

ATTACHMENT 3

PROBABILISTIC SAFETY ASSESSMENT PROGRAM PROCEDURE

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Probabilistic Safety Assessment Program							
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PREPARER		TECHNICAL		USER		COGNIZANT ORGANIZATION	

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Probabilistic Safety Assessment Program

1.0 Purpose and Scope

This procedure specifies the maintenance of the STP Probabilistic Safety Assessment (PSA) and associated administrative controls. This procedure satisfies the commitment for a "living" PSA stated in References 3.2, 3.3 and 3.4.

2.0 Definitions

2.1 Probabilistic Safety Assessment (PSA) - A method of determining the theoretical risk and consequences of nuclear accidents.

2.1.1 Level 1 PSA - The determination of the frequency of accidents causing severe core damage.

2.1.2 Level 2 PSA - The determination of the magnitude and frequency of radioactive releases resulting from nuclear accidents.

2.1.3 Level 3 PSA - The determination of the health effects on the public due to releases from nuclear accidents.

2.2 Reference PSA Model - An identifiable set of PSA inputs which represents the nominal plant configuration and operating condition.

3.0 References

3.1 Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Probabilistic Safety Assessment - External Events, Docket Nos. 50-498 and 50-499, L. E. Kokajko to W. T. Cottle, Aug. 31, 1993.

3.2 Safety Evaluation by the Office of Nuclear Reactor Regulation Related to Amendment Nos. 59 and 47 to Facility Operating License Nos. NPF-76 and NPF-80, S. C. Black to W. T. Cottle, dated Feb. 17, 1994.

3.3 Individual Plant Examination (IPE) - Internal Events, South Texas Project, Units 1 and 2, August 28, 1992 supplemented by letter dated Nov. 17, 1994.

3.4 NRC Staff Evaluation of South Texas Project Individual Plant Examination (IPE), (Internal Events Only), T. Alexion to W. T. Cottle, Aug. 9, 1995.

3.5 OPGP03-ZE-0002, "Calculations"

3.6 OPGP07-ZA-0014, "Software Quality Assurance Program"

Probabilistic Safety Assessment Program**4.0 Responsibilities**

- 4.1 The Risk and Reliability Analysis (RRA) Supervisor is responsible for maintaining the Level 1 and Level 2 PSA for STP and will designate a Responsible Analyst for each Reference PSA model.
- 4.2 The Responsible Analyst for each Reference PSA Model is responsible for model updates, documentation, record keeping, and configuration control of the assigned model.

5.0 Requirements**5.1 Reference PSA Models**

Reference PSA models that apply to the normal plant configuration are maintained. These reference models are periodically updated to keep them current with plant changes, operating data, and advances in PSA methodology.

The PSA consists of at least two models, based on plant operating mode:

- An at-power PSA applicable to modes 1 and 2.
- A shutdown PSA (or PSSA) covering modes 3 through core off-load (Level 1 only).

There may be more Reference PSA Models that apply to parts of the plant or special plant configurations.

5.2 Documentation:

For each Reference PSA Model, documentation is maintained that includes all sources of input data, modeling techniques, and assumptions used in the analysis. Input data includes physical description of the plant, component dependencies, success criteria, methods of operation, and equipment operating history.

Documentation is organized into a formal report which includes at least the following volumes:

- Data collection and analysis
- Initiating Events
- Event Trees
- System models
- Basic Event - TAG/TPNS Cross Reference
- External Events
- Spatial Interactions
- Human Factors
- Containment Analysis
- Summary of Results

These documents will be retained by Records Management.

Probabilistic Safety Assessment Program

5.3 Reference PSA Model Updates:

The Reference PSA Models is updated at least every Unit 1 refueling cycle incorporating applicable plant modifications, procedure changes and data collected since the previous update. All relevant documentation is updated when the reference model is updated, and the new version is not used until the model is approved and the documentation is complete.

Revisions can be made more frequently at the discretion of the RRA Supervisor. A file of proposed model changes will be maintained between major model updates. All PRA calculations and sensitivity analyses will be performed using the latest version of the Reference PSA Model that exists at the start of the work.

5.4 Computer Programs and Methodology:

The STP PSA model is based on the RISKMAN Computer Program from PLG, Inc. This program integrates data analysis, systems analysis and event tree quantification. Containment response and radiation releases are computed using the EPRI MAAP program.

5.5 Procedures and Quality Assurance:

Computer codes are maintained in accordance with 0PGP07-ZA-0014, "Software Quality Assurance Program." RISKMAN and MAAP are level 2 programs under this procedure.

The PSA updates and documentation are independently reviewed and approved by the RRA Supervisor. Calculations based on the PSA are performed in accordance with 0PGP03-ZE-0002, "Calculations".

ATTACHMENT 4

STATION PERFORMANCE DATA COLLECTION, CATEGORIZATION,
AND REPORTING PROCEDURE

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SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

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XXX Quality

XXX Safety-Related

Usage: **XXXXX**

Effective Date: 00/00/00

Name

Name

Name

Department

PREPARER

TECHNICAL

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Station Performance Data Collection, Categorization, and Reporting

1.0 Purpose and Scope

- 1.1 This procedure prescribes the methods for identifying, collecting and categorizing performance data for use in STP Comprehensive Risk Management activities. This procedure applies to all STP personnel.

2.0 Definitions

- 2.1 Performance Information is all information including electronic media that would indicate the relative performance level of functional areas at the South Texas Project.
- 2.2 Weighting Factors are significance factors automatically assigned by the computer based upon performance information input coding.
- 2.3 Categorization is the assignment of a coding structure to data based upon factors such as system, component, and activity.

3.0 Responsibilities

- 3.1 All plant personnel are responsible for the identification of performance information. Performance information includes, but is not limited to, Condition Reports, Operating Logs, Electronic media such as computer printouts, etc.
- 3.2 Department managers are responsible for providing performance data input to the Operating Experience Group. This performance data may include, but is not limited to, the following:
 - Department Self-assessment reports
 - System Health reports
 - Nuclear Regulatory Commission Inspection Reports including Resident Inspector's reports, announced and unannounced inspections, etc.
 - Institute of Nuclear Power Operations reports including Evaluation and Assistance reports, Trip reports, Significant Operating Experience Reports, etc.
 - Independent Oversight Results such as assessments and audits
 - Equipment Performance
- 3.3 Quality Department personnel are responsible for inputting observed performance information into the South Texas Project (STP) Performance Reporting & Identification Database (PR&ID).
- 3.4 The Operating Experience Group is responsible for categorization, assigning performance classifications, assigning weighting factors, assigning trend codes, and ensuring the proper input of performance data, other than listed in 3.3 above, in the PR&ID.

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- 3.5 The Operating Experience Group is also responsible for reporting performance data and forwarding of that data to the appropriate working group.

4.0 Requirements

4.1 Collection of performance information.

- 4.1.1 Department managers shall cause performance information, as identified in Addendum 1, to be collected and forwarded to the Operating Experience Group.

4.2 Categorization of performance information:

- 4.2.1 The Operating Experience Group shall review and categorize performance information.
- 4.2.2 The Operating Experience Group shall categorize performance data by systems, components and activity in accordance with Addendum 2.
- 4.2.3 The Operating Experience Group shall ensure necessary data is entered into the appropriate database.

4.3 Reporting of performance information:

- 4.3.1 The Operating Experience Group shall, on a periodic basis, generate performance reports, analyze captured data, and forward the reports and analysis to the appropriate Working Group.

5.0 Process

5.1 Performance data

- 5.1.1 Operating Experience Group will compile performance data supplied by individual departments into categories in accordance with addenda two.

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- 5.1.2 Performance will be evaluated against the following criteria and assigned the appropriate grade:
- 4) Weakness: Performance or a condition that resulted in a significant condition adverse to quality;
 - 3) Needs Improvement: Performance or a condition that resulted in a condition adverse to quality.
 - 2) Satisfactory Performance: Performance that meets existing requirements.
 - 1) Strength: Exemplary performance that exceeds goals/expectations.
- 5.1.3 Recording of pertinent information, categorization, grading, and input of performance indications will be accomplished on the Generic Performance Input Form, within the PR&ID database.
- 5.1.4 Attribute codes will be assigned in accordance with addendum (3) to completed Condition Reports.
- 5.1.5 Graded Quality performance data shall be input into the PR&ID database in accordance with Quality procedures.
- 5.1.6 The Operating Experience Group shall compile performance data and sort by organization/attribute codes using addenda two and three.
- 5.1.7 Compiled performance data output shall be graded one through five in accordance with the following criteria:
- 1) Sustained Excellence
 - 2) Good with an improving trend
 - 3) Good performance
 - 4) Good with a declining trend
 - 5) Poor performance
- 5.1.8 The Operating Experience Group shall periodically report the data to the appropriate Working Group for evaluation and use in the decision making process of the Comprehensive Risk Management program.

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6.0 Support Documents

Addendum 1: Department Performance Information (Typical)

Addendum 2: Organization Codes (Contained in CAP database table)

Addendum 3: Attribute Codes

Addendum 4: Weighting Factors (to be determined)

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Addendum 1	Departmental Performance Information (Typical)	Page 1 of 1	

Performance information includes, but is not limited to the following:

- Corrective Action Program (CAP) database
- Independent Oversight Results
- Self-assessment Reports
- Equipment History (successes/failures)
- System Health Reports
- NRC Inspection Reports
- Corporate Management Audit Program (CMAP) Reports
- Joint Utility Management Audit (JUMA)
- SALP Assessments
- INPO Reports

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As listed in the CAP database Organization table.

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The following are representative examples of items that can be verified during the course of a monitoring activity. These examples are listed by Functional area, Category, Topic, and individual attribute. Choose the item(s) that best describe the verification activities monitored. This list is not all inclusive and should be used as a guide.

Maintenance

Safety Focus/Management Involvement:

1. Coordination of work activities
 - Appropriate personnel are available for assistance/information.
 - Interface with departments are adequate.
2. Prioritization of work activities
 - Approved work scheduling process was followed
 - Activity began as scheduled.
 - Supporting activities were completed as needed.
3. Comprehensiveness of activity briefings
 - Adequate pre-job briefings (including lessons learned, if applicable) and post-job critiques performed.
 - Activity expectations and pertinent information are clear to workers.
 - Proper information/instructions are obtained prior to starting the job.
4. Consideration of work risk and shutdown risk
 - Work risk and/or Shutdown risk assessment performed.
 - Verification that condition of the unit can support the activity.
 - Engineering evaluations are documented and justifiable.
5. Activity planning
 - Changes to plant equipment, procedures, and processes are planned and implemented systematically to improve safe and reliable operations.
 - Activities schedules are developed and are clearly communicated to affected personnel.
 - Sufficient time is allotted for personnel to prepare for activity/performance of prerequisites.
 - Sufficient time is allotted for task performance.

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- Interface with support groups are clearly defined and understood.
 - Resource needs, such as personnel, capital, equipment and parts, and information, are identified and integrated into the plan.
 - Contractor tasks, responsibilities, authorities, expectations for performance, and interfaces are clearly defined and understood.
 - Contractor on the Approved Vendor List
6. Return of equipment to service
- Duration of the activity was within scheduled time.
 - Personnel/equipment are mutually protected.
 - Documentation supports return of equipment to Operable status.
7. Management communication of expectations
- Expectations are clear and do not conflict with requirements.
 - Expectations are communicated regularly for day-to-day activities.
8. Frequency and effectiveness of management work observations and oversight
- Management oversight of activity is apparent and effective.
 - Management frequently interact with station personnel to teach, to coach, and to guide their development
 - CTC oversight and involvement is apparent and effective.
9. Management leadership and accountability
- Expectations are clear and do not conflict with requirements.
 - Safe and error free Human Performance is fostered.
 - High standards of performance are established and reinforced.
 - Personnel are held accountable for implementing established performance standards.
 - Managers motivate personnel to improve performance by taking initiative and overcoming barriers.
10. Management involvement in decision making
- Management/supervision at activity is appropriately involved.
 - Managers demonstrate and reinforce a conservative approach toward activities directly affecting the reactor core and safety systems.
 - Managers reinforce individual ownership through delegation of authority.

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11. Staffing stability

- Overtime control is as per requirements/expectations.
- Appropriate qualified personnel resources are available
- Sufficient number of qualified and experienced personnel are assigned to the task.

12. Coordination with other departments

- Support provided to/received from other departments timely and effective.
- Appropriate personnel are available for assistance/information.

Problem Identification/Problem Resolution:

1. Use of the Corrective Action Process (CAP)

- Conditions/problems are reported in accordance with the Corrective Action Process (CAP).
- Unsafe practices are identified and corrected.
- Personnel are effective in recognition of deficient conditions.
- Personnel and reactor safety issues are identified and corrected.
- Event Review Teams are established when appropriate.
- Effective corrective actions are taken in a timely manner.
- Effectiveness reviews are performed for SCAQs.

2. Effectiveness of self-assessments

- Information from self-assessments are utilized for improvement in a effective and timely manner.
- Conditions adverse to quality identified in self-assessments are documented on Condition Reports for resolution.

3. Adequacy of Root Cause Analysis

- Corrective actions for SCAQ's are effective in preventing recurrences.
- Previous events are evaluated to determine recurring conditions.

4. Trending

- Activity results are recorded IAW program requirements.
- Trends from analysis of low-level events are used to identify and correct underlying issues that may cause more significant events.

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5. Resolution of long-standing, repetitive, or similar concerns
 - Material deficiencies that affect plant operations are effectively tracked, investigated, and reviewed periodically for timely resolution.
 - Long standing issues are identified and a plan-of-action is developed to address these issues.
6. Status and priority of backlogs
 - Backlogs are being tracked and controlled.
7. Responsiveness to external and internal assessment findings
 - Internal and external assessment findings are appropriately categorized, documented, and answered.
8. Unreliable/recurring conditions
 - Problem areas are checked for recurring problem trends.

Equipment Performance/Material Condition:

1. Plant material condition/control
 - Material substitution authorized.
 - Material traceability is maintained.
 - Appropriate expendable material used.
 - Housekeeping
 - Configuration Control is maintained
 - Materials supplied by the contractor are received through NPMM and accepted for use by Quality Receiving or warehouse inspections.
 - Separation criteria are maintained.
 - Equipment storage level and protection (end caps, desiccants, covers, etc.) are maintained.
 - Temperature/humidity control is acceptable and maintained.
 - Identification of material is maintained.
 - Hazardous Materials properly stored.
 - Equipment Clearance Orders (ECO) are adequate for the work scope, boundaries are properly identified, the ECO is properly hung and documented, the correct tags are used, and the tags are properly released after work completion.

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- Caution tags are not used to prevent personnel injury, equipment damage, or in lieu of temporary modifications.
 - If a Caution Tag is over six months old, one of the following occurs, a Condition Report is initiated, a procedure change request is written, an Operator Aid or placard is installed or an extension is approved for the Caution tag to remain.
2. Equipment performance
 - Condition of equipment is acceptable (no leaks, undamaged, no missing parts, etc.)
 - Systems/Equipment are properly inspected, tested and maintained
 3. System status
 - System cleanliness controlled and maintained.
 - Breached fire barrier of HVAC boundary is approved.
 - Tags (danger, caution, do not operate, etc.) are hung on the correct equipment, and are legible.
 - Appropriate compensatory actions are established for malfunctioning equipment.
 4. Foreign Material Exclusion (FME)
 - Established controls are properly understood and complied with.
 - Clear plastic is not used in areas such as the Spent Fuel Pool and Reactor Cavity.
 - Controlled Area Monitors are established, as required and material entry and exit is properly controlled.

Quality of Work:

1. Work practices
 - Self-checking applied to ensure correct unit/train/component (STAR process).
 - The activity is adequately logged and/or documented.
 - Activity performers maintain a questioning attitude.
 - Document usage control is being adhered to (i.e., in-hand, referenced, etc.)
 - System tag-out is verified.
 - Staging areas are controlled.
 - Material issue is controlled.
 - Activity area has adequate lighting.
 - Activity area has adequate ventilation.
 - Work start permission was obtained.

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- Dual/independent verifications are adequate.
- Teamwork is apparent (personnel work together to complete the task).
- Time/distance/shielding is practiced.
- Proper dressing/undressing techniques are observed.
- Radiation Work Permit is adequate for the activity being performed, As Low As Reasonably Achievable is being addressed, briefing is held if required, the permit is followed as written.
- Dosimetry is correctly controlled and worn.
- Proper frisking techniques are observed.
- Contamination controls are exercised.
- Radwaste volume reduction is exercised.
- Barriers/signs are respected.
- Proper personnel safety equipment is used and correctly worn.
- Safe work practices are incorporated.
- Clearance boundaries are respected.
- Fire protection is proper/not compromised.
- Transient Fire Loads are evaluated.
- Flammable materials are properly stored.
- Confined spaces are properly controlled.
- Rigging and techniques are correct for the application.
- Fire watches are posted as required.
- Equipment in impound tagged properly.
- Radiological, danger, caution areas are adequately identified.
- The appropriate supervision is notified if problems occur.

2. Test equipment control

- Adequately availability of parts, materials, test equipment, and/or appropriately qualified support personnel.
- M&TE installed correctly and calibration is current.
- Needed tools, materials, and/or equipment are obtained before starting the activity.
- Correct tools are used.
- Contractor is approved to supply parts and material for the contracted work.

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3. Housekeeping

- Zones are properly posted.
- Materials and tools are controlled to preclude damage to structures and equipment.
- Required components and transient items are properly seismically restrained.
- Temporary hoses are tagged, when required.
- Scaffolding is properly erected and inspected.
- Only flame retardant wood is used.
- Equipment, components and structures are free of damage or deterioration from temperature, humidity, associated work activity, or unauthorized alteration.
- Oily rags, scrap and combustible waste resulting from work activities are removed to waste handling following completion of the activity or at the end of the shift.
- Tools and other items used to perform the job are properly removed after the work is completed, insulation is replaced/reinstalled, and the work area is left clean.

4. Quality of training and results

- Personnel performing work are properly qualified/certified.
- Personnel performed the task competently.
- Contractor personnel qualifications/certifications verified.
- Site specific training is identified/obtained.
- Any Trainees are under direct control and supervision of a qualified individual.
- On-The-Job Training and On-The-Job Evaluations are performed in accordance with program requirements.
- Feedback is provided to the Nuclear Training Department on training activities and the feedbacks are adequately addressed.
- Personnel are attending scheduled training and makeup for missed training.
- Personnel not meeting requalification requirements are removed for duties requiring the qualification.
- Training exemptions are processed in accordance with procedural requirements.

5. Recurring problems

- Problems are documented.
- Problem areas are checked for recurring problem trends.

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6. Communications

- Clear communications between participants in activity is apparent and appropriate communication techniques are used.
- Appropriate communications equipment/methods are used.
- Expedient communications of needs, expectations, and/or possible problems to appropriate personnel.
- Coordination between work groups established and adequate.

Programs and Procedures:

1. Procedure revision backlog

- Backlog is not excessive per management expectations.
- Backlog items are appropriately added into the specific work scope.
- Procedure feedbacks have been evaluated to determine importance and are appropriately prioritized for implementation.

2. Procedure adequacy and usage

- All documents used are current.
- Required procedures, drawings, and/or manuals are used.
- Approved program/procedures for contractor activities
- Contractor compliance with purchase orders or contract documents.

3. Preventive, Corrective, Minor, and Toolpouch Maintenance

- Written instructions were effective and adequate, and do not conflict with other instructions or requirements.
- Work package preparation is adequate/complete, including all required permits and documentation.
- Work documents/procedures followed correctly as written and work documents are adhered to.
- Verbal instructions are effective and adequate, and do not conflict with other instructions.

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Engineering

Safety Focus/Management Involvement:

1. Coordination of work activities
 - Appropriate personnel are available for assistance/information.
 - Interface with departments are adequate.
2. Prioritization of work activities
 - Approved work scheduling process was followed
 - Activity began as scheduled.
 - Supporting activities were completed as needed.
3. Activity planning
 - Changes to plant equipment, procedures, and processes are planned and implemented systematically to improve safe and reliable operations.
 - Activities schedules are developed and are clearly communicated to affected personnel.
 - Sufficient time is allotted for personnel to prepare for activity/performance of prerequisites.
 - Sufficient time is allotted for task performance.
 - Interface with support groups are clearly defined and understood.
 - Resource needs, such as personnel, capital, equipment and parts, and information, are identified and integrated into the plan.
 - Contractor tasks, responsibilities, authorities, expectations for performance, and interfaces are clearly defined and understood.
 - Contractor on the Approved Vendor List
4. Return of equipment to service
 - Duration of the activity was within scheduled time.
 - Personnel/equipment are mutually protected.
 - Documentation supports return of equipment to Operable status.
5. Management communication of expectations
 - Expectations are clear and do not conflict with requirements.
 - Expectations are communicated regularly for day-to-day activities.

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6. Frequency and effectiveness of management work observations and oversight
 - Management oversight of activity is apparent and effective.
 - Management frequently interact with station personnel to teach, to coach, and to guide their development
 - CTC oversight and involvement is apparent and effective.
7. Management leadership and accountability
 - Expectations are clear and do not conflict with requirements.
 - Safe and error free Human Performance is fostered.
 - High standards of performance are established and reinforced.
 - Personnel are held accountable for implementing established performance standards.
 - Managers motivate personnel to improve performance by taking initiative and overcoming barriers.
8. Management involvement in decision making
 - Management/supervision at activity is appropriately involved.
 - Managers demonstrate and reinforce a conservative approach toward activities directly affecting the reactor core and safety systems.
 - Managers reinforce individual ownership through delegation of authority.
9. Staffing stability
 - Overtime control is as per requirements/expectations.
 - Appropriate qualified personnel resources are available
 - Sufficient number of qualified and experienced personnel are assigned to the task.
10. Coordination with other departments
 - Support provided to/received from other departments timely and effective.
 - Appropriate personnel are available for assistance/information.

Problem Identification/Problem Resolution:

1. Use of the Corrective Action Process (CAP)
 - Conditions/problems are reported in accordance with the Corrective Action Process (CAP).
 - Unsafe practices are identified and corrected.
 - Personnel are effective in recognition of deficient conditions.

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- Personnel and reactor safety issues are identified and corrected.
 - Appropriate engineering corrective actions for identified deficiencies.
 - Event Review Teams are established when appropriate.
 - Effective corrective actions are taken in a timely manner.
 - Effectiveness reviews are perform for SCAQs.
2. Effectiveness of self-assessments
 - Information from self-assessments are utilized for improvement in a effective and timely manner.
 - Conditions adverse to quality identified in self-assessments are documented on Condition Reports for resolution.
 3. Adequacy of Root Cause Analysis
 - Corrective actions for SCAQ's are effective in preventing recurrences.
 - Previous events are evaluated to determine recurring conditions.
 4. Resolution of long-standing, repetitive, or similar concerns
 - Material deficiencies that affect plant operations are effectively tracked, investigated, and reviewed periodically for timely resolution.
 - Long standing issues are identified and a plan-of-action is developed to address these issues.
 5. Status and priority of backlogs
 - Backlogs are being tracked and controlled.
 6. Responsiveness to external and internal assessment findings
 - Internal and external assessment findings are appropriately categorized, documented, and answered.
 7. Unreliable/recurring conditions
 - Problem areas are checked for recurring problem trends.

Equipment Performance/Material Condition:

1. Equipment performance
 - Performance issues are identified and plans of action are prepared and maintained by the system engineer.

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Quality of Work:

1. Work practices

- Appropriate engineering's quality of modifications/modification instructions.
- Engineering's quality of licensing submittals.
- Engineering's quality of drawing changes and accuracy.
- Self-checking applied to ensure correct unit/train/component (STAR process).
- Activity area has adequate lighting.
- Activity area has adequate ventilation.
- Teamwork is apparent (personnel work together to complete the task).
- Time/distance/shielding is practiced.
- Proper dressing/undressing techniques are observed.
- RWP followed as written.
- TLD, ALNOR, etc., are correctly controlled and worn.
- Proper frisking techniques are observed.
- Contamination controls are exercised.
- Radwaste volume reduction is exercised.
- Barriers/signs are respected.
- Proper personnel safety equipment is used and correctly worn.
- Clearance boundaries are respected.
- Confined spaces are properly controlled.
- General housekeeping zones are maintained.
- Radiological, danger, caution areas are adequately identified.

2. Test equipment control

- Adequately availability of parts, materials, test equipment, and/or appropriately qualified support personnel.
- M&TE installed correctly and calibration is current.
- Needed tools, materials, and/or equipment are obtained before starting the activity.
- Correct tools are used.
- Contractor is approved to supply parts and material for the contracted work.

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3. Housekeeping

- Zones are properly posted.
- Materials and tools are controlled to preclude damage to structures and equipment.
- Required components and transient items are properly seismically restrained.
- Temporary hoses are tagged, when required.
- Scaffolding is properly erected and inspected.
- Only flame retardant wood is used.
- Equipment, components and structures are free of damage or deterioration from temperature, humidity, associated work activity, or unauthorized alteration.
- Oily rags, scrap and combustible waste resulting from work activities are removed to waste handling following completion of the activity or at the end of the shift.
- Tools and other items used to perform the job are properly removed after the work is completed, insulation is replaced/reinstalled, and the work area is left clean.

4. Quality of training and results

- Personnel performing work are properly qualified/certified.
- Personnel performed the task competently.
- Contractor personnel qualifications/certifications verified.
- Site specific training is identified/obtained.
- Any Trainees are under direct control and supervision of a qualified individual.
- On-The-Job Training and On-The-Job Evaluations are performed in accordance with program requirements.
- Feedback is provided to the Nuclear Training Department on training activities and the feedbacks are adequately addressed.
- Personnel are attending scheduled training and makeup for missed training.
- Personnel not meeting requalification requirements are removed for duties requiring the qualification.
- Training exemptions are processed in accordance with procedural requirements.

5. Communications

- Clear communications between participants in activity is apparent and appropriate communication techniques are used.
- Appropriate communications equipment/methods are used.
- Expedient communications of needs, expectations, and/or possible problems to appropriate personnel.
- Coordination between work groups established and adequate.

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Programs and Procedures:

1. Procedure revision backlog
 - Backlog is not excessive per management expectations.
 - Procedure feedbacks have been evaluated to determine importance and are appropriately prioritized for implementation.
2. Procedure adequacy and usage
 - All documents used are current.
 - Required procedures, drawings, and/or manuals are used.
 - Approved program/procedures for contractor activities
 - Contractor compliance with purchase orders or contract documents.

Procurement

Safety Focus/Management Involvement:

1. Management communication of expectations
 - Expectations are clear and do not conflict with requirements.
 - Expectations are communicated regularly for day-to-day activities.
2. Frequency and effectiveness of management work observations and oversight
 - Management oversight of activity is apparent and effective.
 - Management frequently interact with station personnel to teach, to coach, and to guide their development
 - CTC oversight and involvement is apparent and effective.
3. Management leadership and accountability
 - Expectations are clear and do not conflict with requirements.
 - Safe and error free Human Performance is fostered.
 - High standards of performance are established and reinforced.
 - Personnel are held accountable for implementing established performance standards.
 - Managers motivate personnel to improve performance by taking initiative and overcoming barriers.

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4. Management involvement in decision making
 - Management/supervision at activity is appropriately involved.
 - Managers demonstrate and reinforce a conservative approach toward activities directly affecting the reactor core and safety systems.
 - Managers reinforce individual ownership through delegation of authority.
5. Staffing stability
 - Appropriate qualified personnel resources are available
 - Sufficient number of qualified and experienced personnel are assigned to the task.
6. Coordination with other departments
 - Support provided to/received from other departments timely and effective.
 - Appropriate personnel are available for assistance/information.

Problem Identification/Problem Resolution:

1. Use of the Corrective Action Process (CAP)
 - Conditions/problems are reported in accordance with the Corrective Action Process (CAP).
 - Unsafe practices are identified and corrected.
 - Personnel are effective in recognition of deficient conditions.
 - Event Review Teams are established when appropriate.
 - Effective corrective actions are taken in a timely manner.
 - Effectiveness reviews are performed for SCAQs.
2. Effectiveness of self-assessments
 - Information from self-assessments are utilized for improvement in a effective and timely manner.
 - Conditions adverse to quality identified in self-assessments are documented on Condition Reports for resolution.
3. Adequacy of Root Cause Analysis
 - Corrective actions for SCAQ's are effective in preventing recurrences.
 - Previous events are evaluated to determine recurring conditions.

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4. Trending

- Activity results are recorded IAW program requirements
- Trends from analysis of low-level events are used to identify and correct underlying issues that may cause more significant events.

5. Resolution of long-standing, repetitive, or similar concerns

- Material deficiencies that affect plant operations are effectively tracked, investigated, and reviewed periodically for timely resolution.
- Long standing issues are identified and a plan-of-action is developed to address these issues.

6. Responsiveness to external and internal assessment findings

- Internal and external assessment findings are appropriately categorized, documented, and answered.

7. Unreliable/recurring conditions

- Problem areas are checked for recurring problem trends.

Equipment Performance/Material Condition:

1. Plant material condition/control

- Material traceability is maintained.
- Housekeeping
- Materials supplied by the contractor are received through NPMM and accepted for use by Quality Receiving or warehouse inspections.
- Equipment storage level and protection (end caps, desiccants, covers, etc.) are maintained.
- Temperature/humidity control is acceptable and maintained.
- Identification of material is maintained.
- Hazardous Materials properly stored.

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Quality of Work:

1. Work practices
 - Self-checking applied to ensure correct unit/train/component (STAR process).
 - Staging areas are controlled.
 - Material issue is controlled.
 - Appropriate rigging practices used.
 - Barriers/signs are respected.
 - Proper personnel safety equipment is used and correctly worn.
 - Fire protection is proper/not compromised.
 - Equipment in impound tagged properly.
2. Test equipment control
 - Adequately availability of parts, materials, test equipment, and/or appropriately qualified support personnel.
 - M&TE installed correctly and calibration is current.
3. Housekeeping
 - Zones are properly posted.
 - Materials and tools are controlled to preclude damage to structures and equipment.
 - Only flame retardant wood is used.
 - Equipment, components and structures are free of damage or deterioration from temperature, humidity, associated work activity, or unauthorized alteration.
4. Quality of training and results
 - Personnel performing work are properly qualified/certified.
 - Personnel performed the task competently.
5. Recurring problems
 - Problems are documented.
 - Problem areas are checked for recurring problem trends.

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6. Communications

- Clear communications between participants in activity is apparent and appropriate communication techniques are used.
- Appropriate communications equipment/methods are used.
- Expedient communications of needs, expectations, and/or possible problems to appropriate personnel.
- Coordination between work groups established and adequate.

Programs and Procedures:

1. Procedure adequacy and usage

- All documents used are current.
- Required procedures, drawings, and/or manuals are used.
- Approved program/procedures for contractor activities
- Contractor compliance with purchase orders or contract documents.

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Safety Focus/Management Involvement:

1. Coordination of work activities

- Appropriate personnel are available for assistance/information.
- Interface with departments are adequate.

2. Prioritization of work activities

- Approved work scheduling process was followed
- Activity began as scheduled.
Supporting activities were completed as needed.
- Return of equipment to service
- Duration of the activity was within scheduled time.
- Personnel/equipment are mutually protected.

3. Activity planning

- Changes to plant equipment, procedures, and processes are planned and implemented systematically to improve safe and reliable operations.
- Activities schedules are developed and are clearly communicated to affected personnel.

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- Sufficient time is allotted for personnel to prepare for activity/performance of prerequisites.
 - Sufficient time is allotted for task performance.
 - Interface with support groups are clearly defined and understood.
 - Resource needs, such as personnel, capital, equipment and parts, and information, are identified and integrated into the plan.
 - Contractor tasks, responsibilities, authorities, expectations for performance, and interfaces are clearly defined and understood.
 - Contractor on the Approved Vendor List
4. Return of equipment to service
- Duration of the activity was within scheduled time.
 - Personnel/equipment are mutually protected.
 - Documentation supports return of equipment to Operable status.
5. Management communication of expectations
- Expectations are clear and do not conflict with requirements.
 - Expectations are communicated regularly for day-to-day activities.
6. Frequency and effectiveness of management work observations and oversight
- Management oversight of activity is apparent and effective.
 - Management frequently interact with station personnel to teach, to coach, and to guide their development
 - CTC oversight and involvement is apparent and effective.
7. Management leadership and accountability
- Expectations are clear and do not conflict with requirements.
 - Safe and error free Human Performance is fostered.
 - High standards of performance are established and reinforced.
 - Personnel are held accountable for implementing established performance standards.
 - Managers motivate personnel to improve performance by taking initiative and overcoming barriers.

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8. Management involvement in decision making
 - Management/supervision at activity is appropriately involved.
 - Managers demonstrate and reinforce a conservative approach toward activities directly affecting the reactor core and safety systems.
 - Managers reinforce individual ownership through delegation of authority.
9. Staffing stability
 - Overtime control is as per requirements/expectations.
 - Appropriate qualified personnel resources are available
 - Sufficient number of qualified and experienced personnel are assigned to the task.
10. Coordination with other departments
 - Support provided to/received from other departments timely and effective.
 - Appropriate personnel are available for assistance/information.

Problem Identification/Problem Resolution:

1. Use of the Corrective Action Process (CAP)
 - Conditions/problems are reported in accordance with the Corrective Action Process (CAP).
 - Unsafe practices are identified and corrected.
 - Personnel are effective in recognition of deficient conditions.
 - Personnel and reactor safety issues are identified and corrected.
 - Event Review Teams are established when appropriate.
 - Effective corrective actions are taken in a timely manner.
 - Effectiveness reviews are performed for SCAQs.
2. Effectiveness of self-assessments
 - Information from self-assessments are utilized for improvement in a effective and timely manner.
 - Conditions adverse to quality identified in self-assessments are documented on Condition Reports for resolution.
3. Adequacy of Root Cause Analysis
 - Corrective actions for SCAQ's are effective in preventing recurrences.
 - Previous events are evaluated to determine recurring conditions.

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4. Trending

- Activity results are recorded IAW program requirements.
- Trends from analysis of low-level events are used to identify and correct underlying issues that may cause more significant events.

5. Resolution of long-standing, repetitive, or similar concerns

- Material deficiencies that affect plant operations are effectively tracked, investigated, and reviewed periodically for timely resolution.
- Long standing issues are identified and a plan-of-action is developed to address these issues.

6. Responsiveness to external and internal assessment findings

- Internal and external assessment findings are appropriately categorized, documented, and answered.

Equipment Performance/Material Condition:

1. System status

- System cleanliness controlled and maintained.
- Breached fire barrier of HVAC boundary is approved.
- Tags (danger, caution, do not operate, etc.) are hung on the correct equipment, and are legible.
- Appropriate compensatory actions are established for malfunctioning equipment.

2. Foreign Material Exclusion (FME)

- Established controls are properly understood and complied with.
- Clear plastic is not used in areas such as the Spent Fuel Pool and Reactor Cavity.
- Controlled Area Monitors are established, as required and material entry and exit is properly controlled.

Quality of Work:

1. Work practices

- Self-checking applied to ensure correct unit/train/component (STAR process).
- The activity is adequately logged and/or documented.
- Activity performers maintain a questioning attitude.
- Document usage control is being adhered to (i.e., in-hand, referenced, etc.)

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- System tag-out is verified.
- Staging areas are controlled.
- Material issue is controlled.
- Activity area has adequate lighting.
- Activity area has adequate ventilation.
- Work start permission was obtained.
- Dual/independent verifications are adequate.
- Teamwork is apparent (personnel work together to complete the task).
- Time/distance/shielding is practiced.
- Proper dressing/undressing techniques are observed.
- Radiation Work Permit is adequate for the activity being performed, As Low As Reasonably Achievable is being addressed, briefing is held if required, the permit is followed as written.
- Dosimetry is correctly controlled and worn.
- Proper frisking techniques are observed.
- Contamination controls are exercised.
- Radwaste volume reduction is exercised.
- Barriers/signs are respected.
- Proper personnel safety equipment is used and correctly worn.
- Safe work practices are incorporated.
- Clearance boundaries are respected.
- Fire protection is proper/not compromised.
- Transient Fire Loads are evaluated.
- Flammable materials are properly stored.
- Confined spaces are properly controlled.
- Rigging and techniques are correct for the application.
- Fire watches are posted as required.
- Equipment in impound tagged properly.
- Radiological, danger, caution areas are adequately identified.
- The appropriate supervision is notified if problems occur.

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2. Test equipment control

- Adequately availability of parts, materials, test equipment, and/or appropriately qualified support personnel.
- M&TE installed correctly and calibration is current.
- Needed tools, materials, and/or equipment are obtained before starting the activity.
- Correct tools are used.
- Contractor is approved to supply parts and material for the contracted work.

3. Housekeeping

- Zones are properly posted.
- Materials and tools are controlled to preclude damage to structures and equipment.
- Required components and transient items are properly seismically restrained.
- Temporary hoses are tagged, when required.
- Scaffolding is properly erected and inspected.
- Only flame retardant wood is used.
- Equipment, components and structures are free of damage or deterioration from temperature, humidity, associated work activity, or unauthorized alteration.
- Oily rags, scrap and combustible waste resulting from work activities are removed to waste handling following completion of the activity or at the end of the shift.
- Tools and other items used to perform the job are properly removed after the work is completed, insulation is replaced/reinstalled, and the work area is left clean.

4. Quality of training and results

- Personnel performing work are properly qualified/certified.
- Personnel performed the task competently.
- Contractor personnel qualifications/certifications verified.
- Site specific training is identified/obtained.
- Any Trainees are under direct control and supervision of a qualified individual.
- On-The-Job Training and On-The-Job Evaluations are performed in accordance with program requirements.
- Feedback is provided to the Nuclear Training Department on training activities and the feedbacks are adequately addressed.
- Personnel are attending scheduled training and makeup for missed training.
- Personnel not meeting requalification requirements are removed for duties requiring the qualification.
- Training exemptions are processed in accordance with procedural requirements.

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5. Recurring problems

- Problems are documented.
- Problem areas are checked for recurring problem trends.

6. Communications

- Clear communications between participants in activity is apparent and appropriate communication techniques are used.
- Appropriate communications equipment/methods are used.
- Expedient communications of needs, expectations, and/or possible problems to appropriate personnel.
- Coordination between work groups established and adequate.

Programs and Procedures:

1. Procedure adequacy and usage

- All documents used are current.
- Required procedures, drawings, and/or manuals are used.
- Approved program/procedures for contractor activities
- Contractor compliance with purchase orders or contract documents.

Plant Support

Safety Focus/Management Involvement:

1. Coordination of work activities

- Appropriate personnel are available for assistance/information.
- Interface with departments are adequate.

2. Prioritization of work activities

- Approved work scheduling process was followed
 - Activity began as scheduled.
- Supporting activities were completed as needed.

3. Comprehensiveness of activity briefings

- Adequate pre-job briefings (including lessons learned, if applicable) and post-job critiques performed.
- Activity expectations and pertinent information are clear to workers.
- Proper information/instructions are obtained prior to starting the job.

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4. Consideration of work risk and shutdown risk
 - Shutdown risk assessment performed.
 - Verification that condition of the unit can support the activity.
 - Engineering evaluations are documented and justifiable.
5. Activity planning
 - Changes to plant equipment, procedures, and processes are planned and implemented systematically to improve safe and reliable operations.
 - Activities schedules are developed and are clearly communicated to affected personnel.
 - Sufficient time is allotted for personnel to prepare for activity/performance of prerequisites.
 - Sufficient time is allotted for task performance.
 - Interface with support groups are clearly defined and understood.
 - Resource needs, such as personnel, capital, equipment and parts, and information, are identified and integrated into the plan.
 - Contractor tasks, responsibilities, authorities, expectations for performance, and interfaces are clearly defined and understood.
 - Contractor on the Approved Vendor List
6. Return of equipment to service
 - Duration of the activity was within scheduled time.
 - Personnel/equipment are mutually protected.
 - Documentation supports return of equipment to Operable status.
7. Management communication of expectations
 - Expectations are clear and do not conflict with requirements.
 - Expectations are communicated regularly for day-to-day activities.
8. Frequency and effectiveness of management work observations and oversight
 - Management oversight of activity is apparent and effective.
 - Management frequently interact with station personnel to teach, to coach, and to guide their development
 - CTC oversight and involvement is apparent and effective.

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9. Management leadership and accountability

- Expectations are clear and do not conflict with requirements.
- Safe and error free Human Performance is fostered.
- High standards of performance are established and reinforced.
- Personnel are held accountable for implementing established performance standards.
- Managers motivate personnel to improve performance by taking initiative and overcoming barriers.

10. Management involvement in decision making

- Management/supervision at activity is appropriately involved.
- Managers demonstrate and reinforce a conservative approach toward activities directly affecting the reactor core and safety systems.
- Managers reinforce individual ownership through delegation of authority.

11. Staffing stability

- Overtime control is as per requirements/expectations.
- Appropriate qualified personnel resources are available
- Sufficient number of qualified and experienced personnel are assigned to the task.

12. Coordination with other departments

- Support provided to/received from other departments timely and effective.
- Appropriate personnel are available for assistance/information.

Problem Identification/Problem Resolution:

1. Use of the Corrective Action Process (CAP)

- Conditions/problems are reported in accordance with the Corrective Action Process (CAP).
- Unsafe practices are identified and corrected.
- Personnel are effective in recognition of deficient conditions.
- Personnel and reactor safety issues are identified and corrected.
- Event Review Teams are established when appropriate.
- Effective corrective actions are taken in a timely manner.
- Effectiveness reviews are performed for SCAQs.

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2. Effectiveness of self-assessments
 - Information from self-assessments are utilized for improvement in a effective and timely manner.
 - Conditions adverse to quality identified in self-assessments are documented on Condition Reports for resolution.
3. Adequacy of Root Cause Analysis
 - Corrective actions for SCAQ's are effective in preventing recurrences.
 - Previous events are evaluated to determine recurring conditions.
4. Trending
 - Activity results are recorded IAW program requirements.
 - Trends from analysis of low-level events are used to identify and correct underlying issues that may cause more significant events.
5. Resolution of long-standing, repetitive, or similar concerns
 - Material deficiencies that affect plant operations are effectively tracked, investigated, and reviewed periodically for timely resolution.
 - Long standing issues are identified and a plan-of-action is developed to address these issues.
6. Status and priority of backlogs
 - Backlogs are being tracked and controlled.
7. Responsiveness to external and internal assessment findings
 - Internal and external assessment findings are appropriately categorized, documented, and answered.
8. Unreliable/recurring conditions
 - Problem areas are checked for recurring problem trends.

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Equipment Performance/Material Condition:

1. Plant material condition/control

- Material substitution authorized.
- Material traceability is maintained.
- Appropriate expendable material used.
- Housekeeping
- Configuration Control is maintained
- Materials supplied by the contractor are received through NPMM and accepted for use by Quality Receiving or warehouse inspections.
- Temperature/humidity control is acceptable and maintained.
- Identification of material is maintained.
- Hazardous Materials properly stored.
- Separation criteria are maintained.
- Equipment storage level and protection (end caps, desiccants, covers, etc.) are maintained.
- Equipment Clearance Orders (ECO) are adequate for the work scope, boundaries are properly identified, the ECO is properly hung and documented, the correct tags are used, and the tags are properly released after work completion.
- Caution tags are not used to prevent personnel injury, equipment damage, or in lieu of temporary modifications.
- If a Caution Tag is over six months old, one of the following occurs, a Condition Report is initiated, a procedure change request is written, an Operator Aid or placard is installed or an extension is approved for the Caution tag to remain.

2. Equipment performance

- Condition of equipment is acceptable (no leaks, undamaged, no missing parts, etc.)
- Systems/Equipment are properly inspected, tested and maintained.

3. System status

- System cleanliness controlled and maintained.
- Breached fire barrier of HVAC boundary is approved.
- Tags (danger, caution, do not operate, etc.) are hung on the correct equipment, and are legible.
- Appropriate compensatory actions are established for malfunctioning equipment.

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4. Foreign Material Exclusion (FME)

- Established controls are properly understood and complied with.
- Clear plastic is not used in areas such as the Spent Fuel Pool and Reactor Cavity.
- Controlled Area Monitors are established, as required and material entry and exit is properly controlled.

Quality of Work:

1. Work practices

- Self-checking applied to ensure correct unit/train/component (STAR process).
- System tag-out is verified.
- Staging areas are controlled.
- Material issue is controlled.
- Activity area has adequate lighting.
- Activity area has adequate ventilation.
- Work start permission was obtained.
- Dual/independent verifications are adequate.
- Appropriate rigging practices used.
- Teamwork is apparent (personnel work together to complete the task).
- Time/distance/shielding is practiced.
- Proper dressing/undressing techniques are observed.
- RWP followed as written.
- TLD, ALNOR, etc., are correctly controlled and worn.
- Proper frisking techniques are observed.
- Contamination controls are exercised.
- Radwaste volume reduction is exercised.
- Barriers/signs are respected.
- Proper personnel safety equipment is used and correctly worn.
- Clearance boundaries are respected.
- Fire protection is proper/not compromised.
- Confined spaces are properly controlled.
- Rigging and techniques are correct for the application.
- Fire watches are posted as required.
- General housekeeping zones are maintained.
- Equipment in impound tagged properly.
- Radiological, danger, caution areas are adequately identified.
- Drills are effectively performed.

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2. Test equipment control

- Adequately availability of parts, materials, test equipment, and/or appropriately qualified support personnel.
- M&TE installed correctly and calibration is current.
- Needed tools, materials, and/or equipment are obtained before starting the activity.
- Correct tools are used.
- Contractor is approved to supply parts and material for the contracted work.

3. Housekeeping

- Zones are properly posted.
- Materials and tools are controlled to preclude damage to structures and equipment.
- Required components and transient items are properly seismically restrained.
- Temporary hoses are tagged, when required.
- Scaffolding is properly erected and inspected.
- Only flame retardant wood is used.
- Equipment, components and structures are free of damage or deterioration from temperature, humidity, associated work activity, or unauthorized alteration.
- Oily rags, scrap and combustible waste resulting from work activities are removed to waste handling following completion of the activity or at the end of the shift.
- Tools and other items used to perform the job are properly removed after the work is completed, insulation is replaced/reinstalled, and the work area is left clean.

4. Quality of training and results

- Personnel performing work are properly qualified/certified.
- Personnel performed the task competently.
- Contractor personnel qualifications/certifications verified.
- Site specific training is identified/obtained.
- Any Trainees are under direct control and supervision of a qualified individual.
- On-The-Job Training and On-The-Job Evaluations are performed in accordance with program requirements.
- Feedback is provided to the Nuclear Training Department on training activities and the feedbacks are adequately addressed.
- Personnel are attending scheduled training and makeup for missed training.

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- Personnel not meeting requalification requirements are removed for duties requiring the qualification.
 - Training exemptions are processed in accordance with procedural requirements.
5. Recurring problems
- Problems are documented.
 - Problem areas are checked for recurring problem trends.
6. Communications
- Clear communications between participants in activity is apparent and appropriate communication techniques are used.
 - Appropriate communications equipment/methods are used.
 - Expedient communications of needs, expectations, and/or possible problems to appropriate personnel.
 - Coordination between work groups established and adequate.

Programs and Procedures:

1. Procedure revision backlog
 - Backlog is not excessive per management expectations.
 - Backlog items are appropriately added into the specific work scope.
 - Procedure feedbacks have been evaluated to determine importance and are appropriately prioritized for implementation.
2. Procedure adequacy and usage
 - All documents used are current.
 - Required procedures, drawings, and/or manuals are used.
 - Approved program/procedures for contractor activities
 - Contractor compliance with purchase orders or contract documents.
3. Preventive, Corrective, Minor, and Toolpouch Maintenance
 - Written instructions were effective and adequate, and do not conflict with other instructions or requirements.
 - Work package preparation is adequate/complete, including all required permits and documentation.
 - Work documents/procedures followed correctly as written and work documents are adhered to.
 - Verbal instructions are effective and adequate, and do not conflict with other instructions.

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Operations

Safety Focus/Management Involvement:

1. Limiting Condition for Operation (LCO) Compliance
 - Applicable action statements for LCOs are identified, implemented properly and written within allowed time.
 - Multiple trains of equipment are not affected in such a manner that the plant is in a condition not described by Technical Specifications.
 - The most restrictive Technical Specification action statement is in effect for components falling under more than one LCO.
 - The LCOs are properly entered in the Main Control Room Log Book.
 - Components are identified as Mode restraints, if applicable.
2. Operability Assessment System Implementation
 - OAS entries are being made when components or systems will no longer perform their intended safety functions for the current operating Mode or fails to meet administrative requirements for operability.
 - OAS entries are made when components are intentionally disabled for preplanned maintenance.
 - OAS entries are made when Technical Specification components or systems are rendered inoperable for surveillance testing that extends past the end of the current shift.
 - Control Room Log Book entries are made for Technical Specification surveillance tests that render components or systems inoperable.
 - OAS entries are made for non-Technical Specification equipment that is important to safety, when these components are removed from service.
 - Both Units initiate OAS entries for common systems that are declared inoperable.
3. Reactivity Management
 - Licensed Operators fully understand that control rod movements are to be performed in a deliberate, carefully controlled manner, and only when directed by approved plant procedures.

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- Licensed Operators closely observe redundant instrumentation to verify the correct response of the reactor core and primary system during reactivity changes.
 - The Reactivity Management philosophy of safety, conservatism, and ownership of reactivity control is used in the conduct of plant business.
 - Plant Operations takes conservative actions to safeguard the integrity of nuclear fuel.
 - Systems Engineering provides engineering support for operating, testing, and maintenance of reactivity control and monitoring systems.
 - All planned reactivity changes, or evolutions with potential to affect reactivity, are conducted in a controlled manner, the effects of reactivity changes are known and monitored, and any anomalous indication is met with conservative action.
 - Planned plant activities, including testing, maintenance, and operational evolutions, that significantly change reactivity (approximately greater than ± 100 pcm or $\pm 2\%$ RTP), or degrade reactivity control or monitoring, are reviewed by the Shift Technical Advisor or a Reactor Engineer prior to starting the activity.
4. Conservative operating decision
- Personnel exhibit sufficient awareness of the impact of actions on Nuclear Safety or reliability.
 - Actions taken in response to plant issues and transients are appropriate, and are not hasty or hurried.
 - Personnel demonstrate a questioning attitude regarding all plant activities, especially non-routine or infrequent or first time activities.
 - It is verified that the condition of the Unit can support the activity.
 - Justification for Continued Operation Evaluations are complete, if applicable
 - Timely and conservative operability/reportability determinations are made.
5. Coordination of work activities
- Appropriate personnel are available for assistance/information.
 - Interface with departments are adequate.
6. Prioritization of work activities
- Approved work scheduling process was followed
 - Activity began as scheduled.
Supporting activities were completed as needed.
 - Return of equipment to service
 - Duration of the activity was within scheduled time.
 - Personnel/equipment are mutually protected.

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7. Comprehensiveness of activity briefings

- Adequate pre-job briefings (including lessons learned, if applicable) and post-job critiques performed.
- Activity expectations and pertinent information are clear to workers.
- Proper information/instructions are obtained prior to starting the job.

8. Consideration of work risk and shutdown risk

- Work Risk and/or Shutdown Risk Assessment performed.
- Verification that condition of the unit can support the activity.
- Engineering evaluations are documented and justifiable.

9. Activity planning

- Changes to plant equipment, procedures, and processes are planned and implemented systematically to improve safe and reliable operations.
- Activities schedules are developed and are clearly communicated to affected personnel.
- Sufficient time is allotted for personnel to prepare for activity/performance of prerequisites.
- Sufficient time is allotted for task performance.
- Interface with support groups are clearly defined and understood.
- Resource needs, such as personnel, capital, equipment and parts, and information, are identified and integrated into the plan.
- Contractor tasks, responsibilities, authorities, expectations for performance, and interfaces are clearly defined and understood.
- Contractor on the Approved Vendor List

10. Return of equipment to service

- Duration of the activity was within scheduled time.
- Personnel/equipment are mutually protected.
- Documentation supports return of equipment to Operable status.

11. Frequency and effectiveness of management work observations and oversight

- Management oversight of activity is apparent and effective.
- Management frequently interact with station personnel to teach, to coach, and to guide their development
- CTC oversight and involvement is apparent and effective.

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12. Management leadership and accountability

- Expectations are clear and do not conflict with requirements.
- Safe and error free Human Performance is fostered.
- High standards of performance are established and reinforced.
- Personnel are held accountable for implementing established performance standards.
- Managers motivate personnel to improve performance by taking initiative and overcoming barriers.

13. Management involvement in decision making

- Management/supervision at activity is appropriately involved.
- Managers demonstrate and reinforce a conservative approach toward activities directly affecting the reactor core and safety systems.
- Managers reinforce individual ownership through delegation of authority.

14. Transfer information during turnovers.

- Oncoming watchstander reviews and understands the information contained in logs and checklists for their watchstation prior to assuming the watch.
- Shift turnover checklists provide pertinent information, have completed applicable portions, and are signed by the watchstander.
- Both oncoming and offgoing Reactor Operators walkdown the control boards to verify relief checklist items; including Plant Operational Mode, Status of systems and components, abnormal system alignment, inoperable equipment, ECOs, annunciator status, evolutions in progress, unusual events occurring during the previous shift, and expected/upcoming evolutions.
- The Safety Function Checklist is completed accurately and in a timely manner.
- The minimum Technical Specification shift compliment of persoanel is maintained.

15. Staffing stability

- Overtime control is per requirements/expectations.
- Appropriate qualified personnel resources are available
- Sufficient number of qualified and experienced personnel are assigned to the task.

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Problem Identification/Problem Resolution:

1. Use of the Corrective Action Process (CAP)
 - Ambiguous activities, procedures, instructions, and/or problems are questioned with appropriate resolution, and documented prior to resumption of activity.
 - Operational events, including unexpected plant transients or abnormal conditions, are documented on Condition Reports and investigated to determine root causes.
 - Unsafe practices are identified and corrected.
 - Conditions/problems are reported in accordance with the Corrective Action Process (CAP).
 - Event Review Teams are established when appropriate.
 - Effective corrective actions are taken in a timely manner.
 - Effectiveness reviews are performed for SCAQs.
2. Effectiveness of self-assessments
 - Information from self-assessments are utilized for improvement.
 - Conditions adverse to quality identified in self-assessments are documented on Condition Reports for resolution.
3. Adequacy of Root Cause Analysis
 - Corrective actions for SCAQ's are effective in preventing recurrences.
 - Previous events are evaluated to determine recurring conditions.
4. Trending
 - Activity results are recorded IAW program requirements
 - Trends from analysis of low-level events are used to identify and correct underlying issues that may cause more significant events.
5. Resolution of long-standing, repetitive, or similar concerns
 - Material deficiencies that affect plant operations are effectively tracked, investigated, and reviewed periodically for timely resolution.
 - Long standing issues are identified and a plan-of-action is developed to address these issues.

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6. Status and priority of backlogs
 - Backlogs are being tracked and controlled.
7. Responsiveness to external and internal assessment findings
 - Internal and external assessment findings are appropriately categorized, documented, and answered.
8. Unreliable/recurring conditions
 - Operator work-arounds are tracked, controlled and contingency actions are understood and implemented, as appropriate, by Operations personnel.
 - Nuisance alarms are identified, documented on Condition Reports, and are addressed in a timely manner.
 - Problem areas are checked for recurring problem trends.

Equipment Performance/Material Condition:

1. Plant material condition/control
 - Material substitution authorized.
 - Material traceability is maintained.
 - Appropriate expendable material used.
 - Configuration Control is maintained
 - Materials supplied by the contractor are received through NPMM and accepted for use by Quality Receiving or warehouse inspections.
 - Separation criteria are maintained.
 - Equipment storage level and protection (end caps, desiccants, covers, etc.) are maintained.
 - Temperature/humidity control is acceptable and maintained.
 - Identification of material is maintained.
 - Hazardous Materials properly stored.
 - Equipment Clearance Orders (ECO) are adequate for the work scope, boundaries are properly identified, the ECO is properly hung and documented, the correct tags are used, and the tags are properly released after work completion.
 - Caution tags are not used to prevent personnel injury, equipment damage, or in lieu of temporary modifications.
 - If a Caution Tag is over six months old, one of the following occurs, a Condition Report is initiated, a procedure change request is written, an Operator Aid or placard is installed or an extension is approved for the Caution tag to remain.
 - Testing Tags are properly used.

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2. Foreign Material Exclusion (FME)
 - Established controls are properly understood and complied with.
 - Clear plastic is not used in areas such as the Spent Fuel Pool and Reactor Cavity.
 - Controlled Area Monitors are established, as required and material entry and exit is properly controlled.
3. Equipment performance
 - Condition of equipment is acceptable (no leaks, undamaged, no missing parts, etc.)
4. System status
 - System cleanliness controlled and maintained.
 - Breached fire barrier of HVAC boundary is approved.
 - Tags (danger, caution, test, etc.) are hung on the correct equipment, and are legible.
 - Locked components are adequately controlled.

Quality of Work:

1. Work practices
 - Self-checking applied to ensure correct unit/train/component (STAR process).
 - The activity is adequately logged and/or documented.
 - Activity performers maintain a questioning attitude.
 - Document usage control is being adhered to (i.e. in-hand, referenced, etc.)
 - System tag-out is verified.
 - Staging areas are controlled.
 - Material issue is controlled.
 - Activity area has adequate lighting.
 - Activity area has adequate ventilation.
 - Work start permission was obtained.
 - Dual/independent verifications are adequate.
 - Teamwork is apparent (personnel work together to complete the task).
 - Time/distance/shielding is practiced.
 - Proper dressing/undressing techniques are observed.
 - Radiation Work Permit is adequate for the activity being performed, As Low As Reasonably Achievable is being addressed, briefing is held if required, the permit is followed as written.

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- Dosimetry is correctly controlled and worn.
- Proper frisking techniques are observed.
- Contamination controls are exercised.
- Radwaste volume reduction is exercised.
- Barriers/signs are respected.
- Proper personnel safety equipment is used and correctly worn.
- Safe work practices are incorporated.
- Clearance boundaries are respected.
- Fire protection is proper/not compromised.
- Transient Fire Loads are evaluated.
- Flammable materials are properly stored.
- Confined spaces are properly controlled.
- Rigging and techniques are correct for the application.
- Fire watches are posted as required.
- Equipment in impound tagged properly.
- Radiological, danger, caution areas are adequately identified.
- The appropriate supervision is notified if problems occur.

2. Test equipment control

- Adequately availability of parts, materials, test equipment, and/or appropriately qualified support personnel.
- M&TE installed correctly and calibration is current.
- Needed tools, materials, and/or equipment are obtained before starting the activity.
- Correct tools are used.
- Contractor is approved to supply parts and material for the contracted work.

3. Housekeeping

- Zones are properly posted.
- Materials and tools are controlled to preclude damage to structures and equipment.
- Required components and transient items are properly seismically restrained.
- Temporary hoses are tagged, when required.
- Scaffolding is properly erected and inspected.
- Only flame retardant wood is used.

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- Equipment, components and structures are free of damage or deterioration from temperature, humidity, associated work activity, or unauthorized alteration.
- Oily rags, scrap and combustible waste resulting from work activities are removed to waste handling following completion of the activity or at the end of the shift.
- Tools and other items used to perform the job are properly removed after the work is completed, insulation is replaced/reinstalled, and the work area is left clean.

4. Operations Shift Routines

- Operating personnel are briefed prior to conducting plant evolutions as necessary
- Watchstation personnel conduct routine rounds of areas within their responsibility.
- The Shift Supervisor is notified of any unexpected conditions or abnormalities.
- Standard operating practices are being effectively implemented.
- Operations supervisory personnel limit access to the Control Room/At-the-controls area to those persons who have official business there.
- Controls that directly affect reactivity or power level are manipulated by Licensed Operators and the operation of other apparatus that may indirectly affect reactivity is done with the consent of the Licensed Operator on shift.
- The Shift Supervisor or Unit Supervisor assumes command of the Control Room in Modes 1-4 and either the Unit Supervisor or Reactor Operator maintains command of the Control Room in Modes 5 & 6.
- Control of systems and equipment is effectively maintained.
- Minimum number of licensed personnel remain in the Control Room.
- Proper turnover is performed when personnel are relieved for short duration breaks.

5. Operations Logkeeping

- Control Room and Plant Operator Watchstation logs are current and are an accurate representation of actions/activities which occurred during the shift.
- The Main Control Room Logbook has been stamped with appropriate entries (i.e., plant status, crew composition).
- Logbook late entries are appropriately identified.

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6. Quality of training and results

- Personnel performing work are properly qualified/certified.
- Personnel performed the task competently.
- Contractor personnel qualifications/certifications verified.
- Site specific training is identified/obtained.
- Any Trainees are under direct control and supervision of a qualified individual.
- On-The-Job Training and On-The-Job Evaluations are performed in accordance with program requirements.
- Crew simulator evaluations are being performed as required.
- Feedback is provided to the Nuclear Training Department on training activities and the feedbacks are adequately addressed.
- Personnel are attending scheduled training and makeup for missed training.
- Changes in the health of licensed personnel that may affect the validity of their licenses are being reported to the NRC.
- Personnel not meeting requalification requirements are removed for duties requiring the qualification.
- Training exemptions are processed in accordance with procedural requirements.

7. Communications

- Clear communications between participants in activity is apparent and appropriate communication techniques are used.
- Appropriate communications equipment/methods are used.
- Expedient communications of needs, expectations, and/or possible problems to appropriate personnel.
- Coordination between work groups established and adequate.

Programs and Procedures:

1. Procedure revision backlog

- Backlog is not excessive.
- Backlog items are appropriately added into the specific work scope.
- Procedure feedbacks have been evaluated to determine importance and are appropriately prioritized for implementation.

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2. Procedure adequacy and usage
 - All documents used are current.
 - Required procedures, drawings, and/or manuals are used.
 - Approved program/procedures for contractor activities
 - Contractor compliance with purchase orders or contract documents.
3. Freeze protection
 - Program requirements have been adequately implemented within required timeframes.
 - Preparatory actions for out-of-service equipment have been taken to prevent freezing.
 - Seasonal reminders about freeze protection are promulgated.
4. Plant Curve Book
 - The curves, tables, and figures are maintained current and accurate.
 - The required information is listed on each curve, table, figure.
 - The curves, tables and figures are legible, understandable, and are applicable to current plant design and operation.
5. Equipment Labeling
 - Wording on labels in the field agree with design sources (i.e., design drawings, procedures, etc.)
 - Color coding for plant equipment labeling is in accordance with requirements.
 - The appropriate labeling material is used (i.e., stainless steel tags with porcelain finish are used for Reactor Containment Building components.
 - Labels are properly attached to equipment.
6. Operator Aids
 - Operator Aids are accurate, professionally formatted and posted, and administrative requirements for their posting and maintenance have been properly implemented.
7. Fuel Handling
 - Prerequisite conditions are satisfied before fuel is moved.
 - Fuel movement is conducted in a manner that precludes fuel damage.
 - Methods used result in fuel accountability.
 - Adequate steps are taken to maintain shutdown margin to criticality.
 - Personnel are adequately protected from ionizing radiation and contamination.