criteria, and must not require diagnosis or repair. Credit for …"

Section F 2.2.2 Failures

Recommend adding explanatory text to the following definitions:

Page F-26 Lines 3 to 5:

EDG failure to start: A failure to start includes those failures up to the point the EDG has achieved required speed and voltage. (Exclude post maintenance tests (PMTs), unless the cause of failure was independent of the maintenance performed. Include all failures that result from a non-PMT demand following return to service. If a PMT failure occurs following return to service and was dependent of the maintenance performed, then this failure is excluded and the train, during the period from the completion of the maintenance activity to the declaration of return to service, is counted as unavailable.)

Page F-26 Lines 7 to 11:

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, This failure mode is treated as a demand failure for calculation purposed (Exclude post maintenance tests, unless the cause of failure was independent of the maintenance performed. Include all failures that result from a non-PMT demand following return to service. If a PMT failure occurs following return to service and was dependent of the maintenance performed, then this failure is excluded and the train, during the period from the completion of the maintenance activity to the declaration of return to service, is counted as unavailable.)

Page F-26 Lines 21 to 23

EDF failure to run: Given that it has successfully started and loaded and run for an hour, a failure of an EDG to run/operate. (Exclude post maintenance tests, unless the cause of failure was independent of the maintenance performed. Include all failures that result from a non-PMT demand following return to service. If a PMT failure occurs following return to service and was dependent of the

maintenance performed, then this failure is excluded and the train, during the period from the completion of the maintenance activity to the declaration of return to service, is counted as unavailable.)

Page F-26 Lines 17 to 19

Pump failure on demand: A failure to start and run for at least one hour is counted as failure on demand. (Exclude post maintenance tests, unless the cause of failure was independent of the maintenance performed. Include all failures that result from a non-PMT demand following return to service. If a PMT failure occurs following return to service and was dependent of the maintenance performed, then this failure is excluded and the train, during the period from the completion of the maintenance activity to the declaration of return to service, is counted as unavailable.)

Page F-26 Lines 21 to 23

Pump failure to run: Given that it has successfully started and run for an hour, a failure of a pump to run/operate. (Exclude post maintenance tests, unless the cause of failure was independent of the maintenance performed. Include all failures that result from a non-PMT demand following return to service. If a PMT failure occurs following return to service and was dependent of the maintenance performed, then this failure is excluded and the train, during the period from the completion of the maintenance activity to the declaration of return to service, is counted as unavailable.)

Page F26 Lines 25 to 27

Valve failure on demand: A failure to transfer to the required monitored state (open, close, or throttle to the desired position as applicable) is counted as failure on demand. (Exclude post maintenance tests, unless the cause of failure was independent of the maintenance performed. Include all failures that result from a non-PMT demand following return to service. If a PMT failure occurs following return to service and was dependent of the maintenance performed, then this failure is excluded and the train, during the period from the completion of the maintenance activity to the declaration of return to service, is counted as unavailable.)

Page F26 Lines 29 to 31

Breaker failure on demand: A failure to transfer to the required monitored state (open or close as applicable) is counted as failure on demand (Exclude post maintenance tests, unless the cause of failure was independent of the maintenance performed. Include all failures that result from a non-PMT demand following return to service. If a PMT failure occurs following return to service and was dependent of the maintenance performed, then this failure is excluded and the train, during the period from the completion of the maintenance activity to the declaration of return to service, is counted as unavailable.)

Industry Response to the FAQ:

Industry comments have been considered and incorporated into this proposal.

FAQ 09-09

Plant: N/A
Date of Event: N/A
Submittal Date: October 15, 2009
Licensee Contact: Jeff Thomas, 704-382-3438, cjthomas@duke-energy.com
NRC Contact: John Thompson, 301 415-1011, john.thompson@nrc.gov

UNPLANNED POWER CHANGES PER 7,000 CRITICAL HOURS

Purpose

This indicator monitors the number of unplanned power changes (excluding scrams) that could have, under other plant conditions, challenged safety functions. It may provide leading indication of risk-significant events but is not itself risk-significant. The indicator measures the number of plant power changes for a typical year of operation at power.

Indicator Definition

The number of unplanned changes in reactor power greater than 20% of full-power, per 7,000 hours of critical operation excluding manual and automatic scrams.

Data Reporting Elements

The following data is reported for each reactor unit:

- the number of unplanned power changes, excluding scrams, during the previous quarter
- the number of hours of critical operation in the previous quarter

Calculation

The indicator is determined using the values reported for the previous 4 quarters as follows:

$$value = \frac{(total\ number\ of\ unplanned\ power\ changes\ over\ the\ previous\ 4\ qtrs)}{total\ number\ of\ hours\ critical\ during\ the\ previous\ 4\ qtrs} x\ 7{,}000\ hrs$$

Definition of Terms

Unplanned ~~*change*~~ *change in reactor power,* for the purposes of this indicator, is a change in reactor power that (1) ~~was~~ was initiated less than 72 hours following the discovery of an off-normal condition that required or ~~resulted~~ resulted in a power change of greater than 20% full power to resolve and (2) has not been excluded ~~from~~ from counting per the guidance below. Unplanned changes in reactor power also include uncontrolled excursions of greater than 20% of full power that occur in response to changes in reactor or plant conditions and are not an expected part of a planned evolution or test.

Clarifying Notes

The value of 7,000 hours is used because it represents one year of reactor operation at about an 80% availability factor.

If there are fewer than 2,400 critical hours in the previous four quarters the indicator value is displayed as N/A because rate indicators can produce misleadingly high values when the denominator is small. The data elements (unplanned power changes and critical hours) are still reported.

The 72 hour period between discovery of an off-normal condition and the corresponding change ~~in power level of greater than 20% of full power to resolve and the corresponding change~~ in power level is based on the typical time to assess ~~prepare for a planned power change. It includes time to assess~~ the plant condition, and prepare, review, and approve the necessary work orders, procedures, and necessary safety reviews, to effect a repair. The key element to be used in determining whether a power change should be counted as part of this indicator is the 72-hour period and not the extent of the planning that is performed between the discovery of the condition and initiation of the power change.

~~recognizing the possible need for a change in power level of greater than 20% and completion of the power change. The licensee should have objective evidence to demonstrate when the possible need for the downpower was recognized such as logs documenting actions required by Technical Specifications, troubleshooting plans, meeting minutes, corrective action program entries, or similar type documentation.~~
Given the above, it is incumbent upon licensees to provide objective evidence that identifies when the off-normal condition was discovered and when the power change of more than 20% was initiated. Such objective evidence may include logs, troubleshooting plans, meeting minutes, corrective action program documents, or similar type documentation.

Examples of occurrences that would be counted against this indicator include:

- Power reductions that exceed 20% of full power and are not part of a planned and documented evolution or test. Such power changes may include those conducted in response to equipment failures or personnel errors or those conducted to perform maintenance.
- Runbacks and power oscillations greater than 20 % of full power. A power oscillation that results in an unplanned power decrease of greater than 20% followed by an unplanned power increase of 20% should be counted as two separate PI events, unless the power restoration is implemented using approved procedures. For example, an operator mistakenly opens a breaker causing a recirculation flow decrease and a decrease in power of greater than 20%. The operator, hearing an alarm, suspects it was caused by his action and closes the breaker resulting in a power increase of greater than 20%. Both transients would count since they were the result of two separate errors (or unplanned/non-proceduralized action).
- Unplanned downpowers of greater than 20% of full power for ALARA reasons

Examples of occurrences that are <u>not</u> counted include the following:

- Planned power reductions (anticipated and contingency) that exceed 20% of full power and are initiated in response to an off-normal condition discovered at least 72 hours before initiation of the power change.
- Unanticipated equipment problems that are encountered and repaired during a planned power reduction greater than 20% that alone could have required a power reduction of 20% or more to repair.
- Apparent power changes that are determined to be caused by instrument problems.
- If conditions arise that would normally require unit shutdown, and an NOED is granted that allows continued operation before power is reduced greater than 20%, an unplanned power change is not reported because no actual change in power greater than 20% of full power

occurred. However, a comment should be made that the NRC had granted an NOED during the quarter, which, if not granted, may have resulted in an unplanned power change.

- Anticipatory power reductions intended to reduce the impact of external events such as hurricanes or range fires threatening offsite power transmission lines, and power changes requested by the steam load dispatches.
- Power changes to make rod pattern adjustments
- Power changes directed by the load dispatcher under normal operating conditions due to load demand, for economic reasons, for grid stability, or for nuclear plant safety concerns.

Anticipated power changes greater than 20% in response to expected environmental problems (such as accumulation of marine debris, biological contaminants, or frazil icing) which are proceduralized but cannot be predicted greater than 72 hours in advance may not need to be counted unless they are reactive to the sudden discovery of off-normal conditions. However, unique environmental conditions which have not been previously experienced and could not have been anticipated and mitigated by procedure or plant modification, may not count, even if they are reactive. The licensee is expected to take reasonable steps to prevent intrusion of marine or other biological growth from causing power reductions. Intrusion events that can be anticipated as part of a maintenance activity or as part of a predictable cyclic behavior would normally be counted unless the down power was planned 72 hours in advance. The circumstances of each situation are different and should be identified to the NRC in a FAQ so that a determination can be made concerning whether the power change should be counted.

Licensees should use the power indication that is used to control the plant to determine if a change of greater than 20% of full power has occurred.

If a condition is identified that is slowly degrading and the licensee prepares plans to reduce power when the condition reaches a predefined limit, and 72 hours have elapsed since the condition was first identified, the power change does not count. If however, the condition suddenly degrades beyond the predefined limits and requires rapid response, this situation would count. If the licensee has previously identified a slowly degraded off-normal condition but has not prepared plans recognizing the potential need to reduce power when the condition reaches predefined limits, then a sudden degradation of that condition requiring rapid response would constitute a new off-normal condition and therefore, a new time of discovery.

Off -normal conditions that begin with one or more power reductions and end with an unplanned reactor trip are counted in the unplanned reactor scram indicator only. However, if the cause of the downpower(s) and the scram are different, an unplanned power change and an unplanned scram must both be counted. For example, an unplanned power reduction is made to take the turbine generator off line while remaining critical to repair a component. However, when the generator is taken off line, vacuum drops rapidly due to a separate problem and a scram occurs. In this case, both an unplanned power change and an unplanned scram would be counted. If an off-normal condition occurs above 20% power, and the plant is shutdown by a planned reactor trip using normal operating procedures, only an unplanned power change is counted.

FAQ TEMPLATE

Plant: Plant Generic

Date of Event: 10/19/2009

Submittal Date: 11/09/2009

Licensee Contact: Tony Feltman Tel/email: ahfeltman@tva.gov

Martin Hug mth@nei.org

NRC Contact: Tel/email:

Performance Indicator: NEI 99-02 (rev. 6) 2.4 Emergency Preparedness Cornerstone Emergency Response Organization Drill Participation

Site-Specific FAQ (Appendix D)? No

FAQ requested to become effective when approved.

Question Section

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

Page 50, Lines 3-8
Purpose
This indicator tracks the participation of ERO members assigned to fill Key Positions in performance enhancing experiences, and through linkage to the DEP indicator ensures that the risk significant aspects of classification, notification, and PAR development are evaluated and included in the PI process. This indicator measures the percentage of ERO members assigned to fill Key Positions who have participated recently in **performance-enhancing experiences** such as drills, exercises, or in an actual event.

Page 50, Lines 10 - 13
Indicator Definition
The percentage of ERO members assigned to fill Key Positions that have participated in a drill, exercise, or actual event during the previous eight quarters, **as measured on the last calendar day of the quarter.**

Page 50, Lines 13 - 14
If an ERO member filling a Key Position has participated in more than one drill during the eight quarter evaluation period, the most recent participation should be used in the indicator statistics.

Page 52, Lines 20-22
If a person is assigned to more than one Key Position, it is expected that the person be counted in the denominator for each position and in the numerator only for drill participation that addresses each position. **Where the skill set is similar**, a single drill might be counted as participation in both positions.

Page 52, Lines 24-29
Assigning a single member to multiple Key Positions and then only counting the performance for one Key Position could mask the ability or proficiency of the remaining Key Positions. The concern is that an ERO member having multiple Key Positions may never have a performance enhancing experience for all of them, yet credit for participation will be given when any one of the multiple Key Positions is performed; particularly, if more than one ERO position is assigned to perform the same Key Position.

Page 52, Lines 31-41
ERO participation should be counted for each Key Position, **even when** multiple Key Positions are assigned to the same ERO member. In the case where a utility has assigned two or more Key Positions to a single ERO member, each Key Position must be counted in the denominator for that ERO member and credit given in the numerator when the ERO member performs each Key Position.

Similarly, ERO members **need not individually** perform an opportunity of classification, notification, or PAR development in order to receive ERO Drill Participation credit. The evaluation of the DEP opportunities is a crew evaluation for the entire Emergency Response Organization. ERO members may receive credit for the drill if their participation is a meaningful opportunity to gain proficiency in their ERO function.

Page 53, Lines 1-3
Participation may be as a participant, mentor, coach, evaluator, or controller, but not as an observer. Multiple assignees to a given Key Position could take credit for the same drill if their participation is a meaningful opportunity to gain proficiency.

Event or circumstances requiring guidance interpretation:

The event/circumstance principally involves utilities with common EOFs where the functions of EOF Senior Manager, EOF Key Protective Measures and EOF Communicator are assigned to Key Positions that generically support multiple nuclear sites.

Utilities with a common EOF established to support multiple nuclear sites have made Key Position assignments to provide implementation of the three functions mentioned above and described in NEI 99-02 rev 6.

ERO members assigned to each function are grouped and monitored to ensure that each member receives a “meaningful opportunity to gain proficiency”. This membership is accounted for at the end of each quarter and entered into the ROP process.

Where common EOFs are established supporting multiple sites the EOF, ERO membership is trained, including involvement in a drill and exercise program to ensure that they are fully qualified to respond to each site served by that EOF when emergencies are declared.

To restate the issue another way, this membership represents each nuclear site served by the EOF operationally and functionally.

In general given this prescribed condition procedures, processes and protocols have been established that have generic application or in words the **skill set is similar** in application regardless of the nuclear site involved.

Where benchmarking has been conducted, a common approach to calculating Participation Credit for this EOF Key Position set is as follows;

Participation Credit is given for these “generic” key positions and counted (as specified in NEI 99-02) for all nuclear sites served by the EOF when a Key Position member is provided a meaningful opportunity to gain proficiency during any one nuclear site drill or exercise. This practice is not a new practice nor is this practice the result of a collaborative effort. This has been establish by each utility separately and invoked by NEI 99-02.

DEP Credit is only provided to the nuclear site included in the drill or exercise additionally as invoked by NEI 99-02.

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

NRC region does not agree with the generic participation credit approached and has specified that participation credit can ONLY be provided to the specific site involved in the drill or exercise.

Potentially relevant existing FAQ numbers

NA

Response Section

Proposed Resolution of FAQ

1) Revise NEI 99-02 to provide clarifying language to more effectively communicate counting participation credit for NEI 99-02 EOF positions when centralized Emergency Offsite Facilities are utilized.

2) The concept of a centralized Emergency Offsite Facility was being utilized prior to the issuance of NEI 99-02 at a minimum of three utilities. Tennessee Valley Authority, Exelon and the Salem-Hope Creek facility each had centralized Emergency Offsite Facilities. Additionally Exelon executed a pilot for NEI 99-02 where participation credit was counted for each plant served by the centralized Emergency Offsite Facility.

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

[PARTICIPATION]

NEI 99-02 Revision 6, page 54

1 *expected to be just a phone talker who is not tasked with filling out the form. There is no intent*

2 to track a large number of shift communicators or personnel who are just phone talkers.

3

4 Where an approved centralized Emergency Offsite Facility (EOF) serves multiple nuclear plant sites at a number of locations (fleet concept) participation may be counted for each of the nuclear sites served by the centralized EOF when;

- Key EOF Positions are functionally aligned as prescribed in NEI 99-02.
- Key EOF Positions support similar key skills and functions
    - When only site specific attributes (i.e., evacuation sections, EALs, etc.) differ but the key skills and functions to attain the attributes are similar then participation credit may be counted.
- All other NEI 99-02 criteria for participation are met.

5

[DRILL AND EXERCISE PERFORMANCE]

NEI 99-02 Revision 6, page 48

the exercise. Thus, a licensee may choose to not include a PAR beyond the 10-mile EPZ as a DEP PI statistic due to its ad hoc nature.

If a licensee discovers after the fact (greater than 15 minutes) that an event or condition had existed which exceeded an EAL, but no emergency had been declared and the EAL is no longer exceeded at the time of discovery, the following applies:

- *If the indication of the event was not available to the operator, the event should not be evaluated for PI purposes.*
- *If the indication of the event was available to the operator but not recognized, it should be considered an unsuccessful classification opportunity.*
- *In either case described above, notification should be performed in accordance with* NUREG-1022 and not be evaluated as a notification opportunity.

Where an approved centralized Emergency Offsite Facility (EOF) serves multiple nuclear plants sites at a number of locations (fleet concept) DEP for any drill or exercise may be only counted for the participating nuclear sites served by the centralized EOF and principally involved in actual or simulated emergency event.