

# STPEGS

*Exemption from Certain Special Treatment Requirements*



# **Status Review of the Exemption from Certain Special Treatment Requirements at the South Texas Project**

March 23, 2004

A Summary Overview of the Exemption, Categorization,  
and Activities Since the Grant of the STP Exemption, as  
well as Insights from Lessons Learned

# STP Participants

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- Glen Schinzel Project Manager, Risk Implementation
- Rick Grantom Manager, Risk Management
- Scott Head Manager, Licensing
- Russ Lovell Chairman, Expert Panel

# Purpose of Meeting

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- Status NRC on STP Exemption Activities
  - Categorization
  - Treatment
  - Lessons Learned
- Provide insights into STP's comments on draft Rule 10CFR 50.69

# Agenda

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- Status Categorization efforts at STP
- Status Implementation of Treatment Allowances for RISC-3 SSCs
- Status Evaluation Activities for RISC-2 SSCs
- Review Lessons Learned and Actions Taken
- Overview STP internal audit/assessment results
- Overview STP comments on draft Rule 50.69
- Address questions from the Staff

# History

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## Exemption from Certain Special Treatment Requirements

- **11/1997** - GQA SER for STP is approved
- **02/1998** - STP begins system categorization activities in support of the GQA SER
- **04/1998** - STP recognizes shortfalls in GQA SER implementation
- **08/1998** - STP formally engages NRC in implementation discussions
- **12/1998** - NRC issues SECY-98-0300 to the industry - Option 2 proposed
- **07/1999** - Exemption request initially submitted - proto-type pilot for Option 2
- **08/2000** - Revised exemption request submitted based on initial NRC feedback
- **11/2000** - NRC preliminary assessment provided
- **05/2001** - Final exemption request language submitted
- **06/2001** - Preliminary safety evaluation provided
- **08/2001** - NRC Safety Evaluation issued - Approval of the STP Exemption
- **01/2002** - STP formally begins Exemption implementation activities
- **09/02 - 08/03** - STP units in extended outages - Exemption implementation impacted

# **STP Approved Categorization Approach**

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- Categorization process performed on a system level basis with all tagged components being categorized
  - Conservative categorization process which affords broad application of results - specified in FSAR Section 13.7
  - Properly balances PRA and deterministic insights
  - Deterministic insights guided by addressing five critical questions
    - Questions weighted based on importance
    - Responses weighted based on frequency of occurrence and consequences

# **STP Categorization Compared to 50.69**

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- STP categorization outputs, as reflected in UFSAR Section 13.7, place an SSC into one of four ‘buckets’
  - High Safety Significant (HSS), Medium Safety Significant (MSS), Low Safety Significant (LSS), Non Risk Significant (NRS)
- Conversely, 10CFR 50.69 places SSCs into one of two categorizations
  - High Safety Significant (HSS) or Low Safety Significant (LSS)
- STP’s categorizations translate to 50.69 approach as follows:
  - 50.69 HSS = STP HSS and MSS
  - 50.69 LSS = STP LSS and NRS



# STP Categorization Compared to 50.69

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- STP's categorization fits into the NRC's 'Four-Box' categorization depiction as follows:
  - RISC-1 = STP's safety-related HSS, MSS
  - RISC-2 = STP's non-safety related HSS, MSS
  - RISC-3 = STP's safety-related LSS, NRS
  - RISC-4 = STP's non-safety related LSS, NRS

# STP Approved Categorization Process

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- Categorization performed on one system at a time
  - System functions identified and deterministically categorized
  - All tagged components mapped against system functions
    - all modeled and non-modeled SSCs are addressed
  - PRA ranking applied to modeled components
  - WG applies deterministic insight to proposed categorizations
    - Working Group (WG) cannot alter the PRA categorization downward, but can raise the final ranking deterministically

# Approval of Categorization Results

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- Categorization performed per approved procedures - WG makes recommendations to Expert Panel
- Expert Panel independently reviews/approves categorization recommendations
- Results documented in a Risk Significance Basis Document - controlled by STP Records Management
- Once approved, categorization results loaded into electronic Master Equipment Database (MED) for sitewide use - MED controlled under the software QA program

# Categorization Status

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- As of 03/17/04, 68 system designators constituting 66,058 components have been categorized and approved
- Beginning 09/02, STP began performing Plant Generation Risk determinations also to address reliability concerns
- STP intends to categorize about 17 additional systems in 2004
  - will have approximately 85 systems categorized by 09/30/04
  - this constitutes over 98% of STP's safety-related SSCs
  - this will complete STP's baseline categorization effort
  - future SSCs will be categorized based on Station's needs

# Four-Box Categorization Status

<p>RISC - 1</p> <p>Safety-Related, Safety Significant</p> <p>3,971 (6.0%)</p>	<p>RISC - 2</p> <p>Non-Safety Related, Safety Significant</p> <p>456 (0.7%)</p>
<p>RISC - 3</p> <p>Safety-Related, Not Safety Significant</p> <p>13, 755 (20.8%)</p>	<p>RISC - 4</p> <p>Non-Safety Related, Not Safety Significant</p> <p>47,876 (72.5%)</p>

# Categorization Lessons Learned

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- The following insights have been gained to date:
  - most categorization changes to date have been a result of PRA model changes - categorization changes have not been caused by negative performance trends
  - procedural process has been added for SSC critical changes (SSCs which pass from Box 3 to 1, or from Box 4 to 2)
    - procedural methodology to assess SSCs which must be placed under greater controls due to their recognized safety significance
  - to heighten awareness of borderline SSCs, a buffer zone has been proceduralized (RAW of 1.8-2.0, FV of .004-.005) to proactively evaluate categorization changes
  - for HSS and MSS non-safety related PRA SSCs which have yet to complete the categorization process, an evaluation is performed for enhanced controls under the Target Program

# Categorization Lessons Learned

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- Categorization of electrical components (especially breakers) has been challenging due to concerns about upstream impacts on safety significant SSCs if an associated breaker fails to perform its function
- Snubbers were originally categorized, but results were retracted to permit consideration of anchor-to-anchor impacts
- Instrumentation cabinets were originally categorized, but the categorizations were retracted due to concerns about untagged SSCs contained within the cabinets
- Consensus decision-making process has been very effective  
- much active discussion with few dissenting opinions

# Categorization Lessons Learned

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- Dissenting Opinion process has worked well and has allowed the Working Group to address differences of technical opinion
- STP approach to common cause RAW is extremely conservative - will be addressed to become more technically correct
- General notes have served well as aid to categorization documentation - is not an alternate categorization method
- Have noted excellent categorization stability throughout entire process



# Categorization Lessons Learned

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- Have noted excellent categorization consistency between probabilistic and deterministic results
- Due to administrative burden associated with RSBD maintenance, decision made to only generate an RSBD if either a safety significant function or component is identified
  - If no safety significant function or component is identified, generation of an RSBD is at the discretion of the Expert Panel
  - If no RSBD is generated, categorization results are maintained as an attachment to meeting minutes - meeting minutes and attachments are retrievable and are retained under Quality control - categorization results are still electronically loaded into the MED

# Lessons Learned Letters to NRC

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- STP recently forwarded two informational letters to the NRC to communicate process changes addressing sensitivity studies
  - 03/04/04 letter addressed how component planned unavailabilities are handled in PRA sensitivity studies
    - previous process assumed SSC unavailable for entire year
    - revised process considers SSC unavailable for 10 times longer than historical unavailable hours
  - 03/16/04 letter addressed methodology on how sensitivity study results are considered when results higher than base case PRA
    - previous process automatically increased base case PRA ranking
    - revised process submits sensitivity study results to WG for consideration during deterministic categorization
- Revisions enhance the effectiveness of the categorization process and are consistent with the UFSAR and SERs

# Lessons Learned Letters to NRC

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- 10/07/03 letter forwarded to NRC addressing PRA Model update frequency
  - Issue identified during internal self assessment
  - STP will revise language in UFSAR Section 13.7.2.3 to clarify the frequency between PRA Model updates
  - UFSAR Section 13.7.5.2 permits changes to be made to UFSAR Section 13.7 without prior NRC approval unless the change would decrease the effectiveness of the process to identify HSS and MSS components
  - Clarification to be made will not decrease the effectiveness of identifying HSS and MSS components
  - This is the only change proposed to date to the language of UFSAR Section 13.7

# Exemption Implementation Overview

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- The approved Exemption from certain Special Treatment Requirements affected the scope of SSCs required to satisfy the following regulations: (\*) indicates areas where implementation has begun
  - 10CFR Part 21.3 - Reporting Requirements
  - 10CFR 50.49 - Environmental Qualifications (\*)
  - 10CFR 50.59 - Change Control
  - 10CFR 50.55a(f) - IST, ASME R&R (\*)
  - 10CFR 50.55a(g) - ISI
  - 10CFR 50.55a(h)(2) - IEEE-279 (\*)
  - 10 CFR 50.65 - Maintenance Rule (\*)
  - Appendix B - Quality Controls (\*)
  - Appendix J - Containment Leak Tightness (\*)
  - 10CFR Part 100, Appendix A - Seismic Requirements

# Exemption Implementation Overview

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- STP's commitments associated with the Exemption are delineated in UFSAR Section 13.7
- STP chose to pursue a cautious, deliberate implementation approach
- Based on stakeholder support and available resources, STP pursued program and process changes in the following areas first:
  - IST (10CFR 50.55a(f))
  - LLRT (Appendix J)
  - Parts procurement (Appendix B, 10CFR 50.49)
  - Tool-Pouch Maintenance (Appendix B)
  - Maintenance Rule (10CFR 50.65)

# Inservice Testing Overview

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- Per the approved Exemption, the scope of SSCs (Low or NRS) subjected to Inservice Testing (IST) requirements could be reduced for
  - requirements imposed under ASME Section XI
  - requirements imposed under OM Code for ASME Class 1, 2, or 3
- UFSAR Section 13.7.3.3.5 continues to require that:
  - data or information be obtained that allows evaluation of operating characteristics to support STP's determination that these SSCs will remain capable of performing their safety-related functions under design-basis conditions throughout the service life of the SSC

# Inservice Testing Program Overview

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- STP is in the process of removing RISC-3 SSCs from the scope of the Inservice Testing Program procedure - initial focus is on valves
- RISC-3 SSCs available to be removed from IST scope totals 251 valves and 8 pumps
- If a test failure were to occur on a RISC-3 SSC that has been removed from IST scope:
  - Condition Report would be written per the Corrective Action Process to address the deficiency
  - Test failure would not be documented as a failed surveillance

# Inservice Testing Overview & Status

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- RISC-3 SSCs are being removed from IST testing scope
  - STP initially focusing on frequency extensions for RISC-3 SSCs
  - STP performing assessments on each affected test group
  - Basis for each test group frequency extension is documented on a Condition Report Engineering Evaluation (CREE) - approved and controlled
  - Periodic test data collection still occurring
  - Trending of test data results still occurring
- No increased failures noted to date based on test frequency changes



# Inservice Testing Overview & Status

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- Full implementation of IST allowances requires significant resource commitment
  - Complete removal of RISC-3 SSCs from IST scope entails revision to multiple surveillance procedures
  - Until procedures are revised, STP is still performing tests under the existing surveillance procedures
    - Test Completion Notices (TCNs) identify which components are to be tested at what frequency
- Periodic training provided for Operations personnel - next training scheduled for 2nd quarter, 2004

# Inservice Testing Overview & Status

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- With full implementation of IST allowances, expected differences in treatment for RISC-3 SSCs removed from scope vs. RISC-1 SSCs include:
  - test frequencies to be extended based on past performances and reasonable confidence for successful future performance
  - testing to occur under a Preventive Maintenance (PM) document vs a Surveillance Test (ST)
  - trending will still validate expected successful operation until the next test performance
  - if a test fails to meet expected criteria, a Condition Report will be written rather than documenting a failed surveillance test

# Specific Inservice Testing Implementation

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- **MOVs** - testing being performed under GL-89-10 MOV diagnostic testing program
- **AOVs** - test frequency extensions being implemented
- **SOVs** - test frequency extensions being implemented
- **Check Valves** - test frequency extensions being implemented - performing needed testing to satisfy basis of reasonable confidence
- **Relief Valves** - continuing to test on a 10 year frequency, but scope expansion not required if lift test failure noted (CR written)
- **Pumps** - assessments currently in progress, but no actions to date

# Regulatory Inservice Testing vs. RI-IST

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- STP is still pursuing a Risk-Informed IST (RI-IST) program based on the previously approved San Onofre submittal
- Graded approach can still be applied to those SSCs remaining within the regulatory IST scope
- RI-IST categorization results in some different outputs than Exemption categorization based on:
  - Narrower focus of application (i.e., active functions only)
  - Use of SONGS FV threshold value of 0.001
  - Elimination of Common Cause RAW from the categorization

# Regulatory Inservice Testing vs. RI-IST

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- Discussed RI-IST approach with NRC staff on 11/18/03
- For those SSCs still within the regulatory IST scope (GQA categorized as HSS or MSS), it is anticipated that:
  - 178 valves and 7 pumps will be determined RI-IST Low and can have their frequency of testing extended
  - 19 valves and 3 pumps will be determined RI-IST Low-High (Medium) and can have their frequency of testing extended as long as suitable compensatory measures are put in place
  - 55 valves and 16 pumps will be determined RI-IST High and will have their test frequencies remain as is, and will have additional performance monitoring applied to these SSCs

# Inservice Testing Overview

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- STP is evaluating non-traditional IST SSCs for inclusion into the RI-IST Program
  - currently evaluating inclusion of HSS/MSS chillers, dampers, fans
- Assessing RISC-2 SSCs for potential inclusion into the IST Program if it is determined that value would be added by adding IST testing and trending

# Local Leak-rate Testing Overview

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- Per the approved Exemption, Type C Local Leak Rate Testing (LLRT) is not required for safety-related valves determined to be Low or NRS, and that satisfy one or more of the following criteria:
  - valve is open with mass flow during accident scenarios
  - valve is normally closed in a closed water-filled system
  - valve is in a closed piping system which has a crush pressure greater than that of Containment and is not connected to the RCS
  - valve is in a closed piping system which has a crush pressure greater than that of Containment and is connected to the RCS - process line between the CIV and RCS is non-nuclear safety
  - the valve is 1” in size or less

# Local Leak-rate Testing Overview

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- UFSAR Table 13.7-1 specifies:
  - same requirements as Exemption language
  - cumulative limits for containment leakage based on tested components - assumption that exempted SSCs contribute zero leakage
  - Section 13.7.3.3 controls applied to provide reasonable confidence that SSC functionality is maintained
- Overall containment performance will not be affected by this approach



# Local Leak-rate Testing Program Overview

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- LLRT Program procedure modified to reflect scope adjustment
- Each penetration which contained RISC-3 valves was evaluated against UFSAR 13.7 scoping criteria
- Evaluation results documented on a Condition Report Engineering Evaluation (CREE) - approved and controlled
- For valves that satisfy scoping criteria, annotated that LLRTs are no longer required in the Surveillance database
- Training provided to Performance Techs and Operations

# Local Leak-rate Testing Overview & Status

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- Implementation has resulted in 35 penetrations being removed from regulatorily-required Type C LLRT testing
- LLRTs may still be performed if deemed prudent to perform the test
- LLRT STs have not been deleted - frequency of performance changed to an Inactive status
- No performance degradation has been noted to date due to reduced scope of LLRT testing

# Local Leak-rate Testing Feedback

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- Several LLRT penetrations contain three valves, of which two are RISC-3 and the third is RISC-1 - the RISC-1 valve is safety significant due to a function that is not related to the LLRT closure function
  - A possible enhancement for future consideration would permit reduced treatment for LSS LLRT-related functions rather than final overall categorization of the valve
- STP was granted an exemption for Type C testing - should consider Type B testing also (currently included in scope of 10CFR 50.69)

# Parts Procurement Overview

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- UFSAR Section 13.7.3.3.2 states that:
  - Purpose of the procurement process for RISC-3 SSCs is to procure replacements that satisfy the design inputs and assumptions to support STP's determination that these SSCs will be capable of performing their safety-related functions under design-basis conditions.
  - One or more of the following methods will provide a sufficient basis to determine that procured item can perform its safety-related function under design basis conditions, including applicable design basis environmental (temperature and pressure, humidity, chemical effects, radiation, aging, submergence, and synergistic effects) and seismic (earthquake motion, as described in the design bases, including seismic inputs and design load combinations) conditions:

# Parts Procurement Overview (cont'd)

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- Vendor Documentation
  - Equivalency Evaluation
  - Technical Evaluation
  - Technical Analysis
  - Testing
- Documentation of implementation methods is maintained
  - Use of national consensus standards used for procurement at STP
  - STP may use alternative handling and storage requirements if there is a technical basis that supports functionality of SSCs
  - Received items are inspected to ensure no damage and that proper part was receipted

# Parts Procurement Approach

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- RISC-3 replacement parts are assessed on an as-needed basis - no large-scale procurement approach pursued
- Evaluations are initiated by Procurement personnel and forwarded to Procurement Engineering for evaluation
  - Procurement personnel provide the initial screening for potential to exercise the Exemption allowances
  - If an industrial part is available, and it appears economically beneficial to pursue, a Condition Report will be generated for Procurement Engineering to evaluate the acceptability of the proposed industrial part

# Parts Procurement Approach

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- Procurement Engineering performs the evaluation
  - Continuing to use the Design Change Package (DCP) form to document the completed evaluations
  - DCP forms are used as a matter of convenience - existing process - no design changes are made in the evaluation
  - Procurement Engineering assesses all necessary design functional requirements and documents the basis for satisfaction or failure to satisfy the design functional requirements
  - DCP forms are approved and controlled
- Evaluations being performed under existing Engineering procedural guidance

# Parts Procurement Overview & Status

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- Training has been provided to Engineering / Procurement personnel on Exemption allowances and limitations
- Examples of industrial parts that have been installed in RISC-3 applications:
  - Spent Fuel Pool Heat Exchanger discharge valve flow guide
  - Radiation Monitor sample pumps
  - Safety-related vent and drain valves
  - HVAC analog-to-digital flow controller changeout
  - Capacitors on computer card rebuilds



# Parts Procurement Overview & Status

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- No adverse performance trends have been noted to date for installed industrial parts in RISC-3 applications
- No adverse warehousing issues have been noted to date with the receipt/handling of RISC-3 industrial parts

# Parts Procurement Feedback

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- STP is evaluating means to streamline the Engineering evaluation methods and documentation - possible use of template vs. DCPs
  - working with EPRI and industry groups
- Available safety-related stock in the warehouse must be depleted before actual use of commercial replacement parts are considered
  - delays actual recognition of parts savings
  - STP assessing warehousing approach for RISC-3 SSCs

# Parts Procurement Feedback

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- Instances of vendors unwilling to supply commercial parts, or are only willing to supply commercial parts at same price as safety-related parts
- Some potential commercial part replacements are not economically viable - in these cases, safety-related parts continue to be procured and installed
- Cultural issues are still being addressed in Engineering, Procurement, and Maintenance organizations

# Tool-Pouch Maintenance Overview

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- Tool-Pouch Maintenance (TPM) is a means of resolving deficiencies which are within the skill level of the available craftsmen
  - no documented work planning is needed
  - no work implementation scheduling is needed
- TPM process is procedurally controlled
- TPM process permits minor deficiencies on RISC-3 SSCs to be corrected in an expedited fashion
  - safety benefit to restore RISC-3 SSCs to a reliable, fully-functional condition

# Tool-Pouch Maintenance Overview, Status

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- Procedures have been modified to permit use of TPM on RISC-3 SSCs
  - TPM previously was only permitted on non-safety related SSCs
  - A Condition Report is still generated to document the RISC-3 SSC deficiency
  - The craftsman documents the correction electronically in the CAP database - no paperwork generated or vaulted
  - PMTs are still performed, if required, to validate that the SSC is satisfying its design functional requirement
- Since revision of the TPM procedures, no adverse SSC performance trends have been attributed to date to TPM implementation

# Maintenance Rule Overview

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- UFSAR Table 13.7-1 states:
  - exemption excludes LSS and NRS components from the scope of SSCs covered by the Maintenance Rule
    - exemption does not apply to (a)(4)
  - required to monitor performance on a plant/system/train level as appropriate
  - components that affect MSS or HSS functions will be monitored and assessed in accordance with plant, system, and/or train performance criteria
- Maintenance Rule (MR) Basis Document has been revised to reflect the scope change allowances

# Maintenance Rule Overview & Status

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- For each MR-scoped system for which the entire system is RISC-3 or RISC-4, the system is removed from MR scoping
  - the system is presented to the MR Expert Panel for approval of MR scope changes
  - if a system can cause an initiating event, it is retained within the MR
- Some significant MRFF contributors have been removed from the MR scope
  - Radiation Monitoring
  - Emergency DC Lighting
- In addition, STP has made the business decision that if a system is plant generation significant, it will be administratively tracked against the Maintenance Rule
  - failures not counted as MRFFs

# Other Implementation Areas

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- Environmental Qualifications
  - EQ Program procedure has been revised to reflect insights from approved Exemption
  - Training for Engineering personnel on procedure, process changes is currently underway
  - Changes to EQ component scoping has not yet occurred
  - STP is working with EPRI/industry to develop generic industry evaluation approach to support 10CFR 50.69 EQ implementation
    - EPRI/Industry team members include EQ experts
    - Team is assessing use of evaluation templates
    - Final guidance approach will be impacted by language in 50.69/SOC
    - Guidance expected to be finalized about third quarter 2004



# Other Implementation Areas

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- Quality Class 7 (Augmented Quality) Requirements
  - Augmented Quality Program procedure being revised to clarify quality controls to be placed on RISC-3 SSCs
  - RISC-3 SSCs are subjected to a ‘Limited’ quality approach - quality oversight is limited to the following Appendix B criterion:
    - Criterion III - Design
    - Criterion XV - Nonconformances
    - Criterion XVI - Corrective Actions
  - Operations Quality Assurance Plan (OQAP) currently specify the quality requirements/allowances for RISC-3 SSCs

# Other Implementation Areas

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- STP is working with EPRI/industry to develop generic industry evaluation approach to support 10CFR 50.69 seismic implementation
  - EPRI/Industry team members include seismic experts
  - Final guidance approach will be impacted by language in 50.69/SOC
  - Guidance expected to be finalized about third quarter 2004
- In addition, STP intends to pursue activities in the following areas in 2004 and beyond
  - ASME Repair & Replacement
  - Snubbers
  - Seismic

# RISC-2 SSC Overview

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- Working Group procedure has been revised to identify actions to be taken when a RISC-2 SSC is identified
  - When a RISC-2 SSC is identified, a Condition Report is generated to serve as a tracking and action tool
  - Responsible System Engineer performs the treatment assessment
- Procedure has been generated to guide System Engineers in the evaluation of existing performance/treatment of RISC-2 SSCs, and to assess the need for enhanced treatment
- Completed evaluations are documented in the Condition Report - SSCs become subject to 'Target' quality program
- To date, STP has identified 456 SSCs to be RISC-2 through the categorization process

# Status of RISC-2 Evaluations

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- For all RISC-2 SSCs identified to date:
  - Engineering evaluations have been completed
  - Each of these SSCs have been added to the MR scope
  - To date, no performance issues have been noted requiring additional enhanced treatment
  - Based on Reliability Team's review, all safety significant SSCs are evaluated for enhanced PMs or PM frequency reductions
- RISC-2 SSC performance is periodically assessed at least once per 18 months
- STP is proactively addressing PRA-modeled non-safety related, safety significant SSCs which have yet to go through the categorization process by assessing these for potential enhanced treatment

# Audit/Assessment Feedback

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- Feedback to the STP Exemption process is provided through internal audits, self assessments, periodic reviews
- Implementation audit was conducted by the STP Quality Dept.
  - concluded that defense-in-depth and sufficient safety margin were being maintained
  - several issues were identified which were documented on Condition Reports for tracking and closure - issues included:
    - PRA periodic update documentation was not clear enough to communicate that the update periodicity requirement was satisfied
    - Guidance for RISC-2 treatment evaluations required enhancement. In addition, the documented basis for acceptance of existing RISC-2 treatment required strengthening
    - Recognition of Exemption commitments required strengthening

# Periodic Review Overview

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- UFSAR Section 13.7.4.2 states that:
  - at least once per cycle, performance data is compiled for review
  - review is performed for each system that has been categorized in accordance with UFSAR Section 13.7.2
  - process provides an appropriate level of assurance that any significant negative performance changes that are attributed to the relaxation of special treatment controls are addressed in a timely manner
  - responsive actions may include the reinstatement of applicable controls up to and including the re-categorization of the component's risk significance, as appropriate

# Periodic Review Approach

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- STP performs a periodic review of all systems/components categorized to date every 18 months (U1 fuel cycle)
  - previous Periodic Review was performed 08/02
  - current Periodic Review began 01/04 - scheduled for completion on 03/23/04
  - STP generated a Periodic Review Guideline to add consistency and focus to the review process
    - Guideline is administratively controlled
  - training of Working Group members and affected System Engineers occur in advance of a new periodic review cycle
  - reviews consider changes to PRA, design, performance, operating philosophy, operating experience, etc - relies heavily on insights from Condition Reports, system engineer, and Operations

# Periodic Review Approach

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- If a potential adverse trend is identified during the Condition Report review process:
  - Condition Report is generated to track/document the need for a detailed assessment
  - Assessment is performed by System Engineer, results provided to WG
  - If adverse trend is confirmed, action plans developed to address issue
  - If adverse trend is due to reduction in special treatments, WG considers raising categorization and/or adjusting imposed treatments
- Categorization changes are proposed, as appropriate, based on insights provided during the periodic review process
- Periodic Review results are provided to the Expert Panel - Expert Panel must approve any proposed categorization changes
- To date, no adverse trends have been confirmed for RISC-3 SSCs due to a reduction in special treatment requirements



# Overview of STP Comments on 50.69

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- In response to proposed rule 10CFR 50.69 being issued for public comment on 05/16/03, STP authored (or was signator to) three different sets of submitted comments
  - Morgan, Lewis, Bockius
  - STARS
  - STP
- STP's comments were based on the expected allowances the final Option 2 rule would provide - comments not necessarily reflective of STP's experiences to date
- Majority of STP's comments focused on language in the Statements of Consideration (SOC) to the proposed rule
- STP also responded to the 'Other Topics for Public Comment' as called out in the proposed rule package

# STP 50.69 Comment Summary

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- STP's submitted comments are summarized as follows:
  - Additional burden is imposed on all safety significant SSCs
  - Unnecessary review requirements are imposed on safety significant SSC treatment
  - Use of experience data for seismic applications is virtually eliminated
  - Increased evaluation burden is placed on RISC-3 CIVs
  - Additional maintenance requirements are imposed on RISC-3 SSCs
  - Additional burden is imposed to justify no change in component reliability due to reduced treatment

# **Staff Questions on STP 50.69 Comments**

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1. Consistency of treatment of RISC-1, RISC-2 SSCs with categorization process assumptions

## **Response:**

- Proposed rule's SOC states that safety-significant SSCs to be brought under a greater degree of regulatory control
- Per STP, RISC-1 SSCs are to maintain compliance with NRC regulations
  - It is agreed that beyond design basis functions may require additional treatment to be applied
- RISC-2 SSCs are assessed for possible enhanced treatment to be applied - existing treatment may be satisfactory
- It is not the intent of 10CFR 50.69 to obligate RISC-2 treatment to comport with RISC-1 requirements

# **Staff Questions on STP 50.69 Comments**

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2. Use of experience data in evaluating seismic capability of RISC-3 SSCs.

## Response:

- Proposed rule's SOC states that experience data would need to contain explicit information that the SSC actually functioned during or after the DBE - successful SSC performance after the earthquake does not demonstrate that the SSC would have functioned during the event
- Per STP, we agree that it would be difficult to rely on earthquake experience alone to demonstrate SSC functionality
  - other engineering insights must be considered to establish a sound basis of reasonable confidence

# **Staff Questions on STP 50.69 Comments**

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2. Use of experience data in evaluating seismic capability of RISC-3 SSCs.

## Response:

- Generally, alternate industrial parts are procured from same manufacturer's commercial line
  - expect industrial part design to comport closely to qualified design
- For sensitive electrical SSCs and for designs that significantly deviate from the installed SSC, we do not expect to rely on seismic experience data for alternate procurements
  - generally would continue to procure a qualified part

# **Staff Questions on STP 50.69 Comments**

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3. Design basis capability of RISC-3 containment isolation valves when implementing Appendix J exemption.

## **Response:**

- Proposed rule's SOC states that for RISC-3 CIVs, the impact of treatment change and defense-in-depth impacts must be addressed on a case-by-case basis
- Per STP, the scoping criteria used to screen RISC-3 SSCs for treatment reduction ensures that the CIV does not contribute to large early release capabilities
- If a CIV is is open (or closed) and stays open (or closed) during the accident scenario, or is of a small size, it is not understood why treatment change impacts and defense-in-depth impacts must be addressed on a case-by-case basis

# **Staff Questions on STP 50.69 Comments**

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4. Reliance on industrial programs and practices for treatment of RISC-3 SSCs.

## **Response:**

- Proposed rule's SOC states that the scope, frequency and detail of predictive, preventive, and corrective maintenance activities must be established to support RISC-3 SSC functional capabilities
- Per STP, it is agreed that a sound maintenance program and practices must be in place to support RISC-3 SSC functional capabilities
- STP's only concern expressed was that if a certain RISC-3 SSC does not have a predictive maintenance activity already in place, was 50.69 imposing that a predictive maintenance task be developed for this SSC and for all other RISC-3 SSCs?

# **Staff Questions on STP 50.69 Comments**

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5. Impact of treatment changes on RISC-3 SSCs that might exceed sensitivity studies.

## **Response:**

- Proposed rule’s SOC states that licensees must perform and submit bounding analyses of non-modeled RISC-3 SSCs to justify that existing programs in place ensure that potential changes in risk remain small
- Per STP, no objective evidence exists to substantiate that reducing regulatory-imposed special treatment requirements will directly lead to reduced component reliability if industrial practices are applied
- STP’s experience to date has not shown an increase in RISC-3 SSC failure rates



# **Staff Questions on STP 50.69 Comments**

5. Impact of treatment changes on RISC-3 SSCs that might exceed sensitivity studies.

## **Response:**

- Process backstops are in place (e.g., periodic reviews) to ensure that sensitivity study assumptions are not exceeded

# **Staff Questions on STP 50.69 Comments**

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6. Consideration of non-modeled RISC-3 SSCs in the categorization process.

## Response:

- The STP categorization process addresses all SSCs
  - for modeled SSCs, categorization considerations include probabilistic and deterministic insights
  - for non-modeled SSCs, categorization considerations include deterministic insights only

# Conclusions

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- Valuable lessons-learned insights have been incorporated into the categorization process to enhance the already existing robustness
- Treatment implementation is continuing on a deliberate course with no performance degradations noted to date due to reduced special treatments applied to RISC-3 SSCs
- Safety benefits are apparent through implementation of the Exemption allowances