efficiency bulletin

Dec. 18, 2017

Efficiency Bulletin: 17-24

Industry Standardized Performance Indicators

Color Code:	Red
Indicators:	April 2018
Software:	March 2019

DELIVERING THE NUCLEAR PROMISE®

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Implement common industry standardized performance indicators that provide an accurate, comprehensive perspective of industry performance. Also, streamline and reduce the number of indicators.

Addressees: Chief Nuclear Officers, NEI APCs and INPO APCs

Issue: **OA 2.B.1, Establish a common set of standardized performance indicators to monitor and compare performance across the industry and support oversight and management meetings.**

This efficiency bulletin (EB) is a companion to EB 17-17 that establishes the performance indicator central database.

Summary of Efficiency Opportunity

- Desired end-state—A hierarchy of industrywide performance indicators is established that collectively provides an accurate and comprehensive perspective of industry performance. The set includes higher tiered indicators controlled by the U.S. NRC, INPO, and WANO to measure overall station performance; middle tiered indicators used by utility and INPO employees for monitoring functional area performance; and lower tiered indicators that address unique station or fleet performance monitoring needs. An industry procedure will be put in place to control the standardized performance indicators. The indicator data will be maintained and managed in a central data management system when it becomes available.
- Value proposition—Establishing an optimum set of common performance indicators will enable consistencies in measuring and comparing industry performance, decrease the number of performance indicators, and reduce the administrative burden and costs associated with maintaining indicators. Implementing a common process, including an industry oversight panel, will provide effective governance and oversight for these performance indicators.
- Why it is important?—A common set of indicators ensures effective monitoring of performance and provides a solid foundation to compare performance across the industry.

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- Measures of effectiveness:
    - There are no unidentified or untimely recognition of performance declines in station performance resulting from the implementation and use of the new indicators.
    - Reduction in the required resources assigned to data input and performance indicator reviews.

Background

- Performance indicators are used extensively in the industry to monitor the safe and reliable operation of nuclear power plants. Over the past several decades, the number of industry indicators has grown substantially to the point where some indicators provide duplicative information or are no longer important or necessary for monitoring activities. This bulletin streamlines and reduces the number of existing indicators. Additionally, it establishes an indicator hierarchy and the processes for governing future indicator development, modification, and deletion.
- There are four levels of indicators–Level A through Level D. Refer to Attachment 1, "Indicator Level Definitions," for further details.
    - Level A are controlled by the U.S. NRC, INPO, and WANO. Examples include the NRC Reactor Oversight Process performance indicators, the INPO Index, and the WANO Chemistry Performance Indicator.
    - Level B represents the industry's selection of standardized performance indicators that provide a comprehensive perspective of station performance in key functional areas (see Attachment 2, "Indicator Development Contact Matrix"). These indicators are listed in Attachment 4, "Industry Standardized Performance Indicators."
    - Level C are controlled by INPO to support ongoing oversight programs, such as continuous monitoring of station and industry performance in order to quickly identify and arrest plant declines. It is recognized that efforts by INPO and the industry to reduce Level C indicators will be undertaken after this bulletin is issued.
    - Level D are unique and discretionary indicators developed by a utility—for a utility—and are not shared across the industry. These indicators provide flexibility to use the central data management system when it becomes available rather than maintaining desired indicators in utility databases. Piloted indicators are also considered Level D. The number of Level D indicators should be limited to minimize the burden of customized indicators.
- Controlling procedure NISP-PI-01, "Control of Standardized Performance Indicators," addresses the hierarchy of indicators and provides the administrative controls for Level B and D indicators. Level A and Level C indicators are not controlled by this governing document.
- All indicators will eventually reside in a central data management system that will become operational in March 2019 as described by Efficiency Bulletin 17-17, "Standard Indicator: Central Database." Bridging strategy options in Attachment 3 were developed to maintain industry alignment with Level B indicators while providing flexibility for the industry to efficiently manage the administrative workload associated with performance indicators.

Relevant Standards

- INPO 12-013, "Performance Objective and Criteria," Monitoring - criteria 8 through 14
- INPO "Portfolio of Indicators Summary"
- World Association of Nuclear Operators (WANO) MN 2014-2, "WANO Performance Indicator Programme Reference Manual"
- INPO 04-004, "CDE Data Element Manual"

Key to Color Codes:

Red: NSIAC initiative – full participation required for viability
Blue: Action expected at all sites, but is not needed for broad industry viability
Green: Utility discretion to implement, consistent with its business environment

Relevant Regulatory Requirements

- NRC Regulatory Issue Summary 2000-08, Revision 1, "Voluntary Submission of Performance Indicator Data"
- NEI 99-02, "Regulatory Assessment Performance Indicator Guideline"

Guidance

- Efficiency Bulletin 17-17 (OA-2B3), "Standard Indicator: Central Database"
- NISP-PI-01, "Control of Standardized Performance Indicators"

Recommended Industry Actions

- Adopt the Level B Standardized Performance Indicators (Attachment 4) as the industry's primary set of metrics for monitoring plant performance.
- Minimize or eliminate the use of additional indicators where possible.
- Transition to the central data management system when it becomes available.

Change Management Considerations

Industry Activities

- Conduct regional webcasts to provide an overview of this efficiency bulletin, "Industry Standardized Performance Indicators," and the related nuclear industry process NISP-PI-01, "Control of Standardized Performance Indicators."
- Conduct oversight of the Standardized Performance Indicators in accordance with the industry procedure NISP-PI-01, "Control of Standardized Performance Indicators." This procedure will be periodically updated to reflect operating experience.

Company Actions

- Utilize the applicable change management process to ensure integration of the Standardized Performance Indicators into applicable procedures, processes and meeting forums, as appropriate. Select the bridging strategy (Attachment 3) appropriate for your company until the central data management system is available for use.
- Managers and supervisors monitor for unrecognized or untimely identification of performance declines associated with the implementation of this efficiency bulletin.
- Managers and supervisors should closely monitor the transition points in this efficiency bulletin where errors could be introduced (i.e., changing from existing indicators to those established by this efficiency bulletin and transitioning to the central data management system).

INPO Actions

- Initiate review and disposition of remaining Level C performance indicators upon approval and implementation of the new Level B performance indicators.

Guiderails

- Assess effectiveness of new indicators in management meetings when performance indicators are reviewed. If not effective, contact utility DNP Coordinator to share concern with the industry and notify the Standardized Performance Indicator Panel.
- Managers and supervisors monitor for unrecognized or untimely identification of performance declines associated with the implementation of this efficiency bulletin. Utilities should immediately report problems in the timely recognition of performance declines to utility DNP Coordinators and the Standardized Performance Indicator Panel.
- Utility oversight and performance improvement personnel should focus on behaviors and human performance during implementation of bridging strategies identified in Attachment 3 as the bridging period poses increased vulnerability to data review input errors.

- INPO performs continuous monitoring of station and industry performance in order to quickly identify and arrest plant declines that may not have been detected by the indicators established in this efficiency bulletin.

Report Your Site's Results

Please report your company's implementation of this improvement opportunity, including the date of completion. Send this information along with your company point of contact to EfficiencyBulletin@NEI.org.

Industry Contacts

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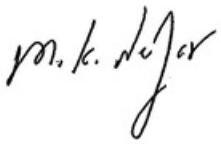
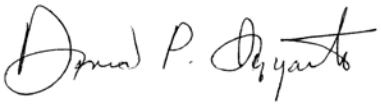
Industry Approval:

Mano K. Nazar, CNO Lead



David P. Igyarto, Institute of Nuclear Power Operations



John W. Pitesa, Nuclear Energy Institute

Attachment 1, Indicator Level Definitions

1. Level A Performance Indicator – An indicator that is not within the control and scope of this document. Level A Performance Indicators and their respective inputs are defined by and governed by:

   a. U.S. NRC Regulatory Oversight Process (ROP) controlled by NEI 99-02, "Regulatory Assessment Performance Indicator Guideline"
   b. Institute of Nuclear Power Operations (INPO) governed by INPO's "Portfolio of Indicators Summary." This includes the set of Industry Indexes that INPO maintains for select industry working groups.
   c. World Association of Nuclear Operators (WANO) governed by MN 2014-2, "WANO Performance Indicator Programme Reference Manual"

2. Level B Performance Indicator – An indicator that is within the control and scope of this document. Level B Performance Indicators are selected and developed by Corporate Functional Area Managers (CFAMs), Peer Groups, and others to provide an accurate and comprehensive perspective of performance. Inputs to Level B indicators are included in the Level B classification. The Standardized Performance Indicator Panel approves additions, modification, and deletions of Level B indicators.

3. Level C Performance Indicator – An indicator that does not meet the criteria for Level A, B, or D indicator, and is not within the control and scope of this document. These indicators are controlled by INPO to support ongoing oversight programs, such as continuous monitoring of station performance that is intended to quickly identify and arrest plant declines. Level C Performance Indicators are maintained in accordance with the Consolidated Data Entry (CDE), Data Element Manual (INPO 04-004), and INPO Consolidated Event System (ICES) Reporting Requirements and Standards (INPO 12-009) requirements.

4. Level D Performance Indicator – An indicator within the control and scope of this document that each company may enter into the performance indicator system on an individual basis. Level D Performance Indicators are controlled by each company to monitor sensitive or site-specific performance indicators such as economic or company-specific indicators. The data and output reports are available only to the company that entered the data and is not available for comparison across the industry. Indicators that are being piloted are also considered Level D Performance Indicators. The number of Level D Performance Indicators should be limited to minimize the burden of customized indicators.

Attachment 2, Indicator Development Contact Matrix

Functional Area	Industry Lead	Industry Group	INPO Representative	DNP Representative
Operations	Scott Plymale/ FENOC	Ops CFAM group	Tom Tynan	Charles Morris/ Duke
Maintenance	Mitch Taggart/ TVA Tony Mueller/ FENOC	Maintenance CFAM group Work	Greg Ruppert	Darin Benyak/ FENOC
Work Management	Mitch Taggart/ TVA Tony Mueller/ FENOC	Management CFAM group	Greg Ruppert	Darin Benyak/ FENOC
Radiation Protection	Roy Miller/ PSEG	Radiation Protection CFAMs	Paul McNulty	Pete Tocci/PSEG
Chemistry	Joe Chamy/ PSEG	Chemistry CFAMs	Ron Chrzanowski	Pete Tocci/PSEG
Equipment Reliability	Scott Midgett/ NextEra	Equipment Reliability Working Group, Equipment Reliability Index Subcommittee	Jeff Bramblett	Pam Metz/ NextEra
Engineering	Scott Midgett/ NextEra	Engineering CFAMs group	Terry Schuster	Pam Metz/ NextEra
Training	Marios Kafantaris/ formerly PSEG	Training Directors group	George Manaskie	Adam Alberty/ STARS
Regulatory	Justin Wheat/ Southern	Regulatory Issues Task Force	N/A	Tim Steele/ Southern
Human Performance	Brandon Marlow, Southern	Human Performance Working Group	Amanda Donges	Tim Steele/ Southern
Safety	Darin Benyak/ FENOC	NISHA	Paul McNulty	Darin Benyak/ FENOC
Performance Improvement	Kevin Rackley/ TVA	Corrective Action Program Owner's Group (CAPOG)	Amanda Donges	Tim Steele/ Southern
Emergency Preparedness	Aldo Capristo/ South Texas Project	NEI Emergency Preparedness Working Group	Dane Williams	Darin Benyak/ FENOC

Attachment 3, Bridging Strategy

Purpose: To provide options that can be used by the industry to manage Level B Standardized Performance Indicators until a central data management system is available to maintain the indicators.

To describe the actions that will be necessary to transition to the central data management system during the implementation of this new system.

Background: This Efficiency Bulletin and NISP-PI-01, "Control of Standardized Performance Indicators," define a hierarchy of performance indicators (i.e., Level A, B, C, and D) that reflect a common, standardized set of performance indicators, indicators maintained by INPO, and indicators deemed necessary by individual stations or fleets, as needed. A central data management system to contain these performance indicators is being developed in accordance with Efficiency Bulletin 17-17; however, there is a gap of approximately one year between implementation of the Level B Standardized Performance Indicators and the availability of the central data management system.

During this interim period, each company must choose how to efficiently and effectively maintain Level B Standardized Performance Indicators. This attachment provides several options to handle this issue. Utilities may implement one of these options or choose another means to maintain the Level B Standardized Performance Indicators.

Option 1 Incorporate the Level B Standardized Performance Indicators into the Existing Performance Indicator System

Summary

Perform a gap assessment of existing performance indicators against the Level B Standardized Performance Indicators and identify those Level B indicators that are not already captured and add these to the existing performance indicator system.

Details

1. Obtain the list of existing performance indicators at your company.
2. Obtain the list of Level B Standardized Performance Indicators.
3. Compare the lists to identify any Level B Standardized Performance Indicators that are not already included in the company list.
4. Enter each Level B Standardized Performance Indicator not already captured into the existing performance indicator system.
5. Assess the remaining list of existing performance indicators and eliminate as many as possible to leverage the benefit of the Level B Standardized Performance Indicators.
6. Modify existing performance indicator reports to include the Level B Standardized Performance Indicators and remove any existing performance indicators that will be discontinued.

Advantages

- Leverages existing performance indicator system and reporting tools.
- Minimal change management once Level B Standardized Performance Indicators are incorporated.
- Supports future data migration to the central data management system.

Disadvantages

- Resources required to create new indicators and modify existing reports.

Option 2 Maintain the Level B Standardized Performance Indicators in a Separate Database or Spreadsheet

Summary

Perform a gap assessment of existing performance indicators against the Level B Standardized Performance Indicators and identify those Level B indicators that are not already captured. Create a spreadsheet or database to maintain the Level B indicators that are not already captured.

Details

1. Obtain the list of existing performance indicators at your company.
2. Obtain the list of Level B Standardized Performance Indicators.
3. Compare the lists to identify any Level B Standardized Performance Indicators that are not already captured.
4. Enter each Level B Standardized Performance Indicator into a spreadsheet or database.
5. Develop a report from the spreadsheet or database that contains the Level B Standardized Performance Indicators not already captured in the existing performance indicator system.

Advantages

- Avoids modifications to the existing performance indicator system which may be costly or tie consuming.

Disadvantages

- Resources required to create a spreadsheet or database.
- Performance indicator reports will be from two different systems and may require additional administrative burden (e.g., copying, manipulating electronic files).

Attachment 4, Industry Standardized Performance Indicators

Selected Standardized Indicators

Below are the performance indicators selected to provide an accurate and comprehensive perspective of plant performance.

Operations

Indicator name	Level	Description
Reactivity Management	A	The number of events that challenge reactivity management using tiered significance levels that are defined in the applicable owner's group documents.
Clearance and Tagging	B	The number of events that challenge worker protection using tiered severity levels to classify events and near misses based on the number of barriers remaining.
Component Mispositioning	B	An index that reflects the frequency and significance of mispositioning events at a station.
Unplanned Shutdown LCOs	A	All unplanned entries into a technical specification (TS) limiting condition for operation (LCO) or an Administrative Technical Requirements (ATR), Technical Requirements Manual (TRM), or Offsite Dose Calculation Manual (ODCM) action requirement when the required action includes a power reduction or mode change if the issue is not corrected within 72 hours.
Control Room Deficiencies	B	The number of equipment deficiencies that degrade the performance of an indication, switch, or controller in the Control Room.
Operator Workarounds	A	The number of equipment deficiencies that may require operators to take some form of compensatory action during plant transients.
Operator Burdens	B	The number of deficiencies that place an unreasonable burden on operators or require significant compensatory actions that challenge operators.

Maintenance

Indicator name	Level	Description
On-Line Corrective Critical (CC) Maintenance	B	The number of On-Line Corrective Critical items in the maintenance backlog for which the field work and testing are not complete.
On-Line Corrective Non-Critical (CN) Maintenance	B	The number of On-Line Corrective Non-Critical items in the maintenance backlog for which the field work and testing are not complete.
On-Line Deficient Critical (DC) Maintenance	A	The number of On-Line Deficient Critical items in the maintenance backlog for which the field work and testing are not complete.
On-Line Deficient Non-Critical (DN) Maintenance	B	The number of On-Line Deficient Non-Critical items in the maintenance backlog for which the field work and testing are not complete.
Rework	A	The average of monthly weighted rework issues classified by Event Level for the period normalized by the number of units at the station, for station and supplemental personnel (ICES).
FIN Effectiveness	B	The percentage of corrective and deficient maintenance completed by FIN and the percentage of high priority work completed by completed by FIN.

Indicator name	Level	Description
Maintenance Efficiency	B	The percentage of work complete as Minor Maintenance.
Maintenance Consequential Errors	A	The sum of all significant and noteworthy-consequential events in the INPO Consolidated Event System (ICES) caused by utility or contractor maintenance personnel for a 12-month rolling period.

Work Management

Indicator name	Level	Description
On line		
Critical Scope Survival (Work Order Level)	A	The percentage of critical work orders identified for inclusion in the workweek at scope freeze and completed by end of execution week. Critical work orders include all orders performed on a critical component.
On-Line Critical PMs Open in Second Half of Grace	A	The number of On-Line Critical preventive maintenance (PM) tasks that are open in the second half of grace.
On-Line Critical PMs Deferred	B	The number of On-Line Critical preventive maintenance (PM) tasks for which a deferral has been approved.
On-Line Late PMs	B	The number of On-Line Critical and Non-Critical preventive maintenance (PM) tasks that exceeded their late date.
On-Line Schedule Completion	B	The percentage of the work items scheduled at the beginning of execution week that were completed.
LCO Execution	B	The percentage of the actual LCO duration used compared to the scheduled duration.
Outage		
Outage Corrective Critical (OCC) Maintenance	B	The number of corrective maintenance items on critical components that cannot be performed with the main generator connected to the grid.
Outage Deficient Critical (ODC) Maintenance	B	The number of deficient maintenance items on critical components that cannot be performed with the main generator connected to the grid.
Outage Critical PMs Deferred	B	The number of Outage Critical preventive maintenance (PM) tasks for which a deferral has been approved.
Outage Late PMs	B	The number of Outage Critical and Non-Critical preventive maintenance (PM) tasks that exceeded their late date.
Percent Refueling Outage Scope Completions	B	The number of refueling outage parent work orders that were in scope at the outage start (breakers open) and were completed, divided by the number of refueling outage parent work orders that were in scope at the outage start (breakers open).
Loss of Shutdown Cooling	B	The number of events reported in the INPO Consolidated Event System (ICES) where the capability to remove decay heat using installed equipment is lost.

Radiation Protection

Indicator name	Level	Description
Radiation Protection Index	A	An index that uses a composite of several indicators in the areas of collective radiation exposure, dose control, and radioactive material control.

Chemistry

Indicator name	Level	Description
Chemistry Effectiveness Indicator - R	A	Encompasses chemistry control issues that have led to plant equipment corrosion issues and have affected equipment reliability or resulted in station shutdowns. The Chemistry Effectiveness Indicator includes four separate conditions: soluble impurity excursions, metal transport, reactor coolant corrosion parameters, and chronic contaminants.

Engineering

Indicator name	Level	Description
Design/Config Mgt		
Temporary Modifications	B	Measures the total number of installed Temporary Modifications and those open greater than one refueling cycle to gauge adherence to effective configuration control practices.
Reactor Engineering		
Sustained Fuel Reliability PII	A	A measure of the total number of INPO Performance Indicator Index points due to not having any Fuel Failures during a Two Fuel Cycle period and not having an active Fuel Failures.
Plant Engineering		
Unit Capability Factor	A	The ratio of the energy generation produced over a given time period to the reference energy generation (potential energy generation) over the same time, expressed as a percentage.
Emergency AC Power Unavailability	A	The ratio of the hours the train/system was unavailable to perform its intended function due to planned, unplanned and fault exposure unavailability, resulting from train failure when the system is required to be available for service.
Engineered Safety Feature (ESF) Actuation	B	The number of engineered safety feature actuations as reported to the NRC through event notifications.
Heat Removal Unavailability	A	The ratio of the hours the train/system was unavailable to perform its intended function due to planned, unplanned and fault exposure unavailability, resulting from train failure when the system is required to be available for service.
High Pressure Injection Unavailability	A	The ratio of the hours the train/system was unavailable to perform its intended function due to planned, unplanned and fault exposure unavailability, resulting from train failure when the system is required to be available for service.
Operational Loss Events	A	The number of events (transients) that require prompt operator response and result in a forced downpower > 20%, forced shutdowns (excluding scrams), or full loss of off-site power while shutdown that have occurred
Safety System Functional Failures (NRC)	A	The number of events or conditions that prevented, or could have prevented, the fulfillment of the safety function of structures or systems that are needed to shut down the reactor and maintain it in a safe shutdown condition; remove residual heat; control the release of radioactive material; or mitigate the consequences of an accident.
Equipment Reliability		
Equipment Reliability Index	A	An indicator that uses a composite of several indicators to measure the longer-term trend of improvements and adherence

Indicator name	Level	Description
		to the principle areas of AP-913 for sustainability over the long term. In addition, key leading indicators are used for projecting degradation in plant operations or reliability of key station equipment.
On-Line Reliability Loss Factor	A	The ratio of all energy generation losses to the reference energy generation both corrected for refueling outage and exempt activity losses during the same period, expressed as a percentage.
Consequential Equipment Failures	A	The number of consequential equipment failures, regardless of component classification, that results in power reductions, unplanned entry into a technical specification shutdown limiting condition for operation (LCO) less than or equal to 72 hours, failure to meet or control a critical safety function, unplanned initiation of engineered safeguards features, or an MSPI monitored component failure. Defined in INPO 12-009.

Training

Indicator name	Level	Description
Simulator Index	B	A composite index to indicate overall simulator health based on simulator reliability, maintenance health, and testing status in accordance with regulatory documents. Reported quarterly.
Accreditation Health	B	This indicator is uses a series of questions tied to the accreditation criteria that will assess a program's compliance with the accreditation objectives.

Regulatory

Indicator name	Level	Description
INPO Performance Indicator Index	A	Measures the overall unit performance using a composite of several indicators, which have a weighted value that add up to 100 as the highest score.

Human Performance

Indicator name	Level	Description
Site Clock Resets	B	The number of site clock resets.
Human Performance Event Rate	B	The number of Human Performance events divided total person-hours worked (including supplemental workers) for a period of time.

Safety

Indicator name	Level	Description
Total Industrial Safety Accident Rate	A	The number of accidents for all personnel (utility and contractor) assigned to the station that result in: one or more days away from work (excluding the day of the accident), or one or more days of restricted work (excluding the day of the accident), or fatalities per 200,000 Person-hours hours, plus the number of total fatalities over a 12 month period.

Emergency Preparedness

Indicator name	Level	Description
Drill/Exercise Performance (NRC)	A	The percentage of all drill, exercise, and actual opportunities that were performed timely and accurately during the previous eight quarters.
Emergency Response Organization (ERO) Drill Participation (NRC)	A	The percentage of key ERO members 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.
Alert and Notification System (ANS) Reliability (NRC)	A	The percentage of ANS sirens that are capable of performing their function, as measured by periodic siren testing during the previous 12 months. Periodic tests are the regularly scheduled tests that are conducted to actually test the ability of the sirens to perform their function (e.g., silent, growl, siren sound test).

Attachment 4 A. Level A Performance Indicators

This attachment contains all Level A Performance Indicators listed on INPO's Portfolio of Indicators contained on the INPO PIC database.

Operations

Indicator name	Level	Description
Reactivity Management	A	The number of events that challenge reactivity management using tiered significance levels that are defined in the applicable owner's group documents.
BWR Severe Reactivity Management Event – SL 1	A	A Reactivity Management Event that results in a severe adverse effect on plant safety or indicates a high potential for future significant events.
BWR Severe Reactivity Management Event – SL 2	A	A Reactivity Management Event that places the plant outside of the Design or Licensing Basis or significant events that compromise fuel related limits, or directly result in fuel failure.
BWR Severe Reactivity Management Event – SL 3	A	A Reactivity Management Event that represents a violation of process or procedures.
BWR Severe Reactivity Management Event – SL 4	A	A Reactivity Management Event that indicates degradation of a barrier to proper Reactivity Management or creates an elevated potential for the occurrence of a Reactivity Management Event.
BWR Severe Reactivity Management Event – SL 5	A	A Reactivity Management Event that indicates less than optimal Reactivity Management but is not classified as a SL 1 through SL 4 reactivity event.
PWR Severe Reactivity Management Event – SL 1	A	A Reactivity Management Event that results in a severe adverse effect on plant safety or indicates a high potential for future significant events.
PWR Severe Reactivity Management Event – SL 2	A	A Reactivity Management Event that places the plant outside of the Design or Licensing Basis or significant events that compromise fuel related limits, or directly result in fuel failure.
PWR Severe Reactivity Management Event – SL 3	A	A Reactivity Management Event that represents a violation of process or procedures.
PWR Severe Reactivity Management Event – SL 4	A	A Reactivity Management Event that indicates degradation of a barrier to proper Reactivity Management or creates an elevated potential for the occurrence of a Reactivity Management Event.
PWR Severe Reactivity Management Event – SL 5	A	A Reactivity Management Event that indicates less than optimal Reactivity Management but is not classified as a SL 1 through SL 4 reactivity event.
Unplanned Shutdown LCOs	A	All unplanned entries into a technical specification (TS) limiting condition for operation (LCO) or an Administrative Technical Requirements (ATR), Technical Requirements Manual (TRM), or Offsite Dose Calculation Manual (ODCM) action requirement when the required action includes a power reduction or mode change if the issue is not corrected within 72 hours.
Operator Workarounds	A	The number of equipment deficiencies that may require operators to take some form of compensatory action during plant transients.
Simplified Operations Area Index	A	Measures the overall performance in the Operations area using a composite of several indicators, which have a weighted value that add up to 100 as the highest score.
Operations Fundamental Events	A	A 12-month rolling average that measures the industry trend in events caused or complicated by weaknesses in operator

		fundamentals.
Unplanned Scrams (NRC) (WANO)	A	The number of unplanned scrams during the previous four quarters, both manual and automatic, while critical per 7,000 hours. The scram rate is calculated per 7,000 critical hours because that value is representative of the critical hours of operation in a year for a typical plant.
Unplanned Power Changes (NRC)	A	The number of unplanned changes in reactor power of greater than 20-percent full-power, per 7,000 hours of critical operation, excluding manual and automatic scrams.
Unplanned Scrams with Complications (NRC)	A	The number of unplanned scrams while critical, both manual and automatic, during the previous four quarters require additional operator actions as defined by the flowchart in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline."

Maintenance

Indicator name	Level	Description
On-Line Deficient Critical (DC) Maintenance	A	The number of On-Line Deficient Critical items in the maintenance backlog for which the field work and testing are not complete.
Critical Preventive Maintenance (PM) Deferred	A	The number of AP-913 Critical component preventive maintenance (PM) tasks deferred (outage and on-line) counted by the date they are approved.
Maintenance Simplified Index	A	A composite of several indicators which have a weighted value to add up to 100 as the highest score to depict overall maintenance performance.
Rework	A	The average of monthly weighted rework issues classified by Event Level for the period normalized by the number of units at the station, for station and supplemental personnel (ICES).
Maintenance Consequential Errors	A	The sum of all significant and noteworthy-consequential events in the INPO Consolidated Event System (ICES) caused by utility or contractor maintenance personnel for a 12-month rolling period.

Work Management

Indicator name	Level	Description
On line		
On-Line Critical PMs Open in Second Half of Grace	A	The number of On-Line Critical preventive maintenance (PM) tasks that are open in the second half of grace.
Critical Scope Survival (Work Order Level)	A	The percentage of critical work orders identified for inclusion in the workweek at scope freeze and completed by end of execution week. Critical work orders include all orders performed on a critical component.
Preventive Maintenance Change Request Backlog	A	A measure of the number of preventive maintenance task change requests for preventive maintenance tasks associated with Critical Components and Non-Critical Critical Components that are greater than 60 days old.
Simplified Work Management Area Index	A	Measures the work management area using a composite of several indicators, equally weighted, that add up to 100 as the highest score.

Indicator name	Level	Description
Outage		
None		

Radiation Protection

Indicator name	Level	Description
Radiation Protection Index	A	An index that uses a composite of several indicators in the areas of collective radiation exposure, dose control, and radioactive material control.
Collective Radiation Exposure (WANO)	A	The sum of the most recent completed refueling outage exposure (external plus internal) plus the sum of the last 24 months of on-line operating exposure (external plus internal) divided by two to report an annualized value.
Occupational Exposure Control Effectiveness (NRC)	A	An indicator that sums the number of Technical specification high radiation area occurrences, very high radiation area occurrences, and unintended exposure occurrences.
Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual (RETSs/ODCM) Radiological Effluent Occurrence (NRC)	A	Radiological effluent release occurrences per reactor unit that exceed the values pre-established liquid and gaseous effluent values.
Tech Spec High Radiation Area Occurrences	A	The number of occurrences in which radiological controls for a locked high radiation area were compromised.
Very High Radiation Area Controls	A	The number of occurrences in which radiological controls for a very high radiation area were compromised.
Unintended Exposure Occurrences	A	The number of occurrences of degradation or failure of one or more radiation safety barriers that results in unintended occupational exposure(s).
High Radiation Area Controls	A	The number of non-conformances with technical specifications or procedures involving a high radiation area that results in the loss of radiological control over access or work activities within the area.
Total Unplanned Exposure Internal and External	A	The number of occurrences of internal unplanned exposure (CEDE) or external unplanned exposure (exceeding electronic dosimeter dose alarm set point) of 10 millirem or greater.
Radioactive Material Control inside the Protected Area	A	The number of occurrences of uncontrolled radioactive material found outside of the radiological controlled area but inside the protected area.
Radioactive Material Control outside the Protected Area	A	The number of occurrences of uncontrolled radioactive material found outside of the radiological controlled area outside of the protected area.

Chemistry

Indicator name	Level	Description
Chemistry Effectiveness Indicator - R	A	Encompasses chemistry control issues that have led to plant equipment corrosion issues and have affected equipment reliability or resulted in station shutdowns. The Chemistry

Indicator name	Level	Description
		Effectiveness Indicator includes four separate conditions: soluble impurity excursions, metal transport, reactor coolant corrosion parameters, and chronic contaminants.
Chemistry Effectiveness Indicator-R, Condition 1	A	A calculated value associated with excursions of specific elements in the primary and secondary water systems of a Pressurized Water Reactor (PWR) and the reactor coolant system of a Boiling Water Reactor (BWR).
Chemistry Effectiveness Indicator-R, Condition 2	A	Monitors the effectiveness of the secondary chemistry corrosion control program by trending corrosion products, e.g., iron and copper, in feedwater.
Chemistry Effectiveness Indicator-R, Condition 3	A	Monitors station reactor coolant chemistry controls.
Chemistry Effectiveness Indicator-R, Condition 4	A	Monitors chronic contamination control; reactor coolant system chlorides for BWRs, steam generator sodium for PWRs with recirculation steam generators, and feedwater sodium for PWRs with once through steam generators.
Chemistry Performance Indicator (CPI) (WANO)	A	Compares the concentration of selected impurities and corrosion products to corresponding limiting values. Each parameter is divided by its limiting value, and the sum of these ratios is normalized to 1.0.

Engineering

Indicator name	Level	Description
Design/Config Mgt		
None		
Reactor Engineering		
Sustained Fuel Reliability PII	A	A measure of the total number of INPO Performance Indicator Index points due to not having any Fuel Failures during a Two Fuel Cycle period and not having an active Fuel Failures.
Fuel Reliability Index (WANO)	A	A measure of the fission product activities present in the reactor coolant.
Plant Engineering		
Unit Capability Factor (WANO)	A	The ratio of the energy generation produced over a given time period to the reference energy generation (potential energy generation) over the same time, expressed as a percentage.
Unit Capability Loss Factor (UCLF) (WANO)	A	The ratio of the unplanned energy losses during a given period of time, to the reference energy generation, expressed as a percentage.
Grid-Related Loss Factor (WANO)	A	The ratio of energy losses due to grid instability or a loss of electrical grid due to causes not under plant management control during a given period of time, to the reference energy generation, during the same period, expressed as a percentage.
Emergency AC Power Unavailability (WANO)	A	The ratio of the hours the train/system was unavailable to perform its intended function due to planned, unplanned and fault exposure unavailability, resulting from train failure when the system is required to be available for service.
Emergency AC Power Systems (NRC)	A	The sum of the unavailability of the emergency AC power plus the unreliability for the emergency AC power system during the

Indicator name	Level	Description
		previous 12 quarters.
Heat Removal Unavailability (WANO)	A	The ratio of the hours the train/system was unavailable to perform its intended function due to planned, unplanned and fault exposure unavailability, resulting from train failure when the system is required to be available for service.
Residual Heat Removal Systems (NRC)	A	The sum of the unavailability of the residual heat removal system plus the unreliability for the residual heat removal system during the previous 12 quarters.
Cooling Water Systems (NRC)	A	The sum of the unavailability of cooling water systems plus the unreliability for the cooling water systems during the previous 12 quarters.
Heat Removal Systems (NRC)	A	The sum of the unavailability of the heat removal system plus the unreliability for the heat removal system during the previous 12 quarters.
High Pressure Injection Unavailability (WANO)	A	The ratio of the hours the train/system was unavailable to perform its intended function due to planned, unplanned and fault exposure unavailability, resulting from train failure when the system is required to be available for service.
High Pressure Injection Systems (NRC)	A	The sum of the unavailability of the high pressure injection system plus the unreliability for the high pressure injection system during the previous 12 quarters.
Operational Loss Events	A	The number of events (transients) that require prompt operator response and result in a forced downpower > 20%, forced shutdowns (excluding scrams), or full loss of off-site power while shutdown that have occurred
Safety System Functional Failures (NRC)	A	The number of events or conditions that prevented, or could have prevented, the fulfillment of the safety function of structures or systems that are needed to shut down the reactor and maintain it in a safe shutdown condition; remove residual heat; control the release of radioactive material; or mitigate the consequences of an accident.
Unmitigated Single Point Vulnerabilities	A	The number of Single Point Vulnerabilities, per unit, that do not have an implemented mitigation plan, have open design changes without an implementation bridging strategy, or have open first time preventive maintenance (PM) tasks (excluding end of life replacements that are not due yet).
Engineering Consequential Errors	A	A one-year moving total of all significant and noteworthy-consequential events in the INPO Consolidated Event System (ICES) assigned an engineering-related process or causal code.
AC Power Reliability Index	A	Measures AC power reliability by subtracting the sum of the lost points for the five factors that represent challenges to the on-site plant AC bus system and sources to these systems and the on-site emergency power source (EDG) from 100.
AC Power Reliability Loss of Off-Site Power	A	Measures the number of full loss of off-site power (LOOP) occurrences.
AC Power Reliability Partial Loss of Off-Site Power	A	Measures the number of partial loss of off-site power (LOSP) occurrences.
AC Power Reliability Load Demand Failure	A	Measures the number of EDG load demand failure (LDF) occurrences.

Indicator name	Level	Description
AC Power Reliability EDG MSPI Failure	A	Measures the number of EDG MSPI failure occurrences.
AC Power Reliability EDG Unavailability	A	Measures the EDG unavailability (planned + unplanned).
Reactor Coolant System (RCS) Specific Activity (NRC)	A	The maximum monthly RCS activity in microcuries per gram dose equivalent Iodine-131 per the technical specifications, expressed as a percentage of the technical specification limit.
Reactor Coolant System (RCS) Leakage (NRC)	A	The maximum RCS identified Leakage in gallons per minute each month as defined in technical specifications, expressed as a percentage of the technical specification limit.
Equipment Reliability		
Equipment Reliability Index	A	An indicator that uses a composite of several indicators to measure the longer-term trend of improvements and adherence to the principle areas of AP-913 for sustainability over the long term. In addition, key leading indicators are used for projecting degradation in plant operations or reliability of key station equipment.
On-Line Reliability Loss Factor	A	The ratio of all energy generation losses to the reference energy generation both corrected for refueling outage and exempt activity losses during the same period, expressed as a percentage.
Consequential Equipment Failures	A	The number of consequential equipment failures, regardless of component classification, that results in power reductions, unplanned entry into a technical specification shutdown limiting condition for operation (LCO) less than or equal to 72 hours, failure to meet or control a critical safety function, unplanned initiation of engineered safeguards features, or an MSPI monitored component failure. Defined in INPO 12-009.
AP-913 Failure Events	A	Measures the failure of equipment resulting in specific consequential conditions outlined in AP-913.
Safety System Performance (MSPI Non-Green)	A	Measures the overall system performance based on the status of applicable NRC MSPI indicators.
Plant Health Committee Effectiveness	A	The percent of Plant Health Committee (PHC) commitments completed per Station as scheduled such that implementation improves margin in nuclear safety and or full power operation.
Monthly Age of Red and Yellow Systems	A	The sum of the number of systems per unit that have retained Red or Yellow status for greater than one normal refueling cycle interval (18 or 24 months).

Training

Indicator name	Level	Description
Initial License Operator Training RO Pass Rate (First Time)	A	Monitors the successful pass rate of the initial licensed operator pipeline. Reported when exam results are obtained.
Initial License Operator Training SRO Pass Rate (First Time)	A	Monitors the successful pass rate of the initial licensed operator pipeline. Reported when exam results are obtained

Regulatory

Indicator name	Level	Description
INPO Performance Indicator Index	A	Measures the overall unit performance using a composite of several indicators, which have a weighted value that add up to 100 as the highest score.
NRC Barrier Integrity Findings	A	The number of violations and non-sited violations in the Barrier Integrity cornerstone of the Reactor Oversight Process (ROP) for a specific period of time.
NRC Initiating Event Findings	A	The number of violations and non-sited violations in the Initiating Event cornerstone of the Reactor Oversight Process (ROP) for a specific period of time.
NRC Mitigating System Findings	A	The number of violations and non-sited violations in the Mitigating Systems cornerstone of the Reactor Oversight Process (ROP) for a specific period of time.
NRC Occupational Radiation Safety Findings	A	The number of violations and non-sited violations in the Occupational Radiation Safety cornerstone of the Reactor Oversight Process (ROP) for a specific period of time.
NRC Unit ROP Matrix Indicators Column 2, 3, 4, 5	A	The sum of the weighted NRC Reactor Oversight Process (ROP) Performance Indicators values for each quarter for a rolling 36 month period for ROP indicators are assigned a color of White, Yellow, or Red.
Total Number of Licensee Event Reports (LER) Events	A	The sum of the number of ICES Event Records reported per the guidance of INPO 12-009, ICES Reporting Requirements and Standards for a specific time period with ICES Record Tags matching the criteria for the “Total Number Of Licensee Event Report (LER) Events” indicator.
Total Number of NRC Daily Events	A	The sum of daily event notification reports made to the NRC under the guidance of NUREG 1022, “Event Report Guidelines 10 CFR 50.72 and 50.73”, and Voluntary Notifications for events which the NRC may be interested (including 10CFR 26.719 Reporting Requirements).
Unit NRC Cross-Cutting Issues	A	The sum of the total number of monthly occurrences that an NRC ROP Substantive Cross Cutting Issue exists at a Station.

Human Performance

Indicator name	Level	Description
Simplified Organizational Effectiveness Area Index	A	Measures overall organizational effectiveness using a composite of several indicators, equally weighted, that add up to 100 as the highest score.

Safety

Indicator name	Level	Description
Total Industrial Safety Accident Rate	A	The number of accidents for all personnel (utility and contractor) assigned to the station that result in: one or more days away from work (excluding the day of the accident), or one or more days of restricted work (excluding the day of the accident), or fatalities per 200,000 Person-hours hours, plus the number of total fatalities over a 12 month period.

Emergency Preparedness

Indicator name	Level	Description
Drill/Exercise Performance (NRC)	A	The percentage of all drill, exercise, and actual opportunities that were performed timely and accurately during the previous eight quarters.
Emergency Response Organization (ERO) Drill Participation (NRC)	A	The percentage of key ERO members 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.
Alert and Notification System (ANS) Reliability (NRC)	A	The percentage of ANS sirens that are capable of performing their function, as measured by periodic siren testing during the previous 12 months. Periodic tests are the regularly scheduled tests that are conducted to actually test the ability of the sirens to perform their function (e.g., silent, growl, siren sound test).

Security

Indicator name	Level	Description
Protected Area (PA) Security Equipment (NRC)	A	An index that compares the amount of the time specific security equipment is unavailable, as measured by compensatory hours, to the total hours in the period. A normalization factor is used to take into account site variability in the size and complexity of the systems.

Attachment 4 B. Level B Performance Indicators

This attachment reflects the indicators determined to be Level B Performance Indicators.

Operations

Indicator name	Level	Description
Clearance and Tagging	B	The number of events that challenge worker protection using tiered severity levels to classify events and near misses based on the number of barriers remaining.
Component Mispositioning	B	An index that reflects the frequency and significance of mispositioning events at a station.
Control Room Deficiencies	B	The number of equipment deficiencies that degrade the performance of an indication, switch, or controller in the Control Room.
Operator Burdens	B	The number of deficiencies that place an unreasonable burden on operators or require significant compensatory actions that challenge operators.

Maintenance

Indicator name	Level	Description
On-Line Corrective Critical (CC) Maintenance	B	The number of On-Line Corrective Critical items in the maintenance backlog for which the field work and testing are not complete.
On-Line Corrective Non-Critical (CN) Maintenance	B	The number of On-Line Corrective Non-Critical items in the maintenance backlog for which the field work and testing are not complete.
On-Line Deficient Non-Critical (DN) Maintenance	B	The number of On-Line Deficient Non-Critical items in the maintenance backlog for which the field work and testing are not complete.
FIN Effectiveness	B	The percentage of corrective and deficient maintenance completed by FIN and the percentage of high priority work completed by completed by FIN.
Maintenance Efficiency	B	The percentage of work complete as Minor Maintenance.

Work Management

Indicator name	Level	Description
On line		
On-Line Critical PMs Deferred	B	The number of On-Line Critical preventive maintenance (PM) tasks for which a deferral has been approved.
On-Line Late PMs	B	The number of On-Line Critical and Non-Critical preventive maintenance (PM) tasks that exceeded their late date.
On-Line Schedule Completion	B	The percentage of the work items scheduled at the beginning of execution week that were completed.
LCO Execution	B	The percentage of the actual LCO duration used compared to the scheduled duration.
Outage		
Outage Corrective Critical (OCC) Maintenance	B	The number of corrective maintenance items on critical components that cannot be performed with the main generator connected to the grid.
Outage Deficient Critical (ODC)	B	The number of deficient maintenance items on critical components that cannot be performed with the main generator

Indicator name	Level	Description
Maintenance		connected to the grid.
Outage Critical PMs Deferred	B	The number of Outage Critical preventive maintenance (PM) tasks for which a deferral has been approved.
Outage Late PMs	B	The number of Outage Critical and Non-Critical preventive maintenance (PM) tasks that exceeded their late date.
Percent Refueling Outage Scope Completions	B	The number of refueling outage parent work orders that were in scope at the outage start (breakers open) and were completed, divided by the number of refueling outage parent work orders that were in scope at the outage start (breakers open).
Loss of Shutdown Cooling	B	The number of events reported in the INPO Consolidated Event System (ICES) where the capability to remove decay heat using installed equipment is lost.

Radiation Protection

Indicator name	Level	Description
None		

Chemistry

Indicator name	Level	Description
None		

Engineering

Indicator name	Level	Description
Design/Config Mgt		
Temporary Modifications	B	Measures the total number of installed Temporary Modifications and those open greater than one refueling cycle to gauge adherence to effective configuration control practices.
Reactor Engineering		
None		
Plant Engineering		
Engineered Safety Feature (ESF) Actuation	B	The number of engineered safety feature actuations as reported to the NRC through event notifications.
Equipment Reliability		
None		

Training

Indicator name	Level	Description
Simulator Index	B	A composite index to indicate overall simulator health based on simulator reliability, maintenance health, and testing status in accordance with regulatory documents. Reported quarterly.
Accreditation Health	B	This indicator is uses a series of questions tied to the accreditation criteria that will assess a program’s compliance with the accreditation objectives.

Regulatory

Indicator name	Level	Description
None		

Human Performance

Indicator name	Level	Description
Site Clock Resets	B	The number of site clock resets.

Human Performance Event Rate	B	The number of Human Performance events divided total person-hours worked (including supplemental workers) for a period of time.

Safety

Indicator name	Level	Description
None		

Emergency Preparedness

Indicator name	Level	Description
None		

Security

Indicator name	Level	Description
None		

Attachment 4 C. Level A and B Performance Indicator Inputs

This is a listing of Performance Indicators by Parent Indicator and Indicator title that support Level A indicators. (Level B indicators TBD)

Parent Indicator Name	Indicator Name
# NRC Evnts Not Retracted	# NRC Evnts Retracted
# NRC Evnts Not Retracted	Total # NRC Daily Events
AC Power Reliability Index	AC Power Reliability Loss of Offsite Power
AC Power Reliability Index	AC Power Reliability Partial Loss of Offsite Power
AC Power Reliability Index	AC Power Reliability Load Demand Failures
AC Power Reliability Index	AC Power Reliability EDG MSPI Failures
AC Power Reliability Index	AC Power Reliability EDG Unavailability
All Total - Recordable Accident Rate	Total - Fatality Rate
All Total - Recordable Accident Rate	Utility – Fatality Rate
All Total - Recordable Accident Rate	Contractor Fatality Rate
All Total - Recordable Accident Rate	Total - Hours Worked
All Total - Recordable Accident Rate	Utility – Hours Worked
All Total - Recordable Accident Rate	Contractor Work Hours
All Total - Recordable Accident Rate	Total - Lost-time Acc Rate
All Total - Recordable Accident Rate	Utility – Lost-time Acc Rate
All Total - Recordable Accident Rate	Contractor – Lost-time Acc Rate
All Total - Recordable Accident Rate	Total - Work Rest Acc Rate
All Total - Recordable Accident Rate	Utility – Work Rest Acc Rate
All Total - Recordable Accident Rate	Contractor – Work Rest Acc Rate
All Total - Recordable Accident Rate	Total Industrial Safety Accident Rate
Chemistry Effectiveness Indicator	CEI Water Chemistry – Condition 1 Cycle
Chemistry Effectiveness Indicator	CEI Water Chemistry – Condition 2 Cycle
Chemistry Effectiveness Indicator	CEI Water Chemistry – Condition 3 Cycle
Chemistry Effectiveness Indicator	CEI Water Chemistry – Condition 4 Cycle
Chemistry Effectiveness Indicator	CEI Water Chemistry – Condition 5 Cycle
Chemistry Effectiveness Indicator Revised	CEIR Water Chemistry – Condition 1 Cycle
Chemistry Effectiveness Indicator Revised	CEIR Water Chemistry – Condition 2 Cycle
Chemistry Effectiveness Indicator Revised	CEIR Water Chemistry – Condition 3 Cycle
Chemistry Effectiveness Indicator Revised	CEIR Water Chemistry – Condition 4 Cycle
Chemistry Performance Indicator	Chloride
Chemistry Performance Indicator	Sulfate
Chemistry Performance Indicator	Iron

Parent Indicator Name	Indicator Name
Chemistry Performance Indicator	Sodium
Chemistry Performance Indicator	Copper
Chemistry Performance Indicator	Days Greater than 30% PWR
Chemistry Performance Indicator	Days Greater than 10% BWR
Collective Rad Expos	External Exposure
Collective Rad Expos	Internal Exposure
Collective Rad Expos	Refuel Out Rad Exposure 2020 PII
Collective Rad Expos	Operating Rad Exposure 2020 PII
Consequential Equipment Failures	ICES Event Records
Contractor Fatality Rate	Contract Work Hours
Contractor ISA Rate	Contract Work Hours
Contractor ISA Rate	Contract WR Rate
Contractor ISA Rate	Contractor Fatality Rate
Contractor ISA Rate	Contractor Loss TA Rate
Critical Hours	Total Hours
Current Non Failed Fuel	Months with Fuel Failures
Emergency AC Power Fault Exposure - Cycle	Emergency AC Power Required Hours - Cycle
Emergency AC Power Fault Exposure - Cycle	Emergency AC Power System Number of Trains
Emergency AC Power Planned Unavailability - Cycle	Emergency AC Power Required Hours - Cycle
Emergency AC Power Planned Unavailability - Cycle	Emergency AC Power System Number of Trains
Emergency AC Power Unplanned Unavail. - Cycle	Emerg AC Pwr Unavail - Cycle
Emergency AC Power Unplanned Unavail. - Cycle	Emergency AC Power Fault Exposure - Cycle
Emergency AC Power Unplanned Unavail. - Cycle	Emergency AC Power Planned Unavailability - Cycle
Emergency AC Power Unplanned Unavail. - Cycle	Emergency AC Power Required Hours - Cycle
Emergency AC Power Unplanned Unavail. - Cycle	Emergency AC Power System Number of Trains
Emergency Plan Entry	E-Plan Alert
Emergency Plan Entry	E-Plan General Emg
Emergency Plan Entry	E-Plan Site Area Emg
Emergency Plan Entry	E-Plan Unusal Event
Engineering Consequential Errors	Number Engineering Consequential Errors
Equation 1	Krypton 85
Equation 1	Krypton 87

Parent Indicator Name	Indicator Name
Equation 1	Krypton 88
Equation 1	Xenon 133
Equation 1	Xenon 135
Equation 1	Xenon 138
Equation 2	Xenon 133
Equation 2	Xenon 135
Equation 2	Xenon 138
Equipment Reliability Index	Online Reliability Loss Factor for ERI
Equipment Reliability Index	Unplanned Pwr Change 7000 Hrs for 12 Months
Equipment Reliability Index	Operational Loss Events for ERI
Equipment Reliability Index	Quarterly Unplanned Shutdown LCO Entries for ERI
Equipment Reliability Index	Monthly ERI Operator Workaround
Equipment Reliability Index	Quarterly ERI AP-913 Failure Events
Equipment Reliability Index	MSPI Non-Green Safety System Perf.
Equipment Reliability Index	EAC MSPI Non- Green Performance
Equipment Reliability Index	HPI MSPI Non- Green Performance
Equipment Reliability Index	HR MSPI Non-Green Performacne
Equipment Reliability Index	RHR MSPI Non- Green Performance
Equipment Reliability Index	CW MSPI Non- Green Performance
Equipment Reliability Index	Unmitigated Single Point Vulnerabilities
Equipment Reliability Index	Rework Index for ERI
Equipment Reliability Index	Monthly Online Deficient Critical Maint (DC)
Equipment Reliability Index	Critical Deferred PMs
Equipment Reliability Index	Critical PMs Open in Second Half of Grace
Equipment Reliability Index	Critical Scope Survival
Equipment Reliability Index	Plant Health Committee Effectiveness
Equipment Reliability Index	Monthly Red-Yellow Systems Age
Equipment Reliability Index	Chemistry Effectiveness revised Indicator for ERI
Equipment Reliability Index	Monthly PM Change Request Backlog
Equipment Reliability Index	Equipment Reliability Index Lost Points
Equipment Reliability Index	Online Reliability Loss Factor for ERI LP
Equipment Reliability Index	Unplanned Pwr Changes for 12 Mn LP
Equipment Reliability Index	Operational Loss Events for ERI Lost Points
Equipment Reliability Index	Quarterly Unplanned Shutdown LCO LP
Equipment Reliability Index	Monthly ERI Operator Workaround LP

Parent Indicator Name	Indicator Name
Equipment Reliability Index	Quarterly ERI AP-913 failure Events LP
Equipment Reliability Index	MSPI Non-Green Safety Sys. Perf. LP
Equipment Reliability Index	Single Point Vulnerabilities Lost points
Equipment Reliability Index	Rework Index for ERI lost Points
Equipment Reliability Index	Monthly Critical Comp. Non Outage DC LP
Equipment Reliability Index	Quarterly Sum Critical PMs Deferred LP
Equipment Reliability Index	Critical PMs in 2nd Half of Grace Lost Points
Equipment Reliability Index	Quarterly work Week Scope Survival LP
Equipment Reliability Index	Plant Health Committee Effectiveness LP
Equipment Reliability Index	Monthly Red-Yellow Systems Age LP
Equipment Reliability Index	Chem Eff. Revised IND. For ERI lost Points
Equipment Reliability Index	Monthly PM Change request Backlog LP
Events	# NRC Evnts Not Retracted
Events	All Total - Recordable Accident Rate
Events	Pwr Change 7000 Hrs
Forced Loss Rate (WANO)	Planned Loss
Forced Loss Rate (WANO)	Unplanned Loss
Forced Loss Rate (WANO)	Outage Extension Loss
Forced Loss Rate (WANO)	Reference energy Generation
Fuel Reliability Defect (FRD)	Equation 1
Fuel Reliability Defect (FRD)	Fuel Reliability Ind (BWR)
Fuel Reliability Defect (FRD)	Fuel Reliability Ind (PWR)
Fuel Reliability Defect (FRD)	Xenon 133
Fuel Reliability Ind (BWR)	Equation 1
Fuel Reliability Ind (BWR)	Equation 2
Fuel Reliability Ind (PWR)	IOD134
Fuel Reliability Ind (PWR)	Iodine 131
Heat Removal Fault Exposure - Cycle	Heat Removal Required Hours - Cycle
Heat Removal Fault Exposure - Cycle	Heat Remove Trains
Heat Removal Planned Unavailability - Cycle	Heat Removal Required Hours - Cycle
Heat Removal Planned Unavailability - Cycle	Heat Remove Trains
Heat Removal Unplanned Unavailability - Cycle	Heat Removal Fault Exposure - Cycle
Heat Removal Unplanned Unavailability - Cycle	Heat Removal Planned Unavailability - Cycle
Heat Removal Unplanned Unavailability - Cycle	Heat Removal Required Hours - Cycle
Heat Removal Unplanned Unavailability - Cycle	Heat Remove Trains
High Pressure Injection Fault Exposure - Cycle	HP Inj. Trains - Cycle
High Pressure Injection Fault Exposure - Cycle	Required Hours

Parent Indicator Name	Indicator Name
High Pressure Injection Planned Unavail - Cycle	Required Hours
High Pressure Injection Unplanned Unavail - Cycle	High Pressure Injection Fault Exposure - Cycle
High Pressure Injection Unplanned Unavail - Cycle	High Pressure Injection Planned Unavail - Cycle
High Pressure Injection Unplanned Unavail - Cycle	High Pressure Injection Unavailability - Cycle
High Pressure Injection Unplanned Unavail - Cycle	HP Inj. Trains - Cycle
High Pressure Injection Unplanned Unavail - Cycle	Required Hours
Hours Critical Breaker Open	Critical Hours
Hours Critical Breaker Open	Hours Critical Breaker Closed
INPO 2020 PI Index Lost Points	UCF Lost Points
INPO 2020 PI Index Lost Points	Online Reliability Loss Factor Lost Points
INPO 2020 PI Index Lost Points	Operational Loss Events Lost Points
INPO 2020 PI Index Lost Points	Unplan M&A Scrams Lost Points
INPO 2020 PI Index Lost Points	High Pressure Injection Lost Points
INPO 2020 PI Index Lost Points	Heat Removal Lost Points
INPO 2020 PI Index Lost Points	Emergency AC Power Lost Points
INPO 2020 PI Index Lost Points	Sustained Fuel Reliability Lost Points
INPO 2020 PI Index Lost Points	Chemistry effectiveness Ind. Revised LP
INPO 2020 PI Index Lost Points	Collective Radiation exposure Lost Points
INPO 2020 PI Index Lost Points	Total Ind Safety ACC Index Lost Points
INPO 2020 PI Index Lost Points	INPO Forced Loss Rate Lost Points
INPO 2020 PI Index Lost Points	INPO Forced Loss Events Lost Points
INPO 2020 PI Index Lost Points	Chemistry effectiveness Ind Lost Points
INPO 2020 PI Index Lost Points	Fuel reliability Defect Lost Points
INPO 2020 PI Index Lost Points	Industrial Safety Accident Rate Lost Points
INPO 2020 PI Index Lost Points	Chemistry Performance Ind Lost Points
INPO 2020 PI Index Lost Points	Unplanned Auto Scram Rate Lost Points
INPO 2020 PI Index Lost Points	
INPO Forced Loss Rate	Unplanned Loss (INPO)
INPO Forced Loss Rate	Planned Loss (INPO)
INPO Forced Loss Rate	Outage Extension (INPO)
INPO Forced Loss Rate	Reference Energy Ggeneration
INPO/Utility Interactions	NANT Course Participation
INPO/Utility Interactions	Peer Participation
INPO/Utility Interactions	Workshop Participation
IOD134	Power Level > 85%

Parent Indicator Name	Indicator Name
IOD134	Purif. Rate Constant
Iodine 131	Power Level > 85%
Iodine 131	Purif. Rate Constant
ISA Rate	Utility – Fatality Rate
ISA Rate	Utility – Lost-time Acc Rate
ISA Rate	Utility –Work Rest Acc Rate
ISA Rate	Utility –Hours Worked
ISA Rate	Industrial Safety Accident Rate Lost Points
Krypton 85	Linear heat gen rate
Krypton 85	Power Level > 85%
Krypton 87	Linear heat gen rate
Krypton 87	Power Level > 85%
Krypton 88	Linear heat gen rate
Krypton 88	Power Level > 85%
Maintenance Consequential Errors	Number Maint. Consequential Errors
Mgmt Challenges	Accreditation Visits (ACCV)
Mgmt Challenges	Discretion Enforce
Mgmt Challenges	Emergency Plan Entry
Mgmt Challenges	Enforcement Actions
Mgmt Challenges	LCO Events
Mgmt Challenges	Net Open Positions
Mgmt Challenges	Non-Green Findings
Mgmt Challenges	Non-Green ROP Ind
Mgmt Challenges	NRC Allegations
Mgmt Challenges	NRC Cross Cutting Iss
Mgmt Challenges	NRC ROP Matrix
Mgmt Challenges	Operating License Renewal
Mgmt Challenges	Operator-Owner Change
Mgmt Challenges	Station Loss of Shutdown Cooling ICES Events
Mgmt Challenges	Station Senior Management Changes
Mgmt Challenges	Unit Power Uprate
Mgmt Challenges	Unit Reactor Critical Scram ICES Events
Mgmt Challenges	Worker Fatalities
Mgmt Challenges	
Months with Fuel Failures	Number of Reported Fuel Failures
NANT Course Participation	CEO Seminar

Parent Indicator Name	Indicator Name
NANT Course Participation	Eng Sup. PD Seminar
NANT Course Participation	First Line Leader Seminar
NANT Course Participation	Human Perfor Fundamentals
NANT Course Participation	Maint FLPD Seminar
NANT Course Participation	Maint Manager Seminar
NANT Course Participation	Maint Sup. PD Seminar
NANT Course Participation	NANT Dir Course
NANT Course Participation	New Chem Manager Seminar
NANT Course Participation	New Eng Manager Seminar
NANT Course Participation	New Human Perfor. Lead
NANT Course Participation	New Maint Manager Seminar
NANT Course Participation	New Mgr. Seminar
NANT Course Participation	New Ops Manager Seminar
NANT Course Participation	New Plant Manager Seminar
NANT Course Participation	New Rad Pro Mgr. Seminar
NANT Course Participation	New Training Mgr. Seminar
NANT Course Participation	Next Level Leader Seminar
NANT Course Participation	Ops Sup. PD Seminar
NANT Course Participation	POC Orientation Training
NANT Course Participation	RP & Chem Mgr. PD Seminar
NANT Course Participation	Rx Tech Nuc Exec Course
NANT Course Participation	Shift Man PD Seminar
NANT Course Participation	Sr. Nuc Exec Seminar
NANT Course Participation	Sr. Nuc Plant Mgr. Course
NANT Course Participation	Training Sup. PD Seminar
Net Open Positions	Net Open Positions CHEM
Net Open Positions	Net Open Positions ENG
Net Open Positions	Net Open Positions MAINT
Net Open Positions	Net Open Positions OPS
Net Open Positions	Net Open Positions RP
Net Open Positions	Net Open Positions TRAIN
Net Open Positions	Net Open Positions WORK MAG
Non-Green Findings	NRC Red Findings
Non-Green Findings	NRC White Findings
Non-Green Findings	NRC Yellow Findings
Non-Green ROP Ind	Red ROP Ind
Non-Green ROP Ind	White ROP Ind

Parent Indicator Name	Indicator Name
Non-Green ROP Ind	Yellow ROP Ind
NRC Allegations	Allegations Substantiated
NRC Allegations	Allegations with Enforce
NRC Allegations	Avg Open Allegations
NRC Allegations	Discrimination Allegation
NRC Allegations	Off Site Allegations
NRC Allegations	On Site Allegations
NRC Barrier Findings	NRC Findings - Barrier Integrity – Red/SL-I
NRC Barrier Findings	NRC Findings - Barrier Integrity – White/SL-III
NRC Barrier Findings	NRC Findings - Barrier Integrity – Yellow/SL-II
NRC Barrier Findings	NRC Findings - BI – Green/SL-IV/Other
NRC Cross Cutting Iss	Cross Cutting Human Perf
NRC Cross Cutting Iss	Cross Cutting PI&R
NRC Cross Cutting Iss	Cross Cutting SCWE
NRC Green Findings	NRC White Findings
NRC Green Findings	NRC Yellow Findings
NRC Green Findings	NRC Red Findings
NRC Green ROP Indicators	White ROP Ind.
NRC Green ROP Indicators	Yellow ROP Ind.
NRC Green ROP Indicators	Red ROP Ind.
NRC Initiating Event Findings	NRC Findings - IE – Green/SL-IV/Other
NRC Initiating Event Findings	NRC Findings - Initiating Event – Red/SL-I
NRC Initiating Event Findings	NRC Findings - Initiating Event – White/SL-III
NRC Initiating Event Findings	NRC Findings - Initiating Event – Yellow/SL-II
NRC Mitigating Systems Findings	NRC Findings - Mitigating Systems – Red/SL-I
NRC Mitigating Systems Findings	NRC Findings - Mitigating Systems – White/SL-III
NRC Mitigating Systems Findings	NRC Findings - Mitigating Systems – Yellow/SL-II
NRC Mitigating Systems Findings	NRC Findings -MS – Green/SL-IV/Other
NRC Occupational Radiation Safety Findings	NRC Findings - OR – Green/SL-IV/Other
NRC Occupational Radiation Safety Findings	NRC Findings - OR – Red/SL-I
NRC Occupational Radiation Safety Findings	NRC Findings - OR – White/SL-III
NRC Occupational Radiation Safety Findings	NRC Findings - OR – Yellow/SL-II

Parent Indicator Name	Indicator Name
NRC ROP Matrix	ROP Matrix Col 2
NRC ROP Matrix	ROP Matrix Col 3
NRC ROP Matrix	ROP Matrix Col 4
NRC ROP Matrix	ROP Matrix Col 5
Occup Exposure Occur	TS High Rad Area Occur
Occup Exposure Occur	Unintended Exposure Occur
Occup Exposure Occur	Very High Rad Area Occur
Online Deficient Critical Maintenance Backlog	Number Deficient Critical Maint Activities
Online Reliability Loss Factor	Unplanned Loss
Online Reliability Loss Factor	Planned Loss
Online Reliability Loss Factor	Outage extension Loss
Online Reliability Loss Factor	RFO Loss
Online Reliability Loss Factor	Exempt Loss
Online Reliability Loss Factor	Reference Unit Power
Online Reliability Loss Factor	Total Hours
Open Critical PM Activities in 2nd Half of Grace	Number Open PMs in 2nd Half of Grace
Operating Rad Exposure	Collective Rad Expos
Operating Rad Exposure	External Exposure
Operating Rad Exposure	Internal Exposure
Operational Focus	Clearance and Tagging Events
Operational Focus	Component Mispositioning Events
Operational Focus	LCO Entries
Operational Focus	Operational Decision Making Events
Operational Focus	Operations Personnel-Related Events
Operational Focus	Pwr Change 7000 Hrs
Operational Focus	Scram with Complications
Operational Loss Events	ICES Event Record
Operations Fundamental Events	Number Operations fundamental events
Operations Personnel-Related Events	Operations Fundamentals Events
Operations Personnel-Related Events	Operations Personnel-Procedure-Related Events
Peer Participation	Host Peers
Peer Participation	Total Peer Participation
Percent Total RCS Operational Leakage	Total Reactor Coolant System Operational Leakage
Personnel Safety	NRC Occupational Radiation Safety Findings
Personnel Safety	Occup Exposure Occur

Parent Indicator Name	Indicator Name
Personnel Safety	Operating Rad Exposure
Personnel Safety	Refuel Out Rad Exposure
Personnel Safety	Total - Fatality Rate
Plant Equipment	Chemistry Condition 5 Cycle - Dose Mitigation
Plant Equipment	Consequential Equipment Failures
Plant Equipment	ESF Actuation
Plant Equipment	Fuel Reliability Defect (FRD)
Plant Equipment	Functional Equipment Failures
Plant Equipment	Grid-Related Generation Loss
Plant Equipment	NRC Barrier Findings
Plant Equipment	NRC Initiating Event Findings
Plant Equipment	NRC Mitigating Systems Findings
Plant Equipment	RCS Percent Leakage
Plant Equipment	Safety System Functional Failures
Plant Equipment	Sustained Fuel Reliability
Pwr Change 7000 Hrs	Critical Hours
Pwr Change 7000 Hrs	Unplanned Critical Scram
Pwr Change 7000 Hrs	Unplanned Power Change
RCS Percent Leakage	RCS Leakage
RCS Percent Leakage	RCS Leakage TSL
Radiation Protection Index (RPI)	Collective Rad Exposure for RPI
Radiation Protection Index	TS High Rad Area Occur for RPI
Radiation Protection Index	Very High Rad Area Occur for RPI
Radiation Protection Index	Unintended Exposure Ocurr for RPI
Radiation Protection Index	Total High Rad Area Controls for RPI
Radiation Protection Index	Total Unplanned Exposure for RPI
Radiation Protection Index	Protected Area Rad Material Control for RPI
Radiation Protection Index	Other Rad Material Control for RPI
Reactivity Management	BWR Severe Reactivity Mgmt. Event SL1
Reactivity Management	BWR Major Reactivity Mgmt. Event SL2
Reactivity Management	BWR Minor Reactivity Mgmt. Event SL3
Reactivity Management	BWR Reactivity Mgmt. Precursors SL4
Reactivity Management	BWR Reactivity Mgmt. Concerns SL5
Reactivity Management	PWR Severe Reactivity Mgmt. Event SL1
Reactivity Management	PWR Major Reactivity Mgmt. Event SL2
Reactivity Management	PWR Minor Reactivity Mgmt. Event SL3

Parent Indicator Name	Indicator Name
Reactivity Management	PWR Reactivity Mgmt. Precursors SL4
Reactivity Management	PWR Reactivity Mgmt. Concerns SL5
Refuel Out Rad Exposure	Collective Rad Expos
Refuel Out Rad Exposure	External Exposure
Refuel Out Rad Exposure	Internal Exposure
Rework Index	Level 1 Rework
Rework Index	Level 2 Rework
Rework Index	Level 3 Rework
Rework Index	Level 4 Rework
RO Program Completion	Number Starting RO Exam Class
RO Program Completion	Number Taking RO Exam
RO Program Completion	Passing RO Exam After Remediation
RO Program Completion	Passing RO Exam with No Remed.
RO Program Completion	RO Class size
RO Program Completion	RO Exam Pass Rate
RO Program Completion	RO Exam Pass Rate After Remed.
Simplified Maintenance Area Index	Maint. Personnel-Related Events
Simplified Maintenance Area Index	Maintenance Consequential Errors
Simplified Maintenance Area Index	On-line Average Delinquent Total PM Activities
Simplified Maintenance Area Index	Total Rework
Simplified Maintenance Area Index	Online Deficient Critical Maint. Backlog
Simplified Maintenance Area Index	Simple Maint. Area Index Lost Points
Simplified Maintenance Area Index	Maint. Personnel-Related Events MA LP
Simplified Maintenance Area Index	Maint. Consequential Errors MA LP
Simplified Maintenance Area Index	Total Delinquent PMs MA Lost Points
Simplified Maintenance Area Index	Total Rework Indicator MA Lost Points
Simplified Maintenance Area Index	Online Deficient Critical Maint. MA LP
Simplified Operational Focus Area Index	Clearance and Tagging Events
Simplified Operational Focus Area Index	Component Mispositioning Events
Simplified Operational Focus Area Index	Operational Decision Making Events
Simplified Operational Focus Area Index	Station Loss of Shutdown Cooling ICES Events
Simplified Operational Focus Area Index	LCO Entries
Simplified Operational Focus Area Index	Power Changes 700 Hrs.
Simplified Operational Focus Area Index	Simple Operational Focus Area Index LP
Simplified Operational Focus Area Index	Clearance and Tagging Events OF LP

Parent Indicator Name	Indicator Name
Simplified Operational Focus Area Index	Comp. Mispositioning events OF Lost Points
Simplified Operational Focus Area Index	Operational Decision Making Events OF Lost Points
Simplified Operational Focus Area Index	Loss of SD Cooling events OF Lost Points
Simplified Operational Focus Area Index	Limited Condition of Operation OF LP
Simplified Operational Focus Area Index	Unplanned Pwr Changes
Simplified Operations Area Index	Ops Pers. Events – SNC
Simplified Operations Area Index	Ops Pers. Events - NNC
Simplified Operations Area Index	SRO Exam Pass Rate
Simplified Operations Area Index	RO Exam Pass Rate
Simplified Operations Area Index	Simplified Operations Area Index
Simplified Operations Area Index	Simplified Ops Area Index Lost Points
Simplified Operations Area Index	SNC Ops Personnel-Related Events OP Lost Points
Simplified Operations Area Index	NNC Ops Personnel-Related evens OP Lost Points
Simplified Operations Area Index	NRC SRO Exam Pass Rate OP Lost Points
Simplified Operations Area Index	NRC RO Exam Pass Rate Lost Points
Simplified Organizational Effectiveness Area Index	Accreditation Visits
Simplified Organizational Effectiveness Area Index	Management events – SNC
Simplified Organizational Effectiveness Area Index	Net Open Positions
Simplified Organizational Effectiveness Area Index	Net Open Positions CHEM
Simplified Organizational Effectiveness Area Index	Budgeted Positions CHEM
Simplified Organizational Effectiveness Area Index	Open Positions CHEM
Simplified Organizational Effectiveness Area Index	Net Open Positions ENG
Simplified Organizational Effectiveness Area Index	Budgeted Positions ENG
Simplified Organizational Effectiveness Area Index	Open Positions ENG
Simplified Organizational Effectiveness Area Index	Net Open Positions MAINT
Simplified Organizational Effectiveness Area Index	Budgeted Positions MAINT
Simplified Organizational Effectiveness Area Index	Open Positions MAINT
Simplified Organizational Effectiveness Area Index	Net Open Positions OPS
Simplified Organizational Effectiveness Area Index	Budgeted Positions OPS
Simplified Organizational Effectiveness Area Index	Open Positions OPS
Simplified Organizational Effectiveness Area Index	Net Open Positions RP
Simplified Organizational Effectiveness Area Index	Budgeted Positions RP
Simplified Organizational Effectiveness Area Index	Open Positions RP
Simplified Organizational Effectiveness Area Index	Net Open Positions TRAIN
Simplified Organizational Effectiveness Area Index	Budgeted Positions TRAIN

Parent Indicator Name	Indicator Name
Simplified Organizational Effectiveness Area Index	Open Positions TRAIN
Simplified Organizational Effectiveness Area Index	Net Open Positions WORK MAG
Simplified Organizational Effectiveness Area Index	Budgeted Positions WORK MAG
Simplified Organizational Effectiveness Area Index	Open Positions WORK MAG
Simplified Organizational Effectiveness Area Index	Pwr Change 7000 Hrs
Simplified Organizational Effectiveness Area Index	Station Senior Management Changes
Simplified Organizational Effectiveness Area Index	NRC Cross Cutting Issue
Simplified Organizational Effectiveness Area Index	Non-Green Findings
Simplified Organizational Effectiveness Area Index	Non-Green ROP Ind
Simplified Organizational Effectiveness Area Index	NRC ROP Matrix
Simplified Organizational Effectiveness Area Index	Days to First Shutdown
Simplified Organizational Effectiveness Area Index	Organizational Eff. Area Lost Points
Simplified Organizational Effectiveness Area Index	Accreditation Visits OR Lost Points
Simplified Organizational Effectiveness Area Index	Management-Related Events OR Lost Points
Simplified Organizational Effectiveness Area Index	Net Open Positions OR Lost Points
Simplified Organizational Effectiveness Area Index	Unplanned Pwr Change 7000 Hrs OR LP
Simplified Organizational Effectiveness Area Index	Senior Management Changes OR LP
Simplified Organizational Effectiveness Area Index	NRC Cross Cutting Issues OR Lost Points
Simplified Organizational Effectiveness Area Index	NRC Non-Green Findings OR Lost Points
Simplified Organizational Effectiveness Area Index	NRC Non-Green ROP Ind. OR Lost Points
Simplified Organizational Effectiveness Area Index	NRC ROP Matrix Col 2, 3, 4, 5 OR LP
Simplified Organizational Effectiveness Area Index	Days to First Shutdown OR Lost Points
Simplified Work Management Area Index	Online Corrective Critical Maintenance
Simplified Work Management Area Index	Online Average Deferred Critical PM Act.
Simplified Work Management Area Index	Online Average Delinquent Critical PM Act
Simplified Work Management Area Index	Open critical PM Act. In 2nd Half of Grace
Simplified Work Management Area Index	Online Deficient Critical Maint. Backlog
Simplified Work Management Area Index	Open Total PM Act. In 2nd Half of Grace
Simplified Work Management Area Index	Critical Scope Survival
Simplified Work Management Area Index	Outage Corrective Critical Maintenance
Simplified Work Management Area Index	Outage Deficient Critical Maintenance
Simplified Work Management Area Index	Percentage of RFO Scope Completions
Simplified Work Management Area Index	Simple WM Area Index Lost Points
Simplified Work Management Area Index	Online Corrective Critical Maint. WM LP
Simplified Work Management Area Index	Deferred Critical PMs WM Lost Points
Simplified Work Management Area Index	Delinquent Critical PMs WM Lost Points
Simplified Work Management Area Index	Critical PMs in 2nd Half of Grace WM LP

Parent Indicator Name	Indicator Name
Simplified Work Management Area Index	Online Deficient Critical Maint. WM LP
Simplified Work Management Area Index	Total PMs in 2nd Half of Grace WM LP
Simplified Work Management Area Index	Critical Scope Survival WM Lost Points
Simplified Work Management Area Index	Outage corrective Critical Maint. WM LP
Simplified Work Management Area Index	Outage Deficient critical Maint. WM LP
Simplified Work Management Area Index	Percent RFO Scope Completion WM LP
SRO Program Completion	Number Starting SRO Exam Class
SRO Program Completion	Number Taking SRO Exam
SRO Program Completion	Passing SRO Exam After Remediation
SRO Program Completion	Passing SRO Exam with No Remed.
SRO Program Completion	SRO Class size
SRO Program Completion	SRO Exam Pass Rate
SRO Program Completion	SRO Exam Pass Rate After Remed.
Sustained Failure Free Fuel Perf	Months Operating with Fuel Failures
Sustained Fuel Reliability	Current Non Failed Fuel PII
Sustained Fuel Reliability	Sustained Failure Free Fuel Perf PII
Sustained Fuel Reliability	Months with Fuel Failures PII
Sustained Fuel Reliability	Number of Reported Fuel Failures PII
Total - Fatality Rate	Contractor Fatality Rate
Total - Fatality Rate	Total - Hours Worked
Total - Fatality Rate	Utility - Fatality Rate
Total - Hours Worked	Contract Work Hours
Total - Hours Worked	Utility - Hours Worked
Total - Lost-time Acc Rate	Contractor Loss TA Rate
Total - Lost-time Acc Rate	Total - Hours Worked
Total - Lost-time Acc Rate	Utility - Lost-time Acc Rate
Total - Work Rest Acc Rate	Contract WR Rate
Total - Work Rest Acc Rate	Total - Hours Worked
Total - Work Rest Acc Rate	Utility - Work Rest Acc Rate
Total High Radiation Area Control Events	Number HRA Control Occurrences
Total Industrial Safety Accident Rate	Total - Hours Worked
Total Peer Participation	Chemistry Peers
Total Peer Participation	Corporate Eval Peers
Total Peer Participation	Engineering Peers
Total Peer Participation	Equip Perform Peers
Total Peer Participation	Maintenance Peers
Total Peer Participation	Operations Peers

Parent Indicator Name	Indicator Name
Total Peer Participation	Org and Admin Peers
Total Peer Participation	Other Peers
Total Peer Participation	Plant Evaluation Peers
Total Peer Participation	Plant Evolution Observ
Total Peer Participation	Rad Protection Peers
Total Peer Participation	Simulator Peers
Total Peer Participation	Training Peers
Total Peer Participation	Work Management Peers
Unit Capability Factor	Planned Loss
Unit Capability Factor	Unplanned Loss
Unit Capability Factor	Outage Extension Loss
Unit Capability Factor	Reference Energy Generation
Unplanned Weighted Manual & Automatic Scrams	Unplanned Manual Scrams
Unplanned Weighted Manual & Automatic Scrams	Unplanned Automatic Scram
Utility - Fatality Rate	Utility - Hours Worked
Utility - Lost-time Acc Rate	Utility - Hours Worked
Work Managment Other Performance Indicator Index	On-Line Corrective Critical Maintenance
Work Managment Other Performance Indicator Index	On-Line Deficient Critical Maintenance Backlog
Work Managment Other Performance Indicator Index	Open Critical PM Activities in 2nd Half of Grace
Work Managment Other Performance Indicator Index	Open Total PM Activities in 2nd Half of Grace
Work Managment Other Performance Indicator Index	Outage Corrective Critical Maintenance
Work Managment Other Performance Indicator Index	Outage Deficient Critical Maintenance
Work Managment Other Performance Indicator Index	Percentage of RFO Scope Completions
Worker Fatalities	Contract Fatalities
Worker Fatalities	Utility Fatalities
Xenon 133	Linear heat gen rate
Xenon 133	Power Level > 85%
Xenon 135	Linear heat gen rate
Xenon 135	Power Level > 85%
Xenon 138	Linear heat gen rate
Xenon 138	Power Level > 85%

Attachment 4 D. Level C Performance Indicators

This is a listing of Level C Performance Indicators by Parent Indicator and Indicator title only.

Parent Indicator Name	Indicator Name
All Total - Recordable Accident Rate	Contractor Total Recordables Rate
All Total - Recordable Accident Rate	Utility Other Recordable Acc Rate
Contractor Total Recordables Rate	Contract Work Hours
Contractor Total Recordables Rate	Contractor ISA Rate
Equipment Performance Causal Factor ICES Events	Equipment Performance Eng. Activities ICES Events
Equipment Performance Causal Factor ICES Events	Equipment Performance Maint, Ops, Test ICES Events
Equipment Performance Causal Factor ICES Events	Equipment Performance Other Causes ICES Events
Events	Equipment Performance Causal Factor ICES Events
Events	Human Perf. Event Rate
Events	Human Performance Events
Events	ICES Overall Reporting (Overall Reporting Metric)
Events	Operational Transient Events
Events	Safety Culture Events
Events	Significant Events for 5 Year period
Events	Total Number Of Licensee Event Report ICES Events
Fuel Reliability Defect (FRD)	Ratio I-131 / I-133
Fuel Reliability Defect (FRD)	Ratio Kr-88 / Xe-133
Fuel Reliability Defect (FRD)	Ratio Xe-133 / Xe-135
Fuel Reliability Defect (FRD)	Ratio Xe-133 / Xe-138
Fuel Reliability Defect (FRD)	Ratio Xe-138 / Xe-133
Hours Critical Breaker Open	Critical Hours
Hours Critical Breaker Open	Hours Critical Breaker Closed
Human Perf. Event Rate	Human Perf. Events
Human Perf. Event Rate	Total Person Hours
Human Perf. Event Rate	Non-Utility Person Hours
Human Perf. Event Rate	Utility person Hours
Human Performance Events	Contractor Personnel-Related Events
Human Performance Events	Engineering Personnel-Related Events
Human Performance Events	Maintenance Personnel-Related Events
Human Performance Events	Management-Related Events
Human Performance Events	Operations Personnel-Related Events
Human Performance Events	Plant Support Personnel-Related Events
Human Performance Events	Procedure-Related Events

Parent Indicator Name	Indicator Name
Human Performance Events	Training or Qualification-Related Events
Human Performance Events	Work Planning or Scheduling-Related Events
Human Performance Events	Work Practice-Related Events
ICES Reactivity and Fuel Hand Events	ICES Fuel Handling Events
ICES Reactivity and Fuel Hand Events	ICES Reactivity Management Events
INPO Gov & Advisory	INPO Advisory Part
INPO Gov & Advisory	INPO Governance Part
INPO Visits	Assistance Visits
INPO Visits	Chemistry Visits
INPO Visits	Corporate Eval Visits
INPO Visits	Engineering Visits
INPO Visits	Equip Perform Visits
INPO Visits	INPO Eval Train Visits
INPO Visits	Maintenance Review Visits
INPO Visits	OE Review Visits
INPO Visits	Operations Review Visits
INPO Visits	Org & Admin Review Visits
INPO Visits	Other Assist. or Review
INPO Visits	Plant Eval / Accred Visit
INPO Visits	Plant Evaluation Visits
INPO Visits	Rad Prot Review Visits
INPO Visits	Senior Rep Visits
INPO Visits	Sr. Plant Mgr. Course
INPO Visits	Training Review Visits
INPO Visits	Work Mgmt Review Visits
INPO/Utility Interactions	INPO Gov & Advisory
INPO/Utility Interactions	INPO Visits
INPO/Utility Interactions	Loaned Employee Summary
INPO/Utility Interactions	Workshop Participation
Loaned Employee Summary	Empl. Loaned to Utility
Loaned Employee Summary	Empl. Loaned Utility ST
Loaned Employee Summary	Employees Loaned to INPO
Mgmt Challenges	Corp. Construction
Mgmt Challenges	Extended Pwr Reduct/Rest
Mgmt Challenges	On-Site Construction
Mgmt Challenges	Outage Extension
Mgmt Challenges	Shutdown > 100 days
Mgmt Challenges	Station INPO Significant ICES Events

Parent Indicator Name	Indicator Name
Mgmt Challenges	Station Loss of Offsite Power Events
Mgmt Challenges	Station Loss of Rx Vessel Level Control Events
Mgmt Challenges	Station Safety Culture Events
Mgmt Challenges	Unit Maint. Shutdown
Mgmt Challenges	Unit Reactor Critical Scram ICES Events
Operational Focus	Control Room Deficiencies
Operational Focus	Hours Critical Breaker Open
Operational Focus	ICES Reactivity and Fuel Hand Events
Operational Focus	Operational Transient Events
Operational Focus	Operator Workarounds
Operational Focus	Outage Risk Level Changes
Operational Focus	Percent Tech Spec Primary to Secondary Leakage
Operational Focus	Percent Tech Spec Unidentified Leakage
Operational Focus	Percent Total RCS Operational Leakage
Operational Focus	RO Program Completion
Operational Focus	Safety System Unplanned Unavailability Index
Operational Focus	Scram with Complications
Operational Focus	SRO & RO Class Completions
Operational Focus	SRO Program Completion
Operational Focus	Unplanned SD LCO
Operator Workarounds	Non-Out Ops Workarounds
Operator Workarounds	Outage Ops Workarounds
Outage Contam Pers. Outage	Outage Contam Pers. Monthly
Outage High Rad Area Controls Outage	Outage High Rad Area Controls Monthly
Outage Risk Level Changes	Containment Risk Level Changes
Outage Risk Level Changes	Electrical Power Risk Level Changes
Outage Risk Level Changes	Heat Removal Risk Level Changes
Outage Risk Level Changes	Inventory Risk Level Changes
Outage Risk Level Changes	Reactivity Risk Level Changes
Outage Unplanned Exposure Outage	Outage Unplanned Exposure Monthly
Percent Station Key Depart. Open Positions	Budgeted Positions Station Key Depart.
Percent Station Key Depart. Open Positions	Open Positions Station Key Depart.
Percent Tech Spec Primary to Secondary Leakage	Minimum Detectable Primary to Secondary Leakage
Percent Tech Spec Primary to Secondary Leakage	Primary to Secondary Leakage
Percent Tech Spec Primary to Secondary Leakage	Tech Spec Limit Primary to Secondary Leakage
Percent Tech Spec Unidentified Leakage	Reactor Coolant System Unidentified

Parent Indicator Name	Indicator Name
	Leakage
Percent Tech Spec Unidentified Leakage	Tech Spec Limit Unidentified Leakage
Percentage Station Open Chemistry	Budgeted Positions Chemistry
Percentage Station Open Chemistry	Open Positions Chemistry
Percentage Station Open Engineering	Budgeted Positions Engineering
Percentage Station Open Engineering	Open Positions Engineering
Percentage Station Open Maintenance	Budgeted Positions Maintenance
Percentage Station Open Maintenance	Open Positions Maintenance
Percentage Station Open OPS	Budgeted Positions OPS
Percentage Station Open OPS	Open Positions OPS
Percentage Station Open RP	Budgeted Positions RP
Percentage Station Open RP	Open Positions RP
Percentage Station Open Training	Budgeted Positions Training
Percentage Station Open Training	Open Positions Training
Percentage Station Open Work Mgnt.	Budgeted Positions Work Mgnt.
Percentage Station Open Work Mgnt.	Open Positions Work Mgnt.
Personnel Safety	Contractor Oth. Rec. Rate
Personnel Safety	Contractor Total Recordables Rate
Personnel Safety	Radiation Protection Events
Personnel Safety	Total Contam Pers.
Personnel Safety	Total High Radiation Area Control Events
Personnel Safety	Total Rad Mat Control
Personnel Safety	Total Unplanned Exposure
Personnel Safety	Utility Other Recordable Acc Rate
Personnel Safety	Utility Total Recordable Acc Rate
Plant Equipment	Consequential Equipment Failures
Plant Equipment	Days to First Shutdown
Plant Equipment	Equipment Performance Causal Factor ICES Events
Plant Equipment	Fuel Reliability Defect
Plant Equipment	Functional Equipment Failures
Plant Equipment	ICES Event Related Generation Loss
Plant Equipment	ICES Events with Generation Loss >20% of a RUP-Hr
Plant Equipment	Risk-Significant Or MSPI Component Failures
Plant Equipment	Safety System Unplanned Unavailability Index
Plant Equipment	Unit Shutdowns
Ratio I-131 / I-133	IOD134
Ratio I-131 / I-133	Iodine 131

Parent Indicator Name	Indicator Name
Ratio Kr-88 / Xe-133	Krypton 88
Ratio Kr-88 / Xe-133	Xenon 133
Ratio Xe-133 / Xe-135	Xenon 133
Ratio Xe-133 / Xe-135	Xenon 135
Ratio Xe-133 / Xe-138	Xenon 133
Ratio Xe-133 / Xe-138	Xenon 138
Ratio Xe-138 / Xe-133	Xenon 133
Ratio Xe-138 / Xe-133	Xenon 138
Safety System Unplanned Unavailability Index	Emergency AC Power Unplanned Unavail. – Cycle
Safety System Unplanned Unavailability Index	Heat Removal Unplanned Unavailability – Cycle
Safety System Unplanned Unavailability Index	High Pressure Injection Unplanned Unavail – Cycle
Significant Events for 5 Year period	Significant and Noteworthy Consequential Events
Significant Events for 5 Year period	Significant and Noteworthy Events
SRO & RO Class Completions	SRO Program Completion
Staffing	Percent Station Key Depart. Open Positions
Staffing	Percentage Station Open Chemistry
Staffing	Open Positions Chemistry
Staffing	Budgeted Positions Chemistry
Staffing	Percentage Station Open Engineering
Staffing	Open Positions Engineering
Staffing	Budgeted Positions Engineering
Staffing	Percentage Station Open Maintenance
Staffing	Open Positions Maintenance
Staffing	Budgeted Positions maintenance
Staffing	Percentage Station Open OPS
Staffing	Open Positions OPS
Staffing	Budgeted Positions OPS
Staffing	Percentage Station Open RP
Staffing	Open Positions RP
Staffing	Budgeted Positions RP
Staffing	Percentage Station Open Training
Staffing	Open Positions Training
Staffing	Budgeted Positions Training
Staffing	Percentage Station Open Work Mgnt.
Staffing	Open Positions Work Mgnt.
Staffing	Budgeted Positions Work mgnt.
Total Contam Pers.	Non-Out Contam Pers.

Parent Indicator Name	Indicator Name
Total Contam Pers.	Outage Contam Pers. Outage
Total Contam Pers.	Outage Contam Pers. Monthly
Total High Radiation Area Control Events	Non-Outage High Rad Area Controls
Total High Radiation Area Control Events	Outage High Rad Area Controls Outage
Total High Radiation Area Control Events	Outage High Rad Area Controls Monthly
Total Person Hours	Non-Utility Person Hour
Total Person Hours	Utility Person Hours
Total Rad Mat Control	Protected Area Rad Mat Control
Total Unplanned Exposure	Non-Outage Unplanned Exposure
Total Unplanned Exposure	Outage Unplanned Exposure Outage
Total Unplanned Exposure	Outage Unplanned Exposure Monthly
Utility Other Recordable Acc Rate	Utility - Hours Worked
Work Managment Other Performance Indicator Index	Deferred Critical PM Activities
Work Managment Other Performance Indicator Index	Deferred Total PM Activities
Work Managment Other Performance Indicator Index	Delinquent Critical PM Activities
Work Managment Other Performance Indicator Index	Delinquent Total PM Activities
Work Managment Other Performance Indicator Index	On-Line Corrective Noncritical Maintenance
Work Managment Other Performance Indicator Index	On-Line Deficient Noncritical Maintenance
Work Managment Other Performance Indicator Index	Outage Corrective Noncritical Maintenance
Work Managment Other Performance Indicator Index	Outage Deficient Noncritical Maintenance
Work Managment Other Performance Indicator Index	Percentage Change in RFO Scope After Freeze
Work Managment Other Performance Indicator Index	Percentage of On-line Carryover Work
Work Managment Other Performance Indicator Index	Percentage of On-line Emergent Work
Work Managment Other Performance Indicator Index	Quarterly Work Week Schedule Completion
Workshop Participation	Chemistry Working Mtgs
Workshop Participation	Engineering Working Mtgs
Workshop Participation	Events Analy Meeting
Workshop Participation	Maintenance Working Mtgs
Workshop Participation	OE Working Meetings
Workshop Participation	Operations Working Mtgs
Workshop Participation	Org & Admin Working Mtgs
Workshop Participation	Plant Managers Workshops

Parent Indicator Name	Indicator Name
Workshop Participation	Process Mgmt Working Mtgs
Workshop Participation	Rad Protection Workshops
Workshop Participation	Special Working Grp Mtgs
Workshop Participation	Training Working Meetings